CHRONOLOGY OF EPA EMISSION TEST METHODS
Title 40

Office of Air Quality Planning and Standards (OAQPS)

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Part 51, Appendix M					
Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
Intro	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Methods 3A and 19 are added to the list of methods not requiring the use of audit samples.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Methods 30A and 30B are added to the list of methods not requiring the use of audit samples
201	54 FR 24213	06/06/1989	55 FR 14246	04/17/1990	**Original Action** – Determination of PM_{10} Emissions (EGR procedure)
			55 FR 24687	06/18/1990	Corrections to 55 FR 14246 (04/17/1990).
			55 FR 37606	09/12/1990	Corrections to 55 FR 24687 (06/18/1990).
201A	54 FR 24213	06/06/1989	55 FR 14246	04/17/1990	**Original Action** - Determination of PM_{10} Emissions (CSR procedure)
			55 FR 24687	06/18/1990	Corrections to 55 FR 14246 (04/17/1990).
			55 FR 37606	09/12/1990	Corrections to 55 FR 24687 (06/18/1990).

Part 51, Appendix M (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
201A (cont.)	74 FR 12970	03/25/2009	75 FR 80118	12/21/2010	Revised §1.5 to clarify that Method 201A cannot be used to measure emissions from stacks that have entrained moisture droplets (e.g., from a wet scrubber stack). Removed the language in proposed §1.5 regarding ambient air contributions to PM. The decision to correct results for ambient air contributions is up to the permitting or regulatory authority. Added definitions of Primary PM, Filterable PM, Primary $PM_{2.5}$, Primary PM_{10}, and CPM to §3.0. Added a requirement to §6.1.3 and §8.6.3 stating that the filter must not be compressed between the gasket and the filter housing. Clarified the sample recovery and analysis equipment in §6.2, including acceptable materials of construction, analytical balance, and fluoropolymer (polytetrafluoroethylene) beaker liners.
	74 FR 12970	03/25/2009	75 FR 80118	12/21/2010	Revised §6.2 to add performance-based, residual mass contribution specifications for containers rather than specifying the type of container that must be used (storage containers must not contribute more than 0.1 mg of residual mass to the CPM measurements). Revised §8.3.1 (regarding sampling ports) to state that a 4-inch port should be adequate for the single $PM_{2.5}$ (or single PM_{10}) sampling apparatus. However, testers will not be able to use conventional 4-inch ports if the combined dimension of the PM_{10} cyclone and the nozzle extending from the cyclone exceeds the internal diameter of the port Clarified the sampling procedures in §8.3.1 for cases where the $PM_{2.5}$ cyclone is used without the PM_{10} cyclone. In these cases, samples are collected using the procedures specified in §11.3.2.2 of EPA Method 1, and the sampling time is extended at the replacement sampling point to include the duration of the unreachable traverse points.

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Part 51, Appendix M (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
201A (cont.)	74 FR 12970	03/25/2009	75 FR 80118	12/21/2010	Revised §.3.2.2 to clarify that Method 201A is not applicable for stack diameters less than 26.5 inches when the combined $PM_{10}/PM_{2.5}$ cyclone is used. The in-stack nozzle/cyclones and filter assembly in stacks less than 26.5 inches in diameter would cause significant cross-sectional area interference and blockage, leading to incorrect flow calculation and particle size separation. Revised §8.5.5 to express the maximum failure rate of values outside the minimum-maximum velocity pressure range in terms of percent of values outside the range instead of the number of traverse points outside the range. Revised §8.6.1 to clarify that alternative designs are acceptable for fastening caps or covers to cyclones to avoid galling of the cyclone component threads in hot stacks. The method may be used at temperatures up to 1,000°F using stainless steel cyclones that are bolted together, rather than screwed together. Using ‘‘break-away’’ stainless steel bolts facilitates disassembly and circumvents the problem of thread galling. Clarified sampling procedures in §8.7.3.3 to maintain the temperature of the cyclone sampling head within ± 10 °C of the stack temperature and to maintain flow until after removing and before inserting the sampling head. Revised §11.2.7 to allow the use of tared fluoropolymer beaker liners for the acetone field reagent blank.

Part 51, Appendix M (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
201A (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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 §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 §10.1 when using a standard pitot tube is corrected to refer to Methods 1 and 2. §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 §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 §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.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	The constant in equation 9 is corrected from 0.07657 to 0.007657.

Part 51, Appendix M (continued)					
Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
201A (cont.)	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§12.5, the denominator of equation 24 is corrected. The c'_p in the denominator is changed to Cp′ to be consistent with the nomenclature in §12.1. c_p in the numerator is changed to Cp also to be consistent with the nomenclature in §12.1
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§1.2, the erroneous gas filtration temperature limit of 30 °C is revised to 29.4 °C. §1.6, the erroneous word ‘‘recommended’’ is corrected to ‘‘required.’’ §6.2.1(d) is revised to allow polystyrene petri dishes as an alternative to polyethylene due to the lack of commercially available polyethylene petri dishes. The polystyrene petri dishes offer similar chemical resistivity to acids and inorganics as polyethene and have been shown to transfer extreme low residual gravimetric mass to filters when used in ambient air applications. §8.6.6, the erroneous stack temperature of ± 10 °C is revised to ± 28 °C. §17.0, the erroneous caption for Figure 7 is corrected from ‘‘Minimum Number of Traverse Points for Preliminary Method 4 Traverse’’ to ‘‘Maximum Number of Required Traverse Points,’’ and the erroneous y-axis label is corrected from ‘‘Minimum Number of Traverse Points’’ to ‘‘Maximum Number of Traverse Points.’
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Erroneous equation 25 in section 12.5 is corrected.

Part 51, Appendix M (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
202			56 FR 65433	12/17/1991	**Original Action** – Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources
	74 FR 12970	03/25/2009	75 FR 80118	12/21/2010	Clarified the terminology used to refer to laboratory and field blanks throughout the method. For health and safety reasons, replaced the use of methylene chloride with hexane throughout the method. Clarified §1.2 by moving the discussion of filterable PM methods used in conjunction with Method 202 to §1.5.
	74 FR 12970	03/25/2009	75 FR 80118	12/21/2010	Clarified §1.6 to specify that Method 202 can be used for measuring CPM in stacks that contain entrained moisture if the sampling temperature is sufficiently high to keep the moisture in the vapor phase. Moved the recommendation to develop a health and safety plan from §9.4 to §5.0. Added amber glass bottles to the list of sample recovery equipment in §6.2. Added alternatives (fluoropolymer beaker liners or fluoropolymer baggies) to weighing tins to the list of analytical equipment in §6.2.2 (§6.3 of the proposed method). Added specifications for sample drying equipment in §6.2.2 (§6.3 of the proposed method). Clarified §6.3.7 regarding the use of an analytical balance with sensitivity to 0.00001 g (0.01 milligram).

Part 51, Appendix M (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
202 (cont.)	74 FR 12970	03/25/2009	75 FR 80118	12/21/2010	Added an option to use a colorimetric pH indicator instead of a pH meter in §6.2.2 (§6.3 of the proposed method). Added a sonication device to the list of analytical equipment in §6.2.2 (§6.3 of the proposed method). Added performance-based, residual mass contribution specifications for containers and wash bottles in §6.2.2 (§6.3 of the proposed method) rather than specifying the type of container that must be used. Replaced the prescriptive language regarding filter materials in §7.1.1 with performance-based requirements limiting the residual mass contribution. Replaced the prescriptive language regarding water quality in §7.1.3 with performance-based requirements for residual mass content. Clarified §8.2 to specify that cleaned glassware must be used at the start of each new source category tested at a single facility.
	74 FR 12970	03/25/2009	75 FR 80118	12/21/2010	Added a performance-based option to §8.4 to conduct a field train proof blank rather than meeting the glassware baking requirements in §8.2. Clarified the sampling train configuration for the nitrogen purge procedures in §8.5.3.2 regarding pressurized purges.
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	In §7.2.1 and §7.2.2, an error in the units of the acetone blank is corrected. In §8.5.3.1, the text erroneously referring to empty impingers is deleted. §11.2.1 is clarified concerning the use of Method 17 for quantifying condensable particulate matter.

Part 51, Appendix M (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
202 (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§3.8 is added to incorporate ASTM E617–13 by reference. The first sentence in §8.5.4.3 is revised by adding ‘‘back half of the filterable PM filter holder.’’ §8.5.4.3, sentences inadvertently omitted in the proposed rule are re-inserted. §9.10, the erroneous statement ‘‘You must purge the assembled train as described in §8.5.3.2 and §8.5.3.3.’’ is corrected to reference §8.5.3 §10.3 and §10.4 are added to require calibration of the field balance used to weigh impingers and to require a multipoint calibration of the analytical balance. §10.3, the proposed language is revised to allow the use of a Class 6 tolerance weight (or better) in lieu of the proposed Class 3 (or better) tolerance weight for checking the field balance accuracy because the calibration weight does not need to be any better than one-half of the tolerance for the measurement. §11.2.2.1, §11.2.2.2, §11.2.2.3, §11.2.2.4 and Figure 7 are re-inserted.

Part 51, Appendix M (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
203	57 FR 46114	10/07/1992			COMS QA for compliance. (See Part 60, App F, Proc 3)
203A	58 FR 61640	11/22/1993	71 FR 55119	09/21/2006	**Original Action** – Visual Determination of Opacity of Emissions from Stationary Sources for Time-Averaged Regulations
203B	58 FR 61640	11/22/1993	71 FR 55119	09/21/2006	**Original Action** – Visual Determination of Opacity of Emissions from Stationary Sources for Time-Exception Regulations
203C	58 FR 61640	11/22/1993	71 FR 55119	09/21/2006	**Original Action** – Visual Determination of Opacity of Emissions from Stationary Sources for Instantaneous Regulations
204	60 FR 39297	08/02/1995	62 FR 32500	06/16/1997	**Original Action** – Criteria for and Verification of a Permanent or Temporary Total Enclosure
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§8.2, the statement regarding Equation 204–2 is corrected to ‘‘The NEAR must be ≤0.05,’’
204A	60 FR 39297	08/02/1995	62 FR 32500	06/16/1997	**Original Action** –Volatile Organic Compounds Content in Liquid Input Samples
204B	60 FR 39297	08/02/1995	62 FR 32500	06/16/1997	**Original Action** –Volatile Organic Compounds Emissions in Captured Stream

Part 51, Appendix M (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
204C	60 FR 39297	08/02/1995	62 FR 32500	06/16/1997	**Original Action** –Volatile Organic Compounds Emissions in Captured Streams (Dilution Technique)
204D	60 FR 39297	08/02/1995	62 FR 32500	06/16/1997	**Original Action** –Volatile Organic Compounds Emissions in Uncaptured Stream from Temporary Total Enclosure
204E	60 FR 39297	08/02/1995	62 FR 32500	06/16/1997	**Original Action** –Volatile Organic Compounds Emissions in Uncaptured Stream from Building Enclosure
204F	60 FR 39297	08/02/1995	62 FR 32500	06/16/1997	**Original Action** –Volatile Organic Compounds Content in Liquid Input Stream (Distillation Approach)
205			60 FR 28052	05/30/1995	**Origin Action** – Verification of Gas Dilution Systems for Field Instrument Calibrations
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§2.1.1 is revised to allow the use of National Institute of Standards and Technology (NIST)-traceable transfer standards to calibrate the gas dilution system. The agency continues to believe that these standards are widely available and provide the accuracy necessary to perform the calibration. §2.1.1 is also revised to require testers to report the results of the calibration of the dilution system to enable the regulatory authority to review this information.
206	(Now CTM-027)				Ammonia (NH_3)
207	62 FR 64532	12/08/1997			Isocyanates (never finalized, became OTM-14, and finalized as Method 326)
	Direct Final		73 FR 30775	05/29/2008	**Original Action** – Pre-Survey Procedure for Corn Wet-Milling Facility Emissions Sources
208	Tentative				VOC from Hot Mix Asphalt Dryers

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Part 51, Appendix P				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	In appendix P of part 51, §3.3, the erroneous reference to §2.1 of Performance Specification 2 of appendix B of part 60 is corrected to §6.1. §3.3, the reference to the National Bureau of Standards is changed to the National Institute of Standards and Technology. §5.1.3, the erroneous reference to paragraph 4.1.4 is changed to reflect the correct reference to paragraphs 3.1.4 and 3.1.5.

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Part 60, Appendix A

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
1	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** – Sample and Velocity Traverses for Stationary Sources
			38 FR 13562	05/23/1973	Table 1-1. Corrected circular stack traverse table
	41 FR 23060	06/08/1976	42 FR 41754	08/18/1977	The provision for the use of more than two traverse diameters, when specified by the Administrator, has been deleted. If one traverse diameter is in a plane containing the greatest expected concentration variation, the intended purpose of the deleted paragraph will be fulfilled. The number of traverse points for velocity measurements has been reduced and the 2:1 length to width ratio requirement for cross-sectional layout of rectangular ducts has been replaced by a “balanced matrix” scheme. Clarification has been made as to when a check for cyclonic flow is necessary; also, the suggested procedure for determination of unacceptable flow conditions has been revised.
			43 FR 11984	03/23/1978	Corrections to 42 FR 41754 (08/18/1977)
	47 FR 47867	10/28/1982	48 FR 45034	09/30/1983	Reduced minimum number of traverse points by revising Figures 1-1 and 1-2 §3.0 Added citations in bibliography
	50 FR 19725	05/10/1985	51 FR 20286	06/04/1986	§2.4 Increase α from 10° to 20° §2.5 Added alternative procedure for less than two downstream and one-half upstream duct disturbances
			51 FR 29104	08/14/1986	§2.5.4.5 Corrected Equation1-4
			52 FR 34639	09/14/1987	Revised Figures 1-1, 1-2, and 1-3 §2.4 removed last sentence in third paragraph
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
1 (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§11.2.1.2, the word ‘‘istances’’ is changed to ‘‘distances’’ in the second sentence and the last two sentences in this section (inadvertently omitted in the proposed rule) are re-inserted. The second figure labeled Figure 1–2 is deleted because two figures labeled Figure 1–2 were inadvertently included.
				04/28/2020	Corrected typo on EMC site
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	The heading in section 11.5.1 is moved to 11.5, and the word ‘‘procedure’’ is moved to the first sentence in section 11.5.1 for clarity. Section 11.5.2 is revised to clearly specify the number of traverse points that must be used for sampling and velocity measurements once a directional flow-sensing probe procedure has been used to demonstrate that an alternative measurement site is acceptable. The last sentence of section 11.5.2, which appears unclear as to what ‘‘same traverse point number and locations’’ it is referring, is revised to instead specify the ‘‘same minimum of 40 traverse points for circular ducts and 42 points for rectangular ducts’’ that are used in the alternative measurement procedure of section 11.5.3. Also, table 1–2 is revised to correct the erroneous requirement that calls for 99.9 percent of stack diameter from the inside wall to the traverse point to 98.9 percent.
1A	48 FR 48932	10/21/1983	54 FR 12621	03/28/1989	**Original Action** – Sample and Velocity Traverses for Stationary Sources with Small Stacks or Ducts
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

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Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
2	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** – Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
	40 FR 23060	06/08/1976	41 FR 41754	08/18/1977	The calibration of certain pitot tubes has been made optional. Appropriate construction and application guidelines have been included. A detailed calibration procedure for temperature gauges has been included. A leak check procedure for pitot lines has been included.
			43 FR 11984	03/23/1978	Corrections to 42 FR 41754 (08/18/1977)
			52 FR 34639	09/14/1987	Added title to Figure 2-6 Added a bar over C_p in §4.1.4.2, §4.1.4.3, §4.1.4.5, and §4.1.5.1.1 Revised the δ to σ in §4.1.4.4, §4.1.4.5, and §4.1.5.3 Added “To convert Q_{sd} from dscm/hr (dscf/hr) to dscm/min (dscfr/min), divide Q_{sd} by 60” following Equation 2-10
			52 FR 42061	11/02/1987	Corrections to 52 FR 34639 (09/14/1987).
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
2 (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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. Calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Instructions are given for conducting S-type pitot calibrations. Currently, the same equipment is commonly used for both Methods 2 and 2G (same S-type pitot), but the calibration procedure is slightly different in each method. Other key pieces that enhance the QA/QC of the calibrations are added to Method 2, and the amount of blockage allowed is reduced to improve calibration accuracy. To address these issues, changes are made to §6.7, §10.1.2.3, §10.1.3.4, §10.1.3.7, and §10.1.4.1.3 of Method 2. Sentences in §6.7 (inadvertently omitted in the proposed rule) are re-inserted. § 10.1.4.3, the erroneous reference to §10.1.4.4 is corrected to §12.4.4. The portion of Figure 2–10 labeled (b) is deleted because it is erroneous, and the label (a) is removed from the figure.

Part 60, Appendix A (continued)					
Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
2A	45 FR 83126	12/17/1980	48 FR 37578	08/18/1983	**Original Action** – Direct Measurement of Gas Volume Through Pipes and Small Ducts
			52 FR 34639	09/14/1987	§2.1 Corrected specification of ±2 percent
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer.
2B	45 FR 83126	12/17/1980	48 FR 37578	08/18/1983	**Original Action** – Determination of Exhaust Gas Volume Flow Rate from Gasoline Vapor Incinerators
			52 FR 34639	09/14/1987	Revised equation 2B-2
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Nomenclature errors are corrected. The assumed ambient carbon dioxide concentration used in the calculations is changed from 300 to 380 ppm to closer approximate current ambient levels.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§12.1, the definition of ambient carbon dioxide concentration is revised. The agency continues to believe that the global monthly mean $(CO_2)_a$ concentration varies over time. Also, a website link is added to the definition as specified

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
2C	48 FR 48932	10/21/1983	54 FR 12621	03/28/1989	**Original Action** – Determination of Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts (Standard Pitot Tube)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
2D	48 FR 48932	10/21/1983	54 FR 12621	03/28/1989	**Original Action** - Measurement of Gas Volume Flow Rates in Small Pipes and Ducts
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Calibrating a barometer against a NIST-traceable barometer is allowed as an alternative to calibrating against a mercury barometer.
2E	59 FR 24468	05/30/1991	61 FR 9905	03/12/1996	**Original Action** – Determination of Landfill Gas Production Flow Rate
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
2F	Direct Final		64 FR 26484	05/14/1999	**Original Action** – Determination of Stack Gas Velocity and Volumetric Flow Rate with Three-Dimensional Probes

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
2G	Direct Final		64 FR 26484	05/14/1999	**Original Action** – Determination of Stack Gas Velocity and Volumetric Flow Rate with Two-Dimensional Probes
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Instructions are given for conducting S-type pitot calibrations. Currently, the same equipment is commonly used for both Methods 2 and 2G (same S-type pitot), but the calibration procedure is slightly different in each method. Other key pieces that enhance the QA/QC of the calibrations are added to the method, and the amount of blockage allowed is reduced to tighten up calibration accuracy. Changes are made to §6.11.1, §6.11.2, §10.6.6, and §10.6.8 of Method 2G to address these issues. In §10.6.6, the proposed language regarding recording rotational speed is revised based on a public comment.
2H	Direct Final		64 FR 26484	05/14/1999	**Original Action** – Determination of Stack Gas Velocity Taking into Account Velocity Decay Near the Stack Wall
	74 FR 42819	08/25/2009			Revisions
3	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** - Gas Analysis for the Determination of Dry Molecular Weight
	41 FR 23060	06/08/1976	42 FR 41754	08/18/1977	The applicability of the method has been confined to fossil-fuel combustion processes and to other processes where it has been determined that components other than O_2, CO_2, CO, and N_2 are not present in concentrations sufficient to affect the final results. Requirement for proportional sampling has been dropped and replaced with the requirement for constant rate sampling. Proportional and constant rate sampling have been found to give essentially the same result. The “three consecutive” requirement has been replaced by “any three” for the determination of molecular weight, CO_2 and O_2.

