 560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[EPA–HQ–OAR–2017-0183; FRL-5120-04-OAR]

RIN 2060-AO18

Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors Voluntary Remand Response and Five-Year Review

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The U.S. Environmental Protection Agency (EPA) is finalizing new source performance standards (NSPS) and emission guidelines (EG) for the large municipal waste combustion (MWC) source category. This final rule responds to a voluntary remand of the preceding rule for this source category and announces the results of the non-discretionary review at five-year intervals required by Clean Air Act (CAA) section 129(a)(5), fulfilling the requirements of a consent decree for the source category. The final rule revises the remanded emission limits for cadmium, lead, particulate matter, polychlorinated dibenzodioxins and dibenzofurans, mercury, hydrogen chloride, and sulfur dioxide for all sources subject to the NSPS and EG and the remanded emission limits for nitrogen oxides and carbon monoxide for some sources subject to the EG and all sources subject to the NSPS. This final rule also removes certain startup, shutdown, and malfunction (SSM) exclusions and exemptions. In addition, the EPA is taking this opportunity to streamline regulatory language; revise recordkeeping and reporting requirements; establish electronic notification; reestablish new and existing source applicability dates; eliminate title V requirements for air curtain incinerators that burn only wood waste, yard waste, and clean lumber; close a 2007 proposed reconsideration

action; and make certain typographical and technical corrections and clarifications. The EPA estimates this final rule will result in 3,269 tpy reduction in regulated pollutants from existing sources through implementation of the final emission limits.

DATES: This final rule is effective on **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. The incorporation by reference (IBR) of certain publications listed in the rule is approved by the Director of the *Federal Register* as of **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: The EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2017-0183. All documents in the docket are listed at *https://www.regulations.gov*. Although listed, some information is not publicly available, *e.g.*, Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. The EPA does not place certain other material, such as copyrighted material, on the Internet; this material is publicly available only as Portable Document Format (PDF) versions accessible only on the EPA computers in the docket office reading room. The public cannot download certain databases and physical items from the docket but may request these items by contacting the docket office at 202-566-1744. The docket office has 10 business days to respond to such requests. With the exception of such material, publicly available docket materials are available electronically at *https://www.regulations.gov*.

FOR FURTHER INFORMATION CONTACT: For information about this final rule, contact Ms. Noel Cope, Natural Resources Division, 109 T.W. Alexander Drive, P.O. Box 12055, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-2128; and email address: *Cope.Noel@epa.gov*.

SUPPLEMENTARY INFORMATION:

Preamble acronyms and abbreviations. Throughout this notice the use of “we,” “us,” or “our” refers to the EPA. We use multiple acronyms and terms in this preamble. While this list may not be exhaustive, to ease the reading of this preamble and for reference purposes, the EPA defines the following terms and acronyms here:

ANSI	American National Standards Institute
APCD	air pollution control device
ASME	American Society of Mechanical Engineers
ASNCR	advanced selective noncatalytic reduction
ATSDR	Agency for Toxic Substances and Disease Registry
BSER	Best system of emission reduction
CAA	Clean Air Act
CBI	Confidential Business Information
Cd	cadmium
CDX	Central Data Exchange
CEDRI	Compliance and Emissions Data Reporting Interface
CEMS	continuous emissions monitoring system
CFBS	circulating fluidized bed scrubber
CFR	Code of Federal Regulations
CISWI	Commercial and Industrial Solid Waste Units
CO	carbon monoxide
CRA	Congressional Review Act
DCOT	digital camera opacity technique
Dscm	dry standard cubic meter
EAV	equivalent annualized value
EG	emission guidelines
EPA	Environmental Protection Agency
ERT	Electronic Reporting Tool
HAP	hazardous air pollutant(s)
HCl	hydrogen chloride
Hg	mercury
HMIWI	hospital, medical, and infectious waste incinerators
ICR	Information Collection Request
LN™	Low NO_x
LPL	lower predictive limit
MACT	maximum achievable control technology
MB/RC	mass burn rotary combustor
MB/WW	mass burn water wall
mg	milligram
MSW	municipal solid waste
MWC	municipal waste combustor
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
ng	nanogram
NO_x	oxides of nitrogen (nitrogen oxides)
NRDC	Natural Resources Defense Council
NSPS	new source performance standards
NTTAA	National Technology Transfer and Advancement Act
O_3	Ozone

OCAP	Office of Clean Air Programs
OTR	Ozone Transport Region
OMB	Office of Management and Budget
Pb	lead
PCDD/PCDF	polychlorinated dibenzodioxins and dibenzofurans (dioxins/furans)
PDF	portable document format
PM	particulate matter
ppm	parts per million
ppmvd	parts per million by volume, dry basis
PRA	Paperwork Reduction Act
PV	present value
QRO	Certification for Municipal Solid Waste Combustion Facilities Operator
RATA	relative accuracy test audit
RDL	representative detection level
RDF/FBC	refuse-derived fuel fluidized bed combustor
RDF/S	refuse-derived fuel stoker combustor
RDF/SS	refuse-derived fuel semi-suspension or spreader stoker wet process conversion combustor
RFA	Regulatory Flexibility Act
RIA	Regulatory Impact Analysis
SCR	selective catalytic reduction
SNCR	selective noncatalytic reduction
SO_2	sulfur dioxide
SSM	startup, shutdown, and malfunction
tpd	tons per day
tpy	tons per year
µg	microgram
UMRA	Unfunded Mandates Reform Act of 1995
UPL	upper prediction limit
VCS	voluntary consensus standards
WTEA	Waste to Energy Association
XML	Extensible Markup Language

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I. General Information

A. Executive Summary

In December 1995, the EPA adopted emissions guidelines (EG) (40 CFR part 60, subpart Cb) and new source performance standards (NSPS) (40 CFR part 60, subpart Eb) for large municipal waste combustors (MWC), which have a combustion capacity of greater than 250 tons per day (tpd) of municipal solid waste (MSW), pursuant to Clean Air Act (CAA) section 129.[1] CAA section 129(a)(5) requires review of these standards at

[1] Note that on February 11, 1991, Subpart Ea was promulgated that applies Standards of Performance to MWCs which commenced construction after December 20, 1989, and on or before September 20, 1994.

5-year intervals and, in 2006, the EPA promulgated amendments to the 1995 standards, revising the emission limits and compliance testing provisions to reflect the actual performance achieved by existing MWCs and improvements in CEMS data performance and reliability.[2]

Following promulgation of the 2006 rulemaking, environmental groups filed a petition for review in the D.C. Circuit challenging the rulemaking. The petitioners challenged the emission limits which the EPA promulgated in 1995. In light of then-recent precedents casting doubt on the soundness of emission limits derived in part from state-issued air permits as the 1995 emission limits for large MWCs were, the EPA sought a voluntary remand of the 2006 rule.[3] In its remand motion, the EPA announced its intention to grant the environmental groups' administrative petition to revisit the 1995 emission limits and reevaluate the 2006 rule as necessary to comport with any revisions. The D.C. Circuit issued an order granting the EPA's request for a remand in 2008, which directed the EPA to review its 2006 rulemaking.[4]

In 2024, the EPA proposed to revise the NSPS and EG under CAA section 129 for large MWCs by amending existing standards for the large MWC source category.[5] The Agency sought comment on additional data, including data on the number of facilities that would require retrofit to meet any emission limits and data to inform the

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[2] 71 FR 27324 (May 10, 2006).
[3] Specifically, the petitioners pointed to a 2004 decision from the D.C. Circuit, which remanded MACT floors established for existing small MWCs derived from state-issued permit limits because the Court found the EPA did not fulfill the requirement of CAA section 129(a)(2) in setting the floors. *See Northeast Maryland Waste Disposal Authority* v. *EPA,* 358 F.3d 936 (D.C. Cir. 2004). Additionally, the EPA noted in its motion for a voluntary remand that since the time the EPA finalized the 2006 rulemaking, the D.C. Circuit issued three decisions that were relevant to rules promulgated under sections 112 and 129 of the CAA, since the floor setting requirements in section 129 are essentially equivalent to those under section 112. *See Sierra Club* v. *EPA,* 479 F.3d 875 (D.C. Cir. Mar. 13, 2007) (vacating the EPA's regulations setting national emission standards for brick and clay ceramics kilns under Section 112); *Natural Resources Defense Council* v. *EPA,* 489 F.3d 1250 (D.C. Cir. June 8, 2007) (vacating the EPA's regulations setting national emission standards under section 112 for hazardous air pollutants from industrial, commercial, and institutional boilers and process heaters and the EPA's regulations under section 129 defining the term "commercial and industrial solid waste incineration unit"); *Natural Resources Defense Council* v. *EPA,* 489 F.3d 1364 (D.C. Cir. June 19, 2007) (vacating portions of an EPA rule promulgated under CAA section 112 regulating hazardous air pollutants from the manufacture of plywood and composite wood products).
[4] Order, *Sierra Club* v. *EPA,* No. 06-1250 (D.C. Cir. filed Feb. 15, 2008).
[5] 89 FR 4243 (Jan. 23, 2024).

EPA's projections of air pollution control device (ACPD) use by large MWCs. In addition, the EPA sought comment on developments in practices, processes, and control technologies that reduce pollutant emissions.

In 2025, the Agency reopened the comment period for an additional four months to gather additional information on the proposed amendments to the large MWC regulations.[6] Specifically, the EPA sought additional information and documentation on verifiable historic pollutant emission concentration information (*e.g.,* stack test reports, waste characterization reports and continuous emission monitor records) for large MWCs so that we could further assess the proposed maximum achievable control technology ("MACT") requirements, including operation of the control technologies over time.

In this final rule, the EPA is revising the remanded emission limits for cadmium, lead, particulate matter, polychlorinated dibenzodioxins and dibenzofurans, mercury, hydrogen chloride, and sulfur dioxide for all sources subject to the NSPS and EG and the remanded emission limits for nitrogen oxides and carbon monoxide for some sources subject to the EG and all sources subject to the NSPS. The EPA is also finalizing the following amendments: removal of SSM exclusions and exemptions; streamlined regulatory language; revisions to recordkeeping and reporting requirements; addition of electronic reporting requirements; reestablishment of new and existing source applicability dates; elimination of title V requirements for air curtain incinerators that burn only wood waste, yard waste, and clean lumber and are not located at a major source or subject to title V for other reasons; closing the 2007 proposed reconsideration action; and other technical, typographical, and clarifying corrections to certain provisions in the NSPS and EG.

Following consideration of comments and additional information received on the proposed rule and the reopened comment period, the EPA is revising its reassessment of

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[6] 90 FR 4708 (Jan. 8, 2025).

the MACT floor limits for the EG and NSPS. The EPA is finalizing an approach similar to that in the proposed rule, using separate methodologies for pollutants with stack test data (Cd, Pb, Hg, PM, HCl, and PCDD/PCDF) and pollutants with CEMS data (or CEMS pollutants) (CO, NO_x, and SO_2). The final limits incorporate new data submitted during the reopened comment period for years 1990 to 1995 in addition to the 2000 to 2009 compliance dataset that the EPA used for the proposed limits.

The EPA estimates that this final rule will result in present value costs of $330 million at a three percent discount rate and $210 million at a seven percent discount rate over the 2030 to 2049 time frame, with equivalent annualized values of $25 and $28 million per year, respectively (in 2024 dollars, discounted to 2025).

B. Does this action apply to me?

Regulated entities. This final action applies to large MWCs that combust more than 250 tons per day (tpd) of municipal solid waste (MSW) as defined under CAA section 129(a)(1)(B), to be regulated under title 40 of the Code of Federal Regulations (CFR) part 60, new subparts VVVV and WWWW. Table 1 of this preamble presents categories and entities that this action potentially regulates.

Table 1. Industrial Source Categories Affected by This Final Action

Category	NAICS* Code
Solid Waste Combustors and Incinerators	562213
Administration of Air and Water Resource and Solid Waste Management Programs	924110

* North American Industry Classification System (NAICS).

The EPA does not intend Table 1 of this preamble to be exhaustive but rather to provide a guide for readers regarding entities that this final action likely affects. To determine whether this action affects your facility, you should examine the applicability criteria found in title 40 of the Code of Federal Regulations (CFR), 40 CFR 60.5690 of subpart VVVV and 40 CFR 60.6300 of subpart WWWW. If you have questions regarding the applicability of any aspect of the final subparts to a particular entity, please contact the appropriate person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section of this preamble.

C. Where can I get a copy of this document and other related information?

In addition to the docket, an electronic copy of this final action will be available on the internet. In accordance with 5 U.S. Code (U.S.C.) 553(b)(4), a brief summary of this rule may be found at *https://www.regulations.gov*, Docket ID No. EPA-HQ-OAR-2017-0183. Following signature by the Administrator, the EPA will post a copy of this final action at *https://www.epa.gov/stationary-sources-air-pollution/large-municipal-waste-combustors-lmwc-new-source-performance*. Following publication in the *Federal Register*, the EPA will post the *Federal Register* version and key technical documents at this same website.

D. Judicial review and administrative reconsideration.

Under CAA section 307(b)(1), judicial review of this final action is available only by filing a petition for review in the U.S. Court of Appeals for the D.C. Circuit ("D.C. Circuit") by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. CAA section 307(b)(2) prohibits a party from challenging this final action separately in any civil or criminal proceedings for enforcement.

CAA section 307(d)(7)(B) further provides that only an objection to a rule or procedure that was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review. This section also requires the EPA to reconsider the rule if the person raising an objection can demonstrate to the Administrator that it was impracticable to raise such objection within the period for public comment or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule. Any person seeking to make such a demonstration should submit a Petition for Reconsideration to the Office of the

Administrator, U.S. EPA, Room 3000, WJC South Building, 1200 Pennsylvania Ave., NW, Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT SECTION** and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave., NW, Washington, DC 20460.

II. Background

A. What is the statutory authority for this action?

CAA section 129 provides the statutory authority for this action. CAA section 129(a)(1) requires the EPA to establish NSPS and EG pursuant to CAA sections 111 and 129 for new and existing solid waste incineration units, including "incineration units with capacity greater than 250 tons per day combusting municipal waste."[7] This final rule includes a reevaluation of the first-stage technology-based standards established in 1995 pursuant to CAA section 129(a)(2) in response to a voluntary remand by the D.C. Circuit. In addition, this action includes a review of the reevaluated standards pursuant to CAA section 129(a)(5), which requires that the EPA, at five-year intervals review and, "in accordance with [section 129 and section 111],"[8] revise the standards and the requirements promulgated for a category solid waste incineration units, including large MWC units.

CAA section 129(a)(2) provides that standards "applicable to solid waste incineration units promulgated under [section 111] and this section shall reflect the maximum degree of reduction in emissions of [certain listed air pollutants] that the Administrator, taking into consideration the cost of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements, determines is achievable for new and existing units in each category."[9] This level of

[7] 42 U.S.C. 7429(a)(1)(A)-(B).
[8] *Id.* 7429(a)(5).
[9] *Id.* 7429(a)(2).

control is referred to as a maximum achievable control technology (MACT) standard. CAA section 129(a)(4) further directs the EPA to set numeric emission limits for certain pollutants: cadmium (Cd), mercury (Hg), lead (Pb), particulate matter (PM), hydrogen chloride (HCl), sulfur dioxide (SO_2), polychlorinated dibenzodioxins and dibenzofurans (PCDD/PCDF), carbon monoxide (CO), and oxides of nitrogen (NO_x).[10] In addition, the standards "shall be based on methods and technologies for removal or destruction of pollutants" before, during, and after combustion according to CAA section 129(a)(3).[11] The EPA has discretion to distinguish among classes, types, and sizes of incinerator units within a category when setting standards.[12]

In promulgating a MACT standard, the EPA must calculate the minimum stringency levels for new and existing solid waste incineration units in a category based on levels of emissions control achieved in practice by the subject units. The minimum level of stringency is called the MACT floor. Different approaches exist for determining the MACT floors for new and existing sources. For new, modified, and reconstructed sources, CAA section 129(a)(2) provides that the "degree of reduction in emissions that is deemed achievable . . . shall not be less stringent than the emissions control that is achieved in practice by the best controlled similar unit, as determined by the Administrator."[13] Emissions standards for existing units may be less stringent than standards for new units, provided that the standards "shall not be less stringent than the average emissions limitation achieved by the best performing 12 percent of units in the category."[14] The MACT floors are the minimum standards that the EPA may consider for a source category. As a part of the "beyond-the-floor" evaluation, however, the EPA may consider standards more stringent than the MACT floor, taking into account the costs,

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[10] *Id.* 7429(a)(4).
[11] *Id.* 7429(a)(3).
[12] *Id.* 7429(a)(2).
[13] *Id.*
[14] *Id.*

non-air quality health and environmental impacts, and energy requirements of the more stringent controls.

The MACT analysis involves assessing emissions from the best performing units in a source category. The EPA can base this assessment on actual emissions data and other information, such as State regulatory requirements, that enable the EPA to estimate the performance of the regulated units. For each source category, the assessment involves a review of available emissions data and information with an appropriate accounting for emissions variability. The EPA can use other methods of estimating emissions, provided that the methods can be shown to provide reasonable estimates of the actual emissions performance of a source or sources in practice. Where there is more than one method or technology to control emissions, the analysis may result in several potential regulatory options, one of which the EPA selects as the MACT for each pollutant. Each regulatory option must be at least as stringent as the minimum-stringency floor requirements. The EPA also examines, but is not required to adopt, more stringent beyond-the-floor regulatory options to select the MACT. Based on the EPA's consideration of the factors outlined in CAA section 129(a)(2), including the costs, any non-air quality health and environmental impacts, and energy requirements, the EPA selects either the MACT floor level of control or a beyond-the-floor level of control as the MACT standard.

CAA section 129(a)(5) requires the EPA to review the NSPS and EG at five-year intervals and, in accordance with CAA sections 129 and 111, revise the NSPS and EG.[15] CAA section 111 contains a similar periodic "review and revise" provision. Specifically, CAA section 111(b)(1)(B) requires that the EPA, except in specified circumstances, review NSPS promulgated under CAA section 111 every eight years and revise the standards if the EPA determines that it is "appropriate" to do so.[16] In light of the explicit

[15] *Id.* 7429(a)(5).
[16] *Id.* 7411(b)(1)(B).

reference in CAA section 129(a)(5) to CAA section 111, which directs the EPA to review and revise standards previously promulgated only "if appropriate," the EPA interprets CAA section 129(a)(5) to likewise require that the EPA review and, if appropriate, revise CAA section 129 standards.

CAA section 129 provides guidance on the criteria relevant to determining whether revising a CAA section 129 standard is "appropriate." Specifically, CAA section 129(a)(3) states that standards for solid waste incineration units under CAA sections 111 and 129 "shall be based on methods and technologies for removal or destruction of pollutants before, during and after combustion."[17] This section's reference to methods and "technologies" supports the inference that the EPA should consider advances in technology, both in terms of effectiveness and costs, as well as the availability of new technologies when determining whether revising a CAA section 129 standard is "appropriate." This is the same general approach that the EPA takes in periodically reviewing NSPS promulgated under CAA section 111(b)(1)(B).

CAA section 111(b)(1)(B) directs the EPA to "review and, if appropriate, revise [section 111 NSPS] following the procedure required by this subsection for promulgation of such standards."[18] Such standards, as defined in section 111(a)(1), are based on "the best system of emission reduction" or BSER, "which (taking into account the cost of achieving such reduction, and any non-air quality and health and environmental impacts and energy requirements) the Administrator determines has been adequately demonstrated." Because the BSER is generally based on the degree of emission limitation achievable by some type of control technology, in reviewing section 111 NSPS, the EPA evaluates advances in existing control technologies, both in terms of performance and cost, as well as the availability of new technologies. Based on this evaluation, the EPA

[17] *Id.* 7429(a)(3).
[18] *Id.* 7411(b)(1)(B).

then determines whether it is appropriate to revise the standard. Similarly, in conducting CAA section 129(a)(5) reviews, the EPA assesses the performance and variability associated with control measures affecting emissions performance at sources in the subject source category (including the installed emissions control equipment), along with developments in practices, processes and control technologies. In addition, associated costs of control technologies are assessed to determine whether it is appropriate to revise the NSPS and EG.

The EPA does not interpret CAA section 129(a)(5), together with CAA section 111, as requiring the Agency to recalculate MACT floors in connection with this periodic review.[19] CAA section 129(a)(5) does not state that the EPA must conduct a MACT floor analysis every five years when reviewing standards promulgated under CAA sections 129 and 111. Had Congress intended the EPA to conduct a new MACT floor analysis every five years, Congress could have said so expressly, either by directly incorporating such a requirement into CAA section 129(a)(5) or by referring to CAA section 129(a)(2) specifically rather than broadly to "this section" (i.e., CAA section 129)[20] and CAA section 111. Moreover, reading CAA section 129(a)(5) to require the EPA to recalculate MACT floors would be inconsistent with Congress' direction that the EPA should revise CAA section 129 standards in accordance with CAA section 111, which provides that such revision should occur only if the EPA determines that it is "appropriate" to do so.

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[19] 71 FR 27324, 27327-28 (May 10, 2006); 73 FR 72962, 72971-72 (Dec. 1, 2008); 76 FR 15704, 15708 (Mar. 21, 2011); 85 FR 54178, 54182 (Aug. 31, 2020).

[20] The scope of CAA section 129 further demonstrates why it would be unreasonable to assume that Congress intended the EPA to revise standards at five-year intervals based on a specific standard-setting provision like CAA section 129(a)(2) as opposed to a more general appropriateness standard. For example, CAA section 129(h)(3) separately requires the EPA to promulgate standards to address residual risk (which, unlike MACT, is not a technology-based analysis) if doing so would be required under CAA section 112(f). 42 U.S.C. 7412(h)(3). This review is required eight years after the initial promulgation of CAA section 129 standards. *Id.* 7412(f)(2). An interpretation of "this section" in CAA section 129(a)(5) that incorporates the requirements of all standard-setting provisions in CAA section 129, whether technology-based or risk-based or subject to their own separate review schedule, would benonsensical.

This approach would effectively read the reference to CAA section 111 out of CAA section 129(a)(5). Requiring the EPA to recalculate MACT floors would eviscerate the EPA's ability to base revisions to CAA section 129 standards on a determination that it is "appropriate" to revise such standards, as the EPA's only discretion would be in deciding whether to establish a standard that is more stringent than the recalculated floor. The EPA believes that depriving the Agency of any meaningful discretion in this manner is at odds with what Congress intended.

The EPA believes that CAA section 129(a)(5) is best read as conferring discretion to revise as "appropriate" taking into consideration all relevant factors.[21] The D.C. Circuit's ruling regarding periodic review of hazardous air pollutant (HAP) standards under CAA section 112(d)(6) supports this view.[22] Like CAA section 129(a)(2), CAA section 112(d)(2) requires that the initial HAP standards not be less stringent than the MACT floor, and CAA section 112(d)(6) requires that the EPA "review, and revise as necessary" the HAP standards every eight years. The D.C. Circuit has repeatedly rejected arguments that CAA section 112(d)(6) imposes a duty to recalculate the MACT floor[23] and held that the EPA may take into account factors other than the "non-exhaustive list of considerations" in section 112(d)(6) when deciding whether revision to existing standards is "necessary."[24] The Court's rulings on section 112(d)(6) are consistent with our interpretation of sections 129(a)(5) and 111 as providing the EPA discretion to revise, "as appropriate," MACT standards established under sections 129(a)(2) and 111.

For these reasons, the EPA does not recalculate the MACT floor in a section 129(a)(5) review. Rather, as directed by section 129(a)(5), the EPA follows the guidance

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[21] *See Michigan v. EPA*, 576 U.S. 743, 752 (2015) (emphasizing that "'appropriate' is 'the classic broad and all-encompassing term that naturally and traditionally includes consideration of all the relevant factors'").
[22] *NRDC v EPA*, 529 F.3d 1077, 1084 (D.C. Cir. 2008).
[23] *Id.*; *see also Ass'n of Battery Recyclers v. EPA*, 716 F.3d, 667, 673-74 (D.C. Cir. 2013); *Nat'l Ass'n for Surface Finishing v. EPA*, 795 F.3d 1, 8, 11 (D.C. Cir. 2015).
[24] *La. Envtl. Action Network (LEAN) v. EPA*, 955 F.3d 1088, 1097 (D.C. Cir. 2020).

in sections 111 and 129 and assesses advances in existing control technologies, both in terms of performance and cost, as well as the availability of new technologies, and then, on the basis of this evaluation, the EPA determines whether it is appropriate to revise the NSPS and EG.

B. What is the regulatory background for the large MWC source category, and how do the NSPS and EG regulate emissions from the source category?

In December 1995, the EPA promulgated EG and NSPS for large MWC units pursuant to CAA section 129.[25] As stated in section II.A of this preamble, these standards apply to large MWC units that have a combustion capacity greater than 250 tpd of MSW.[26] Both the EG and NSPS require compliance with emission limitations that reflect the maximum degree of emissions reductions for specific pollutants (Cd, CO, PCDD/PCDF, HCl, Pb, Hg, NO_x, PM, and SO_2). The 1995 NSPS apply to new large MWC units that commenced construction, were modified, or were reconstructed after September 20, 1994. The 1995 EG apply to existing large MWC units that commenced construction on or before September 20, 1994. The 1995 EG required that owners or operators of affected sources complete emission control retrofits by December 2000. The EPA calculated the impact of floors based, in part, on State issued air permits. These timely completed retrofits at existing large MWC units were highly effective in reducing emissions of most CAA section 129 pollutants from these units. Compared to a 1990 baseline of emissions, the 1995 EG reduced organic emissions (PCDD/PCDF) by more than 99 percent, metal emissions (Cd, Pb, and Hg) by more than 93 percent, and acid gas emissions (HCl and SO_2) by more than 91 percent.[27] While the 1995 EG and NSPS also

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[25] 40 CFR part 60, subpart Cb (EG); 40 CFR part 60, subpart Eb (NSPS).
[26] In 1991, the EPA promulgated 40 CFR part 60, subpart Ea, applying standards of performance to MWCs that commenced construction after December 20, 1989, and on or before September 20, 1994. 56 FR 5507 (Feb. 11, 1991).
[27] *See* memorandum entitled *Emissions from Large MWC Units at MACT Compliance*, June 20, 2002. Walt Stevenson to Docket A-90-45, entered as item A-90-45, VIII-B-11. Available online as Docket ID EPA-HQ-OAR-2003-0072-0048.

regulate NO_x, the emissions reductions for NO_x were relatively modest compared to those of the other CAA section 129 pollutants.[28]

In 2006, the EPA promulgated amendments to the 1995 standards after completing a periodic review under CAA section 129(a)(5). The EPA increased the stringency of the Cd and Hg NSPS emission limits based on new compliance test data showing that large MWC units operating with a full set of controls could comply with more stringent limits; similar data were not available when the EPA previously set the NSPS emission limits. The EPA also revised the PCDD/PCDF, Hg, and NO_x EG emission limits and compliance testing provisions to more accurately reflect the actual performance achieved by existing MWCs and their control technologies and to reflect improvements in continuous emissions monitoring system (CEMS) data performance and reliability based on large MWC compliance test data.[29] The EPA projected that all large MWCs could meet the 2006 EG emission limits without installing any new control technology.[30]

Following promulgation of the 2006 final rule, environmental groups challenged the MACT floor limits that the EPA promulgated in 1995 in connection with their challenge to the revised standards, citing a then-recent decision questioning the legality of MACT floors derived in part from State-issued air permits.[31] In light of this decision and several other relevant decisions regarding the calculation of MACT floors under

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[28] *Id.*
[29] 71 FR 27324 (May 10, 2006).
[30] *Id.*
[31] Specifically, petitioners pointed to a 2004 decision from the D.C. Circuit, which remanded MACT floors established for existing small MWCs derived from state-issued permit limits after finding that the EPA did not fulfill the requirement of CAA section 129(a)(2). *See Ne. Md. Waste Disposal Auth. v. EPA*, 358 F.3d 936 (D.C. Cir. 2004).

CAA section 112, the EPA sought a voluntary remand of the 2006 final rule.[32] In its remand motion, the EPA announced its intention to grant the environmental groups' administrative petition to revisit the 1995 MACT floors and reevaluate the 2006 final rule as necessary to comport with any revisions.[33] The D.C. Circuit granted the EPA's request for a remand in February 2008.[34]

In December 2021, another environmental group petitioned in the D.C. Circuit for a writ of mandamus related to the 2008 order granting voluntary remand.[35] In January 2022, the same organization also filed a citizen suit under CAA section 304(a)(2), alleging that the EPA failed to carry out a nondiscretionary duty to timely review and, if appropriate, revise emissions standards for large MWCs pursuant to the five-year review provision in CAA section 129(a)(5).[36] On November 9, 2023, the D.C. Circuit entered a consent decree requiring the EPA to sign a proposed rule by December 31, 2023, and a final rule by November 30, 2024, to satisfy the EPA's obligations in the citizen suit and mandamus action (*i.e.*, to complete the five-year review and MACT floor reevaluation).

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[32] *See Sierra Club v. EPA*, 479 F.3d 875 (D.C. Cir. 2007) (vacating the EPA's regulations setting national emission standards for brick and clay ceramics kilns under CAA section 112); *NRDC v. EPA*, 489 F.3d 1250 (D.C. Cir. 2007) (vacating the EPA's regulations setting national emission standards under CAA section 112 for hazardous air pollutants from industrial, commercial, and institutional boilers and process heaters and the EPA's regulations under CAA section 129 defining the term "commercial and industrial solid waste incineration unit"); *NRDC v. EPA*, 489 F.3d 1364 (D.C. Cir. 2007) (vacating portions of an EPA rule promulgated under CAA section 112 regulating hazardous air pollutants from the manufacture of plywood and composite wood products).

[33] In its motion for a voluntary remand, the EPA explained that it intended to "re-analyze the floors in the 1995 rule" and "revisit the data and information used in the 1995 rule, as well as obtain additional data, to determine whether the 1995 floors need to be revised." EPA Motion for Voluntary Remand at 8, *Sierra Club v. EPA*, No. 06-1250 (D.C. Cir. filed Nov. 9, 2007).

[34] Order, *Sierra Club v. EPA*, No. 06-1250 (D.C. Cir. filed Feb. 15, 2008).

[35] *In re E. Yard Cmtys. for Envtl. Justice*, No. 21-1271 (D.C. Cir. filed Dec. 21, 2021).

[36] *E. Yard Cmtys. for Envtl. Justice v. EPA*, No. 22-cv-0094 (D.C. Cir. filed Jan. 13, 2022).

The parties later filed a joint stipulation to extend the consent decree deadline for the final rule to December 22, 2025.[37]

C. What changes did we propose for the large MWC source category?

On January 23, 2024, the EPA proposed revisions to the NSPS and EG for large MWCs to reflect the results of the EPA's reevaluation of the MACT floors, pursuant to the 2008 voluntary remand, and the results of the EPA's five-year review, pursuant to CAA section 129(a)(5).[38] The EPA proposed the following with respect to 40 CFR part 60, subparts Cb and Eb:

- Revisions to all existing-source emission limits in the EG, except the existing CO and NO_x limits for two subcategories of combustors, and revisions to all new-source emission limits in the NSPS. With the exception of proposed changes to the NO_x limits, the proposed revisions resulted from the EPA's reevaluation of the MACT floors in response to the 2008 voluntary remand.
- Simultaneously, the EPA conducted a five-year review as required by CAA section 129(a)(5). Based on this review, the EPA proposed NO_x standards that were more stringent than the reevaluated MACT floor emissions limits for NO_x and that were consistent with the recently promulgated Good Neighbor Plan, which set ozone season standards for a significant portion of the large MWC source category.[39]

- Removal of the alternative percent reduction standards to establish a consistent approach to compliance for all facilities and removal of the NO_x emissions averaging allowance for existing sources.

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[37] Notice of Lodging of Proposed Consent Decree, *E. Yard Cmty. for Envtl. Justice v. EPA*, No. 22-cv-0094 (D.C. Cir., filed May 23, 2023).
[38] 89 FR 4243 (Jan. 23, 2024).
[39] 88 FR 36654 (June 5, 2023).

- Removal of the SSM exclusions and exemptions and significant revisions to the monitoring provisions during these periods. For NO_x, SO_2, and CO, where a CEMS continuously measures the pollutant concentration, we proposed to eliminate the exclusions of periods of SSM from CEMS data averaging calculations present in the 1995 large MWC standards and instead require a monitoring and compliance demonstration approach used in the more recent CAA section 129 rulemaking for commercial and industrial solid waste units (CISWI) NSPS and EG.[40]
- Conversion of the 1995 large MWC regulatory text describing emission standards and performance testing requirements from paragraphs into tables to facilitate easier implementation and understanding of the requirements.
- Requiring source owners and operators to submit electronic copies of required performance test reports, performance evaluation reports, semiannual compliance reports, and annual reports through the EPA's Central Data Exchange (CDX), using the Compliance and Emissions Data Reporting Interface (CEDRI), to increase the usefulness of the data contained in those reports and to improve availability and transparency of data.
- Reestablishing new and existing source applicability so that large MWC units currently subject to the 2006 NSPS would become "existing" sources under the proposed amended standards and would be required to meet the revised EG by the applicable compliance date for the revised guidelines. Large MWC units that commence construction after the date of the proposal or commence a modification on or after the date six months after promulgation of the amended standards would be "new" units subject to the more stringent NSPS emission limits.

[40] 81 FR 40956 (June 23, 2016).

- Eliminating the regulatory title V permitting requirement for air curtain incinerators that burn only wood waste, yard waste, and clean lumber and are not located at a major source or subject to title V for other reasons.
- Other technical amendments, including closing a 2007 proposed reconsideration action, correcting certain typographical errors, making certain technical corrections, and clarifying certain provisions in the NSPS and EG.[41]

D. What outreach did we conduct following the proposal?

In developing this final rule, the EPA conducted post-proposal outreach activities with communities, States, local governments, industry, and Tribes. On January 11, 2024, the EPA emailed a consultation letter to Tribal nations explaining how to comment on the proposed rulemaking and how to request consultation with the EPA. The EPA participated in the National Tribal Air Association monthly meeting on January 25, 2024. On January 16, 2024, the EPA presented details of the large MWC proposal to members of interested communities and environmental organizations. Additionally, the EPA held an informational webinar with air pollution control agencies on February 29, 2024. The EPA's outreach activities also included meetings with the following: Waste-to-Energy Association (WTEA) to discuss varying aspects of the proposal, including waste variability, Reworld Waste (formerly Covanta) to discuss their concerns about the proposed emission limits, compliance implications, and costs of the proposal, and a coalition of community representatives and organizations to discuss their concerns about the rulemaking and impacts of air pollution near large industrial facilities. The EPA subsequently reopened the comment period on the proposed amendments to the large MWC regulations for an additional 4 months, from January 16, 2025, to May 30, 2025, to gather additional information and documentation.

III. What is Included in these Final Rules?

[41] 72 FR 13016 (Mar. 20, 2007).

In this action, we are finalizing decisions and revisions for the NSPS and EG for large MWC units. We discuss the significant comments on the proposal and changes the EPA made to the final NSPS and EG in more detail in section IV of this preamble. A comment summary and the EPA's responses are available in the docket.[42]

This final rule sets out the EPA's determinations resulting from our reevaluation of the 1995 MACT floor standards for large MWCs pursuant to the 2008 voluntary remand and from our five-year review of large MWC standards under CAA section 129(a)(5), as well as the final amendments to the large MWC NSPS and EG based on those determinations. This action also finalizes other changes to the NSPS and EG largely as proposed, including the following: removal of SSM exclusions and exemptions; streamlined regulatory language; revisions to recordkeeping and reporting requirements; addition of electronic reporting requirements; reestablishment of new and existing source applicability dates; elimination of title V requirements for air curtain incinerators that burn only wood waste, yard waste, and clean lumber and are not located at a major source or subject to title V for other reasons; closing the 2007 proposed reconsideration action; and other technical, typographical, and clarifying corrections to certain provisions in the NSPS and EG.

The EPA is finalizing the amendments as new subparts VVVV (Standards of Performance for Large Municipal Waste Combustors) and WWWW (Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before January 23, 2024), in lieu of revising existing subparts Cb (Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before September 20, 1994) and Eb (Standards of

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[42] *Summary of Public Comments and Responses for Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors Voluntary Remand Response and 5-year Review* ("Comment Response Document"), Docket ID No. EPA-HQ-OAR-2017-0183.

Performance for Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996). As proposed, we are reserving (removing without replacing) subpart Ea (NSPS limits for units constructed after December 20, 1989, and on or before September 20, 1994). Although we proposed to promulgate amendments as revisions to subparts Cb and Eb, the EPA has determined that creating new subparts will lessen confusion for affected sources and implementing agencies. Therefore, we have created new subparts for the NSPS and EG at 40 CFR part 60, subparts VVVV and WWWW, respectively, which will replace subparts Cb, Ea, and Eb once facilities are required to comply with the new subparts. The revised standards and new subparts will become effective **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. For the EG, States must submit revised State plans to the EPA within one year after promulgating the amendments, by **March 10, 2027.** Existing large MWC units must demonstrate compliance with the updated standards as expeditiously as practicable after approval of a State plan, but no later than three years after the date of approval of a State plan or five years after promulgation of the revised standards, whichever is earlier. For NSPS, new sources must be in compliance with the updated standards within six months from promulgation, by **September 10, 2026**, or upon startup, whichever is later.

By incorporating these amendments as new subparts, we hope to alleviate confusion that may arise from significant amendments to the current subpart Cb and subpart Eb regulatory text. For example, to support making the format and structure of the regulations more understandable based on Federal Plain Language Guidelines, we are moving the requirements in subparts Cb and Eb to subparts VVVV and WWWW. Additionally, by creating new subparts VVVV and WWWW, we can omit transitional regulatory requirement language and have a single applicability date (*i.e.*, January 23,

2024) for the new subparts, upon which applicability of subparts Cb, Ea, and Eb ends and a single subpart, WWWW, apply to all the current, operating large MWCs. (We provide additional information on the effective and compliance dates of the final rule in section III.D of this preamble.) Finally, to better accommodate potential future updates to the regulations, in subparts VVVV and WWWW, we are numbering sections in increments of five to support adequate numeric spacing to revise or add new regulatory text sections if needed.

A. What are the final rule amendments based on the response to the voluntary MACT floor remand and five-year review for the large MWC source category?

1. Emission limits.

In the proposed rule, the EPA presented amendments resulting from its reevaluation of the 1995 large MWCs MACT standards undertaken pursuant to the D.C. Circuit's 2008 voluntary remand and the EPA's five-year review of large MWC standards, undertaken pursuant to CAA section 129(a)(5). Based on the EPA's reevaluation of the MACT floors and beyond-the-floor options and review of the standards and requirements, the EPA proposed revised limits at the MACT floor for all covered pollutants except for NO_x, for which the EPA proposed to implement more stringent emission standards as a result of the five-year review.

Following consideration of comments, input from stakeholder meetings, and additional data received post-proposal, the EPA revised its initial reevaluation of the 1995 MACT floors and is finalizing recalculated emission limits.[43] Specifically, for the EG, the EPA is finalizing newly revised emission limits for all pollutants, except for the CO and NO_x limits for two categories and subcategories of combustors, respectively. The

[43] As explained in sections IV.A.3 and IV.A.4 of this preamble, the EPA received additional emissions test data from the 1990-1995 period during the original comment period and the supplemental 2025 comment period that bolstered the dataset available for reanalysis of the MACT floors.

revised limits reflect the MACT floor reevaluation results rather than the results of the five-year review. For the NSPS, the EPA is finalizing revised reevaluated MACT emission limits for all pollutants except NO_x, which will retain the proposed five-year review limit for new sources.[44]

Tables 2 and 3 of this preamble present the final EG and NSPS emission limits for large MWCs, respectively. For comparison, the table presents current emission limits (from the 2006 rule) for both existing and new units as well. The EPA assessed NO_x and CO limits by subcategories, determined based on combustor type, including mass burn waterwall (MB/WW), mass burn rotary combustor (MB/RC), refuse-derived fuel stoker (RDF/S), RDF spreader stoker fixed floor/100 percent coal capable and RDF semi-suspension/wet RDF process conversion (RDF/SS), and RDF/fluidized bed combustion (RDF/FBC).[45]

Table 2. Comparison of Existing Source Limits for 2006 Large MWC Rule and the Final Emission Limits for Existing Sources

Pollutant	Units (@ 7 percent O_2)	2006 EG (Current) Limits	Final Subcategory EG Limits				
			MB/WW	MB/RC	RDF/S	RDF/SS	RDF/FBC
Cd	µg/dscm	35	10				
Pb	µg/dscm	400	68				
PM	mg/dscm	25	20				
Hg	µg/dscm	50	50				
PCDD/PCDF	ng/dscm (total mass basis)	30/35[1]	14				
HCl	ppmvd	29	10				
SO_2	ppmvd	29	22				
NO_x	ppmvd	180–250[2]	205[4]	150	160	160	180[4]
CO	ppmvd	50–250[3]	100[4]	110	110	250[4]	110

1 30 ng/dscm for fabric filter equipped MWC units and 35 ng/dscm for electrostatic precipitator-equipped MWC units.
2 Range in limits based on combustor type. MB/WW (205); RDF (250); MB/RC (210); RDF/FBC (180).
3 Range in limits based on combustor type. MB/WW (100); MB/RC (250); RDF/S (200); RDF/SS (250); RDF/FBC (200); modular starved air or modular excess air (50).
4 Reevaluated MACT floor limit was less stringent than current limit, so current limit was retained.

44 See section IV of this preamble for rationale for these revisions and summarized comments and responses on this topic.
45 The EG contain CO emission limits for two additional subcategories of units that are not found in the NSPS. More recent installations have not used these designs, and the EPA expects that most new large MWCs will likely be MB/WW.

Table 3. Comparison of New Source Limits for 2006 Large MWC Rule and the Final Emission Limits for New Sources

Pollutant	Units (@ 7 percent O_2)	2006 NSPS (Current) Limits	Final Subcategory NSPS Limits MB	Final Subcategory NSPS Limits RDF
Cd	µg/dscm	10	2.3	
Pb	µg/dscm	140	23	
PM	mg/dscm	20	5.1	
Hg	µg/dscm	50	32	
PCDD/PCDF	ng/dscm (total mass basis)	13	11	
HCl	ppmvd	25	7.2	
SO_2	ppmvd	30	14	
NO_x[1]	ppmvd	150	50	
CO	ppmvd	50-150[2]	76	100

[1] NO_x limit based on 50 ppm (24 hour) permitted limit for units currently equipped with selective catalytic reduction (SCR) control devices.

[2] Range in limits based on combustor type. MB/WW (100); RDF/S (150); Modular starved air or modular excess air (50).

2. MACT floor assessment.

This final rule fulfills the EPA's reevaluation of the 1995 MACT floors for the large MWC source category pursuant the D.C. Circuit's 2008 voluntary remand of the 2006 large MWC rule, as discussed in section II.B of this preamble. In response to the remand, the EPA explained at proposal that the Agency lacked sufficient data from the time period of the 1995 large MWC rulemaking to now characterize the performance of all units needed to reassess the original MACT floors. The EPA proposed to recalculate the MACT floors for large MWCs based on compliance data from 2000 through 2009 reported for the population of units that were operating at the time of the original EG development (1990), adjusted to account for the installation of air pollution control devices (APCD) and other improvements that sources made to meet the 1995 standards. The EPA subsequently ranked the best performing units in the source category for each covered pollutant based on the adjusted emissions, analyzed the data to determine the average performance of those units, considered beyond-the-floor options, and established MACT floor emission limits.[46]

[46] See discussion in section III.A.3 of this preamble.

Following consideration of comments and additional information received on the proposed rule, the EPA is revising its reassessment of the MACT floor limits for the EG and NSPS. The EPA is finalizing a similar approach as that in the proposed rule, using separate methodologies for pollutants having stack test data (Cd, Pb, Hg, PM, HCl, and PCDD/PCDF) and pollutants having CEMS data (or CEMS pollutants) (CO, NO_x, and SO_2). However, the final limits incorporate new data submitted for years 1990 to 1995 for unit ranking and UPL determinations, in addition to the 2000 to 2009 compliance dataset that the EPA used for the proposed limits. Considering the unique situation of the MACT reevaluation, the EPA's limited ability to gather multiple years of tests for the top performers from several decades ago, and the high variability of waste that these sources use as fuel, the EPA also has revised the NSPS methodology to account for additional intra-source variability in top performers, instead of relying on a singular test from the 1990s. For each stack test pollutant, the EPA performed a statistical analysis on the annual test averages from the 1990 to 1995 dataset and adjusted averages from the 2000 to 2009 dataset to determine an upper prediction limit (UPL).[47] For EG limits, the EPA used average annual run data corresponding to the top 12 percent of units, and for NSPS limits, the EPA used run data for the single top performer. For NSPS limits, the EPA also assessed the distribution and variance of 2000 to 2009 test averages for the top performer incorporated this data into the UPL calculation.

For CEMS pollutants (CO, NO_x, and SO_2), the EPA reevaluated MACT floor limits by averaging annual peak CEMS data corresponding to the top performers for each pollutant and applicable subcategory. For NO_x and CO, the EPA calculated separate NSPS limits for only two subcategories, MB (as reflected by MB/WW combustor technology) and RDF. In cases where results were greater (less stringent) than the current large MWC EG limit, the EPA proposed to retain the existing regulatory limit as the

[47] For a more detailed discussion, see section IV.A.4 of this preamble.

MACT floor limit. While the methodology has not changed from proposal, based on comments and evaluation of the data from the units identified as best performers for CO at proposal, we performed a paired t-test analysis on the best performers for CO and determined that the data reported for Wheelabrator Bridgeport Units #1, #2, and #3 exhibit a different population characteristic from the remainder of the source category, *i.e.,* statistically, there is a significant difference in the CO data reported by the Wheelabrator Bridgeport facility from the CO data reported by all other facilities that is outside the variation we would expect of CO emissions from large MWCs. This indicates that the owner or operator of these units may have reported the data in a different way than requested based on a different understanding of the reporting requirement, resulting in reported CO numbers that were much lower than all other facilities not because of better operation and lower emissions but because of differently understood reporting requirements. As a result, the EPA removed the CEMS data for these units from the CEMS pollutant calculations. The removal results in a new NSPS CO limit of 76 ppmvd from the proposed NSPS CO limit of 16 ppmvd and an EG SO_2 limit of 22 ppmvd from the proposed EG SO_2 limit of 20 ppmvd. Further discussion of this change from proposal is in section IV of this preamble.

Table 4 of this preamble presents the UPL results and the derived final EG and NSPS MACT floor limits for stack test pollutants. Tables 5 and 6 of this preamble summarize the averages and subsequent MACT floor EG and NSPS limits, respectively, for CEMS pollutants. Additional discussion of the methodology, detailed results, and a copy of the UPL template are available in the docket for this rulemaking.[48]

Table 4. Large MWC MACT Floor EG and NSPS Limits for Stack Test Pollutants

Pollutant		**EG MACT Floor Calculations**	**NSPS MACT Floor Calculations**

[48] *See* memorandum entitled *MACT Floor Calculations for Large Municipal Waste Combustor Units- Final Rule*, Docket ID No. EPA-HQ-OAR-2017-0183.

	Units (@ 7 percent O_2)	UPL Result	MACT Floor Limit	UPL Result	MACT Floor Limit
Cd	µg/dscm	9.99	10	0.577	2.3[1]
Pb	µg/dscm	67.86	68	5.33	23[1]
PM	mg/dscm	19.05	20	5.06	5.1
Hg	µg/dscm	52.67	50	31.60	32
PCDD/ PCDF	ng/dscm	13.88	14	10.61	11
HCl	Ppmvd	9.82	10	7.103	7.2

[1]Calculated UPL result was less than three times the representative detection level (RDL), so MACT Floor limit set at the 2 dscm 3*RDL value (2.3 ug/dscm for Cd, 23 ug/dscm for Pb).

Table 5. Large MWC MACT Floor EG Limits for CEMS Pollutants

Pollutant	Units (@ 7 percent O_2)	EG MACT Floor Calculations									
		Average of Annual Peak CEMS Data					MACT Floor Limit				
		MB/ WW	MB/RC	RDF	RDF/SS	RDF/FBC	MB/ WW	MB/RC	RDF	RDF/SS	RDF/FBC
SO_2	ppmvd	21.26					22				
NO_x	ppmvd	226.52	142.25	157.29		290.83	205[a]	150	160		180[1]
CO	ppmvd	221.44	109.92	102.14	818.90	101.40	100[a]	110	110	250[1]	110

[1] Calculated limit was less stringent than current limit so kept at current limit.

Table 6. Large MWC MACT Floor NSPS Limits for CEMS Pollutants

Pollutant	Units (@ 7 percent O_2)	NSPS MACT Floor Calculations			
		Average of Annual Peak CEMS Data		MACT Floor Limit	
		MB[1]	RDF[1]	MB[1]	RDF[1]
SO_2	ppmvd	13.96		14	
NO_x	ppmvd	130.50	154.46	140[2]	150[2,3]
CO	ppmvd	75.71	99.03	76	100

[1] The MB/RC, RDF/SS, and RDF/FBC subcategories are representative of unique facilities that likely will not be a design used in any future large MWC units. For the NSPS purposes, it is assumed the overarching MB or RDF subcategories will represent performance of any units built in the future.

[2] These values represent limits that would have resulted if the EPA had selected the MACT floor as its basis for the NSPS NO_x limits; however, the EPA is finalizing the proposed 50 ppmvd NO_x limit for all subcategories based on units currently equipped with SCR control devices.

[3] Calculated limit was less stringent than current limit, so current limit would have been retained if the MACT floor were selected.

3. Beyond-the-floor and five-year review results and selection of emission limits.

Following consideration of comments received on the proposed rule, the EPA is not finalizing the beyond-the-floor and five-year review assessments for the EG as proposed. The final rule uses the MACT floor calculations to establish EG and NSPS limits for existing and new units for all pollutants except for NO_x (which reflect the results of the MACT floor calculations for the EG as well as the results of the five-year review for the NSPS).

For its proposed assessment of beyond-the-floor in the reevaluation of the 1995 standards, the EPA assumed that the beyond-the-floor option for existing sources is the new source MACT floor (emissions control achieved in practice by the best controlled similar unit, as required by CAA section 129(a)(2)) which is more stringent than the existing source MACT floor (an average of a broader range of best performing units, also as required by CAA section 129(a)(2)). To assess additional, currently in-use control options as part of the five-year review pursuant to CAA section 129(a)(5), the EPA evaluated the performance of control measures at large MWC sources (including the installed emissions control equipment), and recent developments in practices, processes, and control technologies, including the recently finalized Good Neighbor Plan rulemaking. The EPA proposed NO_x control technologies consistent with those discussed in the Good Neighbor Plan as five-year review options for consideration. For the other covered pollutants, there are some controls that have been demonstrated on non-MWC combustion sources that could potentially be applied to large MWCs; however, the technical feasibility and cost-effectiveness of these controls when used on large MWCs are highly uncertain at this time.

Following its evaluation of these scenarios, the EPA proposed a 110 ppmvd (24-hour) NO_x limit (which was consistent with the NO_x limit finalized under the Good Neighbor Plan), as the five-year review option for existing units based on the application of advanced selective noncatalytic reduction (ASNCR) or Covanta LN™ NO_x technologies. The EPA also proposed a NO_x NSPS limit of 50 ppmvd (24-hour), based on the permitted NO_x limit for the only facility currently using selective catalytic reduction (SCR) technology with an air-to-air heat exchanger providing flue gas reheat prior to entering the SCR reactor to represent the five-year technology review standard for new sources.

Based on the consideration of several factors, including the stay of the Good Neighbor Plan,[49] the EPA is not finalizing the five-year review limit for NO_x emissions from existing units as proposed. First, the total compliance costs for existing sources to meet the proposed 110 ppmvd NO_x limit is significantly higher than the EPA's estimate in the proposed rule. At proposal, the EPA excluded units expected to be covered by the Good Neighbor Plan from the $257 million capital cost estimate. Inclusion of the compliance costs for those units significantly increases the total estimated capital cost to $412 million. These large capital expenditures likely will pose a significant challenge to the large MWC industry. The EPA recognizes that this is a unique industry providing essential public services, with many facilities owned and operated by State or local governments. These large capital expenditures could hinder government funded municipalities' ability to continue to utilize large MWCs for the public MSW disposal needs.

Second, at the same time, emission reductions from the proposed 110 ppmvd NO_x limit likely are much lower than the EPA's estimate at proposal. The EPA estimated baseline NO_x emissions using the average of the available annual peak 24-hour CEMs data from 2000 through 2007. Using the peak values likely overestimates annual emissions by about 30% compared to the 2008 National Emissions Inventory and, in turn, likely overestimates the amount of emission reductions and therefore the cost effectiveness of the proposed NO_x limit.[50]

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[49] *See Ohio v. EPA*, 603 U.S. 279 (2024) (staying the Good Neighbor Plan as likely arbitrary and capricious).
[50] 2008 National Emissions Inventory (https://www.epa.gov/air-emissions-inventories/2008-national-emissions-inventory-nei-data).

For these reasons, the EPA is not finalizing the 110 ppmvd limit for NO_x for existing sources and is instead promulgating the re-evaluated MACT floor limits for existing sources discussed in section III.A.2 of this preamble. The EPA is finalizing the 50 ppmvd NO_x limit for new sources as proposed, as there are units operating that have cost-effectively used SCR to perform at this level for several years, and the EPA sees no technical or economic barriers to future sources doing likewise.

B. What are the final rule amendments addressing emissions during periods of startup, shutdown, and malfunction?

The EPA is finalizing, as proposed, revisions to the SSM provisions of the NSPS and EG in response to the D.C. Circuit's decision in *Sierra Club v. EPA*.[51] This final rule removes the exemption for SSM periods contained in the 1995 large MWC rule so that the emission standards apply at all times. The EPA is not finalizing a separate emission standard for large MWC units during periods of startup and shutdown.[52]

The EPA notes that on September 5, 2025, the D.C. Circuit held in *SSM Litigation Group* v. *EPA* that although the EPA has no authority under the CAA to "create a regulatory 'defense' that limits the remedial authority granted by Congress to the Federal courts," a "complete affirmative defense, like the one at issue [in that case], is permissible because it relates to the antecedent question of liability and therefore does not impinge on the judiciary's authority to award 'appropriate civil penalties.'"[53] The EPA is not addressing *SSM litigation Group* in this action because the LMWC NSPS and EG do not contain affirmative defense provisions. However, the EPA may in an appropriate future action request comment on whether and how we should establish affirmative defense provisions within section 129 regulations in response to the D.C. Circuit's *SSM Litigation Group* decision. As proposed, the emission standards that the EPA is finalizing

[51] 551 F.3d 1019 (D.C. Cir. 2008).
[52] See the rationale in section IV.B of this preamble.
[53] 150 F.4th 593, 599 (D.C. Cir. 2025) (quoting CAA section 304(a), 42 U.S.C. 7604(a)).

do not factor emissions that occur during periods of malfunction into the development of the standards. This is consistent with the D.C. Circuit's decision in *U.S. Sugar Corp. v. EPA*,[54] as explained further below.

The EPA is also finalizing, as proposed, revisions to eliminate the exclusions of periods of warmup, startup, and shutdown from CEMS data averaging calculations and to replace them with a monitoring and compliance demonstration approach. The final rule requires that affected sources collect CEMS data and use this data to determine compliance when the large MWC unit is operating. While the large MWC unit is warming up, starting up, or shutting down, CEMS data must be flagged as warmup, startup, or shutdown period data. The final rule requires that affected sources use the CEMS data to calculate rolling or block averages and to average the data as measured instead of applying a seven percent oxygen diluent cap for the warmup period and an allowance of up to three hours of startup or shutdown time per occurrence. Under the final rule, a deviation occurs when an operating combustor does not record monitoring data due to monitor malfunctions.

C. What are the final rule amendments addressing other changes to the large MWC EG and NSPS?

1. Changes to the applicability date of the large MWC EG and NSPS.

As noted earlier in section III of this preamble, the EPA is finalizing the amendments as 40 CFR part 60, subparts VVVV (Standards of Performance for Large Municipal Waste Combustors) and WWWW (Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before January 23, 2024), in lieu of revising existing subparts Cb (Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before September 20, 1994) and Eb (Standards of Performance for Large Municipal Waste

[54] 830 F.3d 579, 606-10 (D.C. Cir. 2016).

Combustors for Which Construction is Commenced After September 20, 1994 or for Which Modification or Reconstruction is Commenced After June 19, 1996).

The EPA is finalizing, as proposed, that large MWC units currently subject to the NSPS are existing sources with respect to the emission standards promulgated in this final rule. Under this final rule, large MWC units that currently are subject to the NSPS at 40 CFR part 60, subparts Ea and Eb will be subject to the revised EG standards at 40 CFR part 60, subpart WWWW through meeting requirements of the relevant approved State or Federal plans. Those sources will continue to be NSPS units subject to the current large MWC NSPS until the sources come into compliance with the requirements of the revised EG standards. The revised EG standards are as stringent as, or more protective than, the 1995 large MWC new source emission limits, as revised in 2006, with the sole exception of PCDD/PCDF. For the PCDD/PCDF limit, large MWC units that are subject to NSPS subpart Eb but are existing sources under the new EG subpart WWWW remain new sources under NSPS subpart Eb and, as such, must continue to comply with the more stringent NSPS limit (*i.e.*, 13 ng/dscm total mass basis at seven percent oxygen) in NSPS subpart Eb..

Under the final rule, large MWC units that commence construction after January 23, 2024, and units that are modified or reconstructed after **September 10, 2026** are new units subject to the NSPS emission limits. Large MWC units that commence construction, reconstruction, or modification prior to those dates would be existing units subject to the revised EG standards under 40 CFR part 60, subpart WWWW. Under the final rule, any large MWC unit that commenced construction on or before January 23, 2024, or that is reconstructed or modified prior to **September 10, 2026**, remains subject to 40 CFR part 60 subparts Cb, Ea, or Eb, as appropriate, until the unit comes into compliance with the relevant approved State or Federal plan to implement and enforce the revised EG. Large MWC units that commence construction after January 23, 2024, or that are reconstructed or modified on or after **September 10, 2026** must meet the revised NSPS emission limits in 40 CFR part 60, subpart VVVV by **September 10, 2026,** or upon startup, whichever is later.

As stated in the proposal, the EPA intends to "reserve" 40 CFR part 60, subpart Ea NSPS standards once the revised EG emission limits are implemented. Due to the resetting of the "new" and "existing" definitions, any units that meet 40 CFR part 60, subpart Ea applicability would become existing units subject to the new 40 CFR part 60, subpart WWWW once implemented through a relevant State or Federal plan. Additionally, based on changes the EPA has made since proposal to introduce the new subparts to 40 CFR part 60 for large MWC regulations, once all existing units are in compliance with the requirements of 40 CFR part 60, subpart WWWW through a State or Federal plan, subparts Cb and Eb will no longer be necessary. Therefore, we intend to reserve all three subparts (40 CFR part 60 subparts Cb, Ea, and Eb) in a future action for potential use in a future rulemaking once all large MWC units are in compliance with the requirements of 40 CFR part 60, subpart WWWW through either a State or Federal plan.

2. Changes to alternative percent reduction standards for Hg, HCl, and SO_2 and removal of emissions averaging allowance for NO_x.

The EPA is not finalizing, as proposed, the removal of the alternative percent reduction standards, including the 85 percent reduction allowed for Hg (NSPS and EG), the 95 percent allowed for HCl (NSPS and EG), and the 80 percent (NSPS) and 75 percent (EG) allowed for SO_2. Instead, after considering public comments and upon further review, we are finalizing recalculated alternative percent reduction standards based on additional removal efficiency data from the years 1990 to 1995 for the best performing units used in the reevaluated MACT standards for Hg, HCl and SO_2.

The EPA is finalizing, as proposed, the removal of the NO_x emissions averaging alternative provided in 40 CFR 60.33b(d)(1) of the existing EG regulation and will not include this provision in subpart WWWW. Once implementation of subpart WWWW occurs, sources will no longer be able to comply with applicable requirements using NO_x emissions averaging.[55]

3. Changes for optional continuous monitoring.

The EPA is finalizing, as proposed, the incorporation of new performance specifications for the optional use of PM CEMS, HCl CEMS or Hg CEMS in place of stack testing and for the optional use of multi-metal, PCDD/PCDF CEMS in place of stack tests after promulgation of a performance specification or approval of a site-specific monitoring plan. As discussed in the preamble to the proposed rule, in the 2006 final amendments to the large MWC requirements, the EPA revised the PM and Hg compliance testing requirements to allow the optional use of a PM CEMS or Hg CEMS in place of stack testing and the optional use of multi-metal, HCl, PCDD/PCDF CEMS in place of stack tests after promulgation of performance specifications for these CEMS.[56] This final rule incorporates promulgated performance specifications (PS), including PS-11 (PM), PS-12A (Hg), and PS-12B (Hg).[57] These updates do not require a facility that already has an approved site-specific monitoring plan to incorporate these optional CEMS or to obtain reapproval of that plan on that basis. If owners and operators use these optional CEMS for compliance demonstration purposes, owners and operators must submit these data to the EPA in the same manner as data for the required CEMS pollutants (CO, NO_x, and SO_2).

4. Changes to streamline regulatory text within the large MWC EG and NSPS.

The EPA is finalizing, with revisions, proposed changes to the regulatory format of the large MWC standards. The final rule converts text describing emission standards and performance testing requirements to tables to facilitate easier implementation and

[55] See the rationale in section IV.C of this preamble.
[56] 89 FR 4257 (Jan. 23, 2024); 71 FR 27326 (May 10, 2006).
[57] Appendix B to Part 60, Title 40.

understanding of the requirements. As noted throughout this section of the preamble, the EPA is finalizing the large MWC NSPS and EG as new subparts VVVV (Standards of Performance for Large Municipal Waste Combustors) and WWWW (Emissions Guidelines and Compliance Times for Large Municipal Waste Combustors That are Constructed on or Before January 23, 2024), in lieu of revising existing subparts Cb and Eb. The EPA has converted the proposed streamlining changes to the new subparts to reduce potential confusion for affected sources and implementing agencies. The EPA also developed the new final subparts VVVV and WWWW to update the format and structure of the regulations to be more accessible, based on Federal Plain Language Guidelines, and establish section-numbering increments of five to allow for adequate numeric spacing to revise or add new regulatory text sections, if needed, in the future.[58]

5. Closing the 2007 proposed reconsideration of the large MWC EG and NSPS.

In 2007, the EPA announced that the Agency would reconsider three aspects of the 2006 final rule in response to requests by stakeholders: (1) operator stand-in provisions, (2) data requirements for continuous monitors, and (3) the status of operating parameters during the two weeks prior to Hg and PCDD/PCDF testing.[59] In both 2007 and 2024, the EPA proposed that no changes were necessary to resolve the 2007 reconsideration.[60] As we received no adverse comments on our proposed approach, we are now completing action on this reconsideration by making no changes to these three aspects of the rule.

6. Updating operator training examination requirements.

The final rule updates the citation to and incorporates by reference the American Society of Mechanical Engineers (ASME) Standard for the Qualification and Certification of Resource Recovery Facility Operators (QRO) to reflect 2005 updates

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[58] Federal Plain Language Guidelines: https://digital.gov/guides/plain-language
[59] 72 FR 13016 (Mar. 20, 2007).
[60] 72 FR 13016 (Mar. 20, 2007); 89 FR 4257 (Jan. 23, 2024).

made to the QRO by ASME. The rule and text of 40 CFR 60.17(g), 60.5865, and 60.6420 update the citation to this document and incorporate it by reference as QRO-1-2005.

7. Revisions to title V permitting requirements for air curtain incinerators burning only wood waste, clean lumber, and yard waste.

For air curtain incinerators that burn only wood waste, clean lumber, yard waste and that are not located at a major source or subject to title V for other reasons, the EPA is finalizing, as proposed, removal of the requirement in the 1995 large MWC final rule that air curtain incinerators that burn only wood waste, clean lumber, and yard waste and comply with the opacity limits established under CAA section 129(g)(1)(C)) must apply for and obtain a title V operating permit.[61] CAA section 129(e), which requires title V permits for "solid waste incineration units,"[62] does not apply to these ACI because, as noted in the proposed rule, the definition of "solid waste incineration unit" in CAA section 129(g)(1) "does not include (C) air curtain incinerators [that] only burn wood wastes, yard wastes and clean lumber" and comply with applicable opacity limits.[63] CAA section 502(a)[64] and the EPA's regulations at 40 CFR 70.3 identify the types of sources that must obtain a title V permit for operation. In particular, title V permitting applies to any major source as defined in 40 CFR 70.2 without exceptions, including ACI that are not solid waste incineration units under CAA section 129(g)(1) but are themselves major sources. Based on available data, ACI that burn exclusively wood waste, clean lumber, and yard waste are commonly located at facilities that are not major sources and would not otherwise require a title V operating permit, such as land clearing operations on public or private land. Further, to the EPA's knowledge, no large MWC facility operates an ACI that burns exclusively wood waste, clean lumber, and yard waste on its premises.

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[61] 60 FR 65387 (Dec. 19, 1995).
[62] 42 U.S.C. 7429(e).
[63] 89 FR 4258 (Jan. 23, 2024) (quoting 42 U.S.C. 7429(g)(1)).
[64] 42 U.S.C. 7661a(a).

This final rule clarifies the applicability of title V permitting requirements for ACIs that burn exclusively wood waste, clean lumber, and yard waste or a combination of these materials and comply with the applicable CAA section 129 opacity limitations and related requirements.

8. Electronic reporting.

The EPA is finalizing, as proposed, a requirement that owners and operators of large MWC units submit electronic copies of required performance test reports, performance evaluation reports, semiannual compliance reports, annual reports, and certain notifications through the EPA's CDX using CEDRI. Owners or operators must submit performance test results collected using test methods that the EPA's Electronic Reporting Tool (ERT) supports, as listed on the ERT website at the time of the test, and in the format generated through the use of the ERT or an electronic file consistent with the XML schema on the ERT website. Owners or operators must submit other performance test results in PDF format using the attachment module of the ERT.[65] Owners or operators must submit performance evaluation results of CEMS measuring relative accuracy test audit (RATA) pollutants in the format generated through the use of the ERT or an electronic file consistent with the XML schema on the ERT website, and must submit performance evaluation results in PDF format using the attachment module of the ERT. Owners or operators must submit certain other notifications in CEDRI. For semiannual and annual reports, the final rule requires that owners and operators use the appropriate spreadsheet template to submit information to CEDRI.

The final rule also provides extensions for electronic reporting in two specific circumstances: 1) outages of the EPA's CDX or CEDRI which preclude an owner or operator from accessing the system and submitting required reports, and 2) force majeure

[65] *See* ERT Tool: https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert.

events, which the rule defines as events that have been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevent an owner or operator from complying with the requirement to submit a report electronically.[66] In both circumstances, the decision to accept the request for additional time to report is within the discretion of the Administrator, and reporting should occur as soon as possible.

9. Technical and implementation corrections.

The EPA is finalizing corrections and clarifications to the NSPS and EG that the Agency and stakeholders identified during implementation of the previous regulations as proposed, with minimal revisions to accommodate the new subparts.[67] Specifically, the EPA includes the proposed clarifications and corrections in the final new subparts VVVV and WWWW and has updated citations and cross-references accordingly.