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Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
3 (cont.)	41 FR 23060	06/08/1976	42 FR 41754	08/18/1977	The equation for excess air has been revised to account for the presence of CO. A clearer distinction has been made between molecular weight determination and emission rate correction factor determination. Single point, integrated sampling has been included
			43 FR 11984	03/23/1978	Corrections to 42 FR 41754 (08/18/1977)
	47 FR 39204	09/07/1982	48 FR 49458	10/25/1983	§4.1.5 and §4.2.7 Removed the phrase “Citation 5 in the Bibliography” and replaced with “Section 4.4” §4.0 Added §4.4 Quality Control Procedures, a recommended means for the tester to check and validate the measurement data on site.
			52 FR 34639	09/14/1987	§2.2.7 revised “28” to “30” Figure 3-3 revised footnote term <10% to <[10%] §4.2.7 Removed “Citation 5 in Bibliography” and replaced with “Section 4.1” in NOTE Revised Equation 3-1
	54 FR 8564	03/01/1989	55 FR 05211	02/14/1990	Divides Method 3 into Method 3 and Method 3B
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
3A	50 FR 8290	02/28/1985	51 FR 21164	06/11/1986	**Original Action** – Determination of Oxygen and Carbon Dioxide Concentration in Emissions From Stationary Sources (Instrumental Analyzers Procedure)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
3A (cont.)	68 FR 58838	10/10/2003	71 FR 28082	05/15/2006	Made instrumental methods equipment specifications and procedures as similar as possible to make them easier to use together in the field. Removed obsolete procedures and equipment listings. Added alternative performance tests. Changed the outline to conform with the standard EMMC format.
	72 FR 51392	09/07/2007	73 FR 29691	05/22/2008	§7.1 Clarified that pre-cleaned or scrubbed air may be used for high-level calibration gas provided no interfering gases are present §8.1 Corrected reference “§8.2 of Method 3” to “§8.2.1 of Method 3”
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	A redundant sentence noting that pre-cleaned air may be used for the high-level calibration gas is deleted.
3B	54 FR 8564	03/01/1989	55 FR 05211	02/14/1990	**Original Action** – Gas Analysis for the Determination of Emissions Rate Correction Factor or Excess Air
			55 FR 18876	05/07/1990	Method 3B applicability
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
3C	59 FR 24468	05/30/1991	61 FR 9905	03/12/1996	**Original Action** – Determination of Carbon Dioxide, Methane, Nitrogen, and Oxygen from Stationary Sources
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	An equation for correcting the sample nitrogen concentration for tank dilution is added as a supplemental calculation option for Method 25C samples.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§6.3 is revised to add subsections (6.3.1, 6.3.2, 6.3.3, 6.3.4, and 6.3.5) that clarify the requirements necessary to check analyzer linearity.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
4	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** – Determination of Moisture Content in Stack Gas
	41 FR 23060	06/08/1976	42 FR 41754	08/18/1977	The sampling time of 1 hour has been changed to a total sampling time which will span the length of time the pollutant emission rate is being determined or such time as specified in an applicable subpart of the standards. The requirement for proportional sampling has been dropped and replaced with the requirement for constant rate sampling. The leak check before the test run has been made optional; the leak check after the run remains mandatory.
			43 FR 11984	03/23/1978	Corrections to 42 FR 41754 (08/18/1977)
	47 FR 39205	09/07/1982	48 FR 55670	12/14/1983	Provided the tester a means to check the calibration of the dry gas meter on site. The quality control procedures are included as recommendations, but not required
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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

Part 60, Appendix A (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
4 (cont.)	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§10.3 (Field Balance) is added to require calibration of the balance used to weigh impingers. In §10.3, the proposed language is revised to allow the use of a Class 6 tolerance weight (or better) in lieu of the proposed Class 3 (or better) tolerance weight for checking the field balance accuracy because the calibration weight does not need to be any better than one half of the tolerance for the measurement. §12.2.5, which gives another option for calculating the approximate moisture content, is added. §16.4 is revised to clarify that a fuel sample must be taken and analyzed to develop F-factors required by the alternative procedure. Also, in §16.4, percent relative humidity is inadvertently defined as ‘‘calibrated hydrometer acceptable’’; the word ‘‘hydrometer’’ is replaced with ‘‘hygrometer.’’
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	Erroneous leak check procedures in §8.1.3 are corrected. §8.1.3.2.1 is revised to remove the erroneous probe nozzle language. §8.1.3.2.2 is revised to remove the erroneous reference to §8.1.3.2.1. §8.1.4.2 is corrected Table in §9.1, the erroneous reference to §8.1.1.4 is replaced with §8.1.3.2.2. Revised to standardize the constants between Methods 4 and 5, and more significant digits are added to constants to remove rounding and truncation errors. The option for volumetric determination of the liquid content is deleted to remove the unnecessary density conversion. The language in §8.1.2.1 is revised to be consistent with our decision to disallow the option for volumetric moisture measurement.
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Table 4–3 is formatted correctly.

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Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
5	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** – Determination of Particulate Matter Emissions from Stationary Sources
			38 FR 13562	05/23/1973	Equation 5-2 and 5-6 were corrected
	41 FR 23060	06/08/1976	42 FR 41754	08/18/1977	The following alternatives have been included in the method: a) The use of metal probe liners. b) The use of other materials of construction for filter holders and probe liner parts. c) The use of polyethylene wash bottles and sample storage containers. d) The use of desiccants other than silica gel or calcium sulfate, when appropriate. e) The use of stopcock grease other than silicone grease, when appropriate. f) The drying of filters and probe-filter catches at elevated temperatures, when appropriate. g) The combining of the filter and probe washes into one container. The leak check prior to a test run has been made optional. The post-test leak check remains mandatory. A method for correcting sample volume for excessive leakage rates has been included. Detailed leak check and calibration procedures for the metering system have been included.
			43 FR 11984	03/23/1978	Corrections to 42 FR 41754 (08/18/1977)
			45 FR 66752	10/07/1980	Filter specification change
	47 FR 39205	09/07/1982	48 FR 55670	12/14/1983	Provided the tester a means to check the calibration of the dry gas meter on site. The quality control procedures are included as recommendations, but not required

Part 60, Appendix A (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
5 (cont.)	47 FR 44350	10/07/1982	48 FR 39010	08/26/1983	Allow the use of a standardized dry gas meter in place of a wet test meter as a calibration standard.
	48 FR 51900	11/14/1983	50 FR 01164	01/09/1985	Incorporate DGM and probe cal. procedures
			52 FR 09657	03/26/1987	Use of critical orifices as cal stds
			52 FR 22888	06/16/1987	Corrections to 52 FR 09657 (03/26/1987). No method changes
			52 FR 34639	09/14/1987	§2.1.1 revised "30" to "<30" §4.2 removed the word "be used to" under Container No.2, 5th paragraph §5.1 revised "01.025" to "0.025" Revised Figure 5-6 §6.1 revised C_a units "mg/g" to "mg/mg" §6.10 added conversion factor §6.11.1 revised the term "P_m" to V_m Y" in the numerator of Equation 5-7 Added §6.13 "Stack Gas Velocity and Volumetric Flow Rate. Calculate the average stack gas velocity and volumetric flow rate, if needed, using data obtained in this method and the equations in Sections 5.2 and 5.3 of Method 2."
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
5 (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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 §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 Reference 13 for post-test calibration is added to the method

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
5 (cont.)	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	We erroneously finalized the reference to the Isostack metering system in 79 FR 11228. Therefore, this reference from §6.1.1.9 is removed. Broadly applicable test method determinations or letters of assessments, regarding whether specific alternative metering equipment meets the specifications of the method as was our intent in the ‘‘Summary of Comments and Responses on Revisions to Test Methods and Testing Regulations’’ (EPA–HQ–OAR–2010– 0114–0045), will continue to be issued. In §6.1.1.9, the parenthetical phrase ‘‘(rechecked at least one point after each test)’’ is removed since the requirements for temperature sensors are given in §10.5 of Method 5. The phrase ‘‘after ensuring that all joints have been wiped clean of silicone grease’’ is removed from§ 8.7.6.2.5. §10.7 and §10.8 are added to require calibration of the balance used to weigh impingers and to require a multipoint calibration of the analytical balance. In§10.7, the proposed language is revised to allow the use of a Class 6 tolerance weight (or better) in lieu of the proposed Class 3 (or better) tolerance weight for checking the field balance accuracy because the calibration weight does not need to be any better than one-half of the tolerance for the measurement. In §10.8, the proposed language is revised to ‘‘Audit the balance each day it is used for gravimetric measurements by weighing at least one ASTM E617–13 Class 2 tolerance (or better) calibration weight that corresponds to 50 to 150 percent of the weight of one filter or between 1 g and 5 g.’’

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
5 (cont.)	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	In a change from the proposal, allowed filter temperatures in Method 5, §2.0, §6.1.1.2, §6.1.1.6, §6.1.1.7, and §8.5 are not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings. §6.1.1.9 is revised to allow the use of a single temperature sensor in lieu of two temperature sensors on the dry gas meter as allowed by Technical Information Document 19 (TID–19) and the approved broadly applicable alternative, ALT–117 (see https://www.epa.gov/emc). Consistent with our response to the comment regarding allowing flexibility for the weighing container in §11.2.1, Method 5B, the first sentence in §11.2.1, Method 5 is revised similarly.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§ 6.2.4 and §8.1.2 are revised to allow polystyrene petri dishes as an alternative to polyethylene due to the lack of commercially available polyethylene petri dishes. Revised to standardize the constants between Methods 4 and 5, and more significant digits are added to constants to remove rounding and truncation errors. The option for volumetric determination of the liquid content is deleted to remove the unnecessary density conversion.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
5A	45 FR 76404	11/18/1980	47 FR 34137	08/06/1982	**Original Action** – Determination of Particulate Matter Emissions from the Asphalt Processing and Asphalt Roofing Industry (Originally Proposed as Method 26)
	50 FR 40280	10/02/1985	51 FR 32454	09/12/1986	§2.1.4 Revised to specify that the filter temperature sensor to be located in the sample gas stream immediately downstream of the filter §4.0 Added §4.4 Quality Control Procedures to allow the tester to check the calibration of the dry gas volume meter on the test site
			52 FR 34639	09/14/1987	§6.1 revised C_t units “mg/g” to “mg/mg” Added heading “6.5 Moisture Content” §6.5 revised “Figure 2” to read “Figure 5-2 of Method 5”
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Mercury-free thermometers are allowed as an alternative to mercury-in-glass thermometers.
5B	50 FR 21863	05/29/1985	51 FR 42839	11/26/1986	**Original Action** – Determination of Nonsulfuric Acid Particulate Matter Emissions from Stationary Sources
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
5B (cont.)	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§2.0, §6.1, and §8.2 are not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings. §11.0 is revised to replace the reference to Method 5, §11.0 with specific analytical procedures and to report the results using Figure 5B–1 for complete data review. §17.0 is revised to delete the word ‘‘Reserved’’ from the title. Figure 5B–1 (Analytical Data Sheet) is added.
5C	Tentative				PM from small ducts
5D	48 FR 37388	08/17/1983	49 FR 43838	10/31/1984	**Original Action** – Determination of Particulate Matter Emissions from Positive Pressure Fabric Filters
	50 FR 40280	10/02/1985	51 FR 32454	09/12/1986	§4.0 Added §4.7 Quality Control Procedures to allow the tester to check the calibration of the dry gas volume meter on the test site
			52 FR 34639	09/14/1987	§4.3 added Equation number “Eq. 5D-1” §6.2 added Equation number “Eq. 5D-2” §6.2 revised “Nm^3”to “sm^3”
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format Positive Pressure Baghouse flow rate calculation

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
5E	49 FR 4590	02/07/1984	50 FR 07701	02/25/1985	**Original Action** – Determination of Particulate Matter Emission from the Wool Fiberglass Insulation Manufacturing Industry
			52 FR 34639	09/14/1987	§6.1 revised Eq. 5E-2 to $m_c = 0.001\ C_{TOC}\ V_s$ §6.1 revised the third term in nomenclature list “C_c” to “C_{TOC}”
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	The requirement to use the Rosemount Model 2100A total organic content analyzer is replaced with the Tekmar-Dohrmann or equivalent analyzer In §12.5, the equation for total particulate concentration is correctly labeled as Eq. 5E–5.
5F	50 FR 21863	05/29/1985	51 FR 42839	11/26/1986	**Original Action** – Determination of Nonsulfate Particulate Matter Emissions from Stationary Sources
	52 FR 08476	03/18/1987	53 FR 29681	08/08/1988	Addition of barium-thorin titration procedure for sulfates
			53 FR 41649	10/24/1988	Corrections to 53 FR 29681 (08/08/1988).
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
5G	52 FR 04994	02/18/1987	53 FR 05860	02/26/1988	**Original Action** – Determination of Particulate Matter Emissions from Wood Heaters (Dilution Tunnel Sampling Location)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
5H	52 FR 04994	02/18/1987	53 FR 05860	02/26/1988	**Original Action** – Determination of Particulate Matter Emissions from a Stack Location

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
5H (cont.)	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to add missing terms C_i, C_o, Q_i, and Q_o Procedures for the determination of an alternative tracer gas flow rate are added.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§10.4 and §10.5 are added to require calibration of the field balance used to weigh impingers and to require a multipoint calibration of the analytical balance. In §10.4, the proposed language is revised to allow the use of a Class 6 tolerance weight (or better) in lieu of the proposed Class 3 (or better) tolerance weight for checking the field balance accuracy because the calibration weight does not need to be any better than one-half of the tolerance for the measurement. In §10.5, the proposed language is revised to ‘‘Audit the balance each day it is used for gravimetric measurements by weighing at least one ASTM E617– 13 Class 2 tolerance (or better) calibration weight that corresponds to 50 to 150 percent of the weight of one filter or between 1 g and 5 g.’’
5I	62 FR 67788	12/30/1997	64 FR 53027	09/30/1999	**Original Action** – Determination of Low Level Particulate Matter Emissions from Stationary Sources
			65 FR 42292	07/10/2000	Eliminates the RSD criterion for low PM levels
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§10.1 and §10.2 are added to require calibration of the field balance used to weigh impingers and to require a multipoint calibration of the analytical balance.’’

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Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
5I (cont.)	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§2.1 and §8.5.2.2 are not revised to tighten the allowed filter temperatures. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.
6	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** – Determination of Sulfur Dioxide Emissions From Stationary Sources
	41 FR 23060	06/08/1976	42 FR 41754	08/18/1977	Possible interfering agents of the method have been delineated. The options of: (a) using a Method 8 impinger system, or (b) determining SO_2 simultaneously with particulate matter, have been included in the method. Based on recent research data, the requirement for proportional sampling has been dropped and replaced with the requirement for constant rate sampling. Tests have shown that isopropanol obtained from commercial sources occasionally has peroxide impurities that will cause erroneously low SO_2 measurements. Therefore, a test for detecting peroxides in isopropanol has been included in the method. The leak check before the test run has been made optional; the leak check after the run remains mandatory. A detailed calibration procedure for the metering system has been included in the method.
			43 FR 11984	03/23/1978	Corrections to 42 FR 41754 (08/18/1977)
	47 FR 44350	10/07/1982	48 FR 39010	08/26/1983	Allow the use of a standardized dry gas meter in place of a wet test meter as a calibration standard.

Part 60, Appendix A (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
6 (cont.)	48 FR 13389	03/30/1983	49 FR 26522	06/27/1984	Added QA/QC requirements for audit samples
	51 FR 44803	12/12/1986	52 FR 41423	10/28/1987	Added an alternative procedure using critical orifices for volume and flow rate measurements.
	53 FR 33508	08/31/1988	54 FR 46234	11/02/1989	Added procedures for testing in the presence of ammonia
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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 Calibrating a barometer against a NIST traceable barometer is allowed as an alternative to calibrating against a mercury barometer.
6A	46 FR 8352	01/26/1981	47 FR 54073	12/01/1982	**Original Action** – Determination of Sulfur Dioxide, Moisture, and Carbon Dioxide from Fossil Fuel Combustion Sources
			49 FR 09684	03/14/1984	Incorporated collaborative tests changes
	50 FR 40280	10/02/1985	51 FR 32454	09/12/1986	§4.0 Added §4.4 Quality Assurance (QA) Audit Samples, to specify the completion of QC analytical audits each time the method is used for compliance determinations. §7.5 Revised to add audit during compliance determination.
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

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Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
6B	46 FR 8352	01/26/1981	47 FR 54073	12/01/1982	**Original Action** - Determination of Sulfur Dioxide and Carbon Dioxide Daily Average from Fossil Fuel Combustion Sources
			49 FR 09684	03/14/1984	Incorporated collaborative tests changes
	50 FR 40280	10/02/1985	51 FR 32454	09/12/1986	§4.0 Added §4.4 Quality Assurance (QA) Audit Samples, to specify the completion of QC analytical audits periodically for successive uses of the method when used for compliance determinations.
			52 FR 34639	09/14/1987	§4.2 removed words “ascarite bubbler” and replaced with “CO_2 absorber”
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
6C	50 FR 8290	02/28/1985	51 FR 21164	06/11/1986	**Original Action** - Determination of Sulfur Dioxide from Stationary Sources (Instrumental Analyzer Procedure)
			52 FR 19797	05/27/1987	Corrections to Figures 6C-3, 6C-4, and 6C-5.
			52 FR 34639	09/14/1987	§6.4.1 revised “Figure 6C-6” to read “Figure 6C-5”
	53 FR 33508	08/31/1988	54 FR 46234	11/02/1989	Expanded the allowable ranges for the mid- and high-range calibration gases
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
6C (cont.)	68 FR 58838	10/10/2003	71 FR 28082	05/15/2006	Made instrumental methods equipment specifications and procedures as similar as possible to make them easier to use together in the field. Removed obsolete procedures and equipment listings. Added alternative performance tests. Changed the outline to conform with the standard EMMC format.
	72 FR 51392	09/07/2007	73 FR 29691	05/22/2008	§6.2 included §6.2.8.2 which also applies
	77 FR 1130	01/09/2012	79 FR 11228	02/27/2014	In §4.0, an incorrect reference to §4.1 of Method 6 is corrected to reference §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.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	The language detailing the methodology for performing interference checks in §8.3 is revised to clarify and streamline the procedure. While we continue to believe that quenching can be an issue for fluorescence analyzers, the language regarding quenching that was promulgated on February 27, 2014, has raised many questions and is being removed. It is our opinion that the interference check, if done properly, using sulfur dioxide (SO_2) and both levels of carbon dioxide (CO_2) as specified in Table 7E–3 of Method 7E, will evaluate effects due to quenching. We will continue to evaluate data as it becomes available and propose additional language, as needed. However, if you believe that quenching is an issue, we recommend that you repeat the interference check using the CO_2 values specified in Table 7E–3 and an SO_2 value similar to your measured stack emissions

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
7	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** – Determination of Nitrogen Oxide Emissions From Stationary Sources
	40 FR 23060	06/08/1976	41 FR 41754	08/18/1977	§5.2.1 Added an option for determining the point of maximum absorbance scanning procedure for variable wavelength spectrometer
			43 FR 11984	03/23/1978	Corrections to 42 FR 41754 (08/18/1977)
	48 FR 13389	03/30/1983	49 FR 26522	06/27/1984	Added QA/QC requirements for audit samples
			52 FR 34639	09/14/1987	Miscellaneous corrections
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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 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.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§10.1.2 and §11.3 reference erroneous sections; the correct section is inserted.
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	§10.1.3 is revised to change the word ‘‘should’’ to ‘‘shall’’ in the last sentence because the difference between the calculated concentration values and the actual concentrations are required to be less than 7 percent for all standards.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
7A	47 FR 44354	10/07/1982	48 FR 55072	12/08/1983	**Original Action** – Determination of Nitrogen Oxide Emissions from Stationary Sources - Ion chromatographic Method
			52 FR 34639	09/14/1987	Miscellaneous corrections
			53 FR 20139	06/02/1988	ANPRM
	53 FR 33508	08/31/1988	54 FR 46234	11/02/1989	Revise inaccurate wording describing the sample storage times
	54 FR 16375	04/24/1989	55 FR 21752	05/29/1990	Increased acid strength in absorbing solution
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	New procedures are added to avoid biasing the results when sampling under conditions of high SO_2 concentrations 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
	Tentative				High SO_2 interference
7B	48 FR 35338	08/03/1983	50 FR 15893	04/23/1985	**Original Action** – Determination of Nitrogen Oxide Emissions from Stationary Sources (Ultraviolet Spectrophotometry)
			52 FR 34639	09/14/1987	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	Tentative				High SO_2 interference

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Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
7C	48 FR 46472	10/10/1983	49 FR 38232	09/27/1984	**Original Action** – Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate/Colorimetric Method
			52 FR 34639	09/14/1987	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§ 7.2.11, the erroneous chemical compound, sodium sulfite is corrected to sodium nitrite.
7D	48 FR 46472	10/10/1983	49 FR 38232	09/27/1984	**Original Action** – Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate/Ion Chromatographic Method
			52 FR 34639	09/14/1987	Miscellaneous corrections
			65 FR 61744	10/17/2000	Fitted to new EMMC format
7E	50 FR 08290	02/28/1985	51 FR 21164	06/11/1986	**Original Action** – Determination of Nitrogen Oxide Emissions from Stationary Sources (Instrumental Analyzer Method)
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	68 FR 58838	10/10/2003	71 FR 28082	05/15/2006	Made instrumental methods equipment specifications and procedures as similar as possible to make them easier to use together in the field. Removed obsolete procedures and equipment listings. Added alternative performance tests. Changed the outline to conform with the standard EMMC format.