D. What are the effective and compliance dates of the standards?

The revisions to the NSPS and EG standards that the EPA is promulgating in this action are effective on **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**].

The EPA is finalizing the compliance dates of the NSPS and EG as proposed. Under the final EG and consistent with CAA section 129(b)(2), revised State plans containing the revised existing source emission limits and other requirements in the proposed amendments are due within one year after promulgation of the amendments. States must submit revised plans to the EPA by **March 10, 2027.**

The final EG allow existing large MWC units to demonstrate compliance with the amended standards as expeditiously as practicable after approval of a State plan, but no

[66] *See* 40 CFR 63.2 (definition of force majeure).
[67] *See* memorandum entitled *Proposed Regulation Edits for 40 CFR Part 60, Subparts Cb and Eb: Review of the Emission Guidelines for Existing Sources and New Source Performance Standards: Large Municipal Waste Combustors Voluntary Remand Response and 5-year Review*, Docket ID No. EPA-HQ-OAR-2017-0183.

later than three years after the date of approval of a State plan or five years after promulgation of the revised standards, whichever is earlier. Consistent with CAA section 129(b)(2), the EPA expects States to require compliance as expeditiously as practicable. Because we anticipate that several large MWC units will need to retrofit existing emission control equipment and/or install additional emission control equipment to meet the final revised limits, the EPA anticipates that some States may choose to provide the three-year compliance period allowed by CAA section 129(f)(2).[68]

In revising the standards in a State plan, a State may have two options, depending on the performance of the large MWC units in that State. First, a State could include both the 2006 large MWC standards and the new standards in its revised State plan, which would allow a phased approach for applying the new emissions limits. The State plan would clarify that the standards in the 2006 large MWC final rule remain in effect for large MWC units and apply until the compliance date of the revised existing source standards (as defined in the State plan).[69] Second, a State with existing large MWC units that do not need to improve performance to meet the revised standards could replace the 2006 large MWC final rule standards with the standards in this final rule; follow the procedures in 40 CFR part 60, subpart B and submit a revised State plan to the EPA for approval. If the revised State plan contains only the revised standards (*i.e.*, does not retain the 2006 large MWC final rule standards), the revised standards must be effective immediately for units subject to the 2006 large MWC final rule.

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[68] CAA section 129 does not require or authorize the EPA to specify the control technology sources must use to meet a numeric emission limit. The costs are based on assumptions of air pollution control device retrofits, new equipment, or increased use of sorbent that may be needed to comply with the emission limits, but owners will evaluate and use the controls that they determine are necessary for their source.

[69] All sources currently subject to the 1995 large MWC EG or NSPS will become existing sources once the final revised large MWC standards are in place. See section III.B of this preamble for further discussion.

The EPA will revise or replace the existing Federal plan to incorporate changes to the existing source emission limits and other requirements that the EPA is promulgating in this action.[70] The Federal plan applies to large MWC units in any State without an approved State plan. The final amendments to the EG allow existing large MWC units subject to the Federal plan a maximum of five years after promulgation of the revised standards to demonstrate compliance with the amended standards, as required by CAA section 129(b)(3).

For new sources, the final NSPS requires compliance within six months after promulgation of this final rule, or upon startup of the new MWC, whichever is later. This compliance timeline for new sources is consistent with the requirements of CAA section 129(f)(1).

E. Severability

This final action contains several discrete components, which the EPA views as severable as a practical matter—*i.e.*, they are functionally independent and operate in practice independently of the other components. These discrete components are generally delineated by the section headings within this section (section III) and section IV of this preamble. For example, the recalculated MACT floor standards, calculated using 1990'sdata, are severable from the 5-year review standard[71]. Further, each new or existing source standard for a specific pollutant is severable from the new or existing source standard for any other pollutant. The final rule also includes other revisions to the LMWC NSPS and EG that generally function independently of one another (e.g., changes to startup, shutdown malfunction provisions, alternative percentage reduction standards).

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[70] *See* 40 CFR part 62, subpart FFF – Federal Plan Requirements for Large Municipal Waste Combustors Constructed on or Before September 20, 1994.

[71] As discussed in section IV.A.4, the EPA is finalizing one standard (50 ppmvd NO_x limit for new sources) as a result of the 5-year review.

IV. What is the Rationale for our Final Decisions and Amendments for the Large MWC Source Category?

For each issue, this section describes what we proposed and what we are finalizing, the EPA's rationale for the final decisions and amendments, and a summary of key comments and responses. The EPA solicited comment on the proposed rule from January 23, 2024, to March 25, 2024. Specifically, we gathered general comments, additional data, and information regarding developments in practices, processes, and control technologies that reduce pollutant emissions as well as associated costs, feasibility concerns, and other drawbacks. The EPA subsequently reopened the comment period on the proposal for an additional four months, from January 16, 2025, to May 30, 2025. Specifically, we then gathered additional information and documentation on verifiable historic pollutant emission concentration information (*e.g.,* stack test reports, waste characterization reports and continuous emission monitor records) for the source category so we could further assess the proposed MACT requirements, including operation of the control technologies over time. For all comments that this preamble does not discuss, comment summaries and our responses are available in the comment summary and response document in the docket.[72]

A. Five-year review and response to the voluntary MACT floor remand for the large MWC source category.

1. What did we propose based on the five-year review and voluntary MACT floor remand for the large MWC source category?

a. Emission limits.

In developing the proposed standards, the EPA considered four scenarios for setting new EG and NSPS emission limits and conducted the five-year review under CAA section 129(a)(5). In the first scenario, we considered the MACT floor limits

[72] Docket ID No. EPA–HQ–OAR–2017–0183.

established by the best performing units for each covered pollutant. In a second scenario, we considered the appropriateness of additional beyond-the-floor controls for each covered pollutant. In a third scenario, we evaluated a combination of MACT floor emission limits for some covered pollutants and limits based on technology innovations identified in the five-year review for others. In the fourth scenario, we evaluated a combination of beyond-the-floor emission limits for some covered pollutants and limits based on technology innovations identified in the five-year review for others. As part of the EPA's reevaluation of the MACT floors established in 1995, we first considered the best performing units to establish MACT floor limits and then further considered whether beyond-the-floor controls are appropriate, including by evaluating improvements in pollution controls and associated costs and other drawbacks. Following its reevaluation, the EPA proposed standards resulting from the third scenario, which includes the MACT floor limits (as assessed and described in section IV.A.1.b of this preamble) for all covered pollutants except for NO_x, for which the EPA proposed to implement more stringent emission standards as a result of the five-year review. Tables 2 and 3 of the preamble to the proposed rule present the proposed emission limits.[73]

b. MACT floor assessment.

As discussed in sections II.B and III.A.2 of this preamble, the EPA sought and received a voluntary remand of the 2006 revisions to the large MWC regulations to reevaluate the 1995 MACT floors. In this rulemaking, the EPA proposed to recalculate the large MWC MACT floors from its initial analysis in 1995.[74]

While reviewing the data and information originally used to calculate the 1995 MACT floors, the EPA determined that it did not have sufficient data from that time period to characterize the performance of all units necessary to re-evaluate MACT floors.

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[73] 89 FR 4251 (Jan. 23, 2024).
[74] *Id.*

Accordingly, the EPA proposed to base the calculation of the MACT floors on additional emissions data from sources in the large MWC source category. The EPA also proposed to reevaluate the MACT floors based on the state of the industry at the time the EPA first calculated limits for large MWCs in 1995. The EPA proposed using 1990-1995 performance levels to reestablish MACT floor requirements to acknowledge the steps that large MWC facilities took to reduce emissions following the promulgated 1995 standards and to meet the EPA's obligation to correctly set MACT floor standards for each source category regulated under CAA section 129.

In other words, the EPA accounted for the fact that the 1995 regulations resulted in changes to the operation and APCDs of many large MWCs in a manner that altered the characteristics of the "best" performing units. As explained in the proposed rule, the composition of the industry remained relatively stable between the promulgation of the 1995 MACT floors and the time of our reevaluation. The EPA thus proposed to recalculate the MACT floors for large MWCs based on the population of units operating at the time of the original EG development (*i.e.*, approximately 1990), taking into account the installation of APCDs and other improvements sources made to meet the 1995 standards as based on compliance data reported for the same units from 2000 through 2009. Specifically, the EPA adjusted the initial MACT floors by assigning default control efficiencies to each APCD configuration for each covered pollutant, back-calculated an "uncontrolled" emissions value from the post-retrofit data, and then applied the control efficiencies corresponding to pre-retrofit configurations to estimate emissions that would more accurately represent the performance level of units operating in 1990. The EPA subsequently ranked the best performing units within the source category for each covered pollutant based on the adjusted emissions; analyzed the data to determine the average performance of those units, with appropriate accounting for emissions variability; and proposed MACT floor emission limits.[75]

The EPA proposed separate methodologies for pollutants having stack test data (Cd, Pb, Hg, PM, HCl, and PCDD/PCDF) and pollutants having CEMS data (CO, NO_x, and SO_2) due to inherent differences in the data (*i.e.*, test run data vs. hourly averages). For each stack test pollutant, we performed a statistical analysis on annual averages of screened run data from the 2000 to 2009 dataset to determine UPL, based on the EPA's most recent UPL template (January 2022). For EG limits, we used average annual test data corresponding to the top 12 percent of units, and for NSPS limits, we used average annual run data for the single best performer in the UPL calculations.[76] The EPA used the most recent UPL template to conduct the analysis and then rounded up UPL results to two significant figures.

For CEMS pollutants (CO, NO_x, and SO_2), the EPA proposed that the reported CEMS data already accounted for emissions variability because the available data consisted of the reported annual peak 24-hour or four-hour average selected from the year's CEMS data and represents only the highest end of readings for the year. We therefore reevaluated limits for CEMS pollutants by averaging annual peak CEMS data corresponding to the top performers for each pollutant and applicable subcategory. For NO_x and CO, we calculated separate NSPS limits for only two subcategories, MB/WW and RDF. For NSPS purposes, the EPA assumed that the overarching MB or RDF subcategories will represent performance of any units built in the future. We rounded up the resulting averages for CEMS pollutants to two significant figures. In cases where

[75] In calculating MACT floors, for existing sources, CAA section 129(a)(2) requires that MACT reflect the average emissions limitation achieved by the best performing twelve percent of units in the source category; for new sources, MACT limits most be no less stringent that the emissions control achieved by the best performing similar unit.

[76] For PCDD/PCDF, the top performing unit only had enough reported data to derive two annual averages. In this case, because the UPL template can only accommodate data sets of $n \geq 3$, the EPA used unit run data instead of the test average in the UPL calculation.

results were greater (less stringent) than the current large MWC EG limit, we proposed to retain the current limit as the MACT floor limit.

The proposed EG and NSPS MACT floor limits for stack test pollutants and CEMS pollutants and additional information regarding the EPA's MACT floor assessment are available in section III.A.2 of the preamble to the proposed rule.[77]

c. Beyond-the-floor and five-year-review results.

For assessing beyond-the-floor options in the reevaluation of the 1995 standards, in conjunction with addressing the remand of the original rule's MACT floors, the EPA proposed to represent the beyond-the-floor emission limits for existing sources numerically by assuming that the beyond-the-floor option for existing sources is the new source MACT floor (emissions control achieved in practice by the best controlled similar unit, as required by CAA section 129(a)(2)) which is more stringent than the existing source MACT floor (an average of a broader range of best performing units, also as required by CAA section 129(a)(2)).

As part of the five-year review pursuant to CAA section 129(a)(5), to assess additional control options, the EPA evaluated the performance of, and variability associated with control measures affecting emissions performance at large MWC sources (including the installed emissions control equipment) and recent developments in practices, processes, and control technologies along with associated costs and other drawbacks. As part of this review, the EPA considered at proposal developments from the Good Neighbor Plan rulemaking, which found cost-effective advances in NO_x control technologies that are available for the large MWC sector.[78] The EPA proposed NO_x standards, consistent with those finalized in the Good Neighbor Plan as the CAA section 129(a)(5) five-year review options for consideration combined with either the MACT

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[77] *Id.*

[78] 88 FR 36654 (June 5, 2023).

floor or beyond-the-floor controls for the other covered pollutants. Specifically, the EPA's third scenario consisted of evaluating MACT floor emission limits for all covered pollutants except NO_x, which the EPA proposed as a five-year review emission limit. The EPA's fourth scenario consisted of evaluating beyond-the-floor emission limits for all pollutants except NO_x, which the EPA proposed as a five-year review emission limit. Based on the EPA's analyses and the findings of the Good Neighbor Plan, the EPA selected at proposal the MACT floor plus five-year review approach (scenario three) as the most cost-effective means to maximize emissions reductions.

In the proposed rule, the EPA found that the 14,200 tpy emissions reductions achieved by the third scenario (the combination of MACT floors for all covered pollutants except for NO_x, which the EPA proposed updating per the five-year review) are significantly greater than the reductions achieved by the first scenario (updates to the MACT floors alone), by approximately 5,020 tpy. The 16,800 tpy emissions reductions achieved by the fourth scenario (the combination of beyond-the-floor limits with the updated NO_x standard under the five-year review) equal 2,600 tpy in incremental emissions reduction above those achieved by scenario three. In reviewing the cost effectiveness of the third and fourth scenarios, the EPA found that the third scenario included a cost effectiveness of approximately \$7,000 per ton emissions reduction of regulated pollutants, while the fourth scenario resulted in a cost effectiveness of approximately \$35,000 per ton emissions reduction of regulated pollutants. As such, the EPA proposed that the third scenario—reevaluated MACT floor limits coupled with the five-year review for NO_x standards—provided the most cost-effective means to maximize emissions reductions and was therefore the most appropriate set of emission standards.

In the proposal, through selection of the third scenario, the combination of MACT floor emission limits for all covered pollutants except for NO_x with the five-year review emission limit, the EPA recognized that owners or operators have retrofitted most sources with APCDs that were state of the art for MWCs in the 1990s (*i.e.*, spray dryers, fabric filters, and activated carbon injection) for covered pollutants other than NO_x. The EPA also believed that the NO_x control retrofits that are currently available—but were not in the 1990s—for most existing large MWCs appear to be cost-effective (approximately $5,000 to $6,000 per ton) and technically feasible for several existing large MWC units currently operating in the U.S. More details on the cost effectiveness of the options considered are in the memorandum entitled *Compliance Cost Analyses for Large MWC Final Rule Amendments* in the docket for this rulemaking.

The EPA proposed the 110 ppmvd (24-hour) NO_x limit consistent with the NO_x limit finalized under the Good Neighbor Plan based on the application of ASNCR or Covanta LN™ NO_x technology, finding that this limit was cost effective for existing units outside of the Ozone Transport Region that the Good Neighbor Plan did not cover; separately, in the Good Neighbor Plan, the EPA found that the limit was cost-effective for units inside of the Ozone Transport Region.[79] Unlike the Good Neighbor Plan, the EPA did not propose a mechanism for existing large MWCs to request a case-by-case emission limit based on a demonstration that application of ASNCR and Covanta's LN™ Technology or any other NO_x emission reduction technologies or measures is not technically feasible.

For all new units, the EPA proposed a NSPS NO_x limit of 50 ppmvd (measured in 24-hour period). The EPA based this limit on the permitted NO_x limit for the only facility currently using SCR technology with an air-to-air heat exchanger providing flue gas reheat prior to entering the SCR reactor to represent the five-year review standard for new sources. The EPA determined that owners or operators only reasonably can apply this design during construction of the unit, so retrofitting SCRs to other existing units

[79] *Id.*

would be technically infeasible and/or very costly if provision of reheat requires use of a supplemental burner.

Although the EPA considered other potential improvements that could be technically feasible for large MWCs as part of the five-year review, including circulating fluidized bed scrubbers (CFBS) for acid gas control and oxidation catalysts for CO control, we did not propose standards based on the performance improvements these technologies might yield. The EPA determined that retrofitting existing large MWC units with CO oxidation catalysts would be prohibitively costly, as accommodating an entirely new piece of equipment in the APCD system would require new facility footprint space and flue gas routing. For CFBS, the EPA acknowledged that although theoretically owners or operators could replace existing acid gas control devices with a CFBS to achieve slightly better acid gas control, the EPA lacked data demonstrating technical feasibility for new or existing MWC units.

2. How did the proposed emission limits and MACT floor assessment change for the large MWC source category?

As introduced in section III.A of this preamble, the EPA has revised its MACT floor assessment for the EG and NSPS in response to new data and associated comments since the proposal. The EPA is finalizing the same fundamental analytical approach as proposed, specifically using separate methodologies for pollutants with stack test data (Cd, Pb, Hg, PM, HCl, and PCDD/PCDF) and pollutants with CEMS data (CO, NO_x, and SO_2). For each stack test pollutant, the EPA performed a statistical analysis on annual averages of screened run data to determine a UPL. For CEMS pollutants, we averaged peak annual values, maintaining its stance that the data in this form already account for emissions variability. For EG limits, we used data corresponding to the top 12 percent of units, and for NSPS limits, we used data for the single top performer, consistent with CAA section 129(a)(2).

The emissions test data that the EPA used for the UPL analyses for stack test pollutants includes the 2000 through 2009 compliance data and newly received data from 1990 through 1995. The EPA made minor revisions to the 2000 through 2009 data set based on comments received. The 1990s data came from test reports and related documents submitted via email to the EPA in 2024 and 2025 by the WTEA or from attachments to comments submitted to the docket. The EPA assessed the performance of large MWCs operating in 1990 primarily based on the 1990s data. However, these data accounted for 75% of units operating in 1990, so we filled data gaps, where possible, based on adjusted emissions data from the 2000s dataset. Similar to the approach used at proposal, we accounted for performance improvement over time by adjusting the 2000 through 2009 emissions data to reflect 1990s performance. In the revised analysis, the EPA used paired 1990s and 2000s data to inform its adjustment factor development based on combustor/APCD combinations rather than relying on default APCD efficiencies alone, as the EPA did at proposal.

For the NSPS analysis for stack test pollutants, the EPA revised the UPL approach to address variability concerns raised by commenters regarding the limited number of data points available for the top performers. For every stack test pollutant, only one test was available for the top performer. To account both for more recent operational practices and waste characteristics that a single test from the 1990s may not sufficiently characterize and for the fact that we could not obtain additional years of data from the early 1990s, we assessed the distribution and variance of 2000s test averages (*i.e.*, data from several years) for the same performer. In all cases, the 2000s data distribution matched the 1990s distribution, and the EPA combined variance of the 2000s data with the variance of the 1990s data in the UPL calculation.

For CEMS pollutants, the EPA made no changes to the MACT floor calculation methodology; however, revisions to the dataset as described in this section yielded a new

EG limit for SO_2 and a new NSPS limit for CO for mass burn waterwall units. Further details regarding the revised MACT floor assessment are provided in the LMWC MACT Floor memorandum for the final rule.[80]

For the five-year review and beyond-the-MACT floor approaches, the EPA is not finalizing our determinations as proposed for existing units, meaning that the EPA is not basing the NO_x standard on the findings of our five-year review. Tables 2 and 3 of this preamble present the resulting final emission limits.

3. What key comments did we receive on the emissions limits, MACT floor assessment, beyond-the-floor, and five-year review, and what are our responses?

Comment: The EPA received numerous comments on the proposed control factor adjustment approach to emulate data from large MWCs that were operating in 1990 for reevaluating the original MACT floor. Commenters suggested that the EPA's proposed approach did not adequately characterize operational and waste composition differences from the 2000–2009 timeframe to the early 1990s and urged the EPA to use actual data from the 1990s to better inform any adjustments or calculations. Several commenters provided emission tests, spreadsheets, or test report summaries with emissions test information for a portion of the large MWC units in operation in 1990, as well as for some units that came into operation after that time but had performance data from the early 1990s. These industry commenters also provided some emissions test summary data from units within the 2000–2009 timeframe, consisting mainly of test averages for years and units for which we did not already have data in the 2000–2009 database. Other commenters argued that the EPA should not adjust the emissions data to reflect less protective performance and should not limit the reevaluation of the MACT floor to units operating in 1990, stating that this approach ignores better equipment and performance

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[80] *See* memorandum entitled *MACT Floor Calculations for Large Municipal Combustor Units – Final Rule*, available at Docket ID No. EPA-HQ-OAR-2017-0183.

exhibited by newer large MWCs and that the five-year review requires use of newer units' data.

Response: The EPA agrees with commenters' arguments that adjusting post-compliance data based purely on expected APCD performance may not adequately reflect differences in waste composition or operational improvements from the 1990s to the 2000–2009 compliance data in the EPA's database. The EPA therefore reopened the comment period for commenters to compile and submit available data from the 1990s. The data received during the additional comment period significantly increased the amount of information available to evaluate performance in the 1990s, especially in cases where no data was available for a unit. The additional data also allowed the development of a more robust adjustment factor to apply to 2000-2009 compliance data.

The EPA assessed the performance of large MWCs operating in 1990 primarily based on the 1990s data. However, these data accounted for 75% of units operating in 1990, so the EPA filled data gaps, where possible, based on adjusted emissions data from the 2000s dataset. Similar to the approach used in the proposal, the EPA accounted for performance improvement over time by adjusting the 2000s emissions data to reflect 1990s performance. In the revised analysis, we used paired 1990s and 2000s data to inform its adjustment factor development on combustor/APCD combinations rather than relying on default APCD control efficiencies alone, as we did at proposal.

For the NSPS analysis for stack test pollutants, the EPA revised the UPL approach to address variability concerns that commenters raised regarding the limited number of data points available for the top performers. For every stack test pollutant, only one test was available for the top performer. To account both for more recent operational practices and waste characteristics that a single test from the 1990s may not sufficiently characterize and for the fact that we could not obtain additional years of data from the early 1990s, we assessed the distribution and variance of 2000s test averages (*i.e.*, data from several years) for the same performer. In all cases, the 2000s data distribution matched the 1990s distribution, and we combined the variance of the 2000s data with the variance of the 1990s data in the UPL calculation.

For CEMS pollutants, the EPA made no changes to the MACT floor calculation methodology; however, revisions to the dataset yielded a new EG limit for SO_2 and a new NSPS limit for CO for mass burn waterwall units.

The EPA disagrees with some commenters' argument that using data from more recently constructed units to establish the MACT floor is appropriate here, as that suggested approach would characterize best performers that were already in compliance with the existing MACT standards. The goal of the remand is not to calculate MACT on top of the existing MACT but to reevaluate the original standards to ensure they appropriately reflect MACT when initially promulgated.[81] Thus, the analysis continues to reflect only units that were operating in 1990 because the EPA is reevaluating this original MACT floor as part of this rulemaking. Further, we have not changed our approach to using the UPL for calculating stack test pollutant emission limits and the average of the highest annual values for the best performers for the CEMS pollutants (CO, NO_x, SO_2), although we have reevaluated the data for the units identified in the proposal as best performers.[82] Additional specific comments on various aspects of the emission limit calculation approach, such as use of the UPL, subcategorization and other approaches to addressing variability are in section 4.0 of the Comment Response Document in the docket for this rulemaking.

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[81] *See U.S. Sugar Corp.*, 113 F.4th 984 (upholding the EPA's decision to rely on original dataset to correct prior MACT standards errors and recalculate MACT floor during remand); *cf. Med. Waste Inst. Energy Recovery Council v. EPA*, 645 F.3d 420 (D.C. Cir. 2011) (holding that the EPA was reasonable in its decision to use post-compliance data to reset MACT floor during remand after concluding that the prior dataset was flawed).
[82] See comment and response below on NSPS CO emission limit for further discussion.

Comment: Commenters argued that the proposed new source limits do not consider the variability of waste streams from different communities as well as seasonal variation within a community. One commenter proposed that the EPA base the variance on the top 12% of units identified for development of the MACT floors for existing units to provide a more representative estimate of variability, given the lack of actual data. Other commenters stated that the EPA's UPL approach for stack test pollutants limits the data set to only a handful of tests and leads to an extremely high calculation of variability under the extreme (99th percentile) UPL employed. These commenters asserted that in the past, the EPA has instead set "beyond-the-floor" limits for units where the 99th percentile UPL for the single "best" unit was less stringent than the UPL for the average of the top 12 percent.

Response: The EPA recognizes that there is some merit to the argument that a single emissions test taken more than 30 years ago may not accurately characterize waste and operational variability that a large MWC unit may see on a day-to-day basis. Further, we acknowledge that, after extensive industry efforts to collect legacy emissions data from the 1990s, the best performing units each only have a single emissions test reflecting performance at that time, and there are not additional tests from that timeframe available that we could use to gauge waste variability impacts in the 1990s. To address these commenters' concerns, we have reviewed the available 2000-2009 data for the best performing units, for which several years of data are available. The EPA compared the variance observed for the best performing units' 1990s data and 2000s data and found them to be the same distribution type and so we replaced the variance from the single 1990s emissions test with the variance observed from the multiple year 2000s data set available for the best performer in the UPL calculation. The resulting limits therefore incorporate variance observed over multiple years, which presumably would incorporate waste variance, and apply this variance to the UPL calculation using 1990s emissions data. The resulting limits are more stringent than the reevaluated EG MACT floors, so beyond-the-floor emission limits suggested by commenters are not necessary for the stack test pollutant limits calculated using UPL methodology.[83]

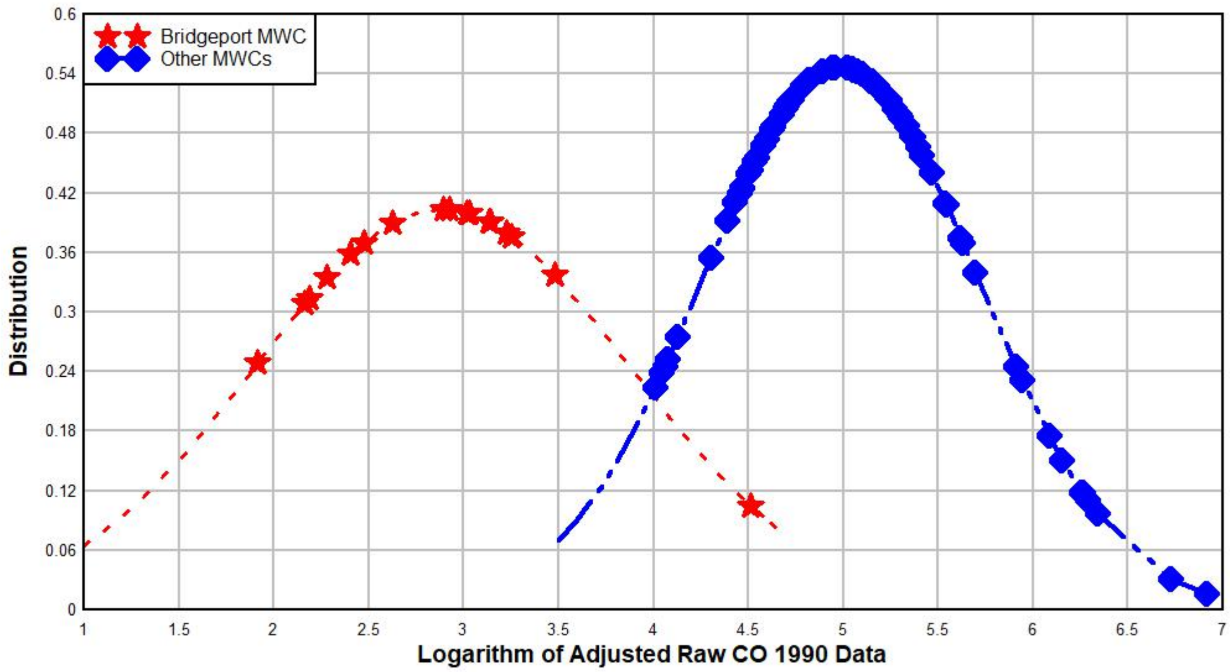
Comment: Commenters questioned the data that the EPA used to calculate the NSPS CO emission limit for MB/WW units and questioned the validity of the low CO emissions reported for the Wheelabrator Bridgeport large MWC. Commenters added that the proposed 16 ppmvd emission limit is unachievable.

Response: Acknowledging differences in the reporting method for the Wheelabrator Bridgeport data from the data submitted for other sources, the EPA assessed whether it was appropriate to consider the Wheelabrator Bridgeport data as part of the larger dataset that included other submissions. The EPA performed a paired t-test analysis, using ProUCL software, of the three Wheelabrator Bridgeport units against the rest of the best performers in order to determine whether these units are in fact representative of the best performers or whether they are a statistically distinct dataset. The paired t-test indicates that, at the 99.9 percent confidence coefficient, there are two

[83] To represent beyond-the-floor emission limits numerically, we assumed the new source MACT floor (*i.e.*, emissions control achieved in practice by the best controlled similar unit) as the emission limit applied to existing sources. From a cost-effectiveness viewpoint, the beyond-the-floor/5- year review scenario was five times more costly with less incremental emissions reductions of regulated pollutants. For further discussion of the rationale, see section III.A.3 of the preamble to the proposed rule.

distinct populations of data – those from Wheelabrator and those for the other units. Figure 1 depicts the two distinct data sets.

Figure 1. Probability Distribution Function of Adjusted Raw CO 1990 Data



There are no known operational differences that would cause the Wheelabrator Bridgeport units to be distinct from the rest of the best performers. Wheelabrator Bridgeport did not report emissions that occurred during SSM, which is inconsistent with the new standard (which includes periods of SSM), while other units included SSM data. While emissions of covered pollutants are typically low during periods of startup and shutdown because no waste has been added to the large MWC, this is not always true of CO because low emissions of CO in a combustor is an indicator of good combustion efficiency. The goal of warmup and startup in a combustor is to establish steady-state, maintainable good combustor efficiency to begin normal operations; before the combustor reaches steady-state, the CO emissions can vary widely with the changes in the combustion environment characteristic of warmup, startup, and shutdown. For large MWCs, annual maximum average CO emission concentrations frequently occur during periods of SSM.[84] The EPA finds it most likely that the low reported concentrations in data from the Wheelabrator Bridgeport units exclude emissions during periods of SSM, which other facilities include in their reported data. We attribute this likely exclusion to the reporting requirements of the applicable rule. Specifically, although the NSPS and EG, subparts Eb and Cb only require regulated facilities to report the maximum average during the year, some State and local agencies require the reporting of all periods of operation, and others require reporting only during normal operations. Because the EPA therefore determined that the Wheelabrator Bridgeport data from the CEMS dataset are nonrepresentative and not appropriately comparable to data from units whose reported emissions data included SSM periods, we removed the Wheelabrator Bridgeport data from the dataset and redetermined the best performers and the associated MACT floor. This approach resulted in a NSPS CO emission limit of 76 ppmvd and an EG SO_2 emission limit of 22 ppmvd, because the EPA had identified the Wheelabrator Bridgeport units as the best performer for CO and within the top 12 percent of best performers for SO_2 at proposal and these data were excluded from the dataset in this final rule.

Comment: Commenters both supported and criticized the five-year review finding that there are cost-effective methods such as ASNCR technology and Covanta's LN™ Technology, available for existing units to meet a 110 ppmvd emission limit for NO_x. Some commenters suggested a more stringent NO_x limit based on the application of hybrid selective noncatalytic reduction (SNCR) and SCR.

Response: The EPA is not finalizing the proposed NO_x emission limit of 110 ppmvd for existing large MWCs due primarily to the large capital expense (more than $412 million) that the EPA reasonably anticipates for the existing large MWC source category as a whole. As noted previously, the stay of the Good Neighbor Plan means

[84] This is why we are finalizing that CEMS data collected during warmup, startup, or shutdown periods will be averaged at stack oxygen content and not corrected to seven percent oxygen, as are data during normal operations.

costs to comply with this standard would be higher than previously estimated and the emissions reductions estimates are more uncertain than previously believed. At proposal, the EPA excluded units that we expected the Good Neighbor Plan to cover from the capital cost estimate, which was $257 million for the remaining units. The inclusion of those previously excluded units increases the total estimated capital cost to $412 million. The EPA recognizes that this industry provides public services, and these large capital expenditures on the industry could be challenging, especially for municipalities that own large MWCs or parent companies that operate multiple large MWC facilities.

In addition, the EPA recognizes significant uncertainty in the emission reductions and cost effectiveness estimates from proposal, based on a likely overestimation when using the average of peak 24-hour CEMs data to calculate baseline NO_x emissions. We are, however, maintaining the proposed 50 ppmvd NO_x limit for new sources within the NSPS based on the availability and continued operation of a large MWC unit equipped with SCR controls.[85] Regarding SNCR-SCR hybrid technologies, limited information is available about application of these technologies, and no information is available about long-term performance of these controls applied to municipal waste combustors. However, the final standards do not specify the controls that owners and operators must use to meet the emission limits for NO_x, and owners or operators may investigate whether an SNCR-SCR hybrid system is a viable option for their emission control needs.

4. What is the rationale for our final approach?

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[85] *See* memorandum entitled *Clean Air Act Section 129(a)(5) 5-Year Review for the Large Municipal Waste Combustor Source Category*, available in docket EPA-HQ-OAR-2017-0183. Also note that the Good Neighbor Plan supporting documentation came to similar conclusion: "[T]he study concluded that there are significant space considerations with SCR system installation which can be managed in a cost effective way in a new development, but which make retrofit installation very costly and complex." *Municipal Waste Combustor Workgroup Report* (Revised May 2023), Ozone Transport Commission Stationary and Area Sources Committee: https://otcair.org/upload/Documents/Reports/OTC%20MWC%20report%20revised%205_2023.pdf.

The underlying approach to and premise for our reevaluation of the 1995 MACT floors as described in the proposed rule remains the same. As discussed in sections II.B and III.A of this preamble and in the proposed rule, the EPA has recalculated the large MWC MACT floors using actual 1990-1995 test data in order to correct the EPA's 1995 analysis of MACT floors to account for case law questioning standards based on State-issued permit levels without evidence that the permit levels reflect the performance of the best performing sources. In recalculating the 1995 MACT floors to correct errors in our initial analysis, the EPA is assessing the state of the industry at the time that we first calculated limits for large MWCs. Given the history of limited data availability of this source category, the EPA views this approach as appropriate to establish MACT floors that reflect the emission levels actually achieved by the best performing sources using the MACT before sources in the category first complied with the 1995 standards. The EPA determined that utilizing 1990s performance levels to reestablish MACT floor requirements appropriately balances competing interest in this rulemaking, by recognizing on one hand that large MWC facilities have taken steps to reduce emissions since the EPA first promulgated 1995 standards, and on the other hand the EPA's obligation to correctly set MACT floor standards for each source category regulated under CAA section 129. At proposal, the EPA determined that it did not have sufficient data from the 1990s to characterize the performance of all units during that time period and that it was necessary to utilize a different dataset to recalculate new MACT floors from the one used to set the initial MACT floors in 1995. Emissions data received during the public comment periods allowed the EPA to develop a 1990-1995 data set, which the EPA used in conjunction with the 2000-2009 compliance data to better reflect 1990s performance when reevaluating the MACT floors for the final rule.[86]

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[86] The EPA further notes that this approach is consistent with the congressional design of CAA section 129, which envisioned the calculation and implementation of MACT floors for this source category through rulemaking by 1990. *See* 42 U.S.C. 7429(a)(1)(B).

In the related context of hospital, medical, and infectious waste incinerators (HMIWI) also regulated under CAA section 129, the EPA issued a rule on remand from the D.C. Circuit to further explain our reasoning in determining MACT floors for new and existing HMIWI.[87] In that situation, after the original MACT floors went into effect for HMIWI, approximately 94 percent of HMIWI units shut down, and an additional three percent of units obtained exemptions from the regulations.[88] Because of these significant changes in the regulated industry, we were not confident in using much of the same data used to set the original MACT floors, in part because data were unavailable from the many units that shut down following promulgation of the original standards. The EPA instead found "the best course of action [was] to re-propose a response to the remand based on data from the 57 currently operating HMIWI."[89] Subsequently, in reviewing the EPA's recalculated MACT floors for HMIWI, the D.C. Circuit found that "[w]hen the EPA determined that its regulation rested on unreliable data and that it had to reset the floors, the Agency was functionally regulating on a blank slate even though the regulation continued to remain on the books."[90]

The EPA is also functionally establishing new MACT floors for large MWCs on a blank slate because the 1995 MACT floors were originally calculated using a data set – state air permitting levels – that was not appropriate absent evidence of actual emissions. Unlike in the HMIWI rulemaking, however, there have not been significant retirements in the large MWC industry since we first introduced standards in 1995, and the industry today consists largely of the same units that were operating before the original MACT floors went into effect. Instead of retirements, the majority of the industry installed APCD and made other improvements to meet the 1995 standards. Because the industry

[87] 74 FR 51368 (Oct. 6, 2009).
[88] 72 FR 5510, 5518 (Feb. 6, 2007).
[89] 73 FR 72962, 72970 (Dec. 1, 2008).
[90] *Med. Waste Inst. & Energy Recovery Council*, 645 F.3d 420.

today consists of largely the same units that were operating in 1995, we are able, as proposed, to calculate revised MACT floors for large MWCs that are appropriate for the current fleet, based on the industry's 1995 performance level.

Sections III.A.2 and IV.A.2 of this preamble explain the data and methodology the EPA used to reevaluate the MACT floors for large MWCs. In general, the EPA has used the 1990s emissions data to the fullest extent possible considering the documentation available for the data. For example, the EPA used emissions concentration data extracted from emission test reports, test report executive summaries, and State-provided compliance data that contained sufficient information to convert the data into useable and consistent units of measure (i.e., mg/dscm at seven percent O_2) for use in the UPL calculations in lieu of adjusting 2000-2009 data, as done at proposal. In calculating the MACT floors, we did not use data that was provided in the form of emission factors (*e.g.,* lb/ton MSW) or emission rates (*e.g.,* lb/hr) and that lacked sufficient supporting test data to convert to consistent units of measure without use of default F-factors or heat input rates. Recognizing that 1990s data were unavailable for some of the units in operation in 1990, the EPA filled data gaps by adjusting the 2000-2009 data for each of the units as necessary using data adjustment factors. Unlike at proposal, the EPA used paired 1990s-2000s data for similar combustor types and APCD configurations to develop the data adjustment factors. These factors thus reflect all differences in waste and operational methods from the 1990s and 2000s, and the EPA was able to better adjust the 2000s data accordingly to approximate performance in the 1990s when earlier data are unavailable for specific units.

The EPA did not change the UPL calculation methodology for the EG MACT floor standards from proposal, but recognized that the best performers used for calculating the NSPS standards for stack test pollutants only had one test available from the 1990s. The EPA acknowledged that municipal waste streams are a uniquely variable fuel source with numerous factors that can directly impact emissions (such as seasonal changes in waste composition or consumer habits), and one stack test may not sufficiently reflect this inherent waste variability. Considering that sources collected these data three decades ago and that obtaining additional data from the 1990s to evaluate variability at the unit over that time period was not possible, we reviewed the 2000-2009 data available for the best performers. The EPA compared the variance and population distribution of the sole 1990s test data to the multiple years of data available from the 2000s for the best performers and found them to be of the same distribution type. Therefore, to ensure that longer-term waste variability is adequately addressed in this unique situation, we incorporated the variance data from the 2000s data for the best performers into the UPL equations, using the 1990s emissions data to develop the NSPS MACT floor emission limits.

Likewise, the EPA analyzed the data from the CO best performer at proposal (CEMS data from Wheelabrator Bridgeport units) and, as described in section III.A.2 of this preamble, determined that these data are statistically unique from the remainder of the large MWC fleet's data due to the probable non-reporting of data during SSM. Therefore, the EPA has excluded the Wheelabrator Bridgeport CEMS data from the CEMS pollutant MACT calculations.

Finally, after review of comments and considering the stay of the Good Neighbor Plan, the EPA is not finalizing the results of our five-year review as proposed. Mainly, the EPA is setting the emission standards for NO_x at the reevaluated MACT floor level instead of the 110 ppmvd limit based on the five-year review proposed for large MWCs in light of the then-effective Good Neighbor Plan and the performance observed by some existing large MWC units operating in the U.S. currently. While the standards do not prescribe a particular control technology, as we discuss in the preamble to the proposed rule, existing sources have used ASNCR and Covanta's LN™ technologies to achieve the

110 ppmvd performance. We evaluated the costs associated with this performance level,[91] and we have the following concern: application of these controls to the remaining population of existing large MWCs would result in an expected $411.6 million capital expenditure by the large MWC sector, which in turn owners or operators potentially would pass forward, resulting in tipping fee increases or potential unit closures for municipalities that utilize large MWCs for the MSW disposal needs.[92]

The EPA does not see this situation for large MWC sources that have yet to commence construction. As noted at proposal, a facility designed with SCR NO_x controls has been operating successfully for several years. Nothing in the comments suggests that future large MWC unit construction could not do the same. Therefore, we are maintaining the proposed 50 ppmvd NO_x limit for NSPS units. Specific comments on and associated responses to comments on the emission limit calculation and 5-year review methodology and results are provided in the Comment Response Document in the docket for this rulemaking.

B. Startup, shutdown, and malfunction.

1. What did we propose pursuant to SSM provisions for the large MWC source category?

The EPA proposed revisions to the SSM provisions of the large MWC NSPS and EG to ensure that these provisions are consistent with the D.C. Circuit's decision in *Sierra Club*. In that decision, the court vacated an SSM exemption in a CAA section 112 regulation after concluding that, pursuant to the definition of "emission standard" and "emission limitation" in CAA section 302(k), emissions standards or limitations under CAA section 112 must apply continuously and that the SSM exemption violated the CAA's requirement.[93] The EPA proposed that the reasoning in *Sierra Club* applies

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[91] *See* memorandum entitled *Compliance Cost Analyses for Large MWC Final Rule Amendments*, Docket ID No. EPA-HQ-OAR-2017-0183.
[92] *See id.*
[93] 551 F.3d 1028 (vacated the SSM exemptions that were codified at 40 CFR 63.6(e)(1), (f)(1) and (h)(1)).

equally to CAA section 129 because the definition of "emission standard" in CAA section 302(k) also applies to emission standards and limitations established pursuant to CAA section 129.

The EPA did not propose a separate emission standard for large MWC units during periods of startup and shutdown. We determined that large MWC units would be able to meet the emission limits during periods of warmup and startup because most units use natural gas or clean distillate oil to warm up the unit and do not add waste until the unit has reached combustion temperatures during a brief startup period. Emissions from burning natural gas or distillate fuel oil would generally be significantly lower than from burning solid wastes, for most pollutants, specifically those where owners or operators measure compliance by using stack tests (*e.g.*, Cd, Pb, Hg, PM, PCDD/PCDF, and HCl). Further, because we accounted for emissions variability and proposed appropriate averaging times to determine compliance with the revised MACT standards, we believed we adequately addressed any minor variability that may occur during startup or shutdown.

The EPA also proposed to eliminate the exclusions of periods of warmup, startup, and shutdown from CEMS data averaging calculations present in the 1995 large MWC rules for NO_x, SO_2, and CO and replace them with a monitoring and compliance demonstration approach used in the more recent CAA section 129 rulemaking for CISWI NSPS and EG.[94] We proposed that owners or operators must collect and report CEMS data whenever the large MWC unit is operating. Periods when the combustor is operating but owners or operators are not recording monitoring data due to monitor malfunctions may be considered deviations.[95] We proposed that owners or operators flag CEMS data collected while the large MWC unit is warming up, starting up, and shutting down as

[94] 84 FR 15846 (Apr. 16, 2019).
[95] This excludes periods of system breakdowns, repairs, and required routine monitor calibrations or quality assurance/quality control periods, according to 40 CFR 60.13(e).

warmup, startup, or shutdown period data. We proposed that owners or operators must use the CEMS data for the warmup period and up to three hours of allowable startup or shutdown time per occurrence to calculate rolling or block average values but average these at stack oxygen content instead of at a seven percent O_2 diluent cap. We requested comment on whether we should adopt a 30-day hourly rolling average for demonstrating compliance for pollutants measured using continuous monitoring, similar to provisions that the EPA has promulgated in many recent combustion standards, such as in CISWI, the Mercury Air Toxics Standards, and the National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters.[96]

Periods of startup, normal operations, and shutdown are predictable and routine aspects of a source's operations. Malfunctions, in contrast, are neither predictable nor routine. Instead they are, by definition, sudden, infrequent, and not reasonably preventable failures of emissions control, process, or monitoring equipment. [97] The D.C. Circuit in *U.S. Sugar Corp.* upheld the EPA's position that CAA section 112 does not require the Agency to include emissions that occur during periods of malfunction when developing CAA section 112 MACT standards.[98] We proposed that the reasoning in *U.S. Sugar Corp.* applies equally to section CAA 129 standards given the similarities between the section 112 and 129 standard setting criteria.

2. How did the proposed startup, shutdown, and malfunction provisions change for the large MWC source category?

The EPA is finalizing the proposed revisions to the SSM provisions of the NSPS and EG. We received comments both supporting and opposed to the proposed approach,

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[96] Mercury Air Toxics Standards (40 CFR part 63, subpart UUUU); Commercial and Institutional Boilers and Process Heaters (40 CFR part 63, subpart DDDDD).
[97] *See* 40 CFR 63.2 (definition of malfunction).
[98] 830 F.3d at 606-10.

but none presented sufficient information to cause us to determine that the approach proposed would be unachievable for large MWC units or otherwise as inappropriate. Moreover, in *Environmental Committee of the Florida Electric Power Coordinating Group, Inc. v. EPA*, the D.C. Circuit recognized that similar to CAA section 112, CAA section 129(a)(1)(A) requires the use of "emission limitations" consistent with the CAA section 302(k) definition.[99] This further supports finalizing the proposed revisions to the SSM provisions consistent with the D.C. Circuit's decision in *Sierra Club*.

We note that large MWC units operating in Florida have operating permits with practically the same requirements for startup and shutdown events as those the EPA proposed. For example, the Covanta Lake II, Inc. facility has limits that apply during startup and shutdown but "[t]hese limits do not utilize any diluent correction."[100] Specific comments and associated responses to the SSM provision revisions are in the Comment Response Document in the docket for this rulemaking.

C. Other changes to the large MWC EG and NSPS.

1. Changes to the applicability date of the 1995 large MWC EG and NSPS.

a. What did we propose regarding applicability dates for the large MWC source category?

The EPA proposed new applicability dates for determining whether units are "existing" or "new" sources. Specifically, we proposed that large MWC units that are currently subject to the NSPS would become existing sources under the proposed amended standards and subject to the revised EG by the applicable compliance date for the revised guidelines. However, those units would continue to be NSPS units subject to the 1995 large MWC final rule until they become subject to the amended existing source EG. We proposed that large MWC units that commence construction after the date of the

[99] 94 F.4th 77, 103 (D.C. Cir. 2024).

[100] *See* the Covanta Lake II, Inc. Startup-Shutdown-Malfunction Emission Limit Project, Permit No. 0690046-017-AC, Docket ID EPA-HQ-OAR-2017-0183.

proposal, or for which a modification is commenced on or after the date six months after promulgation of the amended standards, would be new units subject to the NSPS emission limits. Units for which owners or operators commence construction or modification prior to those dates would be existing units subject to the proposed EG.

As discussed in section III of this preamble, the EPA proposed to reserve 40 CFR part 60, subpart Ea standards, which apply to units for which construction commenced after December 20, 1989, and on or before September 20, 1994. The EPA proposed that any units that meet subpart Ea applicability would become existing units subject to the EG once implemented through a State or Federal plan.

b. How did the proposed revisions to the applicability dates change for the large MWC source category?

The EPA did not receive comments on the proposed resetting of the applicability dates, so we are finalizing these revisions as proposed. However, as noted earlier in the preamble, we recognize that the Agency may need subparts Cb and Eb at a future date once all large MWC units are complying with the requirements of subpart WWWW through an approved State plan or the Federal Plan. Therefore, we intend to reserve all three subparts (40 CFR part 60, subparts Cb, Ea, and Eb) in a future rulemaking once all large MWC units are in compliance with the requirements of 40 CFR part 60, subpart WWWW via either State plan or Federal plan means of implementation.

2. Changes to alternative percent reduction standards for Hg, HCl, and SO_2, and removal of the emissions averaging allowance for NO_x.

a. What did we propose regarding changes to alternative percent reduction standards for the large MWC source category and emissions averaging allowances for NO_x?

The EPA proposed to remove all alternative percent reduction standards that the original 1991 final rule allowed, including the 85 percent reduction allowed for Hg (NSPS and EG), the 95 percent allowed for HCl (NSPS and EG), and the 80 percent

(NSPS) and 75 percent (EG) allowed for SO_2. We proposed to remove the alternative standards based on limited data available in the large MWC emissions database to evaluate for the alternative percent reduction standards and to provide a numeric concentration limit for these pollutants, which would prevent situations where a different concentration of covered pollutants is emitted from facility to facility or unit to unit.

The EPA also proposed to remove the NO_x emissions averaging alternative provided in the EG.[101] We determined that owners or operators rarely use this emissions averaging alternative and proposed that it is incompatible with the NO_x emissions standards established in the Good Neighbor Plan, which were considered as part of the five-year review process as discussed in sections III.A and IV.A of this preamble.

b. How did the proposed revisions to the alternative percent reduction standards change for the large MWC source category?

After considering public comments and upon further review, the EPA is not finalizing the proposed removal of the alternative percent reduction standards allowed in the existing NSPS and EG. Instead, we are finalizing recalculated alternative percent reduction standards based on additional 1990-1995 removal efficiency data for the best performing units used in the re-evaluated MACT standards for Hg, HCl and SO_2. The EPA used emission reduction data and a predictive statistical interval, the lower predictive limit (LPL), to calculate alternative standards to the concentration-based emission limits for these three pollutants.[102] The EPA received comments supporting and opposing the removal of the alternative percent reduction standards. Considering the comments, the EPA recognizes that the alternative percent reduction standards provide much-needed compliance flexibility considering the variable composition of municipal solid waste and the air pollution controls available for covered pollutants. Occasional

[101] 40 CFR 60.33b(d)(1).

[102] *See* memorandum entitled *MACT Floor Calculation for Large Municipal Waste Combustor Units – Final Rule*, available in the docket for this rulemaking.

slugs of high sulfur or chlorine-containing waste materials may cause brief spikes in acid gas content of the flue gas, to which acid gas scrubbing devices may not immediately be able to respond. Similarly, a mercury-containing item in the municipal waste stream could cause an unanticipated spike, which the activated carbon adsorbent injection system may not immediately be able to respond and which may cause noncompliance with a numeric flue gas concentration limit, although the device is still achieving a high level of Hg removal. Because large MWC owners and operators have limited control over the contents of the waste combusted in their units, this flexibility furthers the goal of leveling the playing field for large MWCs. Without the percent reduction alternative, a large MWC could have a set of air pollution controls identified as the BSER but, due to the unexpected or unusual presence of a waste with a high content of a covered pollutant or precursor to a covered pollutant, be unable to comply with the numeric flue gas concentration limit through no fault of their own. This means that even if two large MWCs have identical administrative and engineering controls, one may be able to demonstrate compliance with the standard and the other may not. That does not represent a level playing field, and only potentially subjects the compliance status of large MWCs to the whims of what the public throws in municipal waste on any given day. The percent reduction alternative standard provides for a more level playing field where two large MWCs with the same administrative and engineering controls can consistently achieve compliance regardless of the contents of the municipal waste, which they cannot completely control.

The EPA also recognizes, however, that the Agency relied heavily on engineering judgement while developing the existing alternative percent reduction standards rather than data demonstrating the performance of the best performing sources. Therefore, as discussed above, the EPA has recalculated these alternative standards based on emissions data using LPL predictive statistics. The resulting alternative percent reduction standards are generally similar to the existing standards but now reflect a standard based on actual emissions performance data. For example, the EG Hg and SO_2 alternative percent removal standards remain unchanged. However, the EG HCl percent reduction standard rises from 95% to 96%. Similarly, for the NSPS, the Hg percent reduction standard is unchanged at 85%. However, the HCl standard rises from 95% to 98%, while the SO_2 drops by a percentage point, from 80% to 79%.

The EPA is not including the NO_x emissions averaging allowance in the final subpart WWWW EG although for different reasons than those stated at proposal. We conclude that existing sources will not need this allowance on two distinct factors. First, we are not aware of any units that cannot meet the revised NO_x MACT floor limits without mass retrofits and additional controls. As a result, there will be no large scale retrofit needs across the fleet of large MWCs to meet the final NO_x emission limits and less burden on existing sources to accomplish additional NO_x emissions reductions and retrofits about which commenters expressed concerns. Because we are finalizing the reevaluated NO_x MACT floor emission limits, the expected need to retrofit is limited in scope and should not result in significant limited retrofit resource availability or scheduling concerns that an averaging allowance would help alleviate.

Second, an analysis of the air pollution controls installed at large MWC facilities shows that almost all units are similarly equipped at any given facility. For NO_x, this means that, with very limited exceptions, each unit at a facility employs the same NO_x control device (*i.e.*, SCR, SNCR) or has a lower NO_x-generating design.[103] As a result, the EPA does not anticipate a need to average data from a better-controlled or performing source at a facility with that from a source without a similar control or at a lower performance to allow that lower-performing unit to operate. Specific comments on this

[103] The only two exceptions are facilities where the owner or operator constructed a new large municipal waste combustor unit at a later date, and the new unit was subject to 40 CFR 60 subpart Eb NSPS, which does not contain an emissions averaging allowance.

topic and associated responses to the alternative percent reduction standards and removal of the emissions averaging allowance are in the Comment Response Document in the docket for this rulemaking.

3. Changes for optional continuous monitoring.

a. What did we propose with respect to optional continuous monitoring for the large MWC source category?

The EPA proposed to incorporate updated performance specifications for the optional use of a PM CEMS or Hg CEMS or the use of multi-metal, HCl, PCDD/PCDF CEMS in place of stack tests into the large MWC requirements. The proposed changes would update the 2006 final amendments to the large MWC rules, which revised the PM and Hg compliance testing requirements to allow the optional use of a PM CEMS or Hg CEMS in place of stack testing and allow the optional use of multi-metal, HCl, PCDD/PCDF CEMS in place of stack tests after performance specifications for these CEMS are promulgated.[104]

The EPA also requested comment on whether the use of CEMS for compliance testing requires adopting alternative emission limits. We noted that more recent combustion rulemakings have included 30-day hourly rolling averages for pollutants measured with Hg CEMS (*e.g.*, Mercury Air Toxics Standards, 40 CFR part 63, subpart UUUU) or other optional CEMS (*e.g.*, CISWI NSPS and EG, 40 CFR part 60, subparts CCCC and DDDD). We also requested comment on whether the 30-day rolling hourly average is appropriate to use in the large MWC source category.

b. How did the revisions to the optional continuous monitoring provisions change for the large MWC source category?

The EPA is finalizing the proposed changes to continue to allow the optional use of CEMS in place of stack testing after performance specifications for the CEMS are

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[104] 71 FR 27326 (May 10, 2006).

promulgated and incorporate currently available applicable performance specifications. This allows flexibility for a facility to use CEMS for which performance specifications do not yet exist through the use of site-specific performance evaluation plans. Additionally, we are not finalizing 30-day averaging times for any of the required CEMS pollutant monitoring (CO, SO_2 and NO_x). The EPA at this time has insufficient information to assess the suitability and magnitude of a potential 30-day rolling average, as the data consists solely of the maximum four-hour or 24-hour average, recorded over the course of a reporting year. The EPA received comments mainly supporting the allowance of CEMS for additional pollutants as an option, but some commenters urged the EPA to require monitoring using CEMS. Specific comments and associated responses to the optional use of CEMS and a 30-day hourly rolling average are in the Comment Response Document in the docket for this rulemaking.

4. Changes to streamline regulatory text within the large MWC EG and NSPS.

a. What did we propose with respect to streamlining regulatory text for the large MWC source category?

The EPA proposed changes to the regulatory format of the large MWC standards to be more accessible and easier to follow than the 1995 large MWC final rule. The proposed rule converted paragraph text describing emission standards and performance testing requirements to tables to facilitate easier implementation and understanding of the requirements. The EPA added these new tables to the ends of the subparts for these requirements, similar to the approach in other, recent CAA section 129 rulemakings.

b. How did the proposed revisions to streamline regulatory text change for the large MWC source category?

The EPA is finalizing changes to the regulatory format of the large MWC standards as proposed, with additional revisions to convert the text and tables to new subparts VVVV and WWWW, incorporate Federal Plain Language Guidelines, and establish section-numbering increments of five to allow or adequate numeric spacing to revise or add new regulatory text sections if needed in the future. The EPA received no substantive comments on streamlining the regulatory text.

5. Closing the 2007 proposed reconsideration of the large MWC EG and NSPS.

a. What did we propose in connection with closing the 2007 proposed reconsideration for the large MWC source category?

The EPA proposed to complete action on the March 20, 2007 reconsideration that the EPA had not finalized. In that 2007 notice, we announced our reconsideration of three aspects of the 2007 final rule based on stakeholder requests: operator stand-in provisions, data requirements for continuous monitors, and the status of operating parameters during the two weeks prior to Hg and PCDD/PCDF testing.[105] We proposed that no changes to the 2007 final rule were warranted as a result of the reconsideration.[106] In the proposed rule for this action, the EPA reiterated the issues raised and discussed in the 2007 notice, acknowledged that we received only one supportive comment on these issues, and proposed to finalize the 2007 reconsideration, as previously proposed, with no changes to those three aspects of the rule, if the Agency received no adverse comments during the comment period for this rulemaking.[107]

b. How did the proposed revisions change for the large MWC source category?

The EPA is making no additional changes to the final rule as a result of the proposed closing of the issues raised in the 2007 reconsideration, as recent comments received generally support closing these issues. We received comments both supporting the operator stand-in provisions as they exist and supporting revisions to the provisions to

[105] 72 FR 13016 (Mar. 20, 2007).
[106] *Id*.
[107] 89 FR 4257 (Jan. 23, 2024). As a miscellaneous and superfluous observation, the EPA notes that the reconsideration petition issue concerning the Pb standard, which the EPA did not grant, is moot based on this final action to address the voluntary remand of the MACT floors, which results in more stringent Pb standards.

shorten the timeframe that provisionally certified operators may operate the MWC unit. Additionally, commenters supported not changing the mass carbon feed rate operating parameter provisions for PCDD/PCDF and Hg testing. Our response to these comments is in the Comment Response Document in the docket for this rulemaking.

6. Updating operator training examination requirements.

a. What did we propose with respect to updating operator training exam requirements for the large MWC source category?

The EPA proposed to include and incorporate by reference the updated QRO in the final rulemaking. The 1995 large MWC final rule cited the 1994 version, QRO-1-1994. However, ASME released an updated version in 2005, identified as QRO-1-2005, which the EPA proposed to include in the regulatory text and incorporate by reference.

b. How did the proposed revisions change for the large MWC source category?

The EPA is promulgating as proposed with no additional changes to the final rule. We received one comment requesting increased training requirements for MWC operators, supervisors, and personnel. Our response to this comment is in the Comment Response Document in the docket for this rulemaking. The reference to QRO-1-2005 has been added to 40 CFR 60.17(g), 60.5865, and 60.6420.

7. Revisions to title V permitting requirements for air curtain incinerators burning only wood waste, clean lumber, and yard waste.

a. What did we propose in connection with title V permitting requirements for air curtain incinerators for the large MWC source category?

The EPA proposed to remove a title V permitting requirement in the 1995 large MWC final rule for air curtain incinerators that only burn wood wastes, yard wastes, and clean lumber (and that comply with applicable opacity limitations) and are not at a major source or subject to title V for other reasons.[108] The EPA noted in the proposed rule that

[108] 89 FR 4258 (Jan. 23, 2024).

CAA section 129(e), which requires title V permits for solid waste incineration units, does not apply to these ACI because they are not solid waste incineration units, as defined in CAA section 129(g)(1)(C). The proposed rule explained that the EPA nevertheless required title V permitting for these air curtain incinerators in previous rulemakings for various reasons, primarily because we believed that compliance with a title V permit was necessary to assure compliance with the opacity requirements established for such incinerators. However, we proposed to remove this requirement based on feedback from several States indicating that the title V requirements are unnecessarily burdensome and expensive for States to maintain and based on data showing that air curtain incinerators that burn exclusively wood waste, clean lumber, and yard waste are commonly at facilities that would not otherwise require a title V operating permit.

b. How did the proposed revisions concerning title V permitting requirements for air curtain incinerators change for the large MWC source category?

The EPA received comments supporting and opposing the removal of the title V permitting requirements for air curtain incinerators that only burn wood waste, clean lumber, and yard waste; comply with opacity limitations; and that are not at a major source or subject to title V for other reasons. After consideration of these comments and the exclusion of these ACI from the title V permitting requirement in section 129(e) as they are not "solid waste incineration units" as defined in 129(g)(1)(C), we are finalizing, as proposed, the removal of the title V permitting requirements for these units. As noted in the proposed rule, to the EPA's knowledge, no large MWC facility also operates an air curtain incinerator that burns exclusively wood waste, clean lumber, and yard waste. Our response to comments on the removal of this requirement is in the Comment Response Document in the docket for this rulemaking.

8. Electronic reporting.

a. What did we propose in terms of electronic reporting for the large MWC source category?

The EPA proposed that owners and operators of large MWC units submit electronic copies of required performance test reports, performance evaluation reports, semiannual compliance reports, annual reports, and certain notifications through CDX using CEDRI. We proposed that owners or operators must collect performance test results using test methods that ERT supports, as listed on the ERT website at the time of the test; submit theses in the format generated by the ERT or an electronic file consistent with the XML schema on the ERT website; and submit other performance test results in PDF using the attachment module of the ERT.[109] We also proposed that owners or operators must submit performance evaluation results of CEMS measuring RATA pollutants in the format generated by the ERT or an electronic file consistent with the XML schema on the ERT website, and submit other performance evaluation results in PDF using the attachment module of the ERT. The proposed rule would require owners or operators to submit certain other notifications as a PDF upload in CEDRI. For semiannual and annual reports, the EPA proposed that owners and operators use an appropriate spreadsheet template (provided in the docket for review) to submit information to CEDRI.

The EPA proposed two broad circumstances in which the Agency may provide electronic reporting extensions: first, outages of CDX or CEDRI that preclude an owner or operator from accessing the system and submitting required reports, and second, force majeure events, defined as events that will be or have been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the

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[109] *See* Electronic Reporting Tool (ERT): *https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert.*

affected facility that prevent an owner or operator from complying with the requirement to submit a report electronically.[110]

b. How did the proposed revisions for electronic reporting change for the large MWC source category?

Commenters generally supported the proposed requirements for electronic reporting. One commenter requested flexibility on the effective dates for electronic reporting, and another commenter suggested that the EPA require reporting of all large MWC CEMS data in averaging times that an entity can compare to the standard. To address this, the EPA has revised the regulatory text at 40 CFR 60.6090(c)(2) and 60.6630(c)(2) to add the requirement that owners or operators report all block averages during the reporting period as well as identify the periods of warmup, startup, and shutdown during which they collect all CEMS data and the large MWC is operating. We are not changing the effective dates for electronic reporting in response to comments received. Our complete responses to these comments are in the Comment Response Document in the docket for this rulemaking.

9. Technical and implementation corrections.

a. What did we propose in terms of technical and implementation corrections for the large MWC source category?

The EPA proposed corrections and clarifications to the NSPS and EG that the Agency and stakeholders identified during implementation of the previous regulations, as follows:

1. Applicability and delegation of authority

- Adding 40 CFR 60.6300(d) and 60.5705 to clarify that large MWC units subject to 40 CFR part 60, subpart WWWW are not subject to 40 CFR part 60, subpart Db. This

[110] *See* 40 CFR 63.2 (definition of force majeure).

makes the NSPS and EG consistent with 40 CFR part 60, subpart Db, which exempts large MWC units from that subpart.

- Revising 40 CFR 60.6255 to clarify that the EPA Administrator retains approval of certain exemption claims in 40 CFR 60.6305(a), (b), (c), (d), and (g); approval of major alternatives to test methods and monitoring; approval of waivers of recordkeeping; performance test and data reduction waivers; and approval of alternatives to electronic reporting to the EPA and that the approval authority does not transfer to a State upon delegation of authority to that State to implement an approved State plan.
- Revising 40 CFR 60.5710 to clarify that the EPA Administrator retains sole authority to issue the federally enforceable 11 tpd limit for exemptions in 40 CFR 60.5700(a) and the 30 percent municipal waste limit for co-fired units in 40 CFR 60.5700b(g).
- Revising 40 CFR 60.5710(a)(4) to correct a typographical error and clarify that the EPA Administrator retains sole authority to review and approve demonstrations that establish the relationship between carbon dioxide (not CO) and oxygen as part of initial and annual performance tests.

2. Definitions

- Amending the definition of "federally enforceable" in 40 CFR 60.6145 to correct a cross-referencing error, *i.e.*, to reference 40 CFR 51.165 and 51.166 instead of 40 CFR 51.18 and 51.24.

3. Performance testing and monitoring

- Revising 40 CFR 60.5960 and 60.5970(b) to correct an oversight and clarify that the revised testing schedule (once per calendar year but no less than nine months and no more than 15 months following the previous test) also applies to fugitive ash and HCl testing.

4. Reporting and recordkeeping requirements

- Revising 40 CFR 60.6255 to clarify that State plans are due on **March 10, 2027**.
- Adding 40 CFR 60.6045(h)(i) to clarify that owners or operators must record all data for continuous monitoring systems using "local time" for the location of the affected facility unless the Administrator approves an alternative time system.
- Revising 40 CFR 60.6090(c) to require owners and operators to additionally report the annual arithmetic average of all hourly values recorded during operations for the reporting year.

b. How did the proposed technical and implementation corrections change for the large MWC source category?

The EPA received minimal comments on these proposed revisions, and is not making significant changes to the final rule from the proposed clarifications and corrections. The EPA has converted the proposed clarifications and corrections to text in the final rule at 40 CFR part 60, subparts VVVV and WWWW and updated citations and cross-references accordingly. The comments received on these proposed changes mainly focused on other suggestions for monitoring and testing requirements of the rule. Our response to these comments is in the Comment Response Document in the docket for this rulemaking.

V. Summary of Cost, Environmental and Economic Impacts, and Additional Analyses Conducted

A. What are the affected facilities?

The large MWC source category comprises units with a capacity greater than 250 tpd of MSW. The EPA estimates the current fleet of large MWC units to include 152 units at 57 facilities nationwide. Of these, 129 (85 percent) are mass-burn units, and the remaining are refuse-derived fuel systems. Approximately 30 percent of currently operating large MWCs are subject to 40 CFR part 60, subpart Eb (2006 NSPS limits), with the remaining subject to 40 CFR part 60, subparts Ea (NSPS limits for units constructed after December 20, 1989, and on or before September 20, 1994), or Cb (EG for units constructed before September 20, 1994). The EPA estimates that there are 22 municipally owned or operated facilities, with a total of 62 municipally owned or operated large MWC units. As discussed in section III of this preamble, the final rule creates new subparts VVVV (NSPS for facilities for which construction is commenced after January 23, 2024) and WWWW (EG for units constructed on or before January 23, 2024), which will replace subparts Ea, Eb, and Cb, once effective. All units currently subject to subparts Ea, Eb, and Cb will need to be in compliance with 40 CFR part 60, subpart WWWW not later than three years after the Administrator approves the applicable State plan but not later than five years after the EPA promulgates the guidelines, as required by CAA section 129(b)(2).