Part 60, Appendix A (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
7E (cont.)	72 FR 51392	09/07/2007	73 FR 29691	05/22/2008	§3.3 Clarified the quality of zero gas allowed for instrument calibration §3.4 Added a note, as an example, that meeting this 20 to 100 percent criterion may not be practicable when emissions are low relative to the emission limit and the purpose of the test is to show compliance with the emission limit. §3.9 Clarified to note that drift is the difference between the pre-and post-run system bias checks instead of the difference between the measurement system readings for the pre- and post-run bias checks. §3.12 Removed erroneous citations to 40 CFR 53.55 and 53.56 which have nothing to do with the manufacturer's stability test (MST) §6.2.2 Specifically stating that the particulate media must be included in the system bias test only when using out-of-stack filters. §6.2.6 Clarified to note that blocking the sample flow is not necessary when in direct calibration mode, as suggested in the current method, but the calibration gas may simply supply an excess of calibration gas through the system. §6.2.8.2 Clarifying the MST requirement to note that it is only required for those analyzers that are routinely calibrated with a calibration span of 20 ppmv or less. §7.1.4 NO_2 standard no longer has to be EPA traceability protocol quality and 40 to 60 ppmv range.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
7E (cont.)	72 FR 51392	09/07/2007	73 FR 29691	05/22/2008	§7.2 Clearly stating that the appropriate test gases listed in Table 7E–3, or others not listed that can potentially interfere, as noted elsewhere, must be used for the test. We are also making it clear that the gases used should be manufacturer-certified but are not required to be prepared by the EPA traceability protocol. §8.1.2 Explicitly stating that the required stratification test is to be performed at each test site except for small stacks that are less than 4 inches in diameter. §8.2.1 Testers must obtain a certificate from the gas manufacturer documenting the quality of the calibration gas. §8.2.4 Clearly stating that the converter efficiency test may be performed either before or after a test or after a series of tests. §8.2.7, paragraph (1) is reworded to add clarity to the interference test, and paragraph (2) is corrected to note that the interference test is valid for the life of the instrument unless major components are replaced with different model parts. §8.4 Deleted redundant language in paragraphs (1) and (2). In paragraph (1) of Section 8.5, we clarify the handling of failed post-run bias checks by removing unnecessary wording. §10.0 Clearly state that analyzers which measure NO and NO_2 without using a converter must be calibrated with both NO and NO_2. The current wording is not clear to some users.

Part 60, Appendix A (continued)					
Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
7E (cont.)	72 FR 51392	09/07/2007	73 FR 29691	05/22/2008	§12.1, Revised certain definitions to reflect the corrections being made to the calculations. §12.4 Corrected the system calibration error equation by adding a term for the dilution factor. §12.6 Added a missing equation for calculating sample concentration when a non-zero gas is used as the low-level calibration gas. §12.9 Replaced the erroneous equation added in the updates rule with the one traditionally used by the method. §12.11 Corrected the equation for calculating the spike recovery. §13.5 Added the 2 percent limit for the alternative converter efficiency test. §16.2.2 Deleted the procedures in paragraphs (2) and (3) because they are not needed for the test and are confusing. §16.3 the erroneous references to 40 CFR 53.55 and 53.56 are removed; only 53.53 is followed for the MST. A note is added to clarify that alternative procedures or documentation of instrument stability are acceptable. Table 7E–3, the title is edited to note that the table contains example interference gases and concentrations. We are removing a table footnote instructing dilution extractive systems to use the hot wet concentrations because it may not be applicable in all cases. In its place, a footnote is added to remind the tester to use the highest gas concentration expected at test sites for the interference test. Table 7E–5, we corrected the typographical error listing the NOX concentration at ‘‘.80% of calibration span’’ to read ‘‘80% of calibration span.’’ We have removed the note to evaluate each model by the MST at least quarterly or once per 50 production units because it is not necessary.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
7E (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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. 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 §8.2.5 to conform with §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
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§8.1.2, the requirements/specifications for the 3- point sampling line are revised to be consistent with PS 2; the new requirement is 0.4, 1.2, and 2.0 meters. The language in §8.2.7 regarding quenching that was promulgated on February 27, 2014, has raised many questions, and is being removed at this time. It is our opinion that the interference check, if done properly, using the gas levels specified in Table 7E–3 of Method 7E, will evaluate analyzer bias. We will continue to evaluate data as it becomes available and propose additional language in the future as needed. However, if you feel that analyzer bias is an issue, we recommend that you repeat the interference check using calibration gas values similar to your measured stack emissions. The language in §8.2.7 requiring that the interference check be performed periodically or after major repairs has also been removed to be consistent with the language found in §8.2.7 (2), which states ‘‘This interference test is valid for the life of the instrument unless major analytical components (e.g., the detector) are replaced with different model parts. ’’The word ‘‘equations’’ is replaced with ‘‘equation’’ in the sentence in §12.8 that reads ‘‘If desired, calculate the total NO_X concentration with a correction for converter efficiency using equation 7E–8.’’

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
7E (cont.)	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§8.5 is revised to ensure that the specified bias and calibration error checks are performed consistently. The results of the post-run system bias and calibration error checks are used to validate the run, as well as to correct the results of each individual test run for bias found in the sampling system. The more frequently these checks are performed, the more accurate the bias adjusted data will be.
8	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** – Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sources
	41 FR 23060	06/08/1976	42 FR 41754	08/18/1977	Known interfering compounds have been listed to avoid misapplication of the method. The determination of filterable particulate matter (including acid mist) simultaneously with SO_3 and SO_2 has been allowed where applicable. Since occasionally some commercially available quantities of isopropanol have peroxide impurities that will cause erroneously high sulfuric acid mist measurements, a test for peroxides in isopropanol has been included in the method. The gravimetric technique for moisture content (rather than volumetric) has been specified because a mixture of isopropyl alcohol and water will have a volume less than the sum of the volumes of its content. A closer correspondence has been made between similar parts of Methods 8 and 5.
			43 FR 11984	03/23/1978	Corrections to 42 FR 41754 (08/18/1977)
			52 FR 34639	09/14/1987	Miscellaneous corrections
	53 FR 33508	08/31/1988	54 FR 46234	11/02/1989	Added quality assurance (QA) and quality control (QC) procedures
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
8 (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§6.1.1.1 through §6.1.1.4 are renumbered to §6.1.1.2 through §6.1.1.5 New §6.1.1.1 is added to clarify the requirements that apply to the probe nozzle Figure 8–1 (Sulfuric Acid Sampling Train) is corrected by: (1) Modifying the impinger graphics to make it consistent with the text in §6.1.1.4 and (2) revising the proposed label S-Type Pitot Tube to Type S Pitot Tube for consistency. First sentence in §6.1.1.1 is revised to ‘‘Borosilicate or quartz glass with a sharp, tapered leading edge and coupled to the probe liner using a polytetrafluoroethylene (PTFE) or glass lined union (e.g., fused silica, Silico, or equivalent).
9	36 FR 15704	08/17/1971	36 FR 24875	12/23/1971	**Original Action** – Visual Determination of the Opacity of Emissions from Stationary Sources
	39 FR 35852	09/11/1974	39 FR 39872	11/12/1974	An introductory section is added. This includes a discussion of the concept of visible emission reading and describes the effect of variable viewing conditions. Information is also- presented, concerning, the accuracy of the method. Provisions are added which specify that the determination of opacity requires averaging 24 readings taken at 15- second intervals More specific criteria concerning, observer position with, respect, to the sun were added. Specifically, the sun must be within a 140° sector to the observer’s back.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
9 (cont.)	39 FR 35852	09/11/1974	39 FR 39872	11/12/1974	Criteria concerning an observer's position with respect to the plume are added. Specific guidance is aha provided for reading, emissions, from rectangular emission points with large length to, width ratios, and. for reading emissions from, multiple stacks Provisions are. added to make clear that opacity of contaminated water or steam plumes is to be read at a point where water does not exist in condensed form Specifications are added for the smoke generator used tor qualification of observers
			49 FR 06458	02/21/1984	Amended concurrently with the promulgation of this standard, metallic mineral processing plant, in order to provide more detail on the use of this method to determine the opacity of process fugitive emissions.
			50 FR 24770	06/13/1985	Withdrew the amendments in 49 FR 06458 (02/21/1984) to Method 9
			52 FR 34639	09/14/1987	Miscellaneous corrections
			52 FR 42061	11/02/1987	Corrections to 52 FR 34639 (09/14/1987)
			55 FR 47471	11/14/1990	Miscellaneous corrections
Alternate Method 1	45 FR 44329	07/01/1980	46 FR 53144	10/28/1981	**Original Action** – Determination of the Opacity of Emissions from Stationary Sources Remotely by LiDAR
			47 FR 28624	07/01/1982	Corrections to 46 FR 53144 (10/28/1981)
10	38 FR 15406	06/11/1973	39 FR 09308	03/08/1974	**Original Action** – Determination of Carbon Monoxide Emissions from Stationary Sources
			39 FR 13776	04/17/1974	Corrections to 39 FR 09308 (03/08/1974)

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
10 (cont.)	52 FR 32026	08/25/1987	53 FR 41333	10/21/1988	Alternative Procedure – Interference trap
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	68 FR 58838	10/10/2003	71 FR 28082	05/15/2006	Made instrumental methods equipment specifications and procedures as similar as possible to make them easier to use together in the field. Removed obsolete procedures and equipment listings. Added alternative performance tests. Changed the outline to conform with the standard EMMC format.
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow the use of sample tanks as an alternative to flexible bags for sample collection.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§6.2.5 and §8.4.2 are revised, and §6.2.6 is added to clarify the types of sample tanks allowed for integrated sampling
10A	51 FR 24164	07/02/1986	52 FR 30674	08/17/1987	**Original Action** – Determination of Carbon Monoxide Emissions in Certifying Continuous Monitoring Systems at Petroleum Refineries
			52 FR 33316	09/02/1987	Corrections to 52 FR 30674 (08/17/1987)
	53 FR 33508	08/31/1988	54 FR 46234	11/02/1989	Revise inaccurate wording describing the sample storage times
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Sampling bags made of materials other than Tedlar are allowed if the materials have the sample retaining qualities of Tedlar

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Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
10A (cont.)	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Revised to allow the use of sample tanks as an alternative to flexible bags for sample collection.
10B	52 FR 32026	08/25/1987	53 FR 41333	10/21/1988	**Original Action** – Determination of Carbon Monoxide Emissions from Stationary Sources (GC Technique)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Sampling bags made of materials other than Tedlar are allowed if the materials have the sample retaining qualities of Tedlar
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Revised to allow the use of sample tanks as an alternative to flexible bags for sample collection.
11	38 FR 15406	06/11/1973	39 FR 09308	03/08/1974	**Original Action** – Determination of Hydrogen Sulfide Emissions from Stationary Sources
			39 FR 13776	04/17/1974	Corrections to 39 FR 09308 (03/08/1974)
	42 FR 26222	05/23/1977	43 FR 01494	01/10/1978	Revised method to eliminate the interference of mercaptans, found in some refinery fuel gases
			52 FR 34639	09/14/1987	Miscellaneous corrections
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
11 (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
12	45 FR 02790	01/14/1980	47 FR 16564	04/16/1982	**Original Action** – Determination of Inorganic Lead Emissions from Stationary Sources
			49 FR 33842	08/24/1984	Incorporated method of additions
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§7.1.2, §8.7.1.6, §8.7.3.1, and §8.7.3.6 are revised to remove references regarding the use of silicone grease, which is no longer allowed when conducting Method 5 §12.3 is revised to correctly refer to the title of §12.4 of Method 5. §8.7.3.3 and §12.1 are revised based on a public comment to be consistent with the revision to eliminate the option for volumetric determination of the liquid content of impingers in Method 5. §16.1 allows measurements of PM emissions in conjunction with the lead measurement but does not currently provide enough detail to ensure proper PM measurement. Revisions to §16.1 provide testers with necessary procedures to execute PM and lead emissions measurements using one sampling train.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
12 cont.)	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§16.3, §16.4.1, §16.4.2, §16.5, §16.5.1, and §16.5.2 are revised to specify appropriate EPA analytical methods, as well as supporting quality assurance procedures, as part of allowed alternatives for the use of inductively coupled plasma-atomic emission spectrometry (ICP–AES) and inductively coupled plasma-mass spectrometry (ICP–MS) for sample analysis. §16.0 currently allows three alternatives to the atomic absorption analysis otherwise required in Method 12 specifically, ICP–AES in section 16.4, ICP–MS in §16.5, and cold vapor atomic fluorescence spectrometry (CVAFS) in §16.6. Regarding options to use ICP–AES and ICP–MS for analysis of lead, §16.4 and §16.5 currently do not include either specifics for applying these candidate analytical techniques, or procedures for assessing data quality. The revisions provide the needed specificity by referencing existing EPA methods for ICP–AES and ICP–MS along with supporting quality assurance requirements. The option to use CVAFS to measure lead (§16.6) is removed since CVAFS for lead is not generally available and there is no existing EPA method for conducting it.
13A	39 FR 37602	10/22/1974	40 FR 33152	08/06/1975	**Original Action** – Determination of Total Fluoride Emissions from Stationary Sources -SPADNS Zirconium Lake Method
			45 FR 41852	06/20/1980	§ 3.0 Aluminium and silicon dioxide are removed as interferences. Grease on sample-exposed surfaces has been added as a potential interference. §5.3.2 Changed distillation heat source to Bunsen burner §6.1.1.2 Changed filter requirements §6.3.10 Added drying requirement for sodium fluoride prior to preparing the standardized solution §7.3.2 Added sample blank requirements §7.3.4 Added residual fluoride removal procedure §9.1 Changed V_t definition

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Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
13A (cont.)			45 FR 85016	12/24/1980	Corrections to 45 FR 41852 (06/20/1980)
			52 FR 34639	09/14/1987	§9.1 Added “mg/ft^3” §9.5.2 Removed “K” from Equation 13A-2
13B	39 FR 37602	10/22/1974	40 FR 33152	08/06/1975	**Original Action** - Determination of Total Fluoride Emissions from Stationary Sources – Specific Ion Electrode Method
			45 FR 41852	06/20/1980	§8.2 Added requirement for additional standardizing solutions for specific ion electrodes which do not display a linear response to low concentration fluoride samples
			45 FR 85016	12/24/1980	Corrections to 45 FR 41852 (06/20/1980)
			52 FR 34639	09/14/1987	§9.3 Revised units for “K” to “mg/mmol”
			55 FR 47471	11/14/1990	Miscellaneous corrections
14	39 FR 37730	10/23/1974	41 FR 03826	01/26/1976	**Original Action** - Determination of Fluoride Emissions from Potroom Roof Monitors for Primary Aluminum Plants
			45 FR 44202	06/30/1980	Revised the method based on the knowledge gained during the Sabree test program. The revisions clarify and improve the reliability of the test procedures, but do not change the basic test method. §4.1 Added schedule for anemometer calibration check
			52 FR 34639	09/14/1987	Miscellaneous corrections” §6.0 Added §6.6 Conversion Factors
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
14A	61 FR 50586	09/26/1996	62 FR 52383	10/07/1997	**Original Action** - Determination of total Fluoride Emissions from Selected Sources at Primary Aluminum Production Facilities (Alcan Cassette Sampling System)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Incorrect reference to Figure 5–6 is corrected to reference Figure 5–5.
15	41 FR 43866	10/04/1976	43 FR 10866	03/15/1978	**Original Action** – Determination of Hydrogen Sulfide, Carbonyl Sulfide, and Carbon Disulfide Emissions from Stationary Sources
			52 FR 34639	09/14/1987	Miscellaneous corrections” Added Figures 15-1, 15-2, and 15-3
	53 FR 34551	09/07/1988	54 FR 46236	11/02/1989	Revisions
			54 FR 51550	12/15/1989	Corrections to 54 FR 46236 (11/02/1989)
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§8.3.2 is revised to clarify the calibrations that represent partial calibration.
15A	51 FR 25212	07/11/1986	52 FR 20391	06/01/1987	**Origin Action** – Determination of Total Reduced Sulfur Emissions from Sulfur Recovery Plants in Petroleum Refineries
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
16	41 FR 42012	09/24/1976	43 FR 07568	02/23/1978	**Origin Action** – Semicontinuous Determination of Sulfur Emissions from Stationary Sources
	43 FR 34784	08/07/1978	44 FR 02578	01/12/1979	Corrected several typographical errors and added a $S0_2$ scrubber
			52 FR 34639	09/14/1987	Miscellaneous corrections
	53 FR 34551	09/07/1988	54 FR 46236	11/02/1989	Revisions
			54 FR 51550	12/15/1989	Corrections to 54 FR 46236 (11/02/1989)
			55 FR 21752	05/29/1990	Correction to calibration drift (±10%)
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Various corrections, clarifications, and addition
16A	46 FR 31904	06/18/1981	50 FR 09578	03/8/1985	**Original Action** – Determination of Total Reduced Sulfur Emissions from Stationary Sources (Impinger Technique)
			52 FR 34639	09/14/1987	Miscellaneous corrections
	51 FR 44075	12/08/1986	52 FR 36408	09/29/1987	Cylinder gas analysis alternative method
			53 FR 02914	02/02/1988	Corrections to 52 FR 36408 (09/29/1987)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
16B	51 FR 44075	12/08/1986	52 FR 36408	09/29/1987	**Original Action** – Determination of Total Reduced Sulfur Emissions from Stationary Sources (Alternate GC Analytical Technique)
			53 FR 02914	02/02/1988	Corrections to 52 FR 36408 (09/29/1987)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§2.1, the erroneous phrase ‘‘an integrated gas sample’’ is corrected to ‘‘a gas sample.’’ §6.1 and §8.2, the reference to §8.4.1 is changed to §8.3.1 since §8.4.1 is renumbered to §8.3.1. The text in §8.3, ‘‘Analysis. Inject aliquots of the sample into the GC/FPD analyzer for analysis. Determine the concentration of SO_2 directly from the calibration curves or from the equation for the least-squares line.’’ is moved to §11.1 to be consistent with EPA test method formatting. §8.4, §8.4.1, and §8.4.2 are renumbered to §8.3, §8.3.1, and §8.3.2, respectively, since the text in §8.3 is moved to §11.1. §11.1, the sentence ‘‘Sample collection and analysis are concurrent for this method (see §8.3).’’ is deleted. §11.2 is added so that a uniform set of analysis results would be obtained over the test period
16C	75 FR 53908	09/02/2010	77 FR 44488	07/30/2012	**Original Action** – Determination of total Reduced Sulfur Emissions from Stationary Sources (Continuous Instrumental Analyzer)
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Errors in the nomenclature and the equation for calculating the total reduced sulfur concentration are corrected.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
16C (cont.)	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§12.2, Equation 16C–1 is revised to replace C_v (manufacturer certified concentration of a calibration gas in ppmv SO_2) in the denominator with C_S (calibration span in ppmv). The definition of C_S is added to the nomenclature in §12.1, and the definition of C_v is retained in the nomenclature in §12.1 because C_v is in the numerator of Equation 16C–1.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§13.1, ‘‘gas concentration’’ is replaced with ‘‘span’’ for clarity.
17	41 FR 42012	09/24/1976	43 FR 07568	02/23/1978	**Original Action** – Determination of Particulate Emissions from Stationary Sources (In-Stack Filtration Method)
			52 FR 34639	09/14/1987	Miscellaneous corrections
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
18			48 FR 48344	10/18/1983	**Original action** – Measurement of Gaseous Compound Emissions by Gas Chromatography
			49 FR 22598	05/30/1984	Miscellaneous corrections
	51 FR 7585	03/05/1986	52 FR 05105	02/19/1987	Revisions and additions in order to clarify previous procedural and equipment requirements, and to include concentration calculation equations
			52 FR 10852	04/03/1987	Corrections to 52 FR 05105 (02/19/1987)