B. What are the air quality impacts?

The EPA estimates this final rule will result in 3,269 tpy reduction in regulated pollutants from existing sources through implementation of the final emission limits. The EPA estimated emissions reductions for all units that would likely need add-on controls, improvements to existing control devices, or increased carbon or lime injection rates to meet a given limit.[111] Because the EPA assumes that good combustion practices are the most effective control for CO, compared to add-on controls or control improvements, the Agency assessed no additional control costs or associated emission reductions for CO.[112] For all other pollutants, the EPA assumed that units would comply with emission limits

[111] *See* memorandum entitled *Emission Reduction Estimates for Existing Large MWCs Final Rule Amendments*, Docket ID No. EPA-HQ-OAR-2017-0183.

[112] Further, the annual maximum data for the majority of sources do not reflect actual performance. As noted in section IV.B of this preamble, the EPA is finalizing significant changes to the continuous monitoring reporting provisions so that we have access to continuous data. Therefore, an assessment of any presumed emissions reductions in comparison to the reevaluated MACT floor for CO is not possible at this time.

by operating the control measure(s) described in the large MWC cost memorandum.[113] Table 7 of this preamble presents these reductions.

Table 7. Estimated Annual Emissions Reductions for the Final Rule

Pollutant[2]	**Unit of Measure**	**Reductions Achieved Through Final Rule Implementation**
Cd	ton/yr	0.0024
Pb	ton/yr	0.0409
PCDD/PCDF	g/yr	4.0
HCl	ton/yr	641
NO_x	ton/yr	2,630
Total[1]	ton/yr	3,269

1 Values have been rounded to three significant figures. Rows may not appear to sum correctly due to rounding.
2 Hg or SO_2 have no emission reductions.

Indirect or secondary air emissions can result from the increased energy requirements associated with the operation of new control devices (*i.e.*, increased emissions of criteria pollutants from the power plants supplying that additional electricity). The EPA expects that existing units still operating electrostatic precipitators for particulate control may need to retrofit with a fabric filter control device, but we expect the difference in energy needs for each of these devices to be minimal. Further, any improvements made to existing fabric filters will not be significant enough to require a larger fan, meaning that electricity consumption would remain unchanged. For NO_x control, most units already have SNCR, so further control, if needed, could require retrofitting with ASNCR or LN™ NO_x technology. Owners or operators would likely use existing SNCR equipment for these retrofit options, meaning any additional power consumption requirements would be minimal. In the rare case where a unit goes from no SNCR to SNCR, the unit's own generating capabilities, rather than through fossil fuel combustion, would supply the minimal amount of power required to pump reagent to the furnace. We expect sources to further control Hg and PCDD/PCDF through increased

113 *See* memorandum entitled *Compliance Cost Analyses for Large MWC Final Rule Amendments*, Docket ID No. EPA-HQ-OAR-2017-0183.

carbon injection for units that already have activated carbon injection systems or by installing new activated carbon injection systems.

We expect increases in power demand for existing systems and demand for new systems to be minimal and met with a small fraction of the power generation from the facility. Similarly, we expect power demand increases for acid gas control systems to be minimal and met with power that facilities are already generating. Sources typically control acid gases with a dry sorbent injector scrubber or spray dryer absorber. Additional control (*i.e.*, increased sorbent injection rates in the existing control device) would require only minimal increases in sorbent conveying equipment power needs. If an owner or operator determined a need for a retrofit to a CFBS to meet the standards for acid gases, this retrofit could provide a small savings in sorbent injection and power consumption needs. A CFBS is generally more effective at acid gas control for the same amount of sorbent and at a power consumption equal to or less than that of spray dryer absorbers.

As a result of these assessments, the reevaluated emission limits for large MWCs are unlikely to have any consequential secondary air impacts because the increase in energy requirements due to new control measures is minimal, and power already being generated at the plant would support what little additional energy may be required. For the same reason, impacts on the overall nationwide energy requirements are expected to be negligible.

C. What are the cost impacts?

We have estimated compliance costs for all existing units to add the necessary controls to meet the final standards.[114] We anticipate an overall capital investment of

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[114] *See* memorandum entitled *Compliance Cost Analyses for Large MWC Final Rule Amendments*, Docket ID No. EPA-HQ-OAR-2017-0183. Final rule cost estimates in Table 8 reflect updates to cost inputs for hydrated lime and landfill tipping fees received during the public comment period.

approximately $90 million, with an associated total annualized cost (including operating and maintenance costs) of approximately $26 million (in 2024 dollars). Table 8 of this preamble provides the cost breakdown by pollutant grouping and regulatory option.

Table 8. Compliance Costs of Final Rule (2030-2049)[1]

	Final Rule Estimate	
Pollutant Grouping	**Total Capital Cost ($)**	**Total Annualized Cost ($/yr)** [1]
Cd, Pb	$19,000,000	$1,100,000
Dioxins/Furans (PCDD/PCDF)	$0	$0
HCl	$0	$11,000,000
Nitrogen Oxides (NO_x)	$71,000,000	$14,000,000
Total control costs	$90,000,000	$26,000,000

[1] Includes operating and maintenance costs. We have annualized capital costs over 20 years at an interest rate of 7.5 percent unless noted otherwise, except for particulate capital costs which we have annualized over 15 years at the same interest rate to reflect equipment life assumptions. (*See Compliance Cost Analyses for Large MWC Final Rule Amendments* memorandum in the docket for this rulemaking for more details.)

Table 9 summarizes the cost effectiveness of the final rule amendments by pollutant category. As these pollutant categories are linked to inseparable control technology assumptions, whether by rule construction or by the nature in which specific controls may capture multiple pollutants, the information is not presented or calculated with any additional granularity. These cost effectiveness estimates also assume that the costs of the rule and that the emissions reductions achieved are accurately estimated. If the costs were underestimated, these cost effectiveness estimates would be underestimated by an equivalent ratio, and the reverse would be true as well. If the emissions estimates were overestimated, the potential for which is discussed in the RIA with specific attention to NO_x, the cost effectiveness estimates would be underestimated, and the reverse would be true as well.

Table 9. Cost Effectiveness of the Final Rule Amendments

Pollutant[2]	**Reductions Achieved Through Final Rule Implementation**	**Cost Effectiveness**
Cd, Pb	0.043 tpy	$26,000,000[2]
Dioxins and Furans (PCDD/PCDF)	4.0 g/yr	$0
HCl	641 tpy	$15,700
Nitrogen Oxides (NO_x)[1]	2,630 tpy	$5,380

[1] Values have been rounded to three significant figures.

[2] These are small incidental reductions and the EPA is not regulating beyond the MACT floor.

D. What are the economic impacts?

The EPA conducted an economic impact analysis for the final rule in the Regulatory Impact Analysis (RIA), which is available in the docket for this action. This analysis took the form of a “cost-to-sales” analysis. If the compliance costs are small relative to the receipts of the affected companies, the impact analysis may consist of a calculation of annual (or annualized) costs as a percent of sales for affected parent companies. The EPA often applies this type of analysis when the Agency considers a partial equilibrium or more complex economic impact analysis approach unnecessary given the expected size of the impacts. The annualized cost per sales for a company represents the maximum price increase in the affected product or service needed for the company to completely recover the annualized costs imposed by the regulation, assuming no changes in affected services or outputs.

The EPA estimated the annualized compliance cost that the Agency expects each owner to incur and determined the estimated cost-to-sales ratio for affected units. To reflect the total impact of the rule on the regulated entities, the EPA aggregated these costs to the owner level and compared the costs to all jointly owned and operated facilities to the ultimate parent company revenues for all regulated units and facilities. The estimated cost-to-sales ratio for affected entities, none of which are small according to Small Business Administration size standards, is 0.38 percent of annual revenues for the regulated entities. This ratio only exceeds one percent for two facilities and does not exceed 2.1 percent for any entity. The EPA expects the final rule to generate annual compliance cost increases greater than one percent of annual revenue for two out of 21 ultimate parent entities. Of these, one is municipally owned, and one is privately owned with 32 units under one parent company. The average cost-to-sales ratio of the remaining 19 entities is approximately 0.21 percent. Therefore, the projected economic impacts of the expected compliance costs of the final rule are likely to be relatively small as compared to parent company revenue. These costs are also less than half of those estimated for the 2024 proposed rule, and given the cost to sales ratios just discussed, these estimates are characterizable as small relative to the revenues of the owners within the affected industry. Consequently, the EPA does not anticipate that this regulatory action will lead to perceptible disruptions to the industry or significant changes in consumer welfare through increases in billing or reductions in service.

E. What are the benefits?

Pursuant to Executive Order 12866, the RIA for this final action analyzes the benefits associated with the projected emissions reductions under this final rule to inform the EPA and the public about these projected impacts. The EPA projects this final rule to reduce emissions of HAP and NO_x from existing MWCs nationwide. The EPA expects control measures to reduce about 0.0433 tpy of HAP metal emissions, including emissions of Cd, Pb, and PCDD/PCDF. The emission reductions estimated for this final rule occur only for existing sources since the EPA does not expect this rule to impact any new, reconstructed, or modified large MWCs. The control measures to reduce HAP and NO_x emissions in this final rule could improve air quality and the health of persons living in surrounding communities.

The EPA is obligated to present the agency's best scientific understanding and the implications of that science when developing policies and regulations. However, the EPA's analytical practices may not have presented the full range of uncertainties and associated confidence level regarding the potential benefit estimates from reduction in exposure to fine particulate matter (PM2.5) and ozone. In addition, the science regarding the exposure, health effects from exposure and valuation of reduction in health effect are evolving with better data and methods, especially at low concentrations of PM and ozone. The EPA's use of benefit per ton (BPT) monetized values introduces additional uncertainty. Although developed as a screening tool when full-form photochemical modeling was not feasible, the BPT approach reduces complex spatial and atmospheric relationships and may be more suited to model emissions that are geographically more uniform and species better mixing, thereby adding uncertainty associated with those estimates. Some of the sources of uncertainties include the set of assumptions used in projecting the health impact of reducing particulate matter. These projections are based on a series of models that take into account emissions changes, resulting in distributions of changes in ambient air quality, the estimated reductions in health effects from changes in exposure, and the composition of the population that will benefit from the reduced exposure. Each component includes assumptions, each with varying degrees of uncertainty.

In addition, the EPA historically provided point estimates rather than ranges of emission-related effects or only quantifying emissions when monetizing proved to be too uncertain. Therefore, to address these concerns, the EPA is refraining in providing primary estimates resulting from changes in PM2.5 and ozone exposure resulting from changes in NOx emissions but will continue to quantify the emissions until the Agency is confident enough in the modeling to robustly monetize those impacts.

VI. Statutory and Executive Order Reviews and 1 CFR Part 51

Additional information about these statutes and Executive Orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders*.

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

This action is a “significant regulatory action” as defined under section 3(f)(1) of Executive Order 12866. Accordingly, the EPA submitted this action to the OMB for Executive Order 12866 review. Documentation of any changes made in response to the Executive Order 12866 review is available in the docket. The EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis, *Regulatory Impact Analysis for the Final Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Large Municipal Waste Combustors*, is also available in the docket.

Table 10 of this preamble presents the estimated PV and EAV of the projected compliance costs of the final rule in 2024 dollars discounted to 2025.

As explained in detail in the RIA, the EPA was unable to quantify and monetize the potential impacts associated with reductions of HAP.

The compliance costs presented in Table 10 are the estimated costs of control technologies and measures applied to meet the emissions limits in the final rule. In simple terms, these costs are an estimate of the increased expenditures for large MWCs to implement the final requirements. These cost estimates include the PRA cost of subpart WWWW (detailed below in section VI.C).

Table 10. Projected Compliance Costs of the Final Rule, 2030 to 2049 (Millions of 2024 Dollars, Discounted to 2025)[1]

	3% Discount Rate[1]	**7% Discount Rate[1]**
Present Value	$330	$210
Equivalent Annualized Value	$25	$28

[1] Values have been rounded to two significant figures. Rows may not appear to sum correctly due to rounding.

The projected compliance costs have a present value of $330 million using a three percent discount rate and $210 million using a seven percent discount rate. The EAVs of these values are $25 million and $28 million respectively.

These results present an incomplete overview of the potential effects of the final rule because important categories of benefits—including benefits from reducing HAP, benefits from reducing PM, benefits from reducing ozone, and the benefits from increased transparency of emission data—were not monetized and are therefore not reflected in the cost table. We anticipate that taking non-monetized effects into account would have shown the final rule to have a net benefit, which is not reflected in this table.

B. Executive Order 14192: Unleashing Prosperity Through Deregulation

This action is considered an Executive Order 14192 regulatory action. For regulatory accounting purposes, the estimated present value and annualized value of the costs of this rule are $210 million and $28 million, respectively (7% discount rate, 2024$, 2024 present value year, perpetuity time horizon). Details on the estimated costs of this final rule can be found in EPA's analysis of the potential costs and benefits associated with this action.

C. Paperwork Reduction Act (PRA)

The information collection activities in this final rule have been submitted for approval to the OMB under the PRA. The Information Collection Request (ICR) documents that the EPA prepared have been assigned EPA ICR number 1847.11 (OMB Control number 2060-0390) for subpart WWWW (formerly subpart Cb) and EPA ICR number 1506.17 (OMB Control number 2060-0210) for subpart VVVV (formerly subparts Ea and Eb). You can find a copy of the ICR documents in the docket for this rule, and they are briefly summarized here. The information collection requirements are not enforceable until OMB approves them.

These regulations apply to facilities that own and operate MWC units with a combustion capacity greater than 250 tpd of MSW that were constructed on or before January 23, 2024 (subject to 40 CFR part 60, subpart WWWW) and to facilities for which construction is commenced after January 23, 2024 (subject to 40 CFR part 60, subpart VVVV). The reporting and recordkeeping requirements discussed here result from the EG that apply to large MWCs covered by the EPA-approved and effective State plans and, where a State plan has not been approved, large MWCs covered by the Federal plan, and large MWCs subject to the NSPS. This information is being collected to ensure compliance with 40 CFR part 60, subparts WWWW and VVVV. In general, all EG and NSPS require initial notifications, performance tests, and periodic reports by the owners or operators of the affected facilities. Owners or operators of the affected facilities are also required to maintain records of the occurrence and duration of any SSM event in the operation of an affected facility, or any period during which the monitoring system is inoperative. These notifications, reports, and records are essential in determining compliance and are required of all affected facilities subject to EG or NSPS.

The final EG and NSPS remove SSM exclusions and exemptions. These amendments also streamline regulatory language, revise recordkeeping requirements, require electronic reporting, reestablish new and existing source applicability dates, clarify requirements for air curtain incinerators, correct certain typographical errors, make certain technical corrections, and clarify certain provisions in the NSPS and EG.[115]

For the final EG in 40 CFR part 60, subpart WWWW, the EPA is revising all emission limits, except CO for two subcategories of combustors and for NO_x for two subcategories of combustors. Similarly, for the final NSPS in 40 CFR part 60, subpart VVVV, the EPA is revising all emission limits. The ICR for the final EG (EPA ICR number 1847.12) has been adjusted from the proposed rule to incorporate burden for Designated Administrators (States) to submit initial State plans and notifications of public hearings for State plans to incorporate the requirements of subpart WWWW.

[115] *See* section 12b of the Supporting Statement to the ICRs for the final rulemaking in the docket for more details.

Because the EPA is revising applicability dates and ultimately reserving subpart Ea, the burden associated with subpart WWWW includes the burden for units currently subject to subparts Ea and Eb combined with the burden for those currently subject to subpart Cb. Although no new sources are currently expected to commence construction within the next three years, the burden a new source would incur under subpart VVVV would be very similar to the current subpart Eb burden. That is, the burden would be the total of the existing new source burden (such as site selection analysis/report, initial notifications, etc.) associated with subpart Eb plus the small amount of incremental burden due to electronic reporting associated (familiarization with CEDRI and electronic data submittal) with subpart VVVV. Therefore, the EPA estimates the overall burden for a new source to comply with the monitoring, reporting and recordkeeping requirements of the NSPS as 3,800 hours at a total cost of $410,000.

Respondents/affected entities: Large MWC units constructed on or before January 23, 2024, or that are reconstructed or modified prior to **September 10, 2026**.

Respondent's obligation to respond: Mandatory (40 CFR part 60, subpart WWWW).

Estimated number of respondents: 72.

Frequency of response: Annual.

Total estimated burden: 3,670 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $228,000 (per year), includes no annualized capital or operation and maintenance costs.

For subpart VVVV, the EPA does not anticipate any construction of new units or NSPS-triggering reconstruction or modifications of existing units within the next 3 years.

Respondents/affected entities: Large MWC units constructed, modified, or reconstructed after January 23, 2024.

Respondent's obligation to respond: Mandatory (40 CFR part 60, subpart VVVV).

Estimated number of respondents: 0.

Frequency of response: Annual.

Total estimated burden: 0 hours (per year). Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $0 (per year), includes no annualized capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. When OMB approves this ICR, the Agency will announce that approval in the *Federal Register* and publish a technical amendment to 40 CFR part 9 to display the OMB control number for the approved information collection activities contained in this final rule.

D. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA. This action will not impose any requirements on small entities. We have estimated that no small entities would be affected by the final changes to the EG and NSPS. For more information, please refer to the RIA for the final rule.

E. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million (adjusted annually for inflation) or more (in 1995 dollars) and described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The costs involved in this action are estimated not to exceed $187 million in 2024$ ($100 million in 1995$ adjusted for inflation using the GDP implicit price deflator) or more in any one year.

F. Executive Order 13132: Federalism

Under Executive Order 13132, the EPA may not issue an action that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal Government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or the EPA consults with State and local officials early in the process of developing the proposed action.

The EPA has concluded that this action has federalism implications because it imposes substantial direct compliance costs on State or local governments, and the Federal government will not provide the funds necessary to pay those costs. The EPA consulted with State and local officials early in the process of developing this action to permit them to have meaningful and timely input into its development. The EPA conducted federalism/UMRA consultations, conducted additional outreach meetings, and considered input and additional letters received from a number of State and local government organizations in the development of this rule, as described in the preamble to the proposed rule.

The EPA provides the following federalism summary impact statement as required by section 6(b) of Executive Order 13132. Based on the estimates in the EPA's RIA for this action, the regulatory option may have federalism implications because the action may impose approximately $28 million (2024 dollars) in total annualized cost (including operating and maintenance costs), with approximately 22 large MWC facilities, or 40 percent of the total large MWC facility population, being owned by a State or local government.

The EPA consulted with State and local officials early in the process of developing the proposed action to permit them to have meaningful and timely input into its development. The EPA conducted a federalism/UMRA consultation outreach briefing on March 16, 2023. Invited participants included representatives from the National

Governors Association, the National Conference of State Legislatures, the Council of State Governments, the National League of Cities, the U.S. Conference of Mayors, the National Association of Counties, the International City/County Management Association, the National Association of Towns and Townships, the County Executives of America, and the Environmental Council of States. Additionally, the Agency invited representatives from the National Association of Clean Air Agencies, the Association of Air Pollution Control Agencies, the Association of State and Territorial Solid Waste Management Officials, and other groups representing State and local government professionals. Due to interest in the proposal, the EPA held additional outreach meetings on April 17, 2023, and April 27, 2023. The consultations included discussion of a preliminary listing of State or municipal-owned large MWCs, the elements of the rulemaking, reevaluation of the MACT floors, the five-year review, potential costs and air emission impacts of regulatory options being considered, and other issues such as SSM provisions.

In accordance with the requirements of Executive Order 13132, and consistent with the EPA's policy to promote communications between the EPA and State and local governments, the EPA specifically solicited comment on the proposed action from State and local officials. The EPA received comments from 19 entities representing State and local governments. The EPA submitted these letters to the pre-proposal non-rulemaking docket.[116]

Several themes emerged from State and local government comments. Commenters raised concerns regarding the timeliness of the five-year review, lack of a residual risk review for the existing rules, cost estimates for the regulatory options, impacts of rulemaking on operations of MWCs and associated taxpayer impacts, and both support for and opposition to the NO_x five-year review regulatory option.

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[116] Docket ID No. EPA-HQ-OAR-2022-0920.

For the final rule, in response to stakeholder comments, the EPA has refined the cost estimates for acid gas control to reflect higher lime costs and landfill tipping fees to reflect regional differences and has maintained the longest compliance deadline for implementing the new emission standards allowable by the CAA. Additionally, the EPA is not finalizing the standards for NO_x based on the five-year review results for existing sources and instead is finalizing the emission limits based on MACT for the subcategory of combustor. Moreover, the EPA based the remaining standards on the MACT floor (as reevaluated, but with additional 1990-1995 data provided during both comment periods) and as such expects these standards to be the least costly regulatory options for State and local owners and operators of large MWCs.

Comments submitted to the docket in response to the proposed rule (*i.e.*, outside of the UMRA consultations) largely contained the same types of comments as in the UMRA consultation process but often with an expanded discussion of commenters' concerns. Our response to these comments is in the Comment Response Document in the docket for this rulemaking.

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

This action does not have Tribal implications as specified in Executive Order 13175. The EPA is not aware of any large MWC units owned or operated by Tribal governments. Thus, Executive Order 13175 does not apply to the final rule.

Consistent with the EPA Policy on Consultation and Coordination with Indian Tribes, the EPA consulted with Tribal officials during the development of this action. A summary of that consultation is provided here. During the development of this action, the EPA offered pre-proposal government-to-government consultation with Tribal nations. No Tribal nations requested consultation with the EPA. On January 11, 2024, the EPA emailed a consultation letter with information to Tribal nations explaining how to comment on the proposed rulemaking and how to request a consultation with the EPA. The EPA held a roundtable with the National Tribal Air Association on January 25, 2024, to provide an overview of the proposed rule. This action will not have substantial direct costs or impacts on the relationship between the Federal Government and Indian Tribes or on the distribution of power and responsibilities between the Federal Government and Indian Tribes, as specified in Executive Order 13175.

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

Executive Order 13045 directs federal agencies to include an evaluation of the health and safety effects of the planned regulation on children in federal health and safety standards and explain why the regulation is preferable to potentially effective and reasonably feasible alternatives. This action is subject to Executive Order 13045 because it is a significant regulatory action under section 3(f)(1) of Executive Order 12866, and the EPA believes the environmental health or safety risk addressed by this action may have a disproportionate effect on children. The protection offered by this action may be especially important for children because the rule has considerations for human health, and children have increased susceptibility due to their physiology and continuing development of organ systems. Accordingly, we have evaluated the environmental health or safety effects of Cd, Hg, Pb, PM, HCl, PCDD/PCDF, $PM_{2.5}$ and O_3 on children.

This action also is subject to the EPA's Policy on Children's Health because the rule has considerations for human health. Accordingly, we have evaluated the environmental health effects of Cd, Pb, HCl, PCDD/PCDF, $PM_{2.5}$ and O_3 to early life exposure (the life stages from conception, infancy, early childhood and through adolescence until 21 years of age) and lifelong health.[117]

[117] *See* EPA Policy on Children's Health: https://www.epa.gov/children/childrens-health-policy-and-plan.

In summary, the RIA found that children may be more vulnerable to corrosive agents (such as HCl) than adults because of the relatively smaller diameter of their airways. Children may also be more vulnerable to gas exposure because of increased minute ventilation per kg and failure to evacuate an area promptly when exposed. Lead is associated with toxic effects in every organ system including adverse renal, cardiovascular, hematological, reproductive, and developmental effects. However, the major target for Pb toxicity is the nervous system, both in adults and children. Children are more sensitive to the health effects of Pb than adults. No safe blood Pb level in children has been determined. At lower levels of exposure, Pb can affect a child's mental and physical growth. Fetuses exposed to Pb in the womb may be born prematurely and have lower weights at birth. Exposure in the womb, in infancy, or in early childhood also may slow mental development and cause lower intelligence later in childhood. There is evidence that these effects may persist beyond childhood.[118] PCDD/PCDF "are known to be a developmental toxicant in animals, causing skeletal deformities, kidney defects, and weakened immune responses in the offspring of animals exposed to 2,3,7,8-TCDD during pregnancy."[119] Animal studies indicate that Cd may cause adverse developmental effects, including reduced body weight, skeletal malformation, and altered behavior and learning.[120] Nonfatal morbidity was not quantified and monetized for other nervous system effects (*e.g.*, autism), reproductive and developmental effects (*e.g.*, low birth weight, pre-term births, etc.). Nonfatal morbidity from exposure to ozone was quantified and monetized for asthma onset (ages 0-17), asthma symptoms/exacerbation (ages 5-17), allergic rhinitis (hay fever) symptoms (ages 3-17), and school absence days (age 5-17) in

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[118] *See* Agency for Toxic Substances and Disease Registry: https://www.atsdr.cdc.gov/2020-annual-report/php/index.html.

[119] Agency for Toxic Substances and Disease Registry (ATSDR). Toxicological Profile for Chlorinated Dibenzop-Dioxins. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. 1998.

[120] Agency for Toxic Substances and Disease Registry: https://www.atsdr.cdc.gov/2020-annual-report/php/index.html.

the Ozone ISA. Nonfatal morbidity was not quantified and monetized for reproductive and developmental effects.

Further, this action does not describe the health impacts that are associated with reduced NO_x emissions, including those for children.[121] The EPA expects these benefits are positive. Sections 3.2 Human Health Effects from Exposure to Hazardous Air Pollutants (HAP), 3.3.

This action is preferred over other regulatory options analyzed because this provides society with a substantial net gain of health and environmental benefits at the lowest cost to industry and local government entities that operate large municipal waste combustors. Furthermore, the EPA's *Policy on Children's Health* also applies to this action.

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

This action is not a "significant energy action" because the final rule is not likely to have a significant adverse effect on the supply, distribution, or use of energy. There would be no change in energy consumption resulting from the final rule, and the EPA does not expect any price increase for any energy type. We also expect that there would be no impact on the import of foreign energy supplies, and no other adverse outcomes are expected to occur with regard to energy supplies.

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

This rulemaking involves technical standards. The EPA previously conducted searches to determine if there are voluntary consensus standards (VCS) that are relevant to this action and reviewed any potential standards to determine the practicality of the

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[121] https://www.epa.gov/isa/integrated-science-assessment-isa-oxides-nitrogen-health-criteria;
https://www.epa.gov/isa/integrated-science-assessment-isa-sulfur-oxides-health-criteria.

VCS for these rules.[122] The EPA has decided to use these methods as acceptable alternatives to EPA test methods for the purposes of these rules, which are summarized as follows:

- The manual portion only and not the instrumental portion of VCS, American National Standard Institute (ANSI)/ASME PTC 19-10-1981 Part 10 (2010), “Flue and Exhaust Gas Analyses,” is an acceptable alternative to EPA Methods 3B, 6, 6A, 6B, 7, and 7C. The EPA incorporates by reference VCS ANSI/ASME PTC 19.10–1981 Part 10, “Flue and Exhaust Gas Analyses,” a method for quantitatively determining the gaseous constituents of exhausts resulting from stationary combustion and includes a description of the apparatus, and calculations which are used in conjunction with Performance Test Codes to determine quantitatively, as an acceptable alternative to EPA Methods 3B, 6, 6A, 6B, 7, and 7C of appendix A to 40 CFR part 60 for the manual procedures only and not the instrumental procedures. The ANSI/ASME PTC 19.10–1981 Part 10 method incorporates both manual and instrumental methodologies for the determination of oxygen content. The manual method segment of the oxygen determination is performed through the absorption of oxygen. This method is available at the American National Standards Institute (ANSI), 1899 L Street NW, 11th floor, Washington, DC 20036 and the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990.[123] The standard is available to everyone at a cost determined by ANSI/ASME. The cost of obtaining this method is not a significant financial burden, making the methods reasonably available.

[122] See additional discussion of the preamble to the proposed rule.
[123] *See https://www.ansi.org* and *https://www.asme.org.*

- The voluntary consensus standard ASTM D7520-16, “Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere,” is an acceptable alternative to EPA Method 9 only if the following conditions are followed:

  1. During the digital camera opacity technique (DCOT) certification procedure outlined in Section 9.2 of ASTM D7520-16, you or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).
  2. You must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16.
  3. You must follow the record keeping procedures outlined in 40 CFR 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.
  4. You or the DCOT vendor must have a minimum of four independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15 percent opacity of anyone reading and the average error must not exceed 7.5 percent opacity.
  5. This approval does not provide or imply a certification or validation of any vendor’s hardware or software. The onus to maintain and verify the certification and/or training of the DCOT camera, software, and operator in accordance with ASTM D7520-16 and conditions 1 to 4 above is on the facility, DCOT operator, and DCOT vendor. The ASTM D7520-16 method describes procedures to determine the opacity of a plume, using digital imagery and associated hardware

and software, where opacity is caused by PM emitted from a stationary point source in the outdoor ambient environment. The opacity of emissions is determined by the application of a DCOT that consists of a digital still camera, analysis software, and the output function's content to obtain and interpret digital images to determine and report plume opacity. This method is available at ASTM International, 1850 M Street NW, Suite 1030, Washington, DC 20036.[124] The standard is available to everyone at a cost determined by ASTM. The cost of obtaining this method is not a significant financial burden, making the method reasonably available.

- The EPA is incorporating by reference the VCS ASTM D6784-24, "Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method)," as an acceptable alternative to EPA Method 29 (portion for Hg only) as a method for measuring elemental, oxidized, particle-bound, and total Hg concentrations ranging from approximately 0.5 to 100 micrograms per normal cubic meter. This test method describes equipment and procedures for obtaining samples from effluent ducts and stacks, equipment and procedures for laboratory analysis, and procedures for calculating results. ASTM D6784–24 allows for the use of either an EPA Method 17 sampling configuration with a fixed (single) point where the flue gas is not stratified, or an EPA Method 5 sampling configuration with a multi-point traverse. This updated 2024 version of the standard includes additional procedures that make the method applicable to sources with high levels of HCl and low levels of SO_2 in the flue gas. These methods are available at ASTM International, 1850 M Street NW, Suite 1030, Washington, DC 20036.[125]

[124] *See* https://www.astm.org.
[125] *See* https://www.atsm.org.

The standards are available to everyone at a cost determined by ASTM. The costs of obtaining these methods are not a significant financial burden, making the methods reasonably available.

- The EPA also cited the use of facility operator certification standard ASME QRO-1-2005 (R2015), Standard for the Qualification and Certification of Resource Recovery Facility Operators. The 1995 rule cited a certification for facility operator ASME QRO-1-1994. Since that time, ASME has released a 2005 version as the most recent one available. This certification standard is intended as a qualification and certification program for shift supervisors and chief facility supervisors at large MWC facilities and includes both provisional and full certification levels. Knowledge areas covered by the certification standard include, but are not limited to, refuse and ash handling, combustion processing, steam cycle, electrical, environmental controls, safety, and administration (chief facility operator only). This standard is available at the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990.[126] The standard is available to everyone at a cost determined by ASME. The cost of obtaining this method is not a significant financial burden, making the method reasonably available.

Additionally, there were two VCS incorporated by reference into current subpart Cb and subpart Eb that the EPA is incorporating into new subparts VVVV and WWWW:

- The EPA is incorporating by reference section 4 of ASME PTC 4.1-1964 (Reaffirmed 1991), Power Test Codes: Test Code for Steam Generating Units (with 1968 and 1969 Addenda). This code provides instructions and rules for conducting performance tests of fuel-fired steam generators. For context, this

[126] https://www.asme.org.

code is incorporated within the large municipal waste combustor standards as the method to calculate the steam or feed water flow rate of the combustor. This standard is available at the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990.[127] The standard is available to everyone at a cost determined by ASME. The cost of obtaining this method is not a significant financial burden, making the method reasonably available.

- The EPA is incorporating by reference ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971) (Redesignated ASME PTC 19.5-2004, Flow Measurement). This document describes methods of flow measurement, including differential, pulsating, sonic and ultrasonic metering techniques, among others. For context, this code is incorporated within the large municipal waste combustor standards as recommended guidance on the design, construction, installation, calibration and use of nozzles and orifices for steam or feed water flowmeters. This standard is available at the American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016–5990.[128] The standard is available to everyone at a cost determined by ASME. The cost of obtaining this method is not a significant financial burden, making the method reasonably available.

Additional information for the VCS search and determinations can be found in the memorandum, *Voluntary Consensus Standard Results for Large Municipal Waste Combustors NSPS and EG*, which is available in the docket for this action.

Under 40 CFR 60.8(b) and 60.13(i) of subpart A of the general provisions, a source may apply to the EPA to use alternative test methods or alternative monitoring

[127] https://www.asme.org.
[128] *See* https://www.asme.org.

requirements in place of any required testing methods, performance specifications, or procedures in the final rule or any amendments.

K. Congressional Review Act (CRA)

This action is subject to the CRA, and the EPA will submit a rule report to each House of Congress and to the Comptroller General of the United States. This action is a "major rule" as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 60

Environmental protection, Administrative practice and procedures, Air pollution control, Hazardous substances, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements.

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Lee Zeldin,

Administrator.

For the reasons stated in the preamble, the Environmental Protection Agency amends part 60 of title 40, chapter I, of the Code of Federal Regulations as follows:

PART 60 —STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

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

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

Subpart A – General Provisions

2. Amend § 60.17 by:

a. Revising paragraphs (g)(1), (g)(13), and (14);

b. Adding paragraph (g)(18);

c. Redesignating paragraphs (h)(215) through (h)(239) as (h)(216) through (h)(240);

d. Adding paragraph (h)(215); and

e. Revising newly redesignated paragraph (h)(220).

The revisions and additions read as follows:

§ 60.17 Incorporations by reference.

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(g) *   *   *

(1) ASME Interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971), IBR approved for §§ 60.58a(h), 60.58b(i), 60.1320(a), 60.1810(a), 60.5995(a), and 60.6550(a).

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(13) ASME PTC 4.1-1964 (Reaffirmed 1991), Power Test Codes: Test Code for Steam Generating Units (with 1968 and 1969 Addenda), IBR approved for §§ 60.46b, 60.58a(h), 60.58b(i), 60.1320(a), 60.1810(a), 60.5995(a), and 60.6550(a).

(14) ASME/ANSI PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], Issued August 31, 1981; IBR approved for §§ 60.56c(b); 60.63(f); 60.106(e); 60.104a(d), (h), (i), and (j); 60.105a(b), (d), (f), and (g); 60.106a(a); 60.107a(a), (c), and (d); 60.275(e); 60.275a(e); 60.275b(e); Tables 1 and 3 to subpart EEEE; Tables 2 and 4 to subpart FFFF; Table 2 to subpart JJJJ; §§ 60.285a(f); 60.396(a); 60.614a(b); 60.664a(b); 60.704(b); 60.704a(b); 60.2145(s) and (t); 60.2710(s) and (t); 60.2730(q); 60.4415(a); 60.4415a(b); 60.4900(b); 60.5220(b); Tables 1 and 2 to subpart LLLL; Tables 2 and 3 to subpart MMMM; §§ 60.5406(c); 60.5406a(c); 60.5406b(c); 60.5407a(g); 60.5407b(g); 60.5413(b); 60.5413a(b) and (d); 60.5413b(b) and (d); 60.5413c(b) and (d); 60.5930(a); Tables 3 and 4 to subpart VVVV; 60.6485(a); Tables 4 and 5 to subpart WWWW.

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(18) ASME QRO–1–2005 (R2015), Standard for the Qualification and Certification of Resource Recovery Facility Operators; IBR approved for §§ 60.54b(a) and (b); 60.5865(a) and (c); 60.6420(a) and (c).

(h) *   *   *

(215) ASTM D6784-24, Standard Test Method for Elemental, Oxidized, Particle-

Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), approved March 1, 2024; IBR approved for Table 4 to subpart VVVV; Table 5 to subpart WWWW.

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(220) ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, approved April 1, 2016; IBR approved for §§ 60.123(c); 60.123a(c); 60.271(k); 60.272(a) and (b); 60.273(c) and (d); 60.274(i); 60.275(e); 60.276(c); 60.271a; 60.272a(a) and (b); 60.273a(c) and (d); 60.274a(h); 60.275a(e); 60.276a(f); 60.271b; 60.272b(a) and (b); 60.273b(c) and (d); 60.274b(h); 60.275b(e); 60.276b(f); 60.374a(d); 60.2972(a); Tables 1, 1a, and 1b to subpart EEEE; 60.3067(a); Tables 2 and 2a to subpart FFFF; 60.6145; Table 4 to subpart VVVV; 60.6685; and Table 5 to subpart WWWW.

* * * * *

Subpart Cb—Emissions Guidelines and Compliance Times For Large Municipal Waste Combustors That rre Constructed On Or Before September 20, 1994

3. Amend § 60.32b by adding paragraph (o) to read as follows:

§ 60.32b Designated facilities.

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(o) Municipal waste combustors subject to this subpart will remain subject to this subpart until the municipal waste combustor must comply with the requirements of an approved state plan or federal plan that implements subpart WWWW of this part (Emission Guidelines and Compliance Times for Large Municipal Waste Combustors Constructed on or Before January 23, 2024).

Subpart Eb—Standards of Performance For Large Municipal Waste Combustors for Which Construction is Commenced After September 20, 1994 or for Which

Modification or Reconstruction Is Commenced After June 19, 1996

4. Amend § 60.50b by adding paragraph (q) to read as follows:

§ 60.50b Applicability and delegation of authority.

* * * * *

(q) Municipal waste combustors that commenced construction after September 20, 1994 but no later than January 23, 2024 or that commenced reconstruction or modification after June 19, 1996, but no later than September 10, 2026, remain subject to this subpart until the municipal waste combustor must comply with the requirements of an approved state plan or federal plan that implements subpart WWWW of this part (Emission Guidelines and Compliance Times for Large Municipal Waste Combustors Constructed on or Before January 23, 2024).

5. Amend § 60.54b by revising paragraphs (a) and (b) to read as follows:

§ 60.54b Standards for municipal waste combustor operator training and certification.

(a) No later than the date 6 months after the date of startup of an affected facility or on December 19, 1996, whichever is later, each chief facility operator and shift supervisor shall obtain and maintain a current provisional operator certification from either the American Society of Mechanical Engineers [QRO-1-2005 (incorporated by reference,see § 60.17)] or a state certification program.

(b) No later than the date 6 months after the date of startup of an affected facility or on December 19, 1996, whichever is later, each chief facility operator and shift supervisor shall have completed full certification or shall have scheduled a full certification exam with either the American Society of Mechanical Engineers [QRO-1-2005 (incorporated by reference, see § 60.17)] or a state certification program.

* * * * *

6. Add subpart VVVV consisting of §§ 60.5680 to 60.6145 to read as follows:

Subpart VVVV—Standards of Performance for Large Municipal Waste Combustors

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Introduction

§ 60.5680 What does this subpart do?

This subpart establishes new source performance standards for municipal waste combustors with a combustion capacity greater than 250 tons per day of municipal solid waste.

§ 60.5685 When does this subpart become effective?

This subpart takes effect **[INSERT DATE 60 DAYS FROM THE DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Some of the requirements in this subpart apply to municipal waste combustor planning and must be completed before construction is commenced on the municipal waste combustor. In particular, the preconstruction requirements in §§ 60.5730 through 60.5830 must be completed prior to commencing construction. Other requirements (such as the emission limits) apply when the municipal waste combustor begins operation.

Applicability

§ 60.5690 Does this subpart apply to my municipal waste combustor?

Yes, if your municipal waste combustor meets both of the following criteria:

(a) Your municipal waste combustor is a new municipal waste combustor.

(b) Your municipal waste combustor has the capacity to combust greater than 250 tons per day of municipal solid waste.

§ 60.5695 What is a new municipal waste combustor?

(a) A new municipal waste combustor meets either of two criteria:

(1) Commenced construction after January 23, 2024.

(2) Commenced reconstruction or modification after **September 10, 2026**.

(b) This subpart does not apply to your municipal waste combustor if you make physical or operational changes to an existing municipal waste combustor primarily to comply with the emission guidelines in subpart WWWW of this part. Such changes do not qualify as reconstruction or modification under this subpart.

§ 60.5700 Does this subpart allow any exemptions?

(a) *Municipal waste combustors that combust less than 11 tons per day*. You are exempt from this subpart if you meet each of the following four requirements:

(1) Your municipal waste combustor that is capable of combusting more than 250 tons per day of municipal solid waste is subject to a federally enforceable permit limiting the maximum amount of municipal solid waste that may be combusted in the unit to less than or equal to 11 tons per day.

(2) You notify the Administrator that the unit qualifies for this exemption. Beginning **September 10, 2026**, you must submit the notification and copy of the federally enforceable permit required by (a)(2) and (3) of this section as a portable document format (PDF) file electronically according to § 60.6065(d).

(3) You provide the Administrator with a copy of the federally enforceable permit that limits the firing of municipal solid waste to less than 11 tons per day. Beginning **September 10, 2026**, you must submit the notification and copy of the federally enforceable permit required by (a)(2) and (3) of this section as a portable document format (PDF) file electronically according to § 60.6065(d).

(4) You keep daily records of the amount of municipal solid waste combusted.

(b) *Small power production facilities*. You are exempt from this subpart if you meet each of the following four requirements:

(1) Your unit qualifies as a small power production facility under section 3(17)(C) of the Federal Power Act (16 U.S.C. 796(17)(C)).

(2) Your unit combusts homogeneous waste (such as automotive tires or used oil, but excluding refuse-derived fuel) to produce electricity.

(3) You notify the Administrator that the unit qualifies for this exemption. Beginning **September 10, 2026**, you must submit this notification as a PDF file electronically according to § 60.6065(d).

(4) You provide the Administrator with data documenting that the unit qualifies for this exemption.

(c) *Cogeneration facilities*. You are exempt from this subpart if you meet each of the following four requirements:

(1) Your unit qualifies as a cogeneration facility under section 3(18)(B) of the Federal Power Act (16 U.S.C. 796(18)(B)).

(2) Your unit combusts homogeneous waste (such as automotive tires or used oil but excluding refuse-derived fuel) to produce electricity and steam or other forms of useful energy (such as heat) used for industrial, commercial, heating, or cooling purposes.

(3) You notify the Administrator that the unit qualifies for this exemption. Beginning **September 10, 2026**, you must submit this notification as a PDF file electronically according to § 60.6065(d).

(4) You provide the Administrator with documentation that the unit qualifies for this exemption.

(d) *Municipal waste combustors that combust only tires*. You are exempt from this subpart if you meet each of the following three requirements:

(1) Your municipal waste combustor combusts a single-item waste stream of tires.

(2) You notify the Administrator that the unit qualifies for this exemption.

(3) You provide the Administrator with data documenting that the unit qualifies for this exemption. Beginning **September 10, 2026**, you must submit the notification and data required under (d)(2) and (3) of this section as a PDF file electronically according to § 60.6065(d).

(e) *Hazardous waste combustion units*. You are exempt from this subpart if you get a permit for your unit under section 3005 of the Solid Waste Disposal Act.

(f) *Materials recovery units*. You are exempt from this subpart if your unit combusts waste primarily to recover metals. Primary and secondary smelters qualify for the exemption.

(g) *Co-fired combustors*. You are exempt from this subpart if you meet each of the following four requirements:

(1) Your municipal waste combustor is a co-fired combustor as defined under § 60.6145.

(2) You notify the Administrator that the unit qualifies for this exemption.

(3) You provide the Administrator with a copy of the federally enforceable permit (specified in the definition of cofired combustor in § 60.6145). Beginning **September 10, 2026**, you submit the notification and copy of the federally enforceable permit required under (g)(2) and (3) of this section as a PDF file electronically according to § 60.6065(d).

(4) You record the weights, each quarter, of municipal solid waste and of all other fuels combusted.

(h) *Plastics/rubber recycling units*. You are exempt from this subpart if you meet each of the following five requirements:

(1) Your pyrolysis/combustion unit is an integrated part of a plastics/rubber recycling unit as defined under “Definitions” (§ 60.6145).

(2) You notify the Administrator that the unit qualifies for this exemption. Beginning **September 10, 2026**, you must submit this notification as a PDF file electronically according to § 60.6065(d).

(3) You keep and maintain records of the weights, each calendar quarter, of plastics, rubber, and rubber tires processed.

(4) You keep and maintain records of the weights, each calendar quarter, of chemical plant feed stocks and petroleum refinery feedstocks produced and marketed.

(5) You keep and maintain records of the name and address of the purchaser of those feed stocks.

(i) *Units that combust fuels made from products of plastics/rubber recycling plants*. You are exempt from this subpart if you meet two requirements:

(1) Your unit combusts gasoline, diesel fuel, jet fuel, fuel oils, residual oil,

refinery gas, petroleum coke, liquified petroleum gas, propane, or butane produced by chemical plants or petroleum refineries that use feedstocks produced by plastics/rubber recycling units.

(2) Your unit does not combust any other municipal solid waste.

(j) *Cement kilns*. You are exempt from this subpart if your cement kiln combusts municipal solid waste.

(k) *Air curtain incinerators*. If your air curtain incinerator (see § 60.6145 for definition) combusts 100 percent wood waste, 100 percent clean lumber, 100 percent yard waste, or a 100 percent mixture of only wood waste, clean lumber, and/or yard waste, you must meet only the requirements under "Air Curtain Incinerators That Burn 100 Percent Wood Waste, Clean Lumber, and Yard Waste" (§§ 60.6115 through 60.6135). If your air curtain incinerator combusts municipal solid waste other than 100 percent wood waste, 100 percent clean lumber, 100 percent yard waste, or a 100 percent mixture of only wood waste, clean lumber, and/or yard waste, you are subject to all provisions of this subpart.

§ 60.5705 Do other new source performance standards also apply to my municipal waste combustor?

If this subpart VVVV applies to your municipal waste combustor, then subparts Db, E, Ea, or Eb of this part do not apply to your municipal waste combustor.

§ 60.5710 What authorities to enforce these federal new source performance standards can the Administrator delegate to a state agency?

(a) The U.S. EPA Administrator retains the following authorities which are not transferred to a state:

(1) Approval of exemption claims in § 60.5700(a), (b), (c), (d), (g), and (h).

(2) Enforceability under federal law of the federally enforceable (as defined in § 60.6145) permits specified in § 60.5700(a) and (g).

(3) Determination of compliance with the siting requirements as specified in § 60.5790.

(4) Acceptance of relationship between carbon dioxide and oxygen as part of initial and annual performance tests as specified in §§ 60.6080(g) and 60.6090(k).

(5) Approval of other monitoring systems used to obtain emissions data when data is not obtained by CEMS as specified in §§ 60.5955 and 60.5985(g)(11).

(6) Approval of a site-specific monitoring plan for the continuous emission monitoring system specified in § 60.5985(c) and (d) or the continuous automated sampling system specified in § 60.5985(g)(10) and (h) of this section.

(7) Approval of major alternatives to test methods.

(8) Approval of major alternatives to monitoring.

(9) Waiver of recordkeeping.

(10) Performance test and data reduction waivers under § 60.8(b).

(11) Approval of an alternative to any electronic reporting to the EPA required by this subpart.

(b) The Administrator can delegate all other authorities in all other sections of this subpart to the state for direct state enforcement.

§ 60.5715 How are these new source performance standards structured?

These new source performance standards contain five major components:

(a) *Preconstruction requirements*.

(1) Materials separation plan.

(2) Siting analysis.

(b) *Good combustion practices*.

(1) Operator training.

(2) Operator certification.

(3) Operating requirements.

(c) *Emission limits*.

(d) *Monitoring and stack testing*.

(e) *Recordkeeping and reporting*.

§ 60.5720 Do all five components of these new source performance standards apply at the same time?

No, you must meet the preconstruction requirements before you commence construction of the municipal waste combustor. After the municipal waste combustor begins operation, you must meet all of the good combustion practices, emission limits, monitoring, stack testing, and most recordkeeping and reporting requirements.

§ 60.5725 Are there different subcategories of municipal waste combustors within this subpart?

The requirements for new municipal waste combustors of all types are identical except that carbon monoxide emissions limits are set separately for mass burn, modular, and refuse-derived fuel combustor types (see Table 1 to Subpart VVVV).

Preconstruction Requirements: Materials Separation Plan

§ 60.5730 Who must submit a materials separation plan?

(a) You must prepare a materials separation plan for your municipal waste combustor if you commence construction of a new large municipal waste combustor after January 23, 2024.

(b) You must prepare a materials separation plan if you are required to submit an initial application for a construction permit, under 40 CFR part 51, subpart I, or part 52, as applicable, for the reconstruction or modification of your municipal waste combustor.

§ 60.5735 What is a materials separation plan?

The plan identifies a goal and an approach for separating certain components of municipal solid waste for a given service area prior to waste combustion and making them available for recycling.

§ 60.5740 What steps must I complete for my materials separation plan?

(a) For your materials separation plan, you must complete all of the following nine steps:

(1) Prepare a draft materials separation plan.

(2) Make your draft plan available to the public.

(3) Hold a public meeting on your draft plan.

(4) Prepare responses to public comments received during the public comment period on your draft plan.

(5) Prepare a revised materials separation plan.

(6) Discuss the revised plan at the public meeting for review of the siting analysis.

(7) Prepare responses to public comments received on your revised plan.

(8) Prepare a final materials separation plan.

(9) Submit the final materials separation plan.

(b) You may use analyses conducted under the requirements of 40 CFR part 51, subpart I, or part 52, to comply with some of the materials separation requirements of this subpart.

§ 60.5745 What must I include in my draft materials separation plan?

(a) You must prepare and submit a draft materials separation plan for your municipal waste combustor and its service area.

(b) Your draft materials separation plan must identify a goal and an approach for separating certain components of municipal solid waste for a given service area prior to waste combustion and making them available for recycling. A materials separation plan may include such elements as drop off facilities, buy-back or deposit-return incentives, programs for curbside pickup, and centralized systems for mechanical separation.

(c) Your materials separation plan may include different goals or approaches for different subareas in the service area.

(d) Your materials separation plan may exclude materials separation activities for certain subareas or, if warranted, the entire service area.

§ 60.5750 How do I make my draft materials separation plan available to the public?

(a) Distribute your draft materials separation plan to the principal public libraries in the area where you will construct the municipal waste combustor.

(b) Publish a notice of a public meeting in the principal newspapers that serve two areas:

(1) The area where you will construct the municipal waste combustor.

(2) The areas where the waste that your municipal waste combustor combusts will be collected.

(c) Include six items in your notice of the public meeting:

(1) The date of the public meeting.

(2) The time of the public meeting.

(3) The location of the public meeting.

(4) The location of the public libraries where the public can find your materials separation plan. Include the normal business hours of each library.

(5) An agenda of the topics that will be discussed at the public meeting.

(6) The beginning and ending dates of the public comment period on your draft materials separation plan.

§ 60.5755 When must I accept comments on the materials separation plan?

(a) You must accept verbal comments at the public meeting.

(b) You must accept written comments any time during the period that begins on the date the document is distributed to the principal public libraries and ends 30 days after the date of the public meeting.

§ 60.5760 Where and when must I hold a public meeting on my draft materials

separation plan?

(a) You must hold a public meeting and accept comments on your draft materials separation plan.

(b) You must hold the public meeting in the county where you will construct the municipal waste combustor.

(c) You must schedule the public meeting to occur 30 days or more after you make your draft materials separation plan available to the public.

(d) You may combine the public meeting with any other public meeting required as part of any other federal, state, or local permit review. However, you may not combine it with the public meeting required for the siting analysis under "Preconstruction Requirements: Siting Analysis" (§ 60.5820).

(e) You are encouraged to address eight topics at the public meeting for your draft materials separation plan:

(1) Expected size of the service area for your municipal waste combustor.

(2) Amount of waste generation (waste collection) anticipated in the service area.

(3) Types and estimated amounts of materials proposed for separation.

(4) Methods proposed for materials separation.

(5) Amount of residual waste for disposal.

(6) Alternate disposal methods for handling the residual waste.

(7) Where your responses to public comments on the draft materials separation plan will be available for inspection.

(8) Where your revised materials separation plan will be available for inspection.

(f) You must prepare a transcript of the public meeting on your draft materials separation plan.

§ 60.5765 What must I do with any public comments I receive during the public

comment period on my draft materials separation plan?

You must do all of the following three steps:

(a) Prepare written responses to any public comments you received during the public comment period. Summarize the responses to public comments in a document that is separate from your revised materials separation plan.

(b) Make the comment response document available to the public (including distribution of the document at least to the principal public libraries used to announce the public meeting) in the service area where you will construct your municipal waste combustor.

(c) Prepare a revised materials separation plan for the municipal waste combustor that includes, as appropriate, changes made in response to any public comments you received during the public comment period.

§ 60.5770 What must I do with my revised materials separation plan?

You must do the following two tasks:

(a) As specified under "Reporting" (§ 60.6055), submit copies of all of the following five items to the Administrator on or before the date you submit the application for a construction permit under 40 CFR part 51, subpart I, or 40 CFR part 52. (If you are not required to submit an application for a construction permit under 40 CFR part 51, subpart I, or 40 CFR part 52, submit copies of the five items to the Administrator by the date of your notice of construction under § 60.6060):

(1) Your draft materials separation plan.

(2) Your revised materials separation plan.

(3) Your notice of the public meeting for your draft materials separation plan.

(4) A transcript of the public meeting on your draft materials separation plan.

(5) The document that summarizes your responses to the public comments you received during the public comment period on your draft materials separation plan.

(b) Make your revised materials separation plan available to the public as part of the distribution of the siting analysis procedures under "Preconstruction Requirements: Siting Analysis" (§ 60.5810).

§ 60.5775 What must I include in the public meeting on my revised materials separation plan and siting analysis?

As part of the public meeting for review of the siting analysis, as specified under "Preconstruction Requirements: Siting Analysis" (§ 60.5820), you must discuss the two following areas:

(a) How the revised materials separation plan has changed from your draft materials separation plan discussed at the first public meeting (§ 60.5760).

(b) Questions about your revised materials separation plan.

§ 60.5780 What must I do with any public comments I receive on my revised materials separation plan?

(a) If you receive any comments on the revised materials separation plan, you must prepare written responses to any public comments and include them in the document that summarizes your responses to public comments on the siting analysis.

(b) Prepare a final materials separation plan that includes, as appropriate, changes made in response to any public comments you received on your revised materials separation plan.

§ 60.5785 How do I submit my final materials separation plan?

As specified under "Reporting" (§ 60.6060), submit your final materials separation plan to the Administrator as part of the initial notice of construction for the municipal waste combustor.

Preconstruction Requirements: Siting Analysis

§ 60.5790 Who must submit a siting analysis?

(a) You must prepare a siting analysis if you commence construction of a large municipal waste combustor after January 23, 2024.

(b) You must prepare a siting analysis if you are required to submit an initial application for a construction permit, under 40 CFR part 51, subpart I, or 40 CFR part 52, as applicable, for the reconstruction or modification of your municipal waste combustor.

§ 60.5795 What is a siting analysis?

The siting analysis addresses how your municipal waste combustor affects ambient air quality, visibility, soils, vegetation, and other relevant factors. The analysis shall consider air pollution control alternatives that minimize, on a site-specific basis, to the maximum extent practicable, potential risks to the public health or the environment.

§ 60.5800 What steps must I complete for my siting analysis?

(a) For your siting analysis, you must complete all of the following five steps:

(1) Prepare an analysis.

(2) Make your analysis available to the public.

(3) Hold a public meeting on your analysis.

(4) Prepare responses to public comments received on your analysis.

(5) Submit your analysis.

(b) If you commence construction after January 23, 2024, you must prepare a siting analysis according to the requirements of 40 CFR part 51, subpart I, or 40 CFR part 52, as applicable, and must submit the siting analysis as part of the initial notification of construction. You may use analyses conducted under the requirements of 40 CFR part 51, subpart I, or part 52 to comply with some of the siting analysis requirements of this subpart.

§ 60.5805 What must I include in my siting analysis?

(a) Include an analysis of how your municipal waste combustor affects the following four areas:

(1) Ambient air quality.

(2) Visibility.

(3) Soils.

(4) Vegetation.

(b) Include an analysis of air pollution control alternatives that minimize, on a site-specific basis, the potential risks to the public health and the environment to the maximum extent practicable.

§ 60.5810 How do I make my siting analysis available to the public?

(a) Distribute your siting analysis and revised materials separation plan to the principal public libraries in the area where you will construct your municipal waste combustor.

(b) Publish a notice of a public meeting in the principal newspapers that serve the following two areas:

(1) The area where you will construct your municipal waste combustor.

(2) The areas where the waste that your municipal waste combustor combusts will be collected.

(c) Include six items in your notice of the public meeting:

(1) The date of the public meeting.

(2) The time of the public meeting.

(3) The location of the public meeting.

(4) The location of the public libraries where the public can find your siting analysis and revised materials separation plan. Include the normal business hours of each library.

(5) An agenda of the topics that will be discussed at the public meeting.

(6) The beginning and ending dates of the public comment period on your siting analysis and revised materials separation plan.

§ 60.5815 When must I accept comments on the siting analysis and revised materials

separation plan?

(a) You must accept verbal comments at the public meeting.

(b) You must accept written comments anytime during the period that begins on the date the document is distributed to the principal public libraries and ends 30 days after the date of the public meeting.

§ 60.5820 Where and when must I hold a public meeting on the siting analysis?

(a) You must hold a public meeting to discuss and accept comments on your siting analysis and your revised materials separation plan.

(b) You must hold the public meeting in the county where you will construct your municipal waste combustor.

(c) You must schedule the public meeting to occur 30 days or more after you make your siting analysis and revised materials separation plan available to the public.

(d) You must prepare a transcript of the public meeting on your siting analysis.

§ 60.5825 What must I do with any public comments I receive during the public comment period on my siting analysis?

If you receive any comments on the siting analysis, you must do the following three things:

(a) Prepare written responses to any public comments on your siting analysis and the revised materials separation plan you received during the public comment period. Summarize the responses to public comments in a document that is separate from your materials separation plan and siting analysis.

(b) Make the document summarizing responses to public comments available to the public in the service area where you will construct your municipal waste combustor. You must distribute the document to all public libraries in the service area where the affected facility is to be located, including the public libraries used to announce the meeting.

(c) Prepare a final siting analysis for the municipal waste combustor that includes, as appropriate, changes made in response to any public comments you received during the public comment period.

§ 60.5830 How do I submit my siting analysis?

As specified under “Reporting” (§ 60.6060), submit all four of the following items as part of the notice of construction:

(a) Your final siting analysis.

(b) Your notice of the public meeting on your siting analysis.

(c) A transcript of the public meeting on your siting analysis.

(d) The document that summarizes your responses to the public comments you received during the public comment period.

Good Combustion Practices: Operator Training

§ 60.5835 What types of training must I do?

There are two types of required training:

(a) Training of operators of municipal waste combustors using the U.S. Environmental Protection Agency (EPA) or a state-approved training course.

(b) Training of plant personnel using a site-specific training course.

§ 60.5840 Who must complete the operator training course? By when?

(a) Three types of employees must complete the EPA or state-approved operator training course:

(1) Chief facility operators.

(2) Shift supervisors.

(3) Control room operators.

(b) Those employees must complete the operator training course by the later of three dates:

(1) Six months after your municipal waste combustor initial startup.

(2) **September 10, 2026**.

(3) The date before an employee assumes responsibilities that affect operation of the municipal waste combustor.

§ 60.5845 Who must complete the site-specific training course?

All employees with responsibilities that affect how a municipal waste combustor operates must complete the site-specific training course, this includes at least six types of employees:

(a) Chief facility operators.

(b) Shift supervisors.

(c) Control room operators.

(d) Ash handlers.

(e) Maintenance personnel.

(f) Crane or load handlers.

§ 60.5850 What site-specific training must I provide?

For site-specific training, you must do all of the following four things:

(a) For training at a particular facility, develop a site-specific operating manual for that facility by the later of two dates:

(1) Six months after your municipal waste combustor initial startup.

(2) **September 10, 2026**.

(b) Establish a training program to review the site-specific operating manual with people whose responsibilities affect the operation of your municipal waste combustor. Complete the initial review by the later of three dates:

(1) Six months after your municipal waste combustor initial startup.

(2) **September 10, 2026**.

(3) The date prior to the date an employee assumes responsibilities that affect operation of the municipal waste combustor.

(c) Update your manual annually.

(d) Following the initial review, review your operating manual with staff annually.

§ 60.5855 What information must I include in the site-specific operating manual?

You must include all of the following 11 items in the operating manual for your facility:

(a) A summary of all applicable standards in this subpart.

(b) A description of the basic combustion theory that applies to a municipal waste combustor.

(c) Procedures for receiving, handling, and feeding municipal solid waste.

(d) Procedures to be followed during periods of startup, shutdown, and malfunction of the municipal waste combustor.

(e) Procedures for maintaining a proper level of combustion air supply.

(f) Procedures for operating the municipal waste combustor in compliance with the standards contained in this subpart.

(g) Procedures for responding to periodic upset or off-specification conditions.

(h) Procedures for minimizing carryover of particulate matter.

(i) Procedures for handling ash.

(j) Procedures for monitoring emissions from the municipal waste combustor.

(k) Procedures for recordkeeping and reporting.

§ 60.5860 Where must I keep the site-specific operating manual?

You must keep your operating manual in a readily accessible location at your facility. It must be available for review or inspection for all persons required to undergo training as specified in § 60.5850. The operating manual and records of training as specified in § 60.6035 shall be available for inspection by the EPA or its delegated enforcement agency upon request.

Good Combustion Practices: Operator Certification

§ 60.5865 What types of operator certification must the chief facility operator and shift supervisor obtain and by when must they obtain it?

(a) Each chief facility operator and shift supervisor must obtain and keep a current provisional operator certification from the American Society of Mechanical Engineers (QRO-1-2005) (incorporated by reference, see § 60.17) or a current provisional operator certification from your state certification program, by the later of three dates:

(1) Six months after the municipal waste combustor initial startup.

(2) **September 10, 2026**.

(3) Six months after they transfer to the municipal waste combustor or 6 months after they are hired to work at the municipal waste combustor.

(b) Each chief facility operator and shift supervisor must obtain and maintain a current provisional certification, and must complete the full certification or be scheduled to take the full certification exam, by the later of three dates:

(1) Six months after the municipal waste combustor initial startup.

(2) **September 10, 2026**.

(3) For a provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position, a full certification exam must be completed within 6 months after they transfer to the municipal waste combustor or 6 months after they are hired to work at the municipal waste combustor.

(c) Each chief facility operator and shift supervisor must take one of three actions:

(1) Obtain and maintain a current provisional operator certification from the American Society of Mechanical Engineers or a state certification program in your state.

(2) Schedule a full certification exam with the American Society of Mechanical Engineers (QRO-1-2005) (incorporated by reference, see § 60.17).

(3) Schedule a full certification exam with your state certification program.

§ 60.5870 After the required date for operator certification, who may operate the municipal waste combustor?

After the required date for full or provisional certifications, you must not operate your municipal waste combustor unless one of four employees is on duty:

(a) A fully certified chief facility operator.

(b) A fully certified shift supervisor.

(c) A provisionally certified chief facility operator or a provisionally certified shift supervisor who is scheduled to take the full certification exam specified in § 60.5865.

§ 60.5875 What if all the certified operators must be temporarily offsite?

If the certified chief facility operator and certified shift supervisor both are unavailable, a provisionally certified control room operator at the municipal waste combustor may fulfill the certified operator requirement. Depending on the length of time that a certified chief facility operator and certified shift supervisor are away, you must meet one of the three following criteria:

(a) When the certified chief facility operator and certified shift supervisor are both offsite for 12 hours or less, and no other certified operator is onsite, the provisionally certified control room operator may perform the duties of the certified chief facility operator or certified shift supervisor.

(b) When the certified chief facility operator and certified shift supervisor are offsite for more than 12 hours, but for 2 weeks or less, and no other certified operator is onsite, the provisionally certified control room operator may perform those duties without notice to, or approval by, the Administrator. However, you must record the period when the certified chief facility operator and certified shift supervisor are offsite and include that information in the annual report as specified under § 60.6090(l).

(c) When the certified chief facility operator and certified shift supervisor are offsite for more than 2 weeks, and no other certified operator is onsite, the provisionally certified control room operator may perform those duties without notice to, or approval by, the Administrator. However, you must take the following two actions:

(1) Notify the Administrator in writing. In the notice, state what caused the absence and what you are doing to ensure that a certified chief facility operator or certified shift supervisor is onsite as expeditiously as practicable. Beginning **September 10, 2026**, submit this notification as a PDF file electronically according to § 60.6065(d).

(2) Submit a status report and corrective action summary to the Administrator every 4 weeks following the initial notification. If the Administrator notifies you that your status report or corrective action summary is disapproved, the municipal waste combustor may continue operation for 90 days, but then must cease operation. If corrective actions are taken in the 90-day period such that the Administrator withdraws the disapproval, municipal waste combustor operation may continue. Beginning **September 10, 2026**, submit this status report as a PDF file electronically according to § 60.6065(d).

(d) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustor may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Administrator for up to 6 months before taking the ASME QRO certification exam as specified in § 60.5865.

Good Combustion Practices: Operating Requirements

§ 60.5880 What are the operating practice requirements for my municipal waste combustor?

(a) You must meet the carbon monoxide emission limits specified in Table 1 to Subpart VVVV within 60 days of your municipal waste combustor reaching the maximum load level at which it will operate, but no later than 180 days after its initial startup.

(b) You must not operate your municipal waste combustor at loads greater than 110 percent of the maximum demonstrated load of the municipal waste combustor (4-hour block average), as specified under "Definitions" (§ 60.6145) except as specified in paragraphs (b)(1) and (2) of this section. The averaging time is specified under § 60.5995.

(1) During the annual dioxins/furans or mercury performance test and the 2 weeks preceding the annual dioxins/furans or mercury performance test, the municipal waste combustor load limit is not applicable if the provisions of paragraph (b)(2) of this section are met.

(2) The Administrator may waive in writing the municipal waste combustor load limit for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions. The municipal waste combustor load limit continues to apply, and remains enforceable, until and unless the Administrator grants the waiver.

(c) You must not operate your municipal waste combustor so that the temperature measured at the inlet of the particulate matter control device exceeds 17 °C above the maximum demonstrated temperature of the particulate matter control device (4-hour block average), as specified under "Definitions" (§ 60.6145) except as specified in paragraphs (c)(1) and (2) of this section. The averaging time is specified under § 60.6000. The requirements specified in this paragraph apply to each particulate matter control device used.

(1) During the annual dioxins/furans or mercury performance test and the 2 weeks preceding the annual dioxins/furans or mercury performance test, the particulate matter

control device temperature limitations are not applicable if the provisions of paragraph (c)(2) of this section are met.

(2) The Administrator may waive in writing the particulate matter control device temperature limits for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions. The temperature limits continue to apply, and remain enforceable, until and unless the Administrator grants the waiver.

(d) If your municipal waste combustor uses activated carbon to control dioxins/furans or mercury emissions, you must meet the requirements for activated carbon injection rate during dioxins/furans or mercury testing as specified in § 60.6005.

§ 60.5885 What happens to the operating requirements during periods of startup, shutdown, and malfunction?