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
18 (cont.)	56 FR 33491	07/22/1991	59 FR 19306	04/22/1994	Revised §2.1 Range. The lower range of this method is determined "by the sampling system; adsorbents may be used to concentrate the sample, thus lowering the limit of detection below the 1 part -per million (ppm) typically achievable with direct interface or bag sampling. The upper limit is governed by GC detector saturation or column overloading; the upper range can be extended by dilution the sample with an inert gas or by using smaller volume gas sampling loop. The upper limit can also be governed by condensation of higher boiling compounds. Added §3.0(c) Recovery. After developing .an appropriate sampling and analytical system for the pollutants of interest, conduct the procedure in Section 7.6. Conduct the appropriate recovery study in Section 7.6 at each sampling point where the method is being applied. Submit the data and results of the recovery procedure with the reporting of results under Section 7.5.
	56 FR 33491	07/22/1991	59 FR 19306	04/22/1994	Revised §7.4.4.1 Determine the recovery efficiency of the pollutants of interest according to Section 7.6 Revised §7.4.4.5 Calculations. All calculations can be performed according to the respective NIOSH method. Correct all sample volumes to standard conditions. If a sample dilution system has been used, multiply the results by the appropriate dilution ratio. Correct all results according to the applicable procedure in Section 7.6. Report results as ppm by volume, dry basis Added §7.6 Recovery study
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Sampling bags made of materials other than Tedlar are allowed if the materials are applicable for retaining the compounds of interest.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	**Date**	**Reference**	**Date**	
18 (cont.)	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§8.2.1.5.2.3 is removed because the General Provisions to Part 60 already include a requirement to analyze two field audit samples as described in §9.2.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§13.1, the erroneous paragraph (c) designation is re-designated as (b)
19	43 FR 42154	09/19/1978	44 FR 33580	06/11/1979	**Original Action** – Determination of Sulfur Dioxide Removal Efficiency and Particulate, Sulfur Dioxide, and Nitrogen Oxide Emission Rates from Electric Utility Steam Generators
			48 FR 49460	10/25/1983	§5.2.2 Revised the equations for fuel factor Table 19-1 Changed the F_c for wood bark
			52 FR 34639	09/14/1987	Miscellaneous corrections
			52 FR 47826	12/16/1987	Modified to incorporate Method 19A. Revisions include SO2, NOx, and PM calculation procedures and addresses both steam generating units using SO2 control devices as well as units combusting low sulfur compliance fuels. Also revised to include fuel sampling and analysis procedures for determining SO2 emissions from steam generating units firing compliance fuels.
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	The erroneous equation 19–5 is corrected

Part 60, Appendix A (continued)					
Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
20	42 FR 33782	10/03/1977	44 FR 52792	09/10/1979	**Original Action** – Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
			47 FR 30480	07/14/1982	Corrections to 44 FR 52792 (09/10/1979)
	50 FR 40280	10/02/1985	51 FR 32454	09/12/1986	Amendments to describe a procedure for substituting measurement of CO_2 for measurement of O_2. Some clarifications and minor corrections are also included.
			52 FR 34639	09/14/1987	Miscellaneous corrections
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	68 FR 58838	10/10/2003	71 FR 28082	05/15/2006	Made instrumental methods equipment specifications and procedures as similar as possible to make them easier to use together in the field. Removed obsolete procedures and equipment listings. Added alternative performance tests. Changed the outline to conform with the standard EMMC format.
			73 FR 29691	05/22/2008	§8.4 Added minimum sample run time of 21 minutes

Part 60, Appendix A (continued)					
Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
21	46 FR 01136	01/05/1981	48 FR 37598	08/18/1983	**Original Action** – Determination of Volatile Organic Compound Leaks
			49 FR 56580	12/22/1983	Corrections to 48 FR 37598 (08/18/1983)
	54 FR 22920	05/30/1989	55 FR 25602	06/22/1990	§2.4 Defined procedure in terms of instrument readability specification §3.1.1(b) Cautioned of leaks beyond linear response of some instruments §3.1.1(c) Specified readability to the nearest 500ppm §3.1.1(d) Specified prevention of instrument flow interruption §3.1.1(e) Clarified wording. Alerted on replacement of instrument exhaust flame arrestor §3.1.1(f) Added provision for consistency in probe inlet cross-sectional area §3.1.2(a) Added procedure for instrument response factor mismatch with calibration gas §3.1.2(b) Itemized equipment identification
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format Intrinsically safe amendment

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Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
22	45 FR 76404	11/18/1980	47 FR 34137	08/06/1982	**Original Action** – Visual Determination of Fugitive Emissions from Stationary Sources and Smoke Emissions from Flares
			48 FR 48360	10/18/1983	Add smoke emission from flares
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§11.2.1 and §11.2.2 are revised to allow digital photography to be used for a subset of the recordkeeping requirements. §11.2.3 is added to specify the requirements for digital photographic records. The agency notes that ALT–109 (see https://www.epa.gov/ emc) is the associated broadly applicable alternative that allows the use of digital photographs for specific recordkeeping requirements.
23	54 FR 52190	12/20/1989	56 FR 5758	02/13/1991	**Original Action** – Determination of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans from Stationary Sources
	60 FR 28378	05/31/1995			To correct existing errors in the method, to eliminate the methylene chloride rinse of the sampling train, and to clarify the quality assurance requirements of the method.
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
23 (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Requirement in §2.2.7 that silica gel be stored in metal containers has been deleted. §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. §8.0, which was inadvertently removed in a previous rulemaking, has been added.
24	44 FR 57792	10/05/1979	45 FR 65956	10/03/1980	**Original Action** – Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings
	Tentative				Solvent in water-borne coatings
			57 FR 30654	07/10/1992	Corrected to make it applicable to multicomponent coatings by incorporating the following changes: A. The coating components be mixed in a container according to the manufacturer^ recommendations. Aliquots are immediately removed for analysis. B. Aliquots for determination of volatile matter content are allowed to stand for 1 to 24 hrs before the sample is oven dried.
	60 FR 02369	01/09/1995	60 FR 47095	09/11/1995	Incorporated ASTM Method D 5403-93 to include ultraviolet (UV) radiation-cured coatings
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
24 (cont.)	70 FR 45608	08/08/2005	74 FR 12575	03/25/2009	The American Society for Testing and Materials has recommended that ASTM D6419 be allowed as an alternative to D2369 in this case. We have amended Method 24 to cite this optional method.
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	ASTM Method D2369 is cited without referencing specific sections to preclude confusion if the method sections are revised in the future.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§6.2, ASTM D 2369–10, which is the most recent version of ASTM D 2369, is added.
24A	45 FR 71538	10/28/1980	47 FR 50644	11/08/1982	**Original Action** – Determination of Volatile Matter Content and Density of Printing Inks and Related Coatings (Original proposed as Method 29)
			52 FR 34639	09/14/1987	Miscellaneous corrections
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
25	44 FR 57792	10/05/1979	45 FR 65956	10/03/1980	**Original Action** – Determination of Total Gaseous Nonmethane Organic Emissions as Carbon
	51 FR 40448	11/07/1986	53 FR 04140	02/12/1988	§2.1.3 Added filter heating system §2.1.4 Redesigned condensate trap, changed trap packing material §2.3.1 Specified new oxidation catalyst §2.2.3 Specified new separation column §5.0 Miscellaneous corrections

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
25 (cont.)			53 FR 11590	04/07/1988	Corrections to 53 FR 04140 (02/12/1988)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	More detailed information is given to describe the filters used for sample collection.
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	A record and report section (section 12.9) was added to confirm that the quality control (QC) is successfully performed. Also, the erroneous figure 25–6 is corrected.
25A	45 FR 83126	12/17/1980	48 FR 37578	08/18/1983	**Original Action** – Determination of Total Gaseous Organic Concentration Using Flame Ionization Analyzer
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
25B	45 FR 83126	12/17/1980	48 FR 37578	08/18/1983	**Original action** - Determination of Total Gaseous Organic Concentration Using Nondispersive Infrared Analyzer
			55 FR 47471	11/14/1990	Miscellaneous corrections
			65 FR 61744	10/17/2000	Fitted to new EMMC format
25C	59 FR 24468	05/30/1991	61 FR 9905	03/12/1996	**Original Action** – Determination of Nonmethane Organic Compounds (NMOC) in MSW Landfill Gases.
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

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Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
25C (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§9.1 is corrected to reference §8.4.2 instead of §8.4.1. §11.2 is deleted because the audit sample analysis is now covered under the General Provisions to Part 60. The nomenclature is revised in § 12.1,. Equation 25C–2 is revised in §12.3. §12.4, §12.5, §12.5.1, and §12.5.2 are added to incorporate equations to correct sample concentrations for ambient air dilution. §12.5.2, the reference to equation 25C–4 is corrected to 25C–5.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	We proposed to change the correction of non-methane organic compounds (NMOC) within the method. Currently, NMOC is to be corrected by using either nitrogen or oxygen content. The correction is through use of nitrogen unless the nitrogen content exceeds a threshold of 20 percent. When the nitrogen threshold is above 20 percent, the correction is through use of oxygen. We considered multiple options for revisions, based on data provided by industry. The revisions to the correction that we considered are for when only oxygen is used as a NMOC correction, setting a rainfall threshold in lieu of a nitrogen percent threshold, and requiring a methane measurement and using methane only as the correction. We provided amendatory text for each option in docket ID EPA–HQ–OAR– 2018–0815. Based on comments we received on proposed options, we are finalizing Option 3 with revisions to the ambient air ratio quality assurance to alleviate the sampling issues in arid areas. Therefore, sections 8.4.2, 9.1, 12.5, 12.5.1, and 12.5.2 are revised.

Part 60, Appendix A (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
25C (cont)	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	in response to a comment, the first sentence in section 9.1 is corrected to read, ‘‘If the 3-year average annual rainfall is greater than 20 inches, verify that landfill gas sample contains less than 20 percent N_2 or 5 percent O_2.’’ Also, the nomenclature in section 12.1 for CN_2 and $CmN_2$is revised to provide clarity. More specifically, CN_2 is changed from ‘‘N_2concentration in the diluted sample gas’’ to ‘‘N_2 concentration in the landfill gas sample,’’ and the CmN_2 is changed from ‘‘Measured N_2 concentration, fraction in landfill gas’’ to ‘‘Measured N_2 concentration, diluted landfill gas sample.’’
25D	56 FR 33491	07/22/1991	59 FR 19306	04/22/1994	**Original Action** – Determination of Volatile Organic Compounds in Waste Samples
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Errors in cross references within the method are corrected.
25E			59 FR 62896	12/06/1994	**Original Action** – Determination of Vapor Phase Organic Compounds in Waste Samples
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
26	54 FR 52190	12/20/1989	56 FR 5758	02/13/1991	**Original Action** – Determination of Hydrogen Chloride Emissions from Stationary Sources
			57 FR 24550	06/10/1992	Corrections to Method 26
	56 FR 33491	07/22/1991	59 FR 19306	04/22/1994	Additions to M26 of halogens, other hydrogen halides
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow the use of heated Teflon probes in place of glass-lined probes. Conflicting temperature requirements for the sampling system are clarified. 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.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§13.3 is revised to indicate the correct method detection limit; the equivalent English unit for the metric quantity is added.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§6.2.2 is revised to allow the use of glass sample storage containers as an option to allow flexibility and to be consistent with Method 26A.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§8.1.2, the misspelled word ‘‘undereporting’’ in the next to the last sentence is corrected to ‘‘under reporting,’’
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Erroneous equations 26–4 and 26–5 in sections 12.4 and 12.5, respectively, are revised to be consistent with the nomenclature in section 12.1.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
26A	56 FR 33491	07/22/1991	59 FR 19306	04/22/1994	**Original Action** – Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources – Isokinetic Method
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to clearly state that the temperature of the probe and filter must be maintained between 120 and 134 °C
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Language regarding minimizing chloride interferences is added to §4.3. Also, in §4.3, the first sentence (inadvertently omitted in the proposed rule) is re-inserted. §6.1.7 and §8.1.5 are not changed in this final rule. The language in the proposed rule that revised the required probe and filter temperature requirements in §6.1.7 and §8.1.5 to allow a lower probe and filter temperature was an error. § 8.1.6, the typographical error, ‘‘. . . between 120 and 134 °C (248 and 275 °F . . .’’), is corrected to ‘‘. . . between 120 and 134 °C (248 and 273 °F . . .’’).
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§6.2.1 is revised to remove the language regarding sample storage containers. New §6.2.4, specifies that both high-density polyethylene and glass are acceptable sample storage containers.

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
26A (cont.)	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§6.1.3, a reference to §6.1.1.7 of Method 5 is added to make the filter temperature sensor placement consistent with the requirements in Method 5. §6.1.3, the requirement that the filter temperature sensor must be encased in glass or Teflon is added because of the reactive nature of the halogen acids. §8.1.5, the misspelled word ‘‘undereporting’’ is corrected to ‘‘under reporting.’’
27	45 FR 83126	12/17/1980	48 FR 37578	08/18/1983	**Original Action** -Determination of Vapor Tightness of Gasoline Delivery Tank Using Pressure-Vacuum Test
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
28	52 FR 04994	02/18/1987	53 FR 05860	02/26/1988	**Original Action** -Certification and Auditing of Wood Heaters
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
28A	52 FR 04994	02/18/1987	53 FR 05860	02/26/1988	**Original Action** -Measurement of Air to Fuel Ration and Maximum Achievable Burn Rates for Wood-Fired Appliances
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
28R	79 FR 6394	02/03/2014	80 FR 6394	03/16/2015	**Original Action** - Certification and Auditing of Wood Heaters
28WHH	79 FR 6394	02/03/2014	79 FR 6394	03/16/2015	**Original Action** - Measurement of Particulate Emissions and Heating Efficiency of Wood-Fired Hydronic Heating Appliances
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	Equation 8 in section 13.5.1 is corrected

Part 60, Appendix A (continued)					
Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
28WHH PTS	79 FR 6394	02/03/2014	80 FR 6394	03/16/2015	**Original Action** - Certification of Cord Wood-Fired Hydronic Heating Appliances with Partial Thermal Storage: Measurement of Particulate Matter (PM) and Carbon Monoxide (CO) Emissions and Heating Efficiency of Wood-Fired Hydronic Heating Appliances with Partial Thermal Storage
29			61 FR 18262	04/25/1996	**Original Action** – Determination of Metals Emissions from Stationary Sources
			63 FR 06493	02/9/1998	Amends promulgation dates
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow sample analysis by CVAFS as an alternative to AA analysis.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§8.2.9.3 is revised to require rinsing impingers containing permanganate with hydrogen chloride (HCl) to ensure consistency with the application of Method 29 across various stationary source categories and because there is evidence that HCl is needed to release the mercury (Hg) bound in the precipitate from the permanganate. §10.4 and §10.5 are added to require calibration of the field balance used to weigh impingers and to require a multipoint calibration of the analytical balance. In §10.4, the proposed language is revised to allow the use of a Class 6 tolerance weight (or better) in lieu of the proposed Class 3 (or better) tolerance weight for checking the field balance accuracy because the calibration weight does not need to be any better than one half of the tolerance for the measurement. In section 10.5, the proposed language is revised to ‘‘Audit the balance each day it is used for gravimetric measurements by weighing at least one ASTM E617–13 Class 2 tolerance (or better) calibration weight that corresponds to 50 to 150 percent of the weight of one filter or between 1 g and 5 g.’’

Part 60, Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
30A	Direct Final		72 FR 51494	09/07/2007	**Original Action** - Mercury Instrumental Method
			72 FR 55278	09/28/2007	Corrections
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	The heading of §8.1 is changed from ‘‘Sample Point Selection’’ to ‘‘Selection of Sampling Sites and Sampling Points.’’
30B	Direct Final		72 FR 51494	09/07/2007	**Original Action** - Mercury Sorbent Trap Method
			72 FR 55278	09/28/2007	Corrections
			79 FR 11228	02/27/2014	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. Revised to include the most up-to-date citation for determining the method detection limit
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	The heading of §8.1 is changed from ‘‘Sample Point Selection’’ to ‘‘Selection of Sampling Sites and Sampling Points.’’ §8.3.3.8, the reference to ASTM WK223 is changed to ASTM D6911–15, and the last two sentences in this section (inadvertently omitted in the proposed rule) are re-inserted.

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Part 60, Appendix B					
Performance Specification	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
PS-1	39 FR 32852	09/11/1974	40 FR 46250	10/06/1975	**Original action** - Specifications and Test Procedures for Continuous Opacity Monitoring Systems in Stationary Sources
	44 FR 58602	10/10/1979	48 FR 13322	03/30/1983	Revised to provide technical clarification and improvements to the monitoring installation specifications and the equipment design requirements.
			55 FR 47471	11/14/1990	Miscellaneous corrections
			59 FR 60585	11/25/1994	Revisions
			65 FR 48914	08/10/2000	Revisions, final rule
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§8.1(2)(i) is revised in order to not limit the location of a continuous opacity monitoring system (COMS) to a point at least four duct diameters downstream and two duct diameters upstream from a control device or flow disturbance. §8.1(2)(i) refers to §8.1(2)(ii) and §8.1(2)(iii) for additional options.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	As proposed, in Performance Specification 1, references to ASTM D6216–98 (in §2.1, §3.1, §6.1, §8.1(1), §8.1(3)(ii), §8.2(1), §8.2(2), §8.2(3), §9.0, §12.1, §13.0, §13.1, §13.2, and §16.0 paragraph 8) are replaced with ASTM D6216–12. As noted at proposal, if the initial certification of the continuous opacity monitoring system (COMS) has already occurred using D6216–98, D6216–03, or D6216–07, it will not be necessary to recertify using D6216–12. In response to comments on our decision to add ASTM D6216 to the list of consensus standards, the April 1998 publication date for ASTM D6216 in paragraph 8 in §16.0 is replaced with October 2012, the ASTM D6216–12 publication date. In response to comments, for consistency with §2.1, and for purposes of clarification, the note at the end of §2.1 is added to §13.0

Part 60, Appendix B (continued)

Performance Specification	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
PS-1 (cont)	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	References to ASTM D6216–12 (in sections 2.1, 3.1, 6.1, 8.1(1), (2)(iii), and (3)(ii), 8.2(1) through (3), 9.0, 12.1, 13.1, 13.2, and 16.0, reference 8) are replaced with ASTM D6216–20. Note: If the initial certification of the continuous opacity monitoring system (COMS) has already occurred using D6216–98, D6216–03, D6216–07, or D6216–12, it will not be necessary to recertify using D6216–20. §8.1(2)(iii) is revised by removing the next to the last sentence, which reads, ‘‘The opacities of the two locations or paths may be measured at different times but must represent the same process operating conditions,’’ because the statement is confusing and unclear; furthermore, it is unlikely that one would achieve the same conditions at two different times.

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-2					**Original Action** - Specifications and Test Procedures for SO_2 and NO_X Continuous Emission Monitoring Systems in Stationary Sources
	46 FR 08352	01/26/1981	48 FR 23608	05/25/1983	Revised to require new, modified, and reconstructed affected facilities and other sources monitoring SO_2 and NO_x to use these updated specifications when conducting CEMS performance evaluations as required in the regulations.
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
			71 FR 55119	09/21/2006	Add RATA criteria for low SO_2 standards
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	The definition of span value is revised in §3.11. The sentence, ‘‘For spans less than 500 ppm, the span value may either be rounded upward to the next highest multiple of 10 ppm, or to the next highest multiple of 100 ppm such that the equivalent emissions concentration is not less than 30 percent of the selected span value.’’, is added to §3.11. Also, in §6.1.1, the data recorder language is revised. §6.1.2, the term ‘‘high-level’’ is changed to ‘‘span’’ to be consistent with the definition of span value discussed above. §16.3.2, the characters ‘‘|dverbar’’ are replaced with d which is the average difference between responses and the concentration/responses. In §18, Table 2–2 is detached from Figure 2–1, and the figure is clearly labeled as ‘‘Calibration Drift Determination

Part 60, Appendix B (continued)

Performance Specification	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
PS-2 (cont.)	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§13.2 is replaced with a table that indicates the relative accuracy performance specifications, as proposed. Given that the equals to (=) signs were erroneously omitted from several of the < and > values during publication of the table in the proposed rule, these values have been corrected.
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	§8.3.3, a sentence is added to clarify that during a calibration, the reference gas is to be introduced into the sampling system prior to any sample conditioning or filtration equipment and must pass through as much of the probe as is practical. In section 12.5, minor revisions are made to clarify that relative accuracy (RA) test results are expressed as a percent of emission rate or concentration (units of the applicable standard) and the definition of the average reference method (RM) value for Equation 2–6.