The operating requirements under this subpart apply at all times including periods of municipal waste combustor warmup, startup, shutdown, and malfunction. Monitoring data cannot be dismissed or excluded from compliance calculations during periods of startup, shutdown, or malfunction, but must be recorded and reported in accordance with the provisions of § 60.6045(e). The provisions applicable to periods of startup, shutdown, and malfunction of § 60.8(c) of subpart A of this part do not apply.

Emission Limits

§ 60.5890 What pollutants are regulated by this subpart?

Eleven pollutants, in four groupings, are regulated:

(a) Organics. Dioxins/furans.

(b) Metals.

(1) Cadmium.

(2) Lead.

(3) Mercury.

(4) Opacity.

(5) Particulate matter.

(c) Acid gases.

(1) Hydrogen chloride.

(2) Nitrogen oxides.

(3) Sulfur dioxide.

(d) Other.

(1) Carbon monoxide.

(2) Fugitive ash.

§ 60.5895 What emission limits must I meet? By when?

(a) You must meet the emission limits specified in Table 1 and Table 2 to Subpart VVVV. You must meet the limits 60 days after your municipal waste combustor reaches the maximum load level but no later than 180 days after its initial startup.

(b) The visible emissions of combustion ash discharged to the atmosphere from an ash conveying system (including conveyor transfer points) must not exceed 5 percent of the observation period (*i.e.*, 9 minutes per 3-hour period), as determined by EPA Reference Method 22 observations as specified in § 60.5975(a). You must meet the limits 60 days after your municipal waste combustor reaches the maximum load level but no later than 180 days after its initial startup. This visible emission limit does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the visible emission limit does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems. This visible emissions limit does not apply to visible emissions that occur during repair and maintenance of the combustion ash conveying systems while the municipal waste combustor is not operating.

§ 60.5900 What happens to the emission limits during periods of startup, shutdown, and malfunction?

(a) The emission limits of this subpart apply at all times including periods of warmup, startup, shutdown, and malfunction. The provisions applicable to periods of startup, shutdown, and malfunction of § 60.11(c) of subpart A of this part do not apply.

Continuous Emission Monitoring

§ 60.5905 What types of continuous emission monitoring must I perform?

To continuously monitor emissions, you must perform all of the following four tasks:

(a) Install continuous emission monitoring systems for certain gaseous pollutants.

(b) Make sure your continuous emission monitoring systems are operating correctly.

(c) Make sure you obtain the minimum amount of monitoring data.

(d) Install a continuous opacity monitoring system for measuring opacity.

§ 60.5910 What continuous emission monitoring systems must I install for gaseous pollutants?

(a) You must install, calibrate, maintain, and operate continuous emission monitoring systems for oxygen (or carbon dioxide), sulfur dioxide, carbon monoxide, and nitrogen oxides to demonstrate compliance with the emission limits specified in Tables 1 and 2 to Subpart VVVV. Install the continuous emission monitoring systems for sulfur dioxide, nitrogen oxides, carbon monoxide, and oxygen (or carbon dioxide) at the outlet of the air pollution control device.

(b) If you elect to continuously monitor emissions for particulate matter, cadmium, lead, mercury, or hydrogen chloride in lieu of performance testing, you must install, calibrate, maintain, and operate continuous emissions monitoring systems for monitoring the particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions discharged to the atmosphere and continuous emissions monitoring systems for oxygen (or carbon dioxide) at the outlet of the air pollution control device.

(c) You must install, evaluate, and operate each continuous emission monitoring system according to the “Monitoring Requirements” in § 60.13.

(d) You must monitor the oxygen (or carbon dioxide) concentration at each location where you monitor carbon monoxide, sulfur dioxide, and nitrogen oxides. If you elect to continuously monitor emissions for particulate matter, cadmium, lead, mercury, or hydrogen chloride, you must monitor the oxygen (or carbon dioxide) concentration at each location where you monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride.

(e) You may choose to monitor carbon dioxide instead of oxygen as a diluent gas. If you choose to monitor carbon dioxide, then an oxygen monitor is not required, and you must follow the requirements in § 60.5930.

§ 60.5915 How are the data from the continuous emission monitoring systems used?

(a) You must use data from the continuous emission monitoring systems for sulfur dioxide, nitrogen oxides, and carbon monoxide to demonstrate continuous compliance with the emission limits specified in Tables 1 and 2 to Subpart VVVV. To demonstrate compliance for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash, see § 60.5965.

(b) You may elect to continuously monitor emissions for particulate matter, cadmium, lead, mercury, or hydrogen chloride to demonstrate continuous compliance with the emission limits specified in Table 2 to Subpart VVVV.

(c) For pollutants that you continuously monitor as described in paragraphs (a) and (b) of this section, you may request that compliance with the emission limits be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in § 60.5930.

(d) For pollutants that you continuously monitor as described in paragraphs (a) and (b) of this section, demonstrate compliance with the emission limits in Tables 1 and 2 to Subpart VVVV by using the continuous emission monitoring system specified § 60.5910 to collect the minimum amount of monitoring data specified in § 60.5935 and calculating the average emission concentration as specified in § 60.5940 and Table 4 to Subpart VVVV, as applicable.

§ 60.5920 How do I make sure my continuous emission monitoring systems are operating correctly?

(a) Conduct initial, daily, quarterly, and annual evaluations of your continuous emission monitoring systems that measure oxygen (or carbon dioxide), sulfur dioxide, nitrogen oxides, and carbon monoxide and your continuous emission monitoring systems for any pollutants (particulate matter, cadmium, lead, mercury, or hydrogen chloride) for which you elect to continuously monitor emissions, as appropriate.

(b) Complete your initial evaluation of the continuous emission monitoring systems within 60 days after your municipal waste combustor reaches the maximum load level at which it will operate, but no later than 180 days after the initial startup of your municipal waste combustor, as specified under § 60.8 of subpart A of this part, or, for pollutants for which you elect to continuously monitor emissions and for which you previously determined compliance by conducting a performance test, within 180 days of notification of the Administrator of use of the continuous monitoring system, whichever is later.

(c) For initial and annual evaluations, you must collect data concurrently (or within 30 to 60 minutes) from: your oxygen (or carbon dioxide) continuous emission monitoring system; your sulfur dioxide, nitrogen oxides, and carbon monoxide continuous emission monitoring systems, as appropriate; your continuous emission monitoring systems for any pollutants (particulate matter, cadmium, lead, mercury, or hydrogen chloride) for which you elect to continuously monitor emissions, as appropriate; and the appropriate test methods specified in Tables 3 and 4 to Subpart VVVV. Collect the data during each initial and annual evaluation of your continuous emission monitoring systems following the applicable performance specifications in Table 3 to Subpart VVVV

(d) For continuous emission monitoring systems that measure oxygen (or carbon dioxide), sulfur dioxide, nitrogen oxides, and carbon monoxide, follow the quality assurance procedures in Procedure 1 of appendix F of this part for each continuous emission monitoring system. The procedures include annual relative accuracy test audit, daily calibration drift, and quarterly accuracy determinations. For continuous emission monitoring systems for any pollutants (particulate matter, cadmium, lead, mercury, or hydrogen chloride) for which you elect to continuously monitor emissions, as appropriate, follow the quality assurance procedures of the applicable procedures of appendix F as specified in Table 3 to Subpart VVVV or the site-specific monitoring plan.

§ 60.5925 What is my schedule for evaluating continuous emission monitoring systems?

(a) Conduct annual relative accuracy test audits of your continuous emission monitoring systems no less than 9 calendar months and no more than 15 calendar months following the previous performance test; you must complete five relative accuracy test audits in each 5-year calendar period.

(b) Evaluate your continuous emission monitoring systems daily and quarterly as specified in procedure 1 in appendix F of this part.

§ 60.5930 What must I do if I choose to monitor carbon dioxide instead of oxygen as a diluent gas?

You must establish the relationship between oxygen and carbon dioxide during the initial evaluation of your continuous emission monitoring systems. You may reestablish the relationship during annual performance compliance tests. To establish the relationship, use three procedures:

(a) Use EPA Reference Method 3, 3A or 3B in appendix A of this part, or as an alternative the manual method portion of ASME PTC–19–10–1981—part 10 (incorporated by reference, see § 60.17), as applicable, to determine oxygen concentration at the location of your carbon dioxide monitor.

(b) Conduct at least three test runs for oxygen. Make sure each test run represents a 1-hour average and that sampling continues for at least 30 minutes in each hour.

(c) Use the fuel-factor equation in EPA Reference Method 3B in appendix A of this part to determine the relationship between oxygen and carbon dioxide.

§ 60.5935 What is the minimum amount of monitoring data I must collect with my continuous emission monitoring systems?

(a) Where continuous emission monitoring systems are required, obtain 1-hour arithmetic averages. Make sure the averages for sulfur dioxide, nitrogen oxides, and carbon monoxide, and, if you elect to continuously monitor emissions, the averages for particulate matter, cadmium, lead, mercury, or hydrogen chloride, are in the units specified in Tables 1 and 2 to Subpart VVVV at 7 percent oxygen (or the equivalent carbon dioxide level). Use the 1-hour averages of oxygen (or carbon dioxide) data from your continuous emission monitoring system to determine the actual oxygen (or carbon dioxide) level and to calculate emissions at 7 percent oxygen (or the equivalent carbon dioxide level). The 1-hour arithmetic averages shall be calculated using the data points required under § 60.13(e)(2) of subpart A of this part. Do not correct CEMS data during warmup, startup, and shutdown, as defined in this subpart, to 7 percent oxygen. CEMS data during warmup, startup, and shutdown are used as measured.

(b) Obtain at least two data points per hour in order to calculate a valid 1-hour arithmetic average.

(c) Valid continuous monitoring system hourly averages shall be obtained for all times the affected facility is operated except as specified in § 60.13(e).

(d) If you do not obtain the minimum data required in paragraphs (a) through (c) of this section, you must still use all valid data from the continuous emission monitoring systems in calculating emission concentrations in accordance with § 60.5940.

§ 60.5940 How do I convert my 1-hour arithmetic averages into the appropriate averaging times and units?

(a) Use equation 1 in § 60.6140(a) to calculate emissions at 7 percent oxygen.

(b) Use the test methods in Table 4 to Subpart VVVV to calculate the 24-hr daily geometric average concentrations and percent reductions of sulfur dioxide emissions and the 24-hr daily arithmetic average for concentrations of nitrogen oxides.

(c) Calculate the 4-hour block or 24-hour daily arithmetic averages specified in Table 1 to Subpart VVVV (as applicable) from 1-hour arithmetic averages expressed in parts per million by volume corrected to 7 percent oxygen (dry basis) for concentrations of carbon monoxide. CEMS data during warmup, startup, and shutdown, as defined in this subpart, are not corrected to 7 percent oxygen, and are used as measured.

(d) If you elect to continuously monitor emissions of particulate matter, mercury, cadmium, lead, or hydrogen chloride, use EPA Reference Method 19, section 12.4.1, in appendix A of this part, to calculate a 24-hour daily block arithmetic average for emission concentrations.

§ 60.5945 What is required for my continuous opacity monitoring system and how are the data used?

(a) Install, calibrate, maintain, and operate a continuous opacity monitoring system.

(b) Install, evaluate, and operate each continuous opacity monitoring system according to § 60.13.

(c) The output of the continuous opacity monitoring system shall be recorded on a 6-minute average basis.

(d) Complete an initial evaluation of your continuous opacity monitoring system according to Performance Specification 1 in appendix B of this part. Complete the evaluation no later than 180 days after the date of the initial startup of the municipal waste combustor, as specified under § 60.8.

(e) Follow Table 4 to Subpart VVVV to establish the procedures and test methods to determine compliance with the opacity limit in Table 2 to Subpart VVVV. The data obtained from your continuous opacity monitoring system are not used to determine compliance with the opacity limit.

§ 60.5950 What additional requirements must I meet for the operation of my continuous emission monitoring systems and continuous opacity monitoring system?

(a) Use the required span values and applicable performance specifications in Table 3 to Subpart VVVV.

(b) For continuous emission monitoring systems measuring carbon monoxide, if your municipal waste combustor is subject to the 100 parts per million dry volume carbon monoxide standard, the relative accuracy criterion of 5 parts per million dry volume is calculated as the absolute value of the mean difference between the reference method and continuous emission monitoring systems.

§ 60.5955 What must I do if any of my continuous emission monitoring systems are temporarily unavailable to meet the data collection requirements?

(a) When you are unable to obtain emissions of particulate matter, sulfur dioxide, or nitrogen oxides because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, you must obtain emissions data by using other monitoring systems as approved by the Administrator or EPA

Reference Method 19 and provide, as necessary, valid emissions data for all times that the municipal waste combustor is operated.

(b) If you are unable to obtain emissions of carbon monoxide emissions because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, you must obtain emissions data by using other monitoring systems as approved by the Administrator or EPA Reference Method 10 and provide, as necessary, valid emissions data for all times that the municipal waste combustor is operated.

(c) If you elect to continuously monitor mercury, cadmium, lead, or hydrogen chloride and you are unable to obtain emissions data because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, you must obtain emissions data by using other monitoring systems as approved by the Administrator.

Stack Testing

§ 60.5960 What types of stack tests must I conduct?

Conduct initial and annual stack tests to measure the emission levels of particulate matter, opacity, cadmium, lead, mercury, hydrogen chloride, dioxins/furans, and fugitive ash in accordance with the methods specified in Table 4 to Subpart VVVV.

§ 60.5965 How are the stack test data used?

You must use results of stack tests for particulate matter, opacity, cadmium, lead, mercury, hydrogen chloride, dioxins/furans, and fugitive ash to demonstrate compliance with the emission limits in Table 2 to Subpart VVVV. When calculating total dioxins/furans, zero may be used for congeners that are below the estimated detection limit (EDL). For estimated maximum possible concentration (EMPC) results, zero may be used when the EMPC is below the EDL, otherwise the EMPC must be used in determining total dioxins/furans. To demonstrate compliance for carbon monoxide, nitrogen oxides, and sulfur dioxide, see § 60.5910.

§ 60.5970 What schedule must I follow for the stack testing?

(a) Conduct initial stack tests for sulfur dioxide, nitrogen oxides, and each of the pollutants listed in § 60.5960 within 60 days after your municipal waste combustor reaches the maximum load level at which it will operate, but no later than 180 days after its initial startup.

(b) Conduct annual stack tests for the each of the pollutants listed in § 60.5960 after the initial stack test. Conduct each annual stack test no less than 9 calendar months and no more than 15 calendar months following the previous performance test, except as specified in § 60.5985 of this section. You must complete five performance tests in each 5-year calendar period.

§ 60.5975 What procedures and test methods must I use to stack test?

(a) Follow Table 4 to Subpart VVVV to establish the procedures and test methods, and other specific testing requirements for the different pollutants.

(b) Stack tests for all the pollutants must consist of at least three test runs, as specified in § 60.8, conducted under representative full load operating conditions. For particulate matter, opacity, cadmium, lead, mercury, hydrogen chloride, and dioxins/furans use the arithmetic average of the pollutant emission concentrations from the three test runs to determine compliance with the emission limits in Table 2 to Subpart VVVV. For fugitive ash, use the arithmetic average duration of visible emissions per hour as calculated from three 1-hr observations to determine compliance with the emission limits in Table 2 to Subpart VVVV.

(c) Obtain an oxygen (or carbon dioxide) measurement at the same time as your pollutant measurements to determine diluent gas levels, as specified in § 60.5910.

(d) You may request that compliance with emission limits be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in § 60.5930.

(e) Use equation 1 in § 60.6140(a) to calculate emission levels at 7 percent oxygen (or an equivalent carbon dioxide basis). See the individual test methods in Table 4 to Subpart VVVV for other required equations.

§ 60.5980 May I conduct stack testing less often?

(a) For annual performance stack tests for dioxins/furans, you may conduct annual stack tests on an alternate performance testing schedule for the purposes of evaluating system performance to establish new operating parameter levels, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions. You may test one unit for dioxins/furans and apply the dioxins/furans operating parameters to similarly designed and equipped units on site if you meet both of the following conditions. First, you have multiple municipal waste combustors onsite that are subject to this subpart. Second, all those municipal waste combustors have demonstrated levels of dioxins/furans emissions less than or equal to 5.5 nanograms per dry standard cubic meter (total mass) for 2 consecutive years. In that case, you may choose to conduct annual stack tests on only one municipal waste combustor per year at your facility. The provision only applies to performance stack testing for dioxins/furans emissions. You must meet the requirements in paragraphs (b) through (e) of this section.

(b) At a minimum, you must conduct a performance test for dioxins/furans emissions for one municipal waste combustor on an annual basis (no less than 9 calendar months and no more than 15 months following the previous performance test), and you must complete five performance tests in each 5-year calendar period. Each year a different municipal waste combustor must be tested, and the municipal waste combustors must be tested in sequence (*e.g.*, unit 1, unit 2, unit 3, as applicable).

(1) If each annual performance test continues to indicate a dioxins/furans emission level less than or equal to 5.5 nanograms per dry standard cubic meter (total mass), you may continue to conduct a performance test on only one municipal waste combustor per year.

(2) If any annual performance test indicates a dioxins/furans emission level greater than 5.5 nanograms per dry standard cubic meter (total mass), you must conduct all subsequent annual performance tests on all municipal waste combustors. You must continue to conduct performance tests on all units annually until you can demonstrate dioxins/furans emission level less than or equal to 5.5 nanograms per dry standard cubic meter (total mass) through performance tests for all units subject to this subpart for 2 consecutive years.

(c) Upon meeting the requirements in paragraph (b) of this section for one affected facility, you may elect to apply the average carbon mass feed rate and associated carbon injection system operating parameter levels for dioxins/furans as established in § 60.6005 to similarly designed and equipped units on site.

(d) Upon testing each subsequent unit in accordance with the testing schedule established in paragraph (b) of this section, the dioxins/furans and mercury emissions of the subsequent unit must not exceed the dioxins/furans and mercury emissions measured in the most recent test of that unit prior to the revised operating parameter limits.

(e) If you follow the performance testing schedule specified in paragraph (b) of this section and apply the carbon injection system operating parameters to similarly designed and equipped units on site, you must follow the procedures specified in § 60.6090(j) for reporting, including the procedures specified in § 60.6090(i) for reporting the selection of this schedule.

§ 60.5985 May I conduct continuous monitoring or sampling in lieu of stack testing?

(a) In lieu of conducting performance stack tests according to the requirements of

§ 60.5960 to demonstrate continuous compliance for particulate matter, cadmium, lead, mercury, or hydrogen chloride, you may install, calibrate, maintain, and operate continuous emissions monitoring systems for monitoring emissions according to the requirements of § 60.5905 through § 60.5955. If you elect to continuously monitor emissions instead of conducting performance testing, you are not required to complete annual performance testing as specified in Table 4 to Subpart VVVV. If you elect to continuously monitor particulate matter emissions, you are not required to continuously monitor opacity as specified in § 60.5905(d) and § 60.5945.

(b) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride, you must also meet the following requirements:

(1) Notify the Administrator one month before starting use of the system.

(2) Notify the Administrator one month before stopping use of the system.

(c) If you elect to install, calibrate, maintain, and operate a continuous emission monitoring system for cadmium, lead, mercury, or hydrogen chloride, develop and submit for approval by EPA, a site-specific mercury, cadmium, lead, or hydrogen chloride monitoring plan that addresses the elements and requirements in paragraphs (c)(1) through (7) of this section.

(1) Installation of the continuous emission monitoring system sampling probe or other interface at a measurement location relative to each municipal waste combustor such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device).

(2) Performance and equipment specifications for the sample interface, the pollutant concentration analyzer, and the data collection and reduction system.

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(4) Provisions for periods when the continuous emission monitoring system is out of control, including the requirements described in paragraphs (c)(4)(i) through (iii) of

this section:

(i) A continuous emission monitoring system is out of control if either of the following conditions are met: the zero (low-level), mid-level (if applicable), or high-level calibration drift exceeds two times the applicable calibration drift specification in the applicable performance specification or in the relevant standard; or the continuous emission monitoring system fails a performance test audit (*e.g.*, cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit.

(ii) When the continuous emission monitoring system is out of control, you must take corrective action and repeat all necessary tests that indicate that the system is out of control until the performance requirements are within the applicable limits. The beginning of the out-of-control period is the hour you conduct a performance check (*e.g.*, calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and your successful demonstration that the system is within the allowable limits. You may not use recorded data from the period the continuous emission monitoring system is out of control in data averages and calculations or to meet any data availability requirements.

(iii) You must submit all information concerning out-of-control periods for your continuous emission monitoring system, including start and end dates and hours and descriptions of corrective actions taken, in the annual or semiannual compliance reports required in § 60.6105(d).

(5) Ongoing data quality assurance procedures for continuous emission monitoring systems as described in paragraphs (c)(5)(i) and (ii) of this section.

(i) A continuous emission monitoring system quality control program. You must develop and submit to EPA for approval, upon request, a site-specific performance evaluation test plan for the continuous emission monitoring system performance evaluation required under paragraph (c)(5)(ii) of this section. In addition, each quality control program shall include, at a minimum, a written protocol that describes procedures for each of the operations described in paragraphs (c)(5)(i)(A) through (c)(5)(i)(F) of this section.

(A) Initial and any subsequent calibration of the continuous emission monitoring system;

(B) Determination and adjustment of the calibration drift of the continuous emission monitoring system;

(C) Preventive maintenance of the continuous emission monitoring system, including spare parts inventory;

(D) Data recording, calculations, and reporting;

(E) Accuracy audit procedures, including sampling and analysis methods; and

(F) Program of corrective action for a malfunctioning continuous emission monitoring system.

(ii) Your performance evaluation test plan must include the evaluation program objectives, an evaluation program summary, the performance evaluation schedule, data quality objectives, and both an internal and external quality assurance program. Data quality objectives are the pre-evaluation expectations of precision, accuracy, and completeness of data. The internal quality assurance program must include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of continuous emission monitoring system performance, for example, plans for relative accuracy testing using the appropriate reference method in § 60.5920(c). The external quality assurance program shall include, at a minimum, systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

(6) You must conduct a performance evaluation of each continuous emission monitoring system in accordance with the site-specific monitoring plan.

(7) You must operate and maintain the continuous emission monitoring system in continuous operation according to the site-specific monitoring plan and procedures 5 and 6 of appendix F of this part.

(d) You may use a continuous emission monitoring system for mercury or hydrogen chloride following the date of approval of the site-specific monitoring plan required in paragraph (c) of this section. You may use a continuous emission monitoring system for cadmium or lead following the date a final performance specification applicable to a cadmium or lead monitor is published in the *Federal Register* and the date of approval of the site-specific monitoring plan required in paragraph (c) of this section.

(e) In lieu of conducting performance stack tests according to the requirements of § 60.5960 to demonstrate continuous compliance for mercury or dioxins/furans, you may install, calibrate, maintain, and operate a continuous automated sampling system for monitoring mercury or dioxins/furans emissions and record the output of the system. For dioxins/furans emissions, you must also analyze the sample using EPA Method 23.

(f) You may use a continuous automated sampling system for dioxins/furans following the date a final performance specification applicable to dioxins/furans from monitors is published in the *Federal Register* or the date of approval of a site-specific monitoring plan.

(g) If you elect to use a continuous automated sampling system for dioxins/furans or mercury, you must meet the following requirements:

(1) Notify the Administrator one month before starting use of the system.

(2) Notify the Administrator one month before stopping use of the system.

(3) Complete your initial performance evaluation of the continuous automated sampling system no later than 180 days after the date of initial startup of your municipal

waste combustor, as specified under § 60.8 of subpart A of this part, or, if you previously determined compliance by conducting a performance test, within 180 days of notification to the Administrator of use of the continuous automated sampling system, whichever is later.

(4) You may request that compliance with the emission limits be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in § 60.5930.

(5) Conduct an initial performance test for emissions as required under § 60.8 of subpart A of this part. Determine compliance with the emission limits in Table 2 to Subpart VVVV using the continuous automated sampling system specified in paragraph (e) of this section to collect integrated samples and analyze emissions for the following time periods:

(i) For dioxins/furans, collect an integrated sample over each 2-week period. Analyze the collected samples using Method 23.

(ii) For mercury, collect an integrated sample over each 24-hour daily period. Analyze the sample according to the applicable final performance specification or the approved site-specific monitoring plan required by paragraph (h) of this section.

(6) Determine compliance with the emission limits in Table 2 to Subpart VVVV based on 2-week emission concentrations for dioxins/furans and on the 24-hour daily emission concentrations for mercury using samples collected at the system outlet. For mercury percent reductions, also use the corresponding 24-hour daily emission concentration samples collected at the system inlet. The emission concentrations shall be expressed in nanograms per dry standard cubic meter (total mass) for dioxins/furans and micrograms per dry standard cubic meter for mercury, corrected to 7 percent oxygen (dry basis). Do not correct CEMS data during warmup, startup, and shutdown to 7 percent

oxygen. CEMs data during warmup, startup, and shutdown are used as measured.

(7) Beginning on the date two years after the final performance specification for continuous automated sampling systems for dioxins/furans is published in the *Federal Register* or on the date two years after approval of a site-specific monitoring plan, you must operate your continuous automated sampling system and collect emissions for all times that your municipal waste combustor is operating.

(8) Use all valid data in calculating emission concentrations.

(9) For mercury, operate the continuous automated sampling system according to Performance Specification 12B in appendix B of this part or, for mercury or dioxins/furans, the approved site-specific monitoring plan.

(10) If you elect to install, calibrate, maintain, and operate a continuous automated sampling system for dioxins/furans or mercury, develop and implement a site-specific monitoring plan as specified in paragraph (h) of this section. If you rely on a performance specification, you may refer to that document in addressing the applicable procedures and criteria. For mercury, you must incorporate procedure 5 of appendix F to this part into the site-specific monitoring plan.

(11) When you are unable to obtain emissions data because of continuous automated sampling system breakdowns, repairs, quality assurance checks, or adjustments, you must obtain parametric monitoring data by using other monitoring systems as approved by EPA.

(h) If you elect to install, calibrate, maintain, and operate a continuous automated sampling system for dioxins/furans or mercury, develop and submit for approval by EPA a site-specific monitoring plan that has sufficient detail to assure the validity of the continuous automated sampling system data and that addresses the elements and requirements in paragraphs (h)(1) through (7) of this section.

(1) Installation of the continuous automated sampling system sampling probe or

other interface at a measurement location relative to each municipal waste combustor such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device).

(2) Performance and equipment specifications for the sample interface, the pollutant concentration analytical method, and the data collection system.

(3) Performance evaluation procedures and acceptance criteria.

(4) Provisions for periods when the continuous automated sampling system is malfunctioning or is out of control, including the requirements described in paragraphs (h)(4)(i) through (iii) of this section.

(i) The site-specific monitoring plan must identify criteria for determining that the continuous automated sampling system is out of control, including periods when the sampling system is not collecting a representative sample or is malfunctioning, or when the analytical method does not meet site-specific quality criteria established in paragraph (h)(5) of this section.

(ii) When the continuous automated sampling system is out of control, take corrective action and repeat all necessary tests that indicate that the system is out of control until the performance requirements are within the applicable limits. The out-of-control period includes all hours that the sampling system was not collecting a representative sample or was malfunctioning, or hours represented by a sample for which the analysis did not meet the relevant quality criteria. You may not use emissions data from the period the continuous automated sampling system is out-of-control period to determine compliance with the emission limits or to meet any data availability requirements.

(iii) You must submit all information concerning out-of-control periods for your continuous automated sampling system, including start and end dates and hours, estimates of emissions during the out-of-control period and the basis of the estimate, and descriptions of corrective actions taken, in the annual or semiannual compliance reports required in § 60.6105(d).

(5) Ongoing data quality assurance procedures for continuous automated sampling systems as described in paragraphs (h)(5)(i) and (ii) of this section.

(i) A continuous automated sampling system and analysis quality control program. You must develop and submit to EPA for approval, upon request, a site-specific performance evaluation test plan for the continuous automated sampling system performance evaluation required in paragraph (h)(5)(ii) of this section. In addition, each quality control program shall include, at a minimum, a written protocol that describes procedures for each of the operations described in paragraphs (h)(5)(i)(A) through (G) of this section.

(A) Correct placement, installation of the continuous automated sampling system such that the system is collecting a representative sample of gas;

(B) Initial and subsequent calibration of flow such that the sample collection rate of the continuous automated sampling system is known and verifiable;

(C) Procedures to assure representative (*e.g.*, proportional or isokinetic) sampling;

(D) Preventive maintenance of the continuous automated sampling system, including spare parts inventory and procedures for cleaning equipment, replacing sample collection media, or other servicing at the end of each sample collection period;

(E) Data recording and reporting, including an automated indicator and recording device to show when the continuous automated monitoring system is operating and collecting data and when it is not collecting data;

(F) Accuracy audit procedures for analytical methods; and

(G) Program of corrective action for a malfunctioning continuous automated sampling system.

(ii) Your performance evaluation test plan must include the evaluation program objectives, an evaluation program summary, the performance evaluation schedule, data quality objectives, and both an internal and external quality assurance program. Data quality objectives are the pre-evaluation expectations of precision, accuracy, and completeness of data. The internal quality assurance program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of continuous automated sampling system performance, for example, plans for relative accuracy testing using the appropriate reference method in paragraph (g)(3) of this section, and an assessment of quality of analysis results. The external quality assurance program shall include, at a minimum, systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

(6) You must conduct a performance evaluation of each continuous automated sampling system in accordance with the site-specific monitoring plan.

(7) You must operate and maintain the continuous automated sampling system in continuous operation according to the site-specific monitoring plan.

Other Monitoring Requirements

§ 60.5990 Must I meet other requirements for continuous monitoring?

You must also monitor all the following three operating parameters:

(a) Load level of each municipal waste combustor.

(b) Temperature of flue gases at the inlet of your particulate matter air pollution control device.

(c) Carbon feed rate if activated carbon is used to control dioxins/furans or mercury emissions.

§ 60.5995 How do I monitor the load of my municipal waste combustor?

(a) If your municipal waste combustor generates steam, you must install, calibrate, maintain, and operate a steam flowmeter or a feed water flowmeter and meet all the following five requirements:

(1) Continuously measure and record the measurements of steam (or feed water) flow in kilograms (or pounds) per hour.

(2) Calculate your steam (or feed water) flow in 4-hour block arithmetic averages.

(3) Calculate the steam (or feed water) flow rate using the method in "American Society of Mechanical Engineers Power Test Codes: Test Code for Steam Generating Units, Power Test Code 4.1—1964 (R1991)," section 4 (incorporated by reference, see § 60.17).

(4) Design, construct, install, calibrate, and use nozzles or orifices for flow rate measurements, using the recommendations in "American Society of Mechanical Engineers Interim Supplement 19.5 on Instruments and Apparatus: Application, part II of Fluid Meters," 6th Edition (1971), chapter 4 (incorporated by reference, see § 60.17).

(5) Before each dioxins/furans performance stack test, or at least once a year, calibrate all signal conversion elements associated with steam (or feed water) flow measurements according to the manufacturer instructions. Measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed.

(b) Determine the maximum demonstrated municipal waste combustor load during the initial performance test for dioxins/furans and each subsequent performance test specified in § 60.5970 during which you achieve compliance with the dioxins/furans emission limit in Table 2 to Subpart VVVV. The maximum demonstrated municipal waste combustor load is the highest 4-hour arithmetic average load achieved during four consecutive hours during the most recent test. If a subsequent dioxins/furans performance test is being performed on only one municipal waste combustor as specified in § 60.5980, you may apply the same maximum municipal waste combustor load from the tested facility for all the similarly designed and operated municipal waste combustors.

§ 60.6000 How do I monitor the temperature of flue gases at the inlet of my particulate matter control device?

(a) You must install, calibrate, maintain, and operate a device to continuously measure the temperature of the flue gas stream at the inlet of each particulate matter control device.

(b) Calculate the temperature of the flue gas stream in 4-hour block arithmetic averages.

(c) Determine the maximum demonstrated particulate matter control device temperature for each particulate matter control device during the initial performance test for dioxins/furans and each subsequent performance test specified in § 60.5970 during which you achieve compliance with the dioxins/furans emission limit. The maximum demonstrated particulate matter control device temperature is the highest 4-hour arithmetic average temperature achieved at the particulate matter control device inlet during four consecutive hours during the most recent test. If a subsequent dioxins/furans performance test is being performed on only one municipal waste combustor as specified in § 60.5980, you may apply the same maximum particulate matter control device temperature from the tested facility for all the similarly designed and operated municipal waste combustors.

§ 60.6005 How do I monitor the injection rate of activated carbon?

If your municipal waste combustor uses activated carbon to control dioxins/furans or mercury emissions, you must meet three requirements:

(a) Select a carbon injection system operating parameter(s) that can be used to calculate carbon feed rate (for example, screw feeder speed, hopper volume, or hopper refill frequency).

(b) During the initial and each subsequent dioxins/furans and mercury performance stack test specified in § 60.5970, estimate an average carbon feed rate in kilograms (or pounds) per hour. You must determine an average operating parameter level that correlates to the carbon feed rate and establish a relationship between the operating parameter(s) and the carbon feed rate in order to estimate the average carbon feed rate. If a subsequent dioxins/furans performance test is being performed on only one municipal waste combustor as specified in § 60.5980, you may apply the same estimated average carbon mass feed rate from the tested facility for all the similarly designed and operated municipal waste combustors.