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-3					**Original Action** - Specifications and Test Procedures for O_2 and CO_2 Continuous Emission Monitoring Systems in Stationary Sources
	46 FR 08352	01/26/1981	48 FR 23608	05/25/1983	Revised to require new, modified, and reconstructed affected facilities and other sources monitoring CO_2, or O_2 to use these updated specifications when conducting CEMS performance evaluations as required in the regulations.
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	A statement that was inadvertently removed that allows the relative accuracy to be within 20% of the reference method mean value is added to establish the original intent of the rule
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§13.2 is revised to clarify how to calculate relative accuracy. The absolute value symbol is added to the proposed definition of absolute value of the mean of the differences.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	The two sentences in §12.0 that read, ‘‘Calculate the arithmetic difference between the RM and the CEMS output for each run. The average difference of the nine (or more) data sets constitute the RA.’’ are deleted, as proposed; these two sentences are no longer necessary since equations 3–1 and 3–2 would be moved from §13.2 to §12.0. The sentence, ‘‘Calculate the RA using equations 3–1 and 3–2.’’ is added to the beginning of §12.0.

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-4	49 FR 05326	02/10/1984	50 FR 31700	08/05/1985	**Original Action** – Specifications and Test Procedures for Carbon Monoxide Continuous Monitoring Systems in Stationary Sources
	52 FR 32026	08/25/1987	53 FR 41333	10/21/1988	§3.2 Amended to include Method 10 Alternative Interference scrubber so that the method can be used to evaluate nondispersive infrared CEMS and added Method 10B as a acceptable alternative.
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to remove the interference trap specified in Method 10 when evaluating nondispersive infrared continuous emission monitoring systems against Method 10.
PS-4A	54 FR 52207	12/20/1989	56 FR 5525	02/11/1991	**Original Action** – Specifications and Test Procedures for Carbon Monoxide Continuous Monitoring Systems in Stationary Sources at MWC facilities.
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	The response time test procedure in §8.3 and §8.3.1 is revised. In §8.3.1, the next to the last sentence is reworded to ‘‘Repeat the entire procedure until you have three sets of data to determine the mean upscale and downscale response times.’’ Also, the proposed response time requirement in §13.3 is revised to 240 seconds.

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Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-4B	61 FR 17358	04/19/1996	64 FR 53028	09/30/1999	**Original Action** - Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Clarified to note that Equation 1 in §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.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	The response time in §4.5 is changed from ‘‘must not exceed 2 minutes’’ to ‘‘must not exceed 240 seconds’’ to be consistent with the response time in Performance Specification 4A
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	The entire Performance Specification 4B is updated to the Environmental Monitoring Management Council (EMMC) methods format used for all other performance specifications. In response to comment, some of the references to other sections are replaced with text.

Part 60, Appendix B (continued)

Performance Specification	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
PS-5	46 FR 37287	07/20/1981	48 FR 32984	07/20/1983	**Original Action** - Specifications and Test Procedures for TRS Continuous Emission Monitoring Systems in Stationary Sources
			55 FR 47471	11/14/1990	Miscellaneous corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§5.0, the erroneous term ‘‘users manual’’ is replaced with ‘‘user’s manual,’’ In the note in §8.1, the sentence ‘‘For Method 16B, you must analyze a minimum of three aliquots spaced evenly over the test period.’’ is added to provide consistency with the number of aliquots analyzed in Method 16B, which may be used as the reference method. The typo, ‘‘space’’ in the first sentence in the note in §8.1 is corrected to ‘‘spaced’’.

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-6	52 FR 07178	03/09/1987	53 FR 07514	03/09/1988	**Original Action** - Specifications and Test Procedures for Continuous Emission Rate Monitoring Systems in Stationary Sources
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§13.1 is revised to clarify that the calibration drift test period for the analyzers associated with the measurement of flow rate should be the same as that for the pollutant analyzer that is part of the continuous emission rate monitoring system (CERMS). §13.2 is revised for clarity and to be consistent with the requirements in Performance Specification 2, as proposed, and the erroneous reference to Performance Specification 1 is corrected to Performance Specification 2 in response to a public comment we received on the proposal.
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	§13.2 is revised to specifically state the relative accuracy criteria including significant figures. On October 7, 2020 (85 FR 63394), we revised §13.2 of Performance Specification 6 to make the relative accuracy calculations and criteria consistent with Performance Specification 2 and offer an alternate calculation and criterion for low emission concentration/rate situations; however, we neglected to specifically cite the alternate relative accuracy criterion from Performance Specification 2 for low emission sources and to ensure consistency with Performance Specification 2 with regard to significant figures in the relative accuracy criteria. In response to comment, we are adding ‘‘you may elect to’’ to the last sentence in §13.2 to clarify that the 10% RA is an option as opposed to a requirement.

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-7	54 FR 06570	03/01/1989	55 FR 40171	10/02/1990	**Original Action** - Specifications and Test Procedures for Hydrogen Sulfide Continuous Emission Monitoring Systems in Stationary Sources
	77 FR 01130	01/09/2012	79 FR 11288	02/27/2014	Revised to allow Methods 15 and 16 as reference methods in addition to Method 11.
PS-8	58 FR 54648	10/22/1993	59 FR 64580	12/15/1994	**Original Action** - Performance Specifications for Volatile Organic Compound Continuous Emission Monitoring Systems in Stationary Sources
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§8.3 is added to require that an instrument drift check be performed as described in Performance Specification 2, and the existing sections 8.3, 8.4, and 8.5 are re-numbered as 8.4, 8.5, and 8.6, respectively
PS-8A	61 FR 17358	04/19/1996	64 FR 53028	09/30/1999	**Original Action** - Specifications and Test Procedures for Total Hydrocarbon Continuous Monitoring Systems in Stationary Sources for HWC MACT

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-9	58 FR 54648	10/22/1993	59 FR 64580	12/15/1994	**Original Action** - Specifications and Test Procedures for Gas Chromatographic Continuous Emission Monitoring Systems in Stationary Sources
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	The quality control and performance audit sections are clarified. §7.2, a requirement that performance audit gas must be an independent certified gas cylinder or cylinder mixture certified by the supplier to be accurate to two percent of the tagged value supplied with the cylinder is added. §8.3, an incorrect reference concerning quality control requirements that pertain to the 7-day drift test is clarified and corrected, and an incorrect reference to the error calculation equation is corrected. §8.4, a requirement to ensure that performance audit samples challenge the entire sampling system including the sample transport lines is added, and quality control requirements that must be met for performance audit tests are specified by adding references to §13.3 and §13.4. §10.1, the erroneous word ‘‘initial’’ is deleted from the title, ‘‘Initial Multi-Point Calibration,’’ and the quality control requirements that must be met for multi-point calibrations are specified by referencing §13.1 and §13.2 in addition to §13.3. §10.1 and §10.2 are clarified such that calibrations may be performed at the instrument rather than through the entire sampling system. The inadvertently omitted word, ‘‘by’’ is inserted in the sentence in §10.2 that reads, ‘‘The average instrument response shall not vary more than 10 percent from the certified concentration value of the cylinder for each analyte.’’

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS 9 (cont.)	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§13.1, language is clarified to ensure that every time a triplicate injection is performed, the calibration error must be less than or equal to 10 percent of the calibration gas value. §13.2, language is clarified to specify that the linear regression correlation coefficient must be determined to evaluate the calibration curve for instrument response every time the continuous emission monitoring system (CEMS) response is evaluated over multiple concentration levels. §13.4 is added to describe the quality control requirements for the initial and periodic performance audit test sample
PS-10	61 FR 17358	04/19/1996			**Original action** - Specifications and Test Procedures for Multi-metals Continuous Monitoring Systems in Stationary Sources
PS-11	61 FR 17358	04/19/1996			Revised and re-proposed in 67 FR 67788 (12/30/1997)
	67 FR 67788	12/30/1997			Revised and re-proposed in 66 FR 64176 (12/12/2001)
	66 FR 64176	12/12/2001	69 FR 01786	01/12/2004	**Original Action** - Specifications and Test Procedures for Particulate Matter Continuous Monitoring Systems in Stationary Sources.
	70 FR 45608	08/08/2005	74 FR 12575	03/25/2009	Revised the definition of confidence interval half range to clarify the language, replacing the word ‘‘pairs’’ with ‘‘sets’’ to avoid possible confusion regarding the use of paired sampling trains. Corrected errors in Equations 11–22, 11–27, and 11–37. Corrected the procedures in paragraphs (4) and (5) of section 12.3 for determining confidence and tolerance interval half ranges for the exponential and power correlation models.

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-11 (cont.)	70 FR 45608	08/08/2005	74 FR 12575	03/25/2009	Added a note following paragraph (5)(v) concerning the application of correlation equations to calculate particulate matter (PM) concentrations using the response data from an operating PM CEMS. Renumbered some equations and references for clarification, consistency, and accuracy.
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Errors in the denominators of Equations 11–1 and 11–2 are corrected.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Equations 11–1 and 11–2 are revised in section §12.1, and the response range is used in lieu of the upscale value in §13.1. In §12.1, the sentence in paragraph (3) that was inadvertently omitted is re-inserted.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§13.1, the word ‘‘average’’ erroneously exists in the second sentence and is deleted
PS-12	61 FR 17358	04/19/1996			**Original Action** - Specifications and Test Procedures for Total Mercury Monitoring Systems in Stationary Sources.

Part 60, Appendix B (continued)					
Performance Specification	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
PS-12A			70 FR 28606	05/18/2005	**Original Action** - Specifications and Text Procedures for Total Vapor Phase Mercury Continuous Emission Monitoring Systems in Stationary Sources (Vacated in 03/14/2008 with CAMR)
	74 FR 21136	05/06/2009	75 FR 54970	09/09/2010	Re-proposed and promulgated
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Revising the references (in sections 8.4.2, 8.4.4, 8.4.5, 8.4.6.1, and 17.5 and the footnote to Figure 12A–3) to ASTM D6784, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), to update them from the 2002 version to the latest version, which was authorized in 2016. The capabilities of mercury CEMS have improved since initial deployment to support regulations over a decade ago. Therefore, we are revising section 13.3 to modify the alternative relative accuracy criterion such that: (1) it applies only at mercury concentrations less than 2.5 mg/scm and (2) the difference between the average reference method and CEMS values added to the confidence coefficient is now 0.5 mg/ scm. This revised criterion is consistent with revisions that we made to the mercury monitoring requirements in 40 CFR part 63, subpart UUUUU (81 FR 20172, April 6, 2016).
PS 12B	74 FR 21136	05/06/2009	75 FR 54970	09/09/2010	**Original Action** - Specifications and Test Procedures for Monitoring Total Vapor Phase Mercury Emissions from Stationary Sources Using A Sorbent Trap Monitoring System

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS 12B (cont.)	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
PS-13	61 FR 17495	04/19/1996			**Original Action** - Specifications and test procedures for hydrochloric acid continuous monitoring systems in stationary sources
PS-14	61 FR 17495	04/19/1996			**Original Action** - Specifications and test procedures for chlorine continuous monitoring systems in stationary sources
PS-15	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	**Original Action -** Performance Specification for Extractive FTIR Continuous Emissions Monitor Systems in Stationary Sources
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Relative accuracy analysis procedures are revised to specifically cite Performance Specification 2 of 40 CFR part 60, Appendix B.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	The statement, ‘‘An audit sample is obtained from the Administrator,’’ is deleted from ¶9.1.2. Reserved §14.0 and §15.0 are added.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§13.0 is added as ‘‘Method Performance [Reserved].”

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-16	70 FR 45608	08/08/2005	74 FR 12575	03/25/2009	**Original Action** -Specifications and Test Procedures for Predictive Emission Monitoring Systems in Stationary Sources
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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. An alternative acceptance criterion for low concentration measurements is added. The yearly relative accuracy test audit clearly notes that the statistical tests in §8.3 are not required for this test. An incorrect reference to Equation 16–4 in §12.4 is corrected.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Table 16–1 is changed to be consistent with conventional statistical applications; the values listed in the column labelled n-1 (known as degrees of freedom) are corrected to coincide with standard t-tables, and the footnote is clarified. §12.2.3 is revised for selection of n-1 degrees of freedom.
	87 FR 24488	04/26/2022	88FR 18396	03/29/2023	Several corrections and modifications are made to clarify the intent of the requirements. In §1.1, the language is revised to make it clear that if a PEMS (predictive emission monitoring system) contains a diluent component, then the diluent component must be tested as well. Also, in section 1.1, the language referring to PS–17 is removed because PS–17 was not promulgated.

Part 60, Appendix B (continued)

Performance Specification	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
PS-16 (cont.)	87 FR 24488	04/26/2022	88FR 18396	03/29/2023	In §3.11 and §3.12, language is added to define commonly used acronyms, and in §3.12, the language is corrected to indicate that the relative accuracy test audit (RATA) is to be conducted as specified in §8.2. §9.1, the QA/QC Summary chart is corrected to reflect the language found in §2.2, which indicates that the relative accuracy audit (RAA) is required on all PEMS and not just those classified as compliance PEMS. The QA/QC Summary Chart is also modified to align the criteria for a RAA with that found in §13.5. §9.4, we proposed to correct the language stating a RATA is to be conducted at the normal operating level to indicate the RATA is to be conducted as specified in §8.2. Also in §9.4, we proposed to remove the statement that the statistical tests in §8.3 are not required for the yearly RATA. However, based on public comment, we are not making any revisions to §9.4 at this time. §12.3.2, we proposed to remove the alternative criteria language because it does not apply to F-factor determinations. However, based on public comment, we have decided not to make changes to §12.3.2 at this time §13.1 and §13.5, the language is modified to add the corresponding alternative criteria in units of lb/mmBtu. Although, we did not propose a change in the criteria for applying the 2 ppm difference in the proposed rule, we agree with a public comment that the 20 ppm criteria §13.5 should be the same as the 10 ppm criteria in §13.1, so §13.5 is revised to reflect this.
PS-17	73 FR 59956	10/09/2008			**Original Action** - Specifications and Test Procedures for Continuous Parameter Monitoring Systems at Stationary Sources’

Part 60, Appendix B (continued)					
Performance Specification	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
PS-18	79 FR 27690	05/14/2014	80 FR 38628	07/20/2015	**Original Action** - Performance Specifications and Test Procedures for Gaseous Hydrogen Chloride (HCl) Continuous Emission Monitoring Systems at Stationary Sources
			81 FR 31577	05/19/2016	§3.0 adds definitions for beam attenuation and beam intensity to clarify the meaning of these terms. §11.5.6.5 clarifies which detection limits must be less than 20 percent of the applicable emission limit. §11.8.6.2 revises the requirements to determine zero gas calibration drift measurements by allowing either exclusion or inclusion of the measurement optical path. §12.1 revises definitions for terms C_i, and S, to make them consistent with other performance specifications. §12.2 corrects equation 2 to include the average measured concentration of HCl used to calculate CEMS interference. This change clarifies that single or multiple interferent gases are allowed to be evaluated. §12.4.4 revises equation 7 to include an additional term that allows correction for the measured native background HCl concentration. This revision permits calculations for either option in revised section 11.8.6.2. §11.2.3 corrects appendix A, equation 3 in PS 18 for calculating dilution factors when dynamic spike quality control measurements are made.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§11.8.7, the last sentence is revised to clarify the duration of the drift check. Table 1, the erroneous acronym ‘‘NO_2’’ is replaced with ‘‘NO’’. In the appendix, the inadvertently omitted reserved section 12.0 is added,

Part 60, Appendix B (continued)

Performance Specification	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
PS-18 (cont.)	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§2.3 is revised to clarify that Method 321 is only applicable to Portland cement plants. §11.9.1, the reference to Method 321 is deleted because Method 321 is specific to Portland cement plants, and it is already specified in the applicable regulations.

Part 60, Appendix F

Procedure	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
Proc 1	49 FR 09676	03/14/1984	52 FR 21003	06/04/1987	**Original Action** - Quality Assurance Requirements for Gas Continuous Emission Monitoring Systems Used for Compliance Determination
	54 FR 52207	12/20/1989	56 FR 5525	02/11/1991	Revised to make it applicable without further revision for all regulated pollutants, as was originally intended.
	70 FR 45608	08/08/2005	74 FR 12575	03/25/2009	Revised obsolete language that describes the standard reference material that is required
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§5.1.2 (1), the sentence immediately following the table that reads, ‘‘Challenge the CEMS three times at each audit point and use the average of the three responses in determining accuracy.’’ is replaced with, ‘‘Introduce each of the audit gases, three times each for a total of six challenges. Introduce the gases in such a manner that the entire CEMS is challenged. Do not introduce the same gas concentration twice in succession.’’ In order to obtain six distinct readings during the cylinder gas audit (CGA), the same gas must not be introduced twice in succession, and this revised language accurately reflects this standard scientific practice. §5.1.2 (3), the reference to EPA’s traceability protocol for gaseous calibration standards is updated, and the language regarding the use of EPA Method 205 for dilution of audit gases is clarified.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§5.2.3(2), the criteria for cylinder gas audits (CGAs) as applicable to diluent monitors is specified for clarity

Part 60, Appendix F

Procedure	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
Proc 1 (cont)	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	§4.1, a sentence is added to clarify that during a calibration, the reference gas is to be introduced into the sampling system prior to any sample conditioning or filtration equipment and must pass through as much of the probe as is practical. §5.2.3(2) is modified to refine the alternative cylinder gas audit (CGA) criteria in response to the use of analyzers with lower span values. §6.2, to provide clarity and clear up any confusion, the language referring to the relevant performance specification is removed, and the language referring to the use of equation 1–1 is inserted.

Part 60, Appendix F (continued)

Procedure	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
Proc 2	61 FR 17358	04/19/1996			Revised and re-proposed in 67 FR 67788 (12/30/1997)
	62 FR 67788	12/30/1997			Revised and re-proposed in 66 FR 64176 (12/12/2001)
	66 FR 64176	12/12/2001	69 FR 01786	01/12/2004	**Original Action** -Quality Assurance Requirements for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources
	70 FR 45608	08/08/2005	74 FR 12575	03/25/2009	Added a needed equation for calculating an absolute correlation audit based on the applicable standard.
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Equations 2–2 and 2– 3 in §12.0 are revised to correctly define the denominator when calculating calibration drift. Equation 2–4 in §12.0 is revised to correctly define the denominator when calculating accuracy.
			82 FR 37822	08/14/2017	Requirements for CEMS PM data that meet PS-11 req.
Proc 3	68 FR 24692	05/08/2003			Proposed and request for comments
	Direct Final		77 FR 08160	02/14/2012	**Original Action** - Quality Assurance Requirements for Continuous Opacity Monitoring Systems at Stationary Sources (withdrawn 03/15/2012 based on adverse comments on the parallel proposed rule.)
	77 FR 08209	02/14/2012	79 FR 28439	05/16/2014	Promulgated

Part 60, Appendix F (continued)

Procedure	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
Proc 4	73 FR 59956	10/09/2008			**Original Action** - Quality Assurance Requirements for Continuous Parameter Monitoring Systems at Stationary Sources.
Proc 5	74 FR 21136	05/06/2009	75 FR 54970	09/09/2010	QA for Hg CEMS
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	The second section listed as §6.2.6 is correctly numbered as §6.2.7.
	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Regulated entities have pointed out that we did not include criteria for the system integrity check required in Procedure 5. In §2.5, we clarified that ongoing daily calibration of the Hg CEMS must be conducted using elemental mercury reference gas. This is consistent with revisions that we made to the Hg monitoring requirements in 40 CFR part 63, subpart UUUUU (81 FR 20172, April 6, 2016). We revised the title of §4.0 and added §4.4 to explain more explicitly the procedure for conducting the system integrity check as well as to provide the criteria for passing the check. In response to comment, we changed ‘‘calendar’’ days to ‘‘operating’’ days in the first sentence in §4.4 to provide harmonization with the Mercury Air Toxics Standards (MATS) Rule (40 CFR part 63, subpart UUUUU). Also, in response to comment, we revised the acceptance criteria for the system integrity check in §4.4 to better comport with the MATS Rule. The acceptance criteria for the system integrity check now reads ‘‘The absolute value of the difference between the Hg CEMS output response and the reference gas must be less than or equal to 10.0 percent of the reference gas value or 0.8 mg/scm.’’ §5.1.3, to add clarity, we inserted language referring to equation 1–1 of Procedure 1 for calculating relative accuracy.

Part 60, Appendix F (continued)

Procedure	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
Proc 6	79 FR 27690	05/14/2014	80 FR 38628	07/20/2015	**Original Action** - Quality Assurance Requirements for Gaseous Hydrogen Chloride (HCl) Continuous Emission Monitoring Systems Used for Compliance Determination at Stationary Sources
			81 FR 31577	05/19/2016	§4.1.5 and §4.1.5.3 clarifies that QA for data above span is subject to the specific requirements in applicable rules or permits, that supersede the general requirements. §4.1.5.1 resolves prior confusion between greater than two clock hours and greater than two consecutive 1-hour averages in the measurement period for exceedance of span before additional CEMS responses checks are required. §4.2.1 clarifies the units of measure (percent) required for Integrated Path CEMS beam intensity check. §5.2.4.2 corrects the incomplete reference to the equations required to calculate dynamic spiking error (DSE).
			81 FR 52348	08/08/2016	Withdrew Procedure 6 revisions in 81 FR 31577 (05/19/2016)
			82 FR 44106	09/21/2017	§4.1.5 clarifying that the QA for data above span is subject to the specific requirements in applicable rules or permits, which supersede the general requirements. §4.1.5.1 clarifying the time that triggers conducting an above span CEMS response check. §5.2.4.2 correcting the incomplete reference to equations used to calculate dynamic spiking error.

Part 60, Appendix J					
App-J			55 FR 33925	8/20/1990	Wood stove thermal efficiency
Alternative Procedures and Miscellaneous					
			48 FR 44700	09/29/1983	S-Factor method for sulfuric acid plants
			48 FR 48669	10/20/1983	Corrections to S-Factor publication
			49 FR 30672	07/31/1984	Add fuel analysis procedures for gas turbine
			51 FR 21762	06/16/1986	Alternative PST for low level concentrations
			54 FR 46234	11/02/1989	Misc. revisions to Appendix A, 40 CFR Part 60
			55 FR 40171	10/02/1990	Monitoring revisions to Subpart J (Refineries)

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Part 60, Subpart A – General Provisions

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
53 FR 05082	02/19/1988	54 FR 06660	02/14/1989	Test methods & procedures revision
		54 FR 21344	05/17/1989	Correction notice
		54 FR 27015	06/27/1989	Correction notice
		65 FR 61744	10/17/2000	Miscellaneous corrections
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	§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 §60.8(g). A new §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)). §60.17 is revised to arrange the consensus standards that are incorporated by reference in alphanumeric order.
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§60.8(f) is revised to require the reporting of specific emissions test data in test reports. These data elements are required regardless of whether the report is submitted electronically or in paper format. Note that revisions are made to the data elements (that were listed in the proposed rule) to provide clarity and to more appropriately define and limit the extent of elements reported for each test method included in a test report. These modifications ensure that emissions test reporting includes all data necessary to assess and assure the quality of the reported emissions data and that the reported information appropriately describes and identifies the specific unit covered by the emissions test report. §60.17(g) is revised to add ASTM D6911– 15 to the list of incorporations by reference.

Part 60, Subpart A – General Provisions (continued)				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§60.17(h) is revised to add ASTM D6216–12 to the list of incorporations by reference and to renumber the remaining consensus standards that are incorporated by reference in alpha-numeric order.
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§60.17(h) is revised to add ASTM D2369–10 to the list of incorporations by reference and to re-number the remaining consensus standards that are incorporated by reference in alpha-numeric order. §60.17(j) is revised to add SW–846–6010D and SW–846–6020B to the list of incorporations by reference and to re-number the remaining standards that are incorporated by reference in alpha-numeric order. §60.17(k) is revised to add GPA Standards 2166–17 and 2174–14 to the list of incorporations by reference and to re-number the remaining GPA standards that are incorporated by reference in alpha-numeric order. §60.17(l) is revised to add ISO 10715:1997 to the list of incorporations by reference
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Revised to add ASTM D6216–20 and D6784–16 to the list of incorporations by reference and to re- number the remaining consensus standards that are incorporated by reference in alpha-numeric order.

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Part 60, Subpart D – Fossil-Fuel-Fired Steam Generators

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	In a change from proposal, the allowed filter temperature in § 60.46(b)(2)(i) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

Part 60, Subpart Da – Electric Utility Steam Generating Units

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	In a change from proposal, the allowed filter temperature in § 60.50Da (b)(1)(ii)(A) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings

Part 60, Subpart Db – Industrial-Commercial-Institutional Steam Generating Units

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Method 320 is allowed as an alternative for determining nitrogen oxides (NO_X) concentration in §60.46b(f)(1)(ii), (h)(1) and (2), and sulfur dioxide (SO_2) concentration in §60.47b(b)(2).
83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	In a change from proposal, the allowed filter temperature in § 60.46b(d)(4) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

Part 60, Subpart Dc – Small Industrial-Commercial-Institutional Steam Generating Units

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	In a change from proposal, the allowed filter temperature in § 60.45c(a)(5) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

Part 60, Subpart Ea – Municipal Waste Combustors for Which Construction is Commenced After December 20, 1989 and on or Before September 20, 1994

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	In a change from proposal, the allowed filter temperature in § 60.58a(b)(3) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

Part 60, Subpart Ec – Hospital/Medical/Infectious Waste Incinerators

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	The definition of medical/infectious wastes in Section 60.51c is revised to correct the misspelling of ‘‘cremation.’’

Part 60, Subpart H – Sulfuric Acid Plants

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	An equation for calculating the SO_2 emission rate in §60.84(d) is corrected.

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Part 60, Subpart O – Sewage Treatment Plants

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	A reference to Method 209F in §60.154(b)(5) is revised to reflect a newer available version of the method (i.e., 2540G)

Part 60, Subpart BB – Kraft Pulp Mills

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	A typographical error is corrected in the equation for correcting the total reduced sulfur concentration to 10 percent oxygen

Part 60, Subpart CC – Glass Manufacturing Plants

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	In a change from proposal, the allowed filter temperatures in §§ 60.293(f) and 60.296(d)(2) are not revised. Based on comments we received on the proposed revisions, we are deferring finalizing the proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

Part 60, Subpart GG – Stationary Gas Turbines

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	The definitions of terms for the equation in §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

Part 60, Subpart KK – Lead-Acid Battery Manufacturing Plants

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Method 29 is allowed as an alternative to Method 12 in §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

Part 60, Subpart LL – Metallic Mineral Processing Plants

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	An error in the value of the particulate matter standard in §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.

Part 60, Subpart UU – Asphalt Processing and Asphalt Roofing Manufacturing

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.

Part 60, Subpart AAA – Standards of Performance for New Residential Wood Heaters

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§60.534(h), the language is amended based on comments received in response to an Advance Notice of Proposed Rulemaking (ANPRM), for Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces (83 FR 61585, November 30, 2018). Several commenters stated that the final clause of these existing paragraphs would create loopholes that allow manufacturers and test labs to withhold critical testing data. The EPA recognizes that this provision was not intended to create an avenue for omissions and is clarifying these communications and their reporting.

Part 60, Subpart AAA – Standards of Performance for New Residential Wood Heaters (continued)

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Amended to add stipulations for use of the ASTM E2515– 11 test method. The stipulations modify the post-test leak check procedures as well as add procedures for performing leak checks during a sampling run. The stipulations to ASTM E2515–11 are necessary as we have learned that the quality assurance/quality control (QA/ QC) requirements for leak tests required by ASTM E2515–11, section 9.6.5.1 are not sufficient to provide assurance of the sampling system integrity. Additionally, the language of ASTM E2515–11, section 9.6.5.1 currently allows for averaging the particulate matter (PM) results from a non-leaking sampling system with those from a leaking sampling system, which effectively reduces reported PM emissions by as much as half, rendering the test method inappropriate for compliance determination. Revised the language in §60.534(c) and developed new language to replace ASTM E2515–11, section 9.6.5.1 by adding §60.534(c)(1), which specifies appropriate post-test leak check procedures and in §60.534(c)(2) by adding procedures for performing leak checks during a sampling run. These modifications bring appropriate QA/QC requirements to PM measurements required by the rule and eliminate opportunity for emissions test results to be considered valid when a leaking sampling system allows dilution of the PM sample(s). This language was amended slightly based on comments received to further clarify that sample volume collected during the process of conducting leak checks during a test run is not to be included in the overall sampling volume as it would dilute the collected sample volume were it treated in that manner. §60.534(d), the first hour PM emissions measurements are to be conducted using a separate ASTM E2515–11 sampling train operated concurrently with the paired ASTM E2515–11 sampling trains used in compliance PM sampling. In this manner, the first hour PM emissions will be collected appropriately, and the compliance test measurements will not be impacted by a sampling pause for filter replacement at the 1-hour mark.

Part 60, Subpart AAA – Standards of Performance for New Residential Wood Heaters (continued)

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	The regulatory language in §60.539b(b) is revised to include General Provisions that were added to §60.8(f)(2) (81 FR 59801, August 30, 2016) and were inadvertently exempted from inclusion in subpart AAA as that rule, as promulgated in 2015, exempted §60.8(f) in its entirety. The exemption promulgated in subpart AAA at §60.539b(b) was intended to exempt those affected sources from §60.8(f), which, at the time, consisted of what is now currently §60.8(f)(1) and is specific to compliance testing results consisting of the arithmetic mean of three replicate tests. These modifications will ensure that emissions test reporting includes all data necessary to assess and assure the quality of the reported emissions data and appropriately describes and identifies the specific unit covered by the emissions test report. Since compliance tests in this category consist of a single test, the original regulatory exemption to the General Provisions of §60.8(f)(1) is retained.

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

Proposed		Promulgated		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	References to paragraphs in §60.660(c)(4) and §60.665(h)(2) and (3) are corrected.

Part 60, Subpart XXX – Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014

Proposed		Promulgated		**Description**
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§60.766(a)(3), the text for calibration of temperature measurement is revised to provide clarity and improve the consistency of implementation

Part 60, Subpart CCCC – Standards of Performance for Commercial and Industrial Solid Waste Incineration Units

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	Subpart CCCC of Part 60 is revised to clarify that (1) initial and annual performance testing for particulate matter (PM) for waste-burning kilns and energy recovery units (ERU) is to be conducted using Method 5 or Method 29 of Appendix A of Part 60; (2) the required particulate matter continuous parameter monitoring system (PM CPMS) is used to demonstrate continuing compliance with the PM emission limit; and (3) heat input information must be reported for each ERU. The current language in 40 CFR 60.2110(i), (i)(1)(iii) and 60.2145(b), when read together, make it clear that for purposes of demonstrating compliance with the PM emission limit, there must be initial testing and subsequently, annually and for ongoing continuous demonstration of compliance, that data from the compliant performance test in turn must be used to set an operating limit for the PM CPMS. Paragraphs 60.2110(i)(1) and 60.2145(j) are revised to clarify that the PM CPMS coupled with an operating limit is used for continuing compliance demonstration with the PM emission limit. Paragraphs 60.2110(i)(1)(iii) and (i)(2) are revised to include Method 29 as an alternative to Method 5 to measure PM in determining compliance with the PM emission limit. Paragraph 60.2145(j) is also revised to add PM to the list of pollutants for which performance tests are conducted annually. Paragraph (p) is added to 40 CFR 60.2210 to require that annual reports include the annual heat input and average annual heat input rate of all fuels being burned in ERUs in order to verify which subcategory of ERU applies. The required annual performance test timeframe is changed from ‘‘between 11 and 13 calendar months following the previous performance test’’ to ‘‘no later than 13 calendar months following the previous performance test’’ in paragraphs 60.2145(y)(3) and 60.2150. The current 2-month testing range can present operational and testing challenges for facilities that have multiple commercial and industrial solid waste incineration (CISWI) units. In addition, this revision is consistent with other rules, such as the National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors, that maybe applicable to CISWI units.

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Part 60, Subpart CCCC – Standards of Performance for Commercial and Industrial Solid Waste Incineration Units (continued)

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	Tables 6 (Emission Limitations for Energy Recovery Units) and 7 (Emission Limitations for Waste-Burning Kilns) are revised to clarify the performance test method for PM. The fourth column of the ‘‘Particulate matter (filterable)’’ row of Table 6 is revised to remove the requirement to use a PM CPMS as the performance test method for large ERU. The fourth column of the ‘‘Particulate matter (filterable)’’ row of Table 7 is revised to remove the requirement to use a PM CPMS and to instead specify Methods 5 and 29 as alternatives for measuring PM to determine compliance with the PM limit. The third column of the ‘‘Particulate matter (filterable)’’ row of Table 7 is changed from a 30-day rolling average to specify a 3-run average with a minimum sample volume of 2 dry standard cubic meters (dscm) per run

Part 60, Subpart DDDD – Emission Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	Subpart DDDD of part 60 is revised to clarify that (1) initial and annual performance testing for PM for waste-burning kilns and ERU is to be conducted using Method 5 or Method 29 of Appendix A of part 60; (2) the required PM CPMS is used to demonstrate continuing compliance with the PM emission limit; and (3) heat input information must be reported for ERU. The current language in 40 CFR 60.2675(i) and (i)(1)(iii) and 60.2710(b), when read together, makes it clear that for purposes of demonstrating compliance for PM, performance testing must be used initially and then annually while for purposes of ongoing continuous demonstration of compliance, data from the compliant performance test is in turn to be used to set an operating limit for the PM CPMS. Paragraphs 60.2675(i)(1) and 60.2710(j) are revised to clarify that the PM CPMS is used for continuing compliance demonstration with the PM emission limit. Paragraph 60.2710(j) is also revised to clarify that PM performance tests are conducted annually and 40 CFR 60.2675(i)(1)(iii) and (i)(2) are revised to include Method 29 as an alternative to Method 5 to measure PM in determining compliance with the PM emission limit. Also, the required annual performance test timeframe is changed from ‘‘between 11 and 13 calendar months following the previous performance test’’ to ‘‘no later than 13 calendar months following the previous performance test’’ in 40 CFR 60.2710(y)(3) and 60.2715. The current 2-month testing range can present operational and testing challenges for facilities that have multiple CISWI units. Additionally, we note that this revision is consistent with other rules, such as the National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors that might be applicable to CISWI units.

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Part 60, Subpart DDDD – Emission Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units (continued)

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	Tables 7 (Emission Limitations for Energy Recovery Units) and 8 (Emission Limitations That Apply to Waste Burning Kilns) are revised to clarify the performance test method for PM. The fourth column of the ‘‘Particulate matter filterable’’ row of Table 7 is revised to remove the requirement to use a PM CPMS as the performance test method for large ERU. The fourth column of the ‘‘Particulate matter filterable’’ row of Table 8 is revised to specify Methods 5 and 29 as alternatives for measuring PM to determine compliance with the PM emission limit. The third column of the ‘‘Particulate matter filterable’’ row of Table 8 is changed from a 30-day rolling average to specify a 3-run average with a minimum sample volume of 1 dscm per run.

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Part 60, Subpart IIII – Stationary Compression Ignition Internal Combustion Engines				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.

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Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	We received a request for a public hearing on this rule. We held a hearing in Research Triangle Park, North Carolina on October 8, 2015. All comments received at that hearing were related to our proposed revisions to subpart JJJJ, and a transcript of that hearing is available in the rule docket [EPA–HQ–OAR–2014–0292]. We also received a substantial number of comments from the public, both supportive of and in opposition to the revisions that we proposed. At issue is the use of specific methodologies in a manner allowing a tester to speciate the volatile organic compounds (VOC) in the emissions and, from those speciated measurements, calculate a total VOC emissions rate using Fourier Transform Infrared Spectroscopy (FTIR using Method 320 or ASTM D6348–03) or Method 18, a measurement methodology that makes use of a combination of capture and analytical approaches. We proposed to remove Method 320 and ASTM D6348– 03 as options for measuring VOC emissions under subpart JJJJ due to the lack of a consistent, demonstrable, and validated approach to measuring total VOC emissions. This decision was primarily due to the lack of a discrete list of compounds identified as those constituting the total VOC for the sources affected by subpart JJJJ. We proposed to eliminate the option to use these measurement approaches and leave Method 25A itself, a total hydrocarbon measurement approach, as the sole means of determining compliance with the total VOC emissions limits in the rule. We are concerned that implementation of Methods 320, ASTM D6348–03, and Method 18 does not provide proper and consistent quality assurance (QA) for compliance demonstration with total VOC measurement as required under subpart JJJJ.

Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (continued)				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Several commenters stated that prohibiting the use of FTIR to measure VOC and leaving Method 25A as the sole means of demonstrating compliance would result in an increased cost to industry. The commenters reasoned that this would decrease the number of tests that could be conducted in a single day because Method 25A requires more time to set up and run. We did not find compelling support for this argument. A properly conducted emissions test using FTIR technology and Method 320 or ASTM D6348–03 takes several hours to conduct, including time for equipment setup including the same sampling probe and heated sample transport line requirements as Method 25A, warmup which takes the same amount of time as Method 25A, conducting appropriate calibration and spiking data quality assessments very similar in duration to the required Method 25A calibration, actual source sampling time to span three 1-hour periods, leak tests, and post-test QA procedures common to each method. While it is possible to conduct two such test runs in a single 12- to 14-hour day, it is likewise possible to conduct two such test runs with Method 25A in that same time frame. Several commenters also remarked that using FTIR is less complex, easier, and quicker than using Method 25A, but we do not find this argument sufficiently compelling to reverse our proposed revisions. We understand that while an experienced spectroscopist can operate an FTIR with relative ease as compared to a novice, the process of quality assuring emissions data measured by FTIR in accordance with Method 320 or ASTM D6348–03 is not a trivial matter. Calibration checks and matrix spiking of target compounds, including the ‘‘most difficult to recover’’ compound (as required by Method 320), is both challenging and time consuming due to the need to rule out interferences that may be caused by the emissions gas matrix while working to individually quantify each VOC in that matrix. In summation, we do not agree that the use of FTIR for quantification of total VOC is quick, easy or less expensive to conduct when compared with the use of Method 25A.

Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (continued)				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Several commenters provided information to the docket, and others stated individually during the public hearing that they have provided a list of VOC to the docket, or have compiled a list of VOC or recommend that EPA address the FTIR measurement issue through the agency providing a list of VOC that make up 95 percent of the emissions from natural gas-fired spark ignition (SI) engines. We agree with commenters that a list of VOC could be developed; however, we recognize that the list must represent total VOC (all the VOC that could be emitted from SI engines affected by subpart JJJJ), as that is the compliance requirement stated in the rule. We have not stated that 95 percent of the VOC emissions are the target goal for such a list. In a memo to the docket of this rule (Technical memorandum dated September 28, 2015, to Docket ID No. EPA–HQ–OAR– 2014–0292 titled, ‘‘Proposal to remove Methods 18, 320, and ASTM D6348–03 as Acceptable Methods for Measuring Total VOC Under 40 CFR 60, Subpart JJJJ’’), we state that we are actively seeking sufficient documentation to create a complete list of VOC to support a speciated hydrocarbon measurement approach such as FTIR and/or Method 18. We received data from commenters that moves us toward compiling such a list, but we did not receive sufficient demonstration that all VOC were represented in that list. Additionally, while we received information on VOC present in well-operated and controlled engines, the data does not include VOC that may be present largely during, or only during, poor performance periods and could, thereby, serve as key indicators of engines that are not well operated, well-controlled, or in compliance with the applicable standard. Therefore, we remain unable to define a complete list of VOC that would need to be quantified by a speciated measurement approach to demonstrate that total VOC were measured during a compliance test. Even so, we are swayed by arguments such as those made in support of speciated measurement approaches, specifically their ability to account for methane and ethane as separate quantifiable emissions.

Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (continued)

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Two commenters remarked that they do not believe that Method 25A is able to produce accurate total VOC values because there is an inherent issue with the ‘‘difference or subtraction’’ method when applied to compressed natural gas (CNG)-based emissions. We reviewed the data provided by the commenters in this respect and did not arrive at the same conclusion. Our review shows that the commenters appear to double-count some of the emissions in arriving at their results and do not present compelling evidence that demonstrates the ability of a hydrocarbon cutter to remove all ethane from the measured gas. Two commenters stated that FTIR can measure real-time non-methane, nonethane VOC. We agree that this speciated approach is capable of providing emissions data for methane, ethane, and other VOC in near-real-time. One commenter recommended that we allow FTIR methods since FTIR is the only technology that can provide a mass emissions rate and since FTIR does not have a zero drift nor calibration drift problem like Method 25A. Subpart JJJJ requires the calculation of a mass emissions rate on a propane basis and Method 25A, calibrated with propane and using the molecular weight of propane (44.01 lb/lb-mol) for mass emissions calculations, is quite capable of providing a mass emissions rate appropriate for determination of compliance with the VOC standards in subpart JJJJ. In regard to zero drift, Method 25A has QA and quality control (QC) criteria to limit the acceptance of data where instrument drift is excessive. Three commenters noted that we did not provide supporting data for proposing to disallow FTIR methods that have been allowed under subpart JJJJ for the past 7 years. We submitted a supporting memo to the docket (Technical memorandum dated September 28, 2015, to Docket ID No. EPA–HQ–OAR–2014–0292 titled, ‘‘Proposal to Remove EPA Methods 18, 320, and ASTM D6348–03 as Acceptable Methods for Measuring Total VOC Under 40 CFR 60, Subpart JJJJ’’) that provides the reasoning and justification for our proposal.

Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (continued)

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	One commenter recommended that changes to subpart JJJJ test methods be proposed as a separate rulemaking under subpart JJJJ. We believe that we have the authority to make necessary or otherwise appropriate changes to a specific test procedure or pollutant measurement requirement in a rule through this periodic rulemaking. One commenter agreed with our proposed position that FTIR should not be used to measure total VOC, but remarked that Method 18 should continue to be allowed since it allows direct measurement of VOC constituents using gas chromatography and does not rely on differential methods or require multiple test methods. We found the latter arguments and reasoning to be persuasive and compelling. Method 18 does contain provisions to screen and calibrate for VOC present in the emissions and thereby measure total VOC from a specific source. While this can be a complex and sometimes tedious undertaking, we recognize that it is an appropriate approach to measure total VOC from a specific source and are modifying the final rule language to reflect that this is allowable. Two additional commenters agreed with our proposed position that the current FTIR methodologies are not adequately measuring total VOC. One of the commenters remarked that testers do not provide adequate total VOC results. The other commenter recommended only allowing FTIR if the QA is complete and accurate and if all VOC are proven to be accounted for. We are swayed by this commenter's support for complete QA/QC of data and stipulation that all VOC are proven to be accounted for. Although we do not currently possess sufficient data to compile a complete list of VOCs expected to be emitted from SI engines, we believe that where data with complete QA/QC are available, we may acquire sufficient data over time. This action finalizes requirements to clarify the conduct of QA/QC procedures and report the QA/QC data with the emissions measurement data when applying Method 320 and ASTM D6348–03. We will revisit this decision and make a subsequent determination of the appropriateness for the use of Method 320 and/or ASTM–D6348 during the first risk and technology review evaluation for this sector.

Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (continued)				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	In Table 2 of subpart JJJJ, the allowances to use Method 320 and ASTM D6348–03 are retained. The language requiring the reporting of specific QA/QC data when these test methods are used has been added to paragraph 60.4245(d). The typographical error in the proposed Table 2 of subpart JJJJ is corrected; ‘‘methane cutter’’ is replaced with ‘‘hydrocarbon cutter’’ in paragraph (5) of section c.
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	In Table 2 of subpart JJJJ, text is added to clarify that when stack gas flowrate measurements are necessary, they must be made at the same time as pollutant concentration measurements unless the option in Method 1A is applicable and is being used

Part 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	In 2006, the EPA promulgated the combustion turbine criteria pollutant NSPS, subpart KKKK of 40 CFR part 60 (71 FR 38482, July 6, 2006). This rule, which includes a sulfur dioxide (SO2) emissions standard for all fuels, such as natural gas, also made provisions to minimize the compliance burden for owners/ operators of combustion turbines burning natural gas and/or low sulfur distillate oil. At the time, the Agency recognized that any SO2 testing requirements for owners/operators of combustion turbines burning natural gas would result in compliance costs without any associated environmental benefit. The initial and subsequent performance tests required in 40 CFR 60.4415 may be satisfied by fuel analyses performed by the facility, a contractor, the fuel vendor, or any other qualified agency as described in 40 CFR 60.4415(a)(1). However, the allowed fuel sample and sulfur content measurement methods are not typically used by fuel vendors and, as a result, tariff sheets cannot be used without approval of an alternate method. We further explained that owner/operators of the combustion turbines were now conducting sampling and testing using a limited number of test methods, which is a burden that was not intended in the original rulemaking. To align the rule requirements with the original intent of subpart KKKK, the EPA proposed and solicited comment on additional sampling and sulfur content measurement methods in order to provide flexibility to the regulatory community for purposes of satisfying the SO2 performance testing requirements. Commenters supported both test methods the EPA specifically proposed and test methods the EPA solicited comments on as additional compliance options. Commenters also stated that the EPA should align the performance testing requirements in 40 CFR 60.4415 with the monitoring requirements in 40 CFR 60.4365 and allow the use of a fuel tariff sheet or contract to satisfy the performance testing requirements. Commenters further requested that the EPA should allow for the use of the fuel sampling procedures specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 to demonstrate compliance with the SO2 performance testing requirements. The EPA did not receive any comments opposing the proposed amendments.

Part 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines (continued)

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	In this action, 40 CFR 60.4415(a) is amended, as proposed, to include GPA 2166 and ISO 10715 for manual sampling of gaseous fuels and GPA 2174 for manual sampling of liquid fuels. In addition, in response to comments supporting the EPA's solicitation for comment on additional test methods, 40 CFR 60.4415(a) is amended to include API MPMS 14.1 for manual sampling of gaseous fuels. In response to comments supporting the EPA's solicitation for comment for determining the sulfur content of liquid fuels, 40 CFR 60.4415(a) is amended to include ASTM D5623 and ASTM D7039. In response to comments supporting the EPA's solicitation for comment for determining the sulfur content of gaseous fuels, 40 CFR 60.4415(a) is amended to include GPA 2140 and GPA 2261. The EPA has determined that these additional test methods will provide additional flexibility to the regulated community without any emissions increase. In addition, in response to comments, the EPA is amending 40 CFR 60.4415(a) to allow for the use of a purchase contract, tariff sheet, or transportation contract for the fuel as an option for demonstrating compliance with the SO2 performance testing requirements. Also, in response to comments, 40 CFR 60.4415(a) is amended to allow for the use of the fuel sampling procedures specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 to demonstrate compliance with the SO2 performance testing requirements. These amendments will align the performance testing requirements with the monitoring requirements in 40 CFR 60.4365 and are consistent with the original intent, including the estimated regulatory burden, of the rule. Therefore, the EPA considers these options sufficient to demonstrate compliance with subpart KKKK. The Agency notes that this approach is consistent with the SO2 performance testing requirements in other NSPS (e.g., 40 CFR 60.49b(r) in subpart Db).

Part 60, Subpart QQQQ – Standard of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	Method 28WHH, in §13.5.1, equation 8 is corrected
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	In subpart QQQQ, in 40 CFR 60.5476(i), the language is amended based on comments received in response to an ANPRM for Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces (83 FR 61585, November 30, 2018). Several commenters stated that the final clause of these existing paragraphs would create loopholes that would likely allow manufacturers and test labs to withhold critical testing data. The EPA recognizes that this provision was not intended to create an avenue for omissions and has now clarified these communications and their reporting.
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Erroneous PM emission limits in g/MJ in §60.5474(b)(2), (3) and (6) are corrected. Amended to add stipulations for use of the ASTM E2515–11 test method. The stipulations modify the post-test leak check procedures as well as add procedures for performing leak checks during a sampling run. The stipulations to ASTM E2515–11 are necessary as we have learned that the QA/QC requirements for leak tests required by ASTM E2515–11, §9.6.5.1 are not sufficient to provide assurance of the sampling system integrity. Additionally, the language of ASTM E2515–11, §9.6.5.1 currently allows for averaging the PM results from a non- leaking sampling system with those from a leaking sampling system, which effectively reduces reported PM emissions by as much as half, rendering the test method inappropriate for compliance determination. The language in §60.5476(c)(5) and (6) is removed and the paragraphs are reserved.

Part 60, Subpart QQQQ – Standard of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces (continued)

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	Revised the language in §60.5476(f) and developed new language to replace ASTM E2515–11, section 9.6.5.1 by adding §60.5476(f)(1), which specifies appropriate post-test leak check procedures and in §60.5476(f)(2) by adding procedures for performing leak checks during a sampling run. These modifications bring appropriate QA/QC requirements to PM measurements required by the rule and eliminate opportunity for emissions test results to be considered valid when a leaking sampling system allows dilution of the PM sample(s). This language was amended slightly based on comments received to further clarify that sample volume collected during the process of conducting leak checks during a test run should not be included in the overall sampling volume as it would dilute the collected sample volume were it treated in that manner. In §60.5476(f), we are also requiring that first hour PM emissions measurements be conducted using a separate ASTM E2515–11 sampling train operated concurrently with the paired ASTM E2515–11 sampling trains used in compliance PM sampling. In this manner, the first hour PM emissions will be collected appropriately, and the compliance test measurements will not be impacted by a sampling pause for filter replacement at the one-hour mark. In §60.5476(f), we incorporated language about filter type and size acceptance currently in §60.5476(c)(5). Additionally, we removed language relating to EN 303–5 currently found in §60.5476(f). The regulatory language in §60.5483(b) is revised to include General Provisions that were added to §60.8(f)(2) (81 FR 59801, August 30, 2016) and were inadvertently exempted from subpart QQQQ as that rule, as promulgated in 2015, exempted §60.8(f) in its entirety. The exemption promulgated in subpart QQQQ at §60.5483(b) was intended for those affected sources subject to §60.8(f), which, at the time, consisted of what is currently §60.8(f)(1) and is specific to compliance testing results consisting of the arithmetic mean of three replicate tests. These modifications ensure that emissions test reporting includes all data necessary to assess and assure the quality of the reported emissions data and appropriately describes and identifies the specific unit covered by the emissions test report. Since compliance tests in this category consist of a single test, the original regulatory exemption to the General Provisions of §60.8(f)(1) is retained.

Part 60, Subpart QQQQ – Standard of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces (continued)

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	In subpart QQQQ, in method 28WHH, in §13.8, the erroneous CO calculation instructions for equation 23 are corrected to include the summation of CO emissions over four test categories instead of three.

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Part 61, Appendix B

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
101	36 FR 23239	12/07/1971	38 FR 08820	04/06/1973	**Original Action** - Determination of Particulate and Gaseous Mercury Emissions from Chlor-Alkali Plants—Air Streams
	45 FR 68514	10/15/1980	47 FR 24703	06/08/1982	Revisions
			49 FR 35768	09/12/1984	Corrected an error which resulted when several sentences are inadvertently deleted before publication
			53 FR 36972	09/23/1988	Corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow analysis by ICP–AES or CVAFS as alternatives to AA analysis
101A	45 FR 68514	10/15/1980	47 FR 24703	06/08/1982	**Original Action** - Determination of Particulate and Gaseous Mercury Emissions from Sewage Sludge Incinerators
			49 FR 35768	09/12/1984	Corrected an error which resulted when several sentences are inadvertently deleted before publication
			53 FR 36972	09/23/1988	Corrections
			61 FR 18262	04/25/1996	Revisions - Consistency with Method 29
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow analysis by ICP–AES or CVAFS as alternatives to AA analysis

Part 61, Appendix B (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
102	36 FR 23239	12/07/1971	38 FR 08820	04/06/1973	**Original Action** - Determination of Particulate and Gaseous Mercury Emissions from Chlor-Alkali Plants—Hydrogen Streams
	45 FR 68514	10/15/1980	47 FR 24703	06/08/1982	Revisions
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Mercury-free thermometers are allowed in place of mercury-in-glass thermometers.
103	36 FR 23239	12/07/1971	38 FR 08820	04/06/1973	**Original Action** - Beryllium screening method
			48 FR 55266	12/09/1983	Revised to incorporate metric units in data collection and calculations §2.1.3 Added quality specifications for filter
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
104	36 FR 23239	12/07/1971	38 FR 08820	04/06/1973	**Original Action** - Determination of beryllium emissions from stationary sources
			48 FR 55266	12/09/1983	Revised to incorporate metric units in data collection and calculations §3.1.1 Added quality specifications for filter. §3.1.2 Added quality specification for reagent water
			53 FR 36972	09/23/1988	Corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.

Part 61, Appendix B (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
105	39 FR 38064	10/28/1974	40 FR 48292	10/14/1975	**Original Action** - Determination of mercury in wastewater treatment plant sewage sludges
	48 FR 51064	11/04/1983	49 FR 35768	09/12/1984	Changes in the sampling and analytical procedure, which will improve the precision and accuracy of the method, are being made as a result of field and laboratory evaluations of the method.
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
106	40 FR 59532	12/24/1975	41 FR 46560	10/21/1976	**Original Action** - Determination of vinyl chloride emissions from stationary sources
	41 FR 53017	12/03/1976	42 FR 29005	06/07/1977	§4.3.2 Revised ta allow the option of using Poropak T as the column packing instead of GE SF-96 in a secondary gas chromatographic column if acetaldehyde is present. This packing has also been shown to produce adequate separation of vinyl chloride and acetaldehyde. §6.2 Amended to include a limit on the amount of time a test sample can be kept before it is analyzed for vinyl chloride. The remaining changes are corrections of typographical errors or are self-explanatory.
	45 FR 76346	11/18/1980	47 FR 39168	09/07/1982	Sample bag size can range from 50 to 100 liters rather than the single size bag previously required. Analysis audit and chromatograph with resolution quality assurance requirements are added.
			53 FR 36972	09/23/1988	Corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 61, Appendix B (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
107	40 FR 59532	12/24/1975	41 FR 46560	10/21/1976	**Original Action** - Determination of vinyl chloride content of in-process wastewater samples, and vinyl chloride content of polyvinyl chloride resin slurry, wet cake, and latex samples
	41 FR 53017	12/03/1976	42 FR 29005	06/07/1977	§1.2 Amended to clarify that chromatograph parameters can be altered if the precision and reproducibility of analysis of vinyl chloride cylinder standards is not impaired. §5.3.2 Amended to allow the use of a pair of Poropak Q columns if methanol or acetaldehyde is present in the sample. Clarification for the term K_w has been added to § 9.2. The remaining changes are corrections of typographical errors or are self-explanatory
	45 FR 76346	11/18/1980	47 FR 39168	09/07/1982	Head space vial pre-pressurizer is added to obtain correct head space gas equilibrium. Different chromatograph columns are suggested for analysis. Chromatograph resolution quality assurance requirements are added.
			52 FR 20397	06/01/1987	Alternative calibration procedure
			53 FR 36972	09/23/1988	Corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	Deletes term “Geon” in section 11.7.3 heading
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	Equation 107–3 is corrected by adding the omitted plus (+)

Part 61, Appendix B (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
107A	46 FR 12188	02/12/1981	47 FR 39485	09/08/1982	**Original Action** - Determination of vinyl chloride content of solvents, resin-solvent solution, polyvinyl chloride resin, resin slurry, wet resin, and latex samples
			53 FR 36972	09/23/1988	Corrections
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
108	48 FR 33112	07/20/1983	51 FR 27956	08/04/1986	**Original Action** - Determination of vinyl chloride content of solvents, resin-solvent solution, polyvinyl chloride resin, resin slurry, wet resin, and latex samples
			48 FR 40911	09/12/1983	Corrections to 48 FR 33112 (07/20/1983)
			51 FR 35354	10/03/1986	Corrections to 51 FR 27956 (08/04/1986)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow analysis by ICP–AES as an alternative to AA analysis. A new alternative procedures section is added to address ICP–AES.
108A	48 FR 33112	07/20/1983	51 FR 27956	08/04/1986	**Original Action** - Determination of arsenic content in ore samples from nonferrous smelters
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow analysis by ICP–AES as an alternative to AA analysis. A new alternative procedures section is added to address ICP–AES.

Part 61, Appendix B (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
108B	54 FR 03791	01/26/1989	51 FR 22026	05/31/1990	**Original Action** - Determination of arsenic content in ore samples from nonferrous smelters (Alternative to 108A)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
108C	54 FR 03791	01/26/1989	55 FR 22026	05/31/1990	**Original Action** - Determination of arsenic content in ore samples from nonferrous smelters (molybdenum blue photometric procedure)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
109	52 FR 13586	04/23/1987			**Original Action** - Determination of Visible Emissions from Coke Oven Batteries (used to develop M303)
111	48 FR 15076	04/06/1983	50 FR 05190	02/06/1985	**Original Action** - Determination of Polonium—210 emissions from stationary sources
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
114	54 FR 09612	03/07/1989	54 FR 51695	12/15/1989	**Original Action** - Test Methods for Measuring Radionuclide Emissions from Stationary Sources
115	54 FR 09612	03/07/1989	54 FR 51702	12/15/1989	**Original Action** - Monitoring for Radon-222 Emissions

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Part 61, Subpart A – General Provisions

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
		48 FR 55266	12/09/1983	§61.18 Incorporate by reference the quality specifications for the reagent water required by Method 104, and for the filter media required by Methods 103 and 104.
		53 FR 36972	09/23/1988	Corrections
		55 FR 32913	08/13/1990	§61.18 The second paragraph (a)(7) is removed §61.18 Paragraph (a)(11) is added
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Methods 3A and 19 are added to the list of methods not requiring the use of audit samples in Section 61.13(e).
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§61.13(e)(1)(i) of the General Provisions of Part 61 is revised to add Methods 30A and 30B to the list of methods not requiring the use of audit samples.

Part 61, Subpart C – Beryllium

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Method 29 of part 60 is added as an acceptable alternative to Method 104 in Section 61.33(a) for emissions testing

Part 61, Subpart D – Beryllium Rocket Motor Firing

Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	A conversion error in the emission standard in §61.42(a) is corrected.

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Part 61, Subpart E – Mercury				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Method 29 of part 60 is added as an acceptable alternative to Method 101A in §61.53(d)(2) for emissions testing

Part 61, Subpart N – Inorganic Arsenic Emissions from Glass Manufacturing Plants				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Method 29 in Appendix A of part 60 is added as an acceptable alternative to Method 108 in §61.164(d)(2)(i) for determining the arsenic emissions rate and in §61.164(e)(1)(i) and (e)(2) for determining the arsenic concentration in a gas stream.

CHRONOLOGY OF EPA EMISSION TEST METHODS
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Office of Air Quality Planning and Standards (OAQPS)

Part 63 Appendix A

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
301			57 FR 61970	12/29/1992	Field data validation protocol
			69 FR 76642	12/22/2004	Revisions
			76 FR 28664	05/18/2011	Revisions
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§11.1.3, the erroneous SD in Equation 301–13 is replaced with SD_d,
302					(Reserved)
303			58 FR 57898	10/27/1993	Coke Oven Door Emissions
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	70 FR 45608	08/08/2005	74 FR 12575	03/25/2009	A statement on varying the time of day runs are taken that was deleted by mistake in a recent amendment of the method has been added.
			81 FR 83701	11/22/2016	Clarifies certification training requirements
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§12.4, Equation 303–3 is corrected by inserting ‘‘where y = ’’ in front of the equation.
304	57 FR 62608	12/31/1992			Promulgated as Method 304A and 304B in 59 FR 19402 (04/22/1994)
304A			59 FR 19402	04/22/1994	**Original Action** – Determination of Biodegradation Rates of Organic Compounds (Vented Option)
			62 FR 2793	01/17/1997	Revised method
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format

Part 63 Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
304B			59 FR 19402	04/22/1994	**Original Action** – Determination of Biodegradation Rates of Organic Compounds (Scrubber Option)
			62 FR 2793	01/17/1997	Revised method
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
305	57 FR 62608	12/31/1992	59 FR 19402	04/22/1994	**Origin Action** – Measurement of Emissions Potential of Individual Volatile Organic Compounds in Water
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
306	58 FR 65768	12/16/1993	60 FR 4948	01/25/1995	**Original Action** - Determination of Chromium Emissions from Decorative and Hard Chromium Electroplating and Anodizing Operations
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to remove references to two figures that do not exist. Clarify the conditions under which ICP is appropriate for sample analysis. Alternative mercury-free thermometers are allowed as alternatives to mercury-in-glass thermometers.
306A	58 FR 65768	12/16/1993	60 FR 4948	01/25/1995	**Original Action** - Determination of Chromium Emissions from Decorative and Hard Chromium Electroplating and Anodizing Operations (Simplified method)
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Information is added to clarify the conditions under which sample filtering is required

Part 63 Appendix A (continued)

Method	**Proposed**		**Promulgated**		**Description**
	Reference	**Date**	**Reference**	**Date**	
306B	58 FR 65768	12/16/1993	60 FR 4948	01/25/1995	**Original Action** - Surface Tension Measurement and Recordkeeping for Chromium Plating Tanks Used at Electroplating and Anodizing Facilities
	62 FR 45369	08/27/1997	65 FR 61744	10/17/2000	Fitted to new EMMC format
307	58 FR 62566	11/29/1993	59 FR 61801	12/02/1994	**Original Action** - Determination of Emissions from Halogenated Solvent Vapor Cleaning Machines Using a Liquid Level Procedure.
308	58 FR 66078	12/17/1993	63 FR 18504	04/15/1998	**Original Action** - Determination of Methanol Emission from Stationary Sources
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.

Part 63 Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
308 (cont.)	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	Deionized distilled water replaces the aqueous n-proponal solution; the affected are §2.0, §7.2.2, §7.2.3.3, and §11.3.2. §7.2.2, which defines the aqueous n-proponal solution, is removed. §7.2.3.3, the erroneous ‘‘four’’ is replaced with ‘‘three’’ in the sentence that reads ‘‘Pipette 5, 15, and 25 ml of this standard, respectively into four 50-ml volumetric flasks.’’ §8.1.2 is revised to require a leak check prior to the sampling run (in addition to after the sampling run) for QA purposes. §9.1, methanol spike recovery check is added as a quality control (QC) measure in Table 9.1. §12.1, variables used in Equations 308–4 and 308–5 are added and §12.5, which includes equations 308–4 and 308–5, is added. §13.0, the title ‘‘Reserved’’ is replaced with ‘‘Method Performance’’ and QA requirements would be added to be consistent with other methods. The erroneous proposed paragraph (a) of section 13.0 is replaced with ‘‘Calibration standards must meet the requirements in §10.2.1 or §10.2.2 as applicable
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§12.4, erroneous Equation 308–3 is corrected §12.5, erroneous Equation 308–5 is corrected
309	59 FR 29216	06/06/1994			Aerospace solvent recovery material balance
310A	61 FR 46906	09/05/1996	62 FR 12546	03/17/1997	**Original Action** - Determination of Residual Hexane Through Gas Chromatography (DSM Copolymer method)
310B	61 FR 46906	09/05/1996	62 FR 12546	03/17/1997	**Original Action** - Determination of Residual Hexane Through Gas Chromatography (Uniroyal Chemical method)

Part 63 Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
310C	61 FR 46906	09/05/1996	62 FR 12546	03/17/1997	**Original Action** - Determination of Residual N-Hexane in EPDM Rubber Through Gas Chromatography (Exxon method)
311	59 FR 62652	12/06/1994	60 FR 62930	12/07/1995	**Original Action** - Analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection into a Gas Chromatograph
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§1.1, ASTM D4747–87 is updated to D4747–02, and ASTM D4827–93 is updated to D4827–03. §1.1, Provisional Standard Test Method, PS 9–94 is replaced with D5910–05. §17, ASTM D4457–85 is updated to ASTM D4457–02, and ASTM D4827– 93 is updated to ASTM D4827–03
312A	61 FR 46906	09/05/1996	62 FR 12546	03/17/1997	**Original Action** - Determination of Styrene in Latex Styrene-Butadiene Rubber Through Gas Chromatography (Goodyear Tire and Rubber Company method)
312B	61 FR 46906	09/05/1996	62 FR 12546	03/17/1997	**Original Action** - Determination of Residual Styrene in Styrene-Butadiene Rubber (SBR) Latex by Capillary Gas Chromatography (Ameripol Synpol Corporation method)
312C	61 FR 46906	09/05/1996	62 FR 12546	03/17/1997	**Original Action** – Determination of Residual Styrene in SBR Latex Produced by Emulsion Polymerization (DSM Copolymer method)
313A	61 FR 46906	09/05/1996	62 FR 12546	03/17/1997	**Original Action** – Determination of Residual Hydrocarbons in Rubber Crumb (American Synthetic Rubber Corporation method)
313B	61 FR 46906	09/05/1996	62 FR 12546	03/17/1997	**Original Action** – Determination of Residual Hydrocarbon in Solution Polymers by Capillary Gas Chromatography (Goodyear Tire and Rubber Company method)

Part 63 Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
314	Tentative				Halogenated compounds in solvents
315	61 FR 50586	09/26/1996	62 FR 52418	10/7/1997	**Original Action** – Determination of Particulate and Methylene Chloride Extractable Matter (MCEM) from Selected Sources at Primary Aluminum Production Facilities
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	Figure 315–1, an omission is corrected by adding a ‘‘not to exceed’’ blank criteria for filters used in this test procedure. The blank criteria were derived from evaluation of blank and spiked filters used to prepare Method 315 audit samples. We set the allowable blank correction for filters based on the greater of two criteria. The first criterion requires the blank to be at least 10 times the measured filter blanks from the audit study. The second criterion requires the blank to be at least 5 times the resolution of the analytical balance required in Method 315. The ‘‘not to exceed’’ value is, therefore, based on the second criterion (balance resolution) because it is the higher of the two criteria.
	87 FR 24488	04/26/2022	88 FR 18396	03/09/2023	§16.2 is mislabeled as section 6.2 and is corrected.

Part 63 Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
316	62 FR 15257	03/31/1997	64 FR 31695	06/14/1999	**Original Action** – Sampling and Analysis for Formaldehyde Emissions from Stationary Sources in the Mineral Wool and Wool Fiberglass Industries
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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.
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	§1.0, the erroneous positive exponents are corrected to negative exponents. §1.0, ‘‘Introduction,’’ is changed to ‘‘Scope and Application’’ to be consistent with the Environmental Monitoring Management Council (EMMC) format for test methods.
317	Tentative				Phenol - manual method
318	62 FR 15257	03/31/1997	64 FR 31695	06/14/1999	**Original Action** – Extractive FTIR Method for the Measurement of Emissions from the Mineral Wool and Wool Fiberglass Industries
319	61 FR 55862	10/29/1996	63 FR 15006	03/27/1998	**Original Action** – Determination of Filtration Efficiency for Paint Overspray Arrestors

Part 63 Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
320	63 FR 14182	03/24/1998	64 FR 31898	06/14/1999	**Original Action** – Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy
	80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§13.1, §13.4, and §13.4.1 are revised to indicate the correct Method 301 reference.
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§8.2.2.4, the denominator in Equation 2 is corrected from P_{SS} to P_S. §9.2.3, the word ‘‘where’’ in the statement, ‘‘Calculate the dilution ratio using the tracer gas as follows: where:’’ is deleted. §9.2.3, the inadvertently superscripted ‘‘dir’’ on the definition of spike is subscripted,
321	63 FR 14182	03/24/1998	64 FR 31898	06/14/1999	**Original Action** – Measurement of Gaseous Hydrogen Chloride Emissions at Portland Cement Kilns by Fourier Transform Infrared (FTIR) Spectroscopy
	77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	The term for dilution factor in the calculations is clarified.
322	63 FR 14182	03/24/1998	Not Promulgated 64 FR 31898 (06/14/1999)		**Original Action** – Measurement of Hydrogen Choride Emissions from Portland Cement Kilns by GFCIR
323	68 FR 01888	01/14/2003	75 FR 51570	08/20/2010	**Original Action** - Formaldehyde Measurement Using Derivatization
	83 FR 03636	01/26/2018	83 FR 56713	11/14/2018	§12.9, the denominator in Equation 323–8 is corrected,
	84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	In the title of Method 323, the misspelled word ‘‘Derivitization’’ is corrected to ‘‘Derivatization,’’ §2.0, the misspelled word ‘‘colorietrically’’ is corrected to ‘‘colorimetrically.’’

Part 63 Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
323 (cont.)	87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	§10.1 and §10.3 are revised to require best laboratory practices. The nomenclature in §12.1 is revised to include ‘‘b,’’ which is the intercept of the calibration curve at zero concentration and revise Kc. These additions are necessary because equation 323–5 in §12.6 is revised to reflect changes in calibration procedures for calculating the mass of formaldehyde.
324	69 FR 04652	01/30/2004	70 FR 28606	05/18/2005	**Original Action** – Determination of Vapor Phase Mercury Emissions from Stationary Sources Using Dry Sorbent Trap Sampling (Now Appendix K to 40 CFR 75)
325A	79 FR 36880	06/30/2014	80 FR 75178	12/01/2015	**Original Action** - Volatile Organic Compounds from Fugitive and Area Sources: Sampler Deployment and VOC Sample Collection
	83 FR 3636	01/26/2018	83 FR 56713	11/14/2018	§8.2.1.3 is revised to clarify that only one extra sampling site is required near known sources of volatile organic compounds (VOCs) when the source is located both within 50 meters of the boundary and between two monitors. The label under Figure 8.1 is corrected from ‘‘Refinery (20% angle)’’ to ‘‘Refinery (20° angle).’’ §8.2.3.2 is revised to include facilities with a monitoring perimeter length equal to 7,315 meters (24,000 feet). §8.2.3.3 is added to provide clarification and an equivalent procedure in Option 2 (linear distance between sites) for site locations that parallel §8.2.2.2.4 in Option 1 (radial distance between sites). §8.4.3 is added to address worker safety during extenuating circumstances.

Part 63 Appendix A (continued)

Method	Proposed		Promulgated		Description
	Reference	Date	Reference	Date	
325B	79 FR 36880	06/30/2014	80 FR 75178	12/01/2015	**Original Action** – Volatile Organic Compounds from Fugitive and Area Sources: Sampler Preparation and Analysis
	83 FR 3636	01/26/2018	83 FR 56713	11/14/2018	§9.3.2 is revised to correct an error in the number of field blank samples required for a sampling period and to provide consistency with the sample analysis required in Method 325B. §9.13 and §11.3.2.5, the erroneous reference to §10.6.3 is corrected to §10.0. §11.3.2.5, the erroneous reference to section §10.9.5 is corrected to §9.13. §12.2.2 is revised to correct the calculation of target compound concentrations at standard conditions, and the erroneous reference to U_{std} in the note in §12.2.2 is revised to U_{NTP}. §12.2.3 and §12.2.4 are deleted because the equations for target concentrations are incorrect. Table 17– 1 is revised to add inadvertently omitted QC criteria from §9.3.3
326	83 FR 22754	05/16/2018	84 FR 7707	03/04/2019	**Original Action** – Determination of Isocyanates in Stationary Source Emissions

Tentative = Under evaluation

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Office of Air Quality Planning and Standards (OAQPS)

Part 63, Subpart A – General Provisions

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Methods 3A and 19 are added to the list of methods not requiring the use of audit samples in §63.7(c). In §63.8(f)(6)(iii), an incorrect reference to a section of PS 2 is corrected. §63.14 is revised to arrange the materials that are incorporated by reference in alpha-numeric order.
80 FR 54146	09/08/2015	81 FR 59800	08/30/2016	§63.7(c)(2)(iii)(A) is revised to add Methods 30A and 30B to the list of methods not requiring the use of audit samples. § 63.7(g)(2) is revised to require the reporting of specific emissions test data in test reports. These data elements are required regardless of whether the report is submitted electronically or in paper format. Revisions are made to the list of proposed data elements to provide clarity and to more appropriately define and limit the extent of elements reported for each test method included in a test report. These modifications ensure that emissions test reporting includes all data necessary to assess and assure the quality of the reported emissions data and that the reported information appropriately describes and identifies the specific unit covered by the emissions test report.
83 FR 3636	01/26/2018	83 FR 56713	11/14/2018	§63.7(g)(2), §63.7(g)(2)(v), and §63.8(e)(5)(i) of the General Provisions (subpart A) of part 63 are revised, as proposed, to require the reporting of specific test data for continuous monitoring system performance evaluation tests and ongoing quality assurance (QA) tests. These data elements are required regardless of the format of the report, i.e., electronic or paper. These modifications will ensure that performance evaluation and QA test reporting include all data necessary for the compliance authority to assess and assure the quality of the reported data and that the reported information describes and identifies the specific unit covered by the evaluation test report. In response to comment, we specified the level of reporting needed for continuous parameter monitoring systems (CPMS) versus other continuous monitoring systems including continuous emission monitoring systems (CEMS), COMS, and predictive emissions monitoring systems (PEMS).
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	In the General Provisions of Part 63, in 40 CFR 63.2, the definition of alternative test method is revised to exclude ‘‘that is not a test method in this chapter and’’ because this clarifies that use of methods other than those required by a specific subpart requires the alternative test method review and approval process.

Office of Air Quality Planning and Standards (OAQPS)

Part 63, Subpart A – General Provisions

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	§63.14 is revised to: (1) add ASTM D6784–16 to paragraph (h) and (2) add ‘‘Standard Methods for the Examination of Waste and Wastewater’’ method 5210 to paragraph (u)

Part 63, Subpart G – Synthetic Organic Chemical Manufacturing Industry

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	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 §63.144(b)(5)(i).

Part 63, Subpart N – Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	South Coast Air Quality Management District Method 205.1 is added as a testing option for measuring total chromium.

Part 63, Subpart O – Ethylene Oxide Emissions Standards for Sterilization Facilities

Proposed		Promulgated		Description
Reference	Date	Reference	Date	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow California Air Resources Board (CARB) Method 431 as an alternative to the procedures in §63.365(b) for determining the efficiency at the sterilization chamber vent. An error in a reference to a section in PS 8 is also corrected.

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Part 63, Subpart S – Pulp and Paper Industry

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	The existing reference in 40 CFR 63.457(c)(4) to method 405.1 of part 136 of chapter 40 for the measurement of biochemical oxygen demand (BOD) is no longer valid, as method 405.1 was withdrawn in 2007. It was replaced with Biochemical Oxygen Demand Standard Methods 5210 B (72 FR 11199, March 12, 2007), which has been previously approved in test plans for measuring BOD to demonstrate compliance with the requirements of subpart S. In §63.457(c)(4), the reference to method 405.1 is replaced with reference to method 5210B. The parent method, method 5210, which includes method 5210B, is also incorporated by reference in 40 CFR 63.14.

Part 63, Subpart Y – Marine Tank Vessel Loading Operations

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow Method 25B as an alternative to Method 25A in §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 §63.565(d)(8), and the requirement that Method 25B be validated according to Method 301 in §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 §63.565(g).

Part 63, Subpart GG – Aerospace Manufacturing and Rework Facilities

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to remove an incorrect reference to the location of Method 319 in §63.750(o)

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Part 63, Subpart EEE – Hazardous Waste Combustors

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	In the appendix to subpart EEE, the erroneous language regarding an Interference Response Test in the introductory paragraph of §5 is removed, and section 5.3 in its entirety is removed.

Part 63, Subpart GGG – Pharmaceutical Production

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow Method 320 as an alternative to Method 18 for demonstrating that a vent is not a process vent.

Part 63, Subpart LLL – Portland Cement Manufacturing

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
84 FR 68069	12/13/2019	85 FR 63394	10/07/2020	In subpart LLL, the units of measurement in Equations 12, 13, 17, 18, and 19 are revised to add clarity and consistency. Equations 12 and 13 are corrected so that the operating limit units of measurement is calculated correctly. The calculation of the operating limit is established by a relationship of the total hydrocarbons (THC) CEMS signal to the organic HAPs compliance concentration. As explained at proposal, in Table 1 in Part 63, Subpart LLL, the THC and organic HAP emissions limits units are in ppmvd corrected to 7 percent oxygen. Therefore, the average organic HAP values in equation 12 need to be in ppmvd, corrected to 7 percent oxygen, instead of ppmvw. The THC CEMS monitor units of measure are ppmvw, as propane and the variables are updated to reflect this. The variables in Equations 13 and 19 reference variables in Equations 12 and 18, respectively. Those variables are updated for consistency between the equations. The units of measurement in Equation 17 should be the monitoring system's units of measure. It is possible for those systems to be on either a wet or a dry basis. Currently, the equation is only on a wet basis, even though it should be on the basis of the monitor (wet or dry). The changes to the units of measure from ppmvw to ppmv takes either possibility into account. For Equations 17 and 18, the operating limit units of measure are changed to the units of the CEMS monitor, ppmv.

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Part 63, Subpart NNN – Wool Fiberglass Manufacturing

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
83 FR 3636	01/26/2018	83 FR 56713	11/14/2018	In a change from proposal, the allowed filter temperature in § 63.1385(a)(5) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings.

Part 63, Subpart RRR – Secondary Aluminum Production

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Revised to allow Method 26 as an alternative to Method 26A in §63.1511(c)(9) for determining hydrochloric acid (HCl) concentration.

Part 63, Subpart CCCC – Manufacturing of Nutritional Yeast

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Table 2 is revised to delete the requirement to use Methods 1, 2, 3, and 4 when measuring VOC by Method 25A..

Part 63, Subpart JJJJ – Paper and Other Web Coating

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	In 2009, revisions were made to §63.3360(e)(1)(viii) to clarify that the results of method 25 or method 25A were being used to determine ‘‘total organic volatile matter’’ (85 FR 41276). At the time, the use of the terminology ‘‘total gaseous non-methane organic volatile organic matter’’ in §63.3360(e)(1)(vi) was overlooked. We are revising §63.3360(e)(1)(vi) by removing the term ‘‘non-methane’’ to be consistent with §63.3360(e)(1)(viii).

Part 63, Subpart UUUU – Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Table 4 is revised to allow Method 320 as an alternative to Method 18 for determining control device efficiency for organic compounds.

Part 63, Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
77 FR 01130	01/09/2012	79 FR 11228	02/27/2014	Table 4 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
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	We have received multiple inquiries regarding the requirements in Table 4 of Subpart ZZZZ that are used to measure the exhaust gas moisture when measuring the concentration of carbon monoxide (CO), formaldehyde, or total hydrocarbon (THC) to demonstrate compliance with the rule. It was first pointed out that it is not always necessary to measure that exhaust gas moisture when measuring CO. We are adding language to all three sections of Table 4 stating that that the moisture measurement is only necessary when needed to correct the CO, formaldehyde, THC and/or O_2 measurements to a dry basis.

Part 63, Subpart DDDDD – Major Source: Industrial, Commercial, and Institutional Boilers and Process Heaters				
Proposed		**Promulgated**		**Description**
Reference	**Date**	**Reference**	**Date**	
83 FR 3636	01/26/2018	83 FR 56713	11/14/2018	As proposed, in Table 6 of subpart DDDDD, row 1.f. is revised to allow the use of EPA SW–846–7471B (for liquid samples) in addition to EPA SW–846– 7470A for measuring mercury to allow for compliance flexibility.

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Part 63, Subpart PPPPP – Engine Test Cell/Stands Residual Risk and Technology Review

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	The existing erroneous statement in §63.9306(d)(2)(iv) is corrected to read, ‘‘Using a pressure sensor with measurement sensitivity of 0.002 inches water, check gauge calibration quarterly and transducer calibration monthly.’ The existing erroneous statement in §63.9322(a)(1) is corrected to read, ‘‘The capture system meets the criteria in Method 204 of appendix M to 40 CFR part 51 for a permanent total enclosure (PE) and directs all the exhaust gases from the enclosure to an add-on control device.’

Part 63, Subpart UUUUU – Coal- and Oil-Fired Electric Utility Steam Generating Units

Proposed		Promulgated		Description
Reference	**Date**	**Reference**	**Date**	
83 FR 3636	01/26/2018	83 FR 56713	11/14/2018	In a change from proposal, the allowed filter temperature in § 63.10010(h)(7)(i)(1) is not revised. Based on comments we received on the proposed revisions, we are deferring finalizing proposed revisions of the temperature tolerances of probe and filter holder heating systems as part of this rulemaking. We will continue to review supporting information and data we received on the proposed rule and may propose either revisions or similar requirements as part of future rulemakings. As proposed, in Table 5, Method 5I is specified as a test method option because, as explained at proposal, Method 5I is designed for low particulate matter (PM) application.
87 FR 24488	04/26/2022	88 FR 18396	03/29/2023	We are revising the references in §4.1.1.5 and §4.1.1.5.1 in subpart UUUUU, appendix A, to ASTM Method D6784, Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), to update them from the 2002 version to the latest version, which was authorized in 2016. In Table 5, we are adding ASTM Method D6784–16 as a mercury testing option as it was inadvertently left out previously.