(c) Continuously monitor the selected carbon injection operating parameter(s) (as specified in paragraph (b) of this section) during all periods when the municipal waste combustor is operating and combusting waste, and calculate the 8-hour block average carbon feed rate in kilograms (or pounds) per hour, based on the selected operating parameter. The 8-hour block average must equal or exceed the level(s) documented during the performance tests specified under paragraph (b) of this section, except that during the annual dioxins/furans or mercury performance test and the 2 weeks preceding the annual dioxins/furans or mercury performance test, the limit for average mass carbon feed rate may be waived following permission of the Administrator if the tests are for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

(d) You must estimate the total carbon usage of the facility (kilograms or pounds) for each calendar quarter using two independent methods:

(1) The weight of carbon delivered to the facility.

(2) Estimate the average carbon mass feed rate in kilograms per hour or pounds per hour for each hour of operation for each municipal waste combustor, based on the selected carbon injection operating parameter(s) specified in paragraph (b) of this section, and as specified in equation 2 to § 60.6140.

(e) Use pneumatic injection pressure or another carbon injection system operational indicator for additional verification of proper carbon injection system operation. The operational indicator must provide an instantaneous visual and/or audible alarm to alert the operator of a potential interruption in the carbon feed that would not normally be indicated by direct monitoring of carbon mass feed rate (*e.g.*, continuous weight loss feeder) or monitoring of the carbon system operating parameter(s) that are the indicator(s) of carbon mass feed rate (*e.g.*, screw feeder speed). The carbon injection system operational indicator used to provide additional verification of carbon injection system operation, including basis for selecting the indicator and operator response to the indicator alarm, shall be included in the site-specific operating manual required under § 60.5855 of this subpart.

§ 60.6010 What is the minimum amount of monitoring data I must collect with my continuous parameter monitoring systems?

(a) Where continuous parameter monitoring systems are used, obtain 1-hour arithmetic averages for all the following three parameters:

(1) Load level of the municipal waste combustor.

(2) Temperature of the flue gases at the inlet of your particulate matter control device.

(3) Carbon feed rate if activated carbon is used to control dioxins/furans or mercury emissions.

(b) Obtain at least two data points per hour in order to calculate a valid 1-hour arithmetic average.

(c) Obtain valid 1-hour arithmetic averages for at least 75 percent of the operating hours per day for 90 percent of the operating days per calendar quarter.

§ 60.6015 What requirements must I meet for estimating my municipal waste combustor capacity?

(a) You must calculate the capacity for each continuous municipal waste combustor (*e.g.*, capable of combusting continuously for a 24-hour period) based on 24 hours of operation at the maximum charging rate. You must determine the maximum charging rate differently for combustors that are designed based on heat capacity and for combustors that are not designed based on heat capacity.

(1) For combustors that are designed based on heat capacity, calculate the maximum charging rate based on the maximum design heat input capacity of the unit and a heating value of 12,800 kilojoules per kilogram for combustors firing refuse-derived fuel, or a heating value of 10,500 kilojoules per kilogram for combustors firing municipal solid waste that is not refuse-derived fuel.

(2) For combustors that are not designed based on heat capacity, the maximum charging rate is the maximum design charging rate.

(b) You must calculate the capacity for each batch feed municipal waste combustor based on the maximum design amount of municipal solid waste that can be charged per batch multiplied by the maximum number of batches that could be processed in a 24-hour period.

(1) You must calculate the maximum number of batches that could be processed in a 24-hour period by dividing 24 hours by the design number of hours required to process one batch of municipal solid waste. The maximum number of batches may include a fraction (*e.g.*, if one batch requires 16 hours, then 24/16, or 1.5 batches, could be combusted in a 24-hour period).

(2) For batch combustors that are designed based on heat capacity, calculate the municipal waste combustor capacity in megagrams per day, based on the design heating value of 12,800 kilojoules per kilogram for combustors firing refuse-derived fuel or a heating value of 10,500 kilojoules per kilogram for combustors firing municipal solid waste that is not refuse-derived fuel.

Recordkeeping

§ 60.6020 What records must I keep?

You must keep all the following five types of records:

(a) Notification of construction, materials separation plan, and siting analysis.

(b) Operator training and certification.

(c) Stack tests.

(d) Continuously monitored pollutants and parameters.

(e) Carbon feed rate.

§ 60.6025 Where must I keep my records and for how long?

(a) Keep all records onsite in paper copy or electronic format unless the Administrator approves another format. Any records required to be maintained by this subpart that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

(b) Keep all records on each municipal waste combustor for at least 5 years.

(c) Make all records available for submittal to the Administrator, or for onsite review by an inspector.

§ 60.6030 What records must I keep for the materials separation plan and siting analysis?

You must keep records of all the following five items:

(a) The date of each record.

(b) The final materials separation plan.

(c) The final siting analysis.

(d) A record of the location and date of the public meetings.

(e) Your responses to the public comments received during the public comment periods for the materials separation plan and siting analysis.

§ 60.6035 What records must I keep for operator training and certification?

You must keep records of all the following six items:

(a) *Records of provisional certifications*. Include three items:

(1) Names of the municipal waste combustor chief facility operator, shift supervisors, and control room operators who are provisionally certified by the American Society of Mechanical Engineers or an equivalent state-approved certification program.

(2) Dates of the initial and renewal provisional certifications.

(3) Documentation showing current provisional certifications.

(b) *Records of full certific*ations. Include three items:

(1) Names of the chief facility operator, shift supervisors, and control room operators who are fully certified by the American Society of Mechanical Engineers or an equivalent state-approved certification program.

(2) Dates of initial and renewal full certifications.

(3) Documentation showing current full certifications.

(c) *Records showing completion of the operator training course*. Include three items:

(1) Names of the chief facility operator, shift supervisors, and control room operators who have completed the EPA or state municipal waste combustion operator training course.

(2) Dates of completion of the operator training course.

(3) Documentation showing completion of the operator training course.

(d) *Records of reviews for site-specific operating manuals*. Include all the following three items:

(1) Names of persons who have reviewed the operating manual.

(2) Date of the initial review.

(3) Dates of subsequent annual reviews.

(e) *Records of when a certified operator is temporarily offsite*. Include two main items:

(1) If the certified chief facility operator and certified shift supervisor are offsite for more than 12 hours, but for 2 weeks or less, and no other certified operator is onsite, record the dates that the certified chief facility operator and certified shift supervisor were offsite.

(2) When the certified chief facility operator and certified shift supervisor are offsite for more than 2 weeks and no other certified operator is onsite, keep records of all the following four items:

(i) Time of day that all certified persons are offsite.

(ii) The conditions that cause those people to be offsite.

(iii) The corrective actions you are taking to ensure a certified chief facility operator or certified shift supervisor is onsite as soon as practicable.

(iv) Copies of the written reports submitted every 4 weeks that summarize the actions taken to ensure that a certified chief facility operator or certified shift supervisor will be onsite as soon as practicable.

(f) *Records of calendar dates*. Include the calendar date on each record.

§ 60.6040 What records must I keep for stack tests?

For stack tests required under § 60.5960, you must keep records of all the following four items:

(a) The results of the initial and annual performance stack tests for eight pollutants or parameters recorded in the appropriate units of measure specified in Table 2 to Subpart VVVV:

(1) Dioxins/furans.

(2) Cadmium.

(3) Lead.

(4) Mercury.

(5) Opacity.

(6) Particulate matter.

(7) Hydrogen chloride.

(8) Fugitive ash.

(b) Test reports including supporting calculations that document the results of all stack tests.

(c) The maximum demonstrated load of your municipal waste combustor and maximum temperature at the inlet of your particulate matter control device during all stack tests for dioxins/furans emissions.

(d) The calendar date of each record.

§ 60.6045 What records must I keep for continuously monitored pollutants or parameters?

You must keep records of all the following eight items:

(a) *Records of monitoring data*. Document all the following eight parameters measured using continuous monitoring systems:

(1) All 6-minute average levels of opacity.

(2) All 1-hour average concentrations of sulfur dioxide emissions.

(3) All 1-hour average concentrations of nitrogen oxides emissions.

(4) All 1-hour average concentrations of carbon monoxide emissions.

(5) All 1-hour average load levels of your municipal waste combustor.

(6) All 1-hour average flue gas temperatures at the inlet of the particulate matter control device.

(7) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance testing, all

1-hour average concentrations of particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions.

(8) If you monitor emissions with a CEMS, you must indicate which data are CEMS data during warmup, startup, and shutdown.

(b) *Records of average concentrations*. Document seven parameters:

(1) All 24-hour daily block geometric average concentrations and percent reductions of sulfur dioxide emissions.

(2) All 24-hour daily arithmetic average concentrations of nitrogen oxides emissions.

(3) All 4-hour block or 24-hour daily block arithmetic average concentrations of carbon monoxide emissions, as applicable.

(4) All 4-hour block arithmetic average load levels of your municipal waste combustor.

(5) All 4-hour block arithmetic average flue gas temperatures at the inlet of the particulate matter control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance testing, all 24-hour daily arithmetic average concentrations and percent reductions, as appropriate, of particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions.

(7) If you elect to use a continuous automated sampling system to monitor mercury or dioxins/furans instead of conducting performance testing, all integrated 24-hour mercury concentrations (or percent reductions) or all integrated 2-week dioxins/furans concentrations.

(c) *Records of exceedances*. Document all the following three items:

(1) Calendar dates whenever any of the seven pollutant or parameter levels recorded in paragraph (b) of this section or the opacity level recorded in paragraph (a)(1)

of this section did not meet the emission limits or operating levels specified in this subpart.

(2) Reasons you exceeded the applicable emission limits or operating levels.

(3) Corrective actions you took, or are taking, to meet the emission limits or operating levels.

(d) *Records of minimum data*. Document three items:

(1) Calendar dates for which you did not collect the minimum amount of data required under §§ 60.5935 and 60.6010. Record the dates for the following types of pollutants and parameters:

(i) Sulfur dioxide emissions.

(ii) Nitrogen oxides emissions.

(iii) Carbon monoxide emissions.

(iv) Load levels of your municipal waste combustor.

(v) Temperatures of the flue gases at the inlet of the particulate matter control device.

(vi) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance tests, the particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions.

(vii) If you elect to use continuous automated sampling systems for dioxins/furans or mercury, dates and times when the sampling systems were not operating or were not collecting a valid sample.

(2) Reasons you did not collect the minimum data.

(3) Corrective actions you took, or are taking, to obtain the required amount of data.

(e) *Records of exclusions*. Document each time you have excluded data from your calculation of averages for any of the following pollutants or parameters and the reasons the data were excluded:

(1) Sulfur dioxide emissions.

(2) Nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load levels of your municipal waste combustor.

(5) Temperatures of the flue gases at the inlet of the particulate matter control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride, or who elect to use continuous automated sampling systems for dioxins/furans or mercury emissions, instead of conducting performance tests:

(i) Particulate matter emissions data.

(ii) Cadmium emissions data.

(iii) Lead emissions data.

(iv) Mercury emissions data.

(v) Hydrogen chloride emissions data.

(vi) Dioxins/furans emissions data.

(f) *Records of drift and accuracy*. Document the results of your daily drift tests and quarterly accuracy determinations according to the following:

(1) For sulfur dioxides, nitrogen oxides, and carbon monoxides, according to Procedure 1 of appendix F of this part. Keep the records for the sulfur dioxide, nitrogen oxides, and carbon monoxide continuous emissions monitoring systems.

(2) If you elect to continuously monitor particulate matter instead of conducting performance testing, according to Procedure 2, appendix F of this part. Keep the records for the particulate matter continuous emissions monitoring systems.

(3) If you elect to continuously monitor cadmium, lead, mercury, or hydrogen

chloride instead of conducting performance testing, maintain the results of all quality evaluations, including daily drift tests and periodic accuracy determinations, specified in the approved site-specific performance evaluation test plan or as specified in Procedures 5 and 6 of appendix F of this part, as applicable.

(4) If you elect to use continuous automated sampling systems for dioxins/furans or mercury, the results of all quality evaluations specified in the approved site-specific performance evaluation test plan or Procedure 5 of appendix F of this part, as applicable.

(g) *Records of the relationship between oxygen and carbon dioxide*. If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, document the relationship between oxygen and carbon dioxide, as specified in § 60.5930.

(h) *Records of calendar dates.* Include the calendar date on each record.

(i) *Time system*. All continuous monitoring systems data must be recorded using “local time” for the location where the municipal waste combustor is located, unless the Administrator approves an alternative time system.

(j) *Additional recordkeeping for continuous cadmium, lead, mercury, or hydrogen chloride monitoring systems.* In addition to the requirements of paragraphs (a) through (i) of this section, if you elect to install a continuous emission monitoring system for cadmium, lead, mercury, or hydrogen chloride, you must maintain the following additional records:

(1) All required continuous emission monitoring measurements (including monitoring data recorded during unavoidable continuous emission monitoring system breakdowns and out-of-control periods).

(2) The date and time identifying each period during which the continuous emission monitoring system was inoperative except for zero (low-level) and high-level checks.

(3) The date and time identifying each period during which the continuous

emission monitoring system was out of control, as defined in § 60.5985.

(4) The date and time of commencement and completion of each period of excess emissions and parameter monitoring exceedances that occurs during warmups, startups, shutdowns, and malfunctions of the municipal waste combustor.

(5) The date and time of commencement and completion of each time period of excess emissions and parameter monitoring exceedances, that occurs during periods other than warmups, startups, shutdowns, and malfunctions of the municipal waste combustor.

(6) The nature and cause of any malfunction (if known).

(7) The corrective action taken to correct any malfunction or preventive measures adopted to prevent further malfunctions.

(8) The nature of the repairs or adjustments to the continuous emission monitoring system that was inoperative or out of control.

(9) All procedures that are part of a quality control program developed and implemented for the continuous emission monitoring system.

(10) When more than one continuous emission monitoring system is used to measure the emissions from one municipal waste combustor (*e.g.*, multiple breechings, multiple outlets), record the results as required for each continuous emission monitoring system.

(k) *Additional recordkeeping for continuous automated sampling systems.* If you elect to install a continuous automated sampling system for dioxins/furans or mercury, you must maintain the following additional records:

(1) All required 24-hour integrated mercury concentration (or percent reduction) or 2-week integrated dioxins/furans concentration data (including any data obtained during unavoidable system breakdowns and out-of-control periods).

(2) The date and time identifying each period during which the continuous automated sampling system was inoperative.

(3) The date and time identifying each period during which the continuous automated sampling system was out of control.

(4) The date and time of commencement and completion of each period of excess emissions and parameter monitoring exceedances that occurs during warmups, startups, shutdowns, and malfunctions of the municipal waste combustor.

(5) The date and time of commencement and completion of each time period of excess emissions and parameter monitoring exceedances that occurs during periods other than warmups, startups, shutdowns, and malfunctions of the municipal waste combustor.

(6) The nature and cause of any malfunction (if known).

(7) The corrective action taken to correct any malfunction or preventive measures adopted to prevent further malfunctions.

(8) The nature of the repairs or adjustments to the continuous automated sampling system that was inoperative or out of control.

(9) All procedures that are part of a quality control program developed and implemented for the continuous automated sampling system.

(10) When more than one continuous automated sampling system is used to measure the emissions from one municipal waste combustor (*e.g.*, multiple breechings, multiple outlets), record the results as required for each system.

§ 60.6050 What records must I keep for municipal waste combustors that use activated carbon?

For municipal waste combustors that use activated carbon to control dioxins/furans or mercury emissions, you must keep records of all the following five items:

(a) *Records of average carbon feed rate*. Document five items:

(1) Average carbon feed rate in kilograms (or pounds) per hour during all stack tests for dioxins/furans and mercury emissions. Include supporting calculations in the

records.

(2) For the operating parameter chosen to monitor carbon feed rate, average operating level during all stack tests for dioxins/furans and mercury emissions. Include supporting data that document the relationship between the operating parameter and the carbon feed rate.

(3) Average carbon feed rate in kilograms (or pounds) per hour estimated for each hour of operation. Include supporting calculations in the records.

(4) Total carbon usage for each calendar quarter as estimated in § 60.6005(d). Include supporting calculations in the records.

(5) Carbon injection system operating parameter data for the parameter(s) that are the primary indicator(s) of carbon feed rate (*e.g.*, screw feeder speed).

(b) *Records of low carbon feed rates*. Document three items:

(1) The calendar dates when the average carbon feed rate was less than the average hourly carbon feed rates determined during the most recent stack test for dioxins/furans or mercury emissions.

(2) Reasons for the low carbon feed rates.

(3) Corrective actions you took, or are taking, to meet the average carbon feed rate requirement.

(c) *Records of carbon injection system operating parameter indicators*. Document three items:

(1) Calendar dates for which the carbon injection system operating parameter(s) that are the primary indicator(s) of carbon mass feed rate (*e.g.*, screw feeder speed) recorded are below the level(s) estimated during the performance tests.

(2) Reasons for the occurrences.

(3) Corrective actions you took or are taking to meet the levels estimated during the performance tests.

(d) *Records of exclusions*. Document each time you have excluded data from your calculation of average carbon feed rates and the reasons the data were excluded.

(e) *Records of calendar dates*. Include the calendar date on each record.

Reporting

§ 60.6055 What reports must I submit before I submit my notice of construction?

You must submit all the following five items on or before the date that the application for a construction permit is submitted under 40 CFR part 51, subpart I, or 40 CFR part 52, as applicable:

(a) Your preliminary draft materials separation plan, as specified in § 60.5745.

(b) Your revised materials separation plan, as specified in § 60.5765(c).

(c) Your notice of the initial public meeting for your draft materials separation plan, as specified in § 60.5750(b).

(d) A transcript of the initial public meeting, as specified in § 60.5760(f).

(e) A copy of the document that summarizes your responses to the public comments you received during the initial public comment period, as specified in § 60.5765(a).

§ 60.6060 What must I include in my notice of construction?

(a) Include all the following ten items:

(1) A statement of your intent to construct the municipal waste combustor.

(2) The planned initial startup date of your municipal waste combustor.

(3) The types of fuels you plan to combust in your municipal waste combustor.

(4) The capacity of your municipal waste combustor including supporting capacity calculations, as specified in § 60.6015.

(5) Your siting analysis, as specified in § 60.5805.

(6) Your final materials separation plan, as specified in § 60.5785.

(7) Your notice of the second public meeting (siting analysis meeting), as

specified in § 60.5810(b).

(8) A transcript of the second public meeting, as specified in § 60.5820(d).

(9) A copy of the document that summarizes your responses to the public comments you received during the second public comment period, as specified in § 60.5825(a).

(10) Your final siting analysis, as specified in § 60.5825(c).

(b) Submit your notice of construction no later than 30 days after you commence construction, reconstruction, or modification of your municipal waste combustor.

§ 60.6065 What reports must I submit after I submit my notice of construction and in what form?

(a) Submit an initial report and annual reports, plus semiannual reports for any emission or parameter level that does not meet the limits specified in this subpart.

(b) Within 60 days after the date of completing each performance test or continuous emissions monitoring systems (CEMS) performance evaluation that includes a relative accuracy test audit (RATA), you must submit the results following the procedures specified in paragraph (d) of this section. Data collected using test methods and performance evaluations of CEMS measuring RATA pollutants that are supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test or performance evaluation must be submitted in a file format generated using the EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA's ERT website. Data collected using test methods and performance evaluations of CEMS measuring RATA pollutants that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test or performance evaluation must be included as an attachment in the ERT or an alternate electronic file.

(c) For the semiannual and annual reports specified under paragraph (a) of this section, beginning on **March 10, 2027** or once the report template for this subpart has been available on the Compliance and Emissions Data Reporting Interface (CEDRI) website (https://www.epa.gov/electronic-reporting-air-emissions/cedri) for one year, whichever date is later, submit all subsequent reports using the appropriate electronic report template on the CEDRI website for this subpart and following the procedure specified in paragraph (d) of this section. The date report templates become available will be listed on the CEDRI website. Unless the Administrator or delegated state agency or other authority has approved a different schedule for submission of reports, the report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted.

(d) If you are required to submit notifications or reports following the procedure specified in this paragraph (d), you must submit notifications or reports to the EPA via the CEDRI website, which can be accessed through the EPA's Central Data Exchange (CDX) (https://cdx.epa.gov/). The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as CBI. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim for some of the information in the report or notification, you must submit a complete file in the format specified in this subpart, including information claimed to be CBI, to the EPA following the procedures in paragraphs (d)(1) and (2) of this section. Clearly mark the part or all of the information that you claim to be CBI. Information not marked as CBI may be authorized for public release without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. All CBI claims must be asserted at the time of submission. Anything submitted using CEDRI cannot later be claimed CBI. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available. You must submit the same file submitted to the CBI office with the CBI omitted to the EPA via the EPA's CDX as described earlier in this paragraph (d).

(1) The preferred method to receive CBI is for it to be transmitted electronically using email attachments, File Transfer Protocol, or other online file sharing services. Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address oaqps_cbi@epa.gov, and as described above, should include clear CBI markings. ERT files should be flagged to the attention of the Branch Manager, Measurement Strategies Branch; all other files should be flagged to the attention of the Large Municipal Waste Combustor Sector Lead. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email oaqps_cbi@epa.gov to request a file transfer link.

(2) If you cannot transmit the file electronically, you may send CBI information through the postal service to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, 109 T.W. Alexander Drive, P.O. Box 12055, Research Triangle Park, North Carolina 27711. ERT files should be sent to the attention of the Branch Manager, Measurement Strategies Branch, and all other files should be sent to the attention of the Large Municipal Waste Combustor Sector Lead. The mailed CBI material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope.

(e) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with that reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (e)(1) through (7) of this section.

(1) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA's CEDRI or CDX systems.

(2) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(3) The outage may be planned or unplanned.

(4) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(5) You must provide to the Administrator a written description identifying:

(i) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(6) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(7) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(f) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with that reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (f)(1) through (5) of this section.

(1) You may submit a claim if a *force majeure* event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning 5 business days prior to the date the submission is due. For the purposes of this section, a *force majeure* event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.*, hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.*, large scale power outage).

(2) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(3) You must provide to the Administrator:

(i) A written description of the *force majeure* event;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the *force majeure* event;

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(4) The decision to accept the claim of *force majeure* and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(5) In any circumstance, the reporting must occur as soon as possible after the *force majeure* event occurs.

(g) Keep a copy of all reports required by §§ 60.6080, 60.6090, and 60.6105 onsite for 5 years.

(h) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride or to use continuous automated sampling systems for dioxins/furans or mercury emissions instead of conducting performance tests, you must notify the Administrator one month prior to starting or stopping use of the particulate matter, cadmium, lead, mercury, hydrogen chloride, and dioxins/furans continuous emission monitoring systems or continuous automated sampling systems.

(i) If you elect to install a continuous emission monitoring system for cadmium, lead, mercury, or hydrogen chloride, or you elect to install a continuous automated sampling system for dioxins/furans or mercury, you must also submit to EPA for approval, the site-specific monitoring plan, including the site-specific performance evaluation test plan for the continuous emission monitoring system or the continuous automated sampling system. You must maintain copies of the site-specific monitoring plan on record for the life of the municipal waste combustor to be made available for inspection, upon request, by the Administrator. If the site-specific monitoring plan is revised and approved, you must maintain the previous (*i.e.*, superseded) versions of the plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan.

§ 60.6070 What are the appropriate units of measurement for reporting my data?

See Tables 1 and 2 to Subpart VVVV for appropriate units of measurement.

§ 60.6075 When must I submit the initial performance test report?

As specified in § 60.8(a), submit your initial performance test report within 60 days after your municipal waste combustor reaches the maximum load level at which it will operate, but no later than 180 days after its initial startup.

§ 60.6080 What must I include in my initial performance test report?

You must include seven items:

(a) The emission levels measured on the date of the initial evaluation of your continuous emission monitoring systems for all of the following pollutants or parameters as recorded in accordance with § 60.6045(b).

(1) The 24-hour daily block geometric average concentration or percent reduction of sulfur dioxide emissions.

(2) The 24-hour daily arithmetic average concentration of nitrogen oxides emissions.

(3) The 4-hour block or 24-hour daily arithmetic average concentration of carbon monoxide emissions, as applicable.

(4) The 4-hour block arithmetic average load level of your municipal waste combustor.

(5) The 4-hour block arithmetic average flue gas temperature at the inlet of the particulate matter control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance testing, all 1-hour average concentrations of particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions.

(7) If you monitor emissions with a CEMS, you must indicate which data are CEMS data during warmup, startup, and shutdown.

(b) The results of the initial performance stack tests for eight pollutants or parameters (use appropriate units as specified in Table 2 to Subpart VVVV):

(1) Dioxins/furans.

(2) Cadmium.

(3) Lead.

(4) Mercury.

(5) Opacity.

(6) Particulate matter.

(7) Hydrogen chloride.

(8) Fugitive ash.

(c) The test report that documents the initial stack tests including supporting calculations.

(d) The initial performance evaluation of your continuous emissions monitoring systems. Use the applicable performance specifications in appendix B of this part in conducting the evaluation.

(e) The maximum demonstrated load of your municipal waste combustor and the maximum demonstrated temperature of the flue gases at the inlet of the particulate matter control device. Use values established during your initial stack test for dioxins/furans emissions and include supporting calculations.

(f) If your municipal waste combustor uses activated carbon to control dioxins/furans or mercury emissions, the average carbon mass feed rates that you recorded during the stack tests for dioxins/furans and mercury emissions. Include supporting calculations as specified in § 60.6050(a)(1) and (2).

(g) If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, documentation of the relationship between oxygen and carbon dioxide, as specified in § 60.5930.

§ 60.6085 When must I submit the annual report?

Submit the annual report no later than February 1 of each year that follows the calendar year in which you collected the data. If you have an operating permit for any unit under title V of the Clean Air Act (CAA), you must submit semiannual reports. Parts 70 and 71 of this chapter contain program requirements for permits.

§ 60.6090 What must I include in my annual report?

Summarize data collected for all pollutants and parameters regulated under this subpart. Your summary must include twelve items:

(a) A list of the results achieved during the annual stack test, using appropriate units, for eight pollutants, as recorded under § 60.6040(a):

(1) Dioxins/furans.

(2) Cadmium.

(3) Lead.

(4) Mercury.

(5) Particulate matter.

(6) Opacity.

(7) Hydrogen chloride.

(8) Fugitive ash.

(b) List of the highest average levels recorded, in the appropriate units for the following pollutants or parameters:

(1) Sulfur dioxide emissions.

(2) Nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load level of the municipal waste combustor.

(5) Temperature of the flue gases at the inlet of the particulate matter air pollution control device (4-hour block average).

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, hydrogen chloride, or dioxins/furans emissions instead of conducting performance testing:

(i) Particulate matter emissions.

(ii) Cadmium emissions.

(iii) Lead emissions.

(iv) Mercury emissions.

(v) Hydrogen chloride emissions.

(vi) Dioxins/furans emissions.

(c) For continuously monitored pollutants identified in paragraphs (b)(1) through (3) and (b)(6) of this section, a list of the block averages recorded during all operations for the reporting year, identifying measurements recorded during periods of warmup, startup, and shutdown as defined in this subpart.

(d) The highest 6-minute opacity level measured. Base the value on all 6-minute average opacity levels recorded by your continuous opacity monitoring system (§ 60.6045(a)(1)).

(e) The total number of hours per calendar quarter and hours per calendar year that you did not obtain valid data for the following pollutants or parameters. For each continuously monitored pollutant or parameter, the hours of valid emissions data per calendar quarter and per calendar year expressed as a percent of the hours per calendar quarter or year that the municipal waste combustor was operating and combusting municipal solid waste. Include data on:

(1) Sulfur dioxide emissions.

(2) Nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load level of the municipal waste combustor.

(5) Temperature of the flue gases at the inlet of the particulate matter air pollution control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, hydrogen chloride, or dioxins/furans emissions instead of conducting performance testing:

(i) Particulate matter emissions.

(ii) Cadmium emissions.

(iii) Lead emissions.

(iv) Mercury emissions.

(v) Hydrogen chloride emissions.

(vi) Dioxins/furans emissions.

(7) If you elect to use continuous automated sampling systems for dioxins/furans or mercury, the total number of hours per calendar quarter and hours per calendar year that the sampling systems were not operating or were not collecting a valid sample. Include the number of hours during which the continuous automated sampling system was operating and collecting a valid sample as a percent of hours per calendar quarter or year that the municipal waste combustor was operating and combusting municipal solid waste.

(f) The total number of hours you have excluded data from the calculation of average levels (include the reasons for excluding it). Include data for the following pollutants or parameters:

(1) Sulfur dioxide emissions.

(2) Nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load level of the municipal waste combustor.

(5) Temperature of the flue gases at the inlet of the particulate matter air pollution control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, hydrogen chloride, or dioxins/furans emissions instead of conducting performance testing:

(i) Particulate matter emissions.

(ii) Cadmium emissions.

(iii) Lead emissions.

(iv) Mercury emissions.

(v) Hydrogen chloride emissions.

(vi) Dioxins/furans emissions.

(7) If you elect to use continuous automated sampling systems for dioxins/furans or mercury, the total number of hours that the data for mercury and dioxins/furans were excluded from the calculation of average emission concentrations or parameters.

(g) A summary of the data in paragraphs (a) through (f), excluding (c), of this section from the year preceding the reporting year which gives the Administrator a summary of the performance of the municipal waste combustor over a 2-year period.

(h) A summary of any emission or parameter level, including the information specified in paragraphs (a) through (g) of this section, that did not meet the limits specified in this subpart.

(i) A notice of your intent to begin a reduced stack testing schedule for dioxins/furans emissions during the following calendar year, if you are eligible for alternative scheduling (§ 60.5980(a) or (b)).

(j) A notice of your intent to apply the average carbon mass feed rate and associated carbon injection system operating parameter levels to similarly designed and equipped units on site. (§ 60.5980(c)).

(k) If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, documentation of the relationship between oxygen and carbon dioxide, as specified in § 60.5930.

(l) Documentation of periods when all certified chief facility operators and certified shift supervisors are offsite for more than 12 hours.

§ 60.6095 What must I do if I am out of compliance with the requirements of this subpart?

You must submit a semiannual report on any recorded emission or parameter level that does not meet the requirements specified in this subpart.

§ 60.6100 If a semiannual report is required, when must I submit it?

(a) For data collected during the first half of a calendar year, submit your semiannual report by August 1 of that year.

(b) For data you collected during the second half of the calendar year, submit your semiannual report by February 1 of the following year.

§ 60.6105 What must I include in the semiannual out-of-compliance reports?

You must include all of the following items in the semiannual report:

(a) For any of the pollutants or parameters listed in paragraphs (a)(1)-(8) of this section that exceeded the limits specified in this subpart, include the calendar date they exceeded the limits, the reasons for exceeding the limits, and your corrective actions. You must also include the averaged and recorded data for that date:

(1) Concentration of sulfur dioxide emissions.

(2) Concentration of nitrogen oxides emissions.

(3) Concentration of carbon monoxide emissions.

(4) Load level of your municipal waste combustor.

(5) Temperature of the flue gases at the inlet of your particulate matter air pollution control device.

(6) Average 6-minute opacity level. The data obtained from your continuous opacity monitoring system are not used to determine compliance with the limit on opacity emissions.

(7) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance testing:

(i) Concentration of particulate matter emissions.

(ii) Concentration of cadmium emissions.

(iii) Concentration of lead emissions.

(iv) Concentration of mercury emissions.

(v) Concentration of hydrogen chloride emissions.

(8) If you elect to use a continuous automated sampling system to monitor mercury or dioxins/furans instead of conducting performance testing, the integrated 24-hour mercury concentrations (or percent reductions) or the integrated 2-week dioxins/furans concentration.

(b) If the results of your annual stack tests (as recorded in § 60.6040(a)) show emissions above the limits specified in Table 2 to Subpart VVVV for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash, include a copy of the test report that documents the emission levels and your corrective actions. The semiannual report shall contain a statement indicating that pollutant levels were exceeded during the performance test and list which pollutant limits were exceeded and a copy of the performance test is no longer required.

(c) For municipal waste combustors that apply activated carbon to control dioxins/furans or mercury emissions, include documentation of all dates when the carbon injection system operating parameter(s) that are the primary indicator(s) of carbon mass feed rate (*e.g.*, screw feeder speed) are below the levels established during the most recent mercury and dioxins/furans stack test (as specified in § 60.6050(a)). Include four items:

(1) The average carbon mass feed rate (in kilograms per hour or pounds per hour) estimated for each hour of operation.

(2) Reasons for occurrences of low carbon feed rates.

(3) The corrective actions you have taken to meet the carbon feed rate requirement.

(4) The calendar date.

(d) If you elect to install a continuous emission monitoring system for cadmium, lead, mercury, or hydrogen chloride, or you elect to install a continuous automated sampling system for dioxins/furans or mercury, submit information concerning all out-of-control periods for each continuous emission monitoring system or each continuous automated sampling system, including start and end dates and hours and descriptions of corrective actions taken.

§ 60.6110 Can reporting dates be changed?

(a) If the Administrator agrees, you may change the semiannual or annual reporting dates.

(b) See § 60.19(c) for procedures to seek approval to change your reporting date.

Air Curtain Incinerators That Burn 100 Percent Wood Waste, Clean Lumber, and/or Yard Waste

§ 60.6115 What is an air curtain incinerator?

An air curtain incinerator operates by forcefully projecting a curtain of air across an open chamber or pit in which combustion occurs. Incinerators of that type can be constructed above or below ground and with or without refractory walls and floor.

§ 60.6120 What is yard waste?

Yard waste is grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs. They come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands. Yard waste does not include two items:

(a) Construction, renovation, and demolition wastes that are exempt from the definition of “municipal solid waste” in § 60.6145.

(b) Clean wood that is exempt from the definition of “municipal solid waste” in § 60.6145.

§ 60.6125 What are the emission limits for air curtain incinerators that burn 100

percent wood waste, clean lumber, and/or yard waste?

If your air curtain incinerator with a capacity to combust greater than 250 tons per day of municipal solid waste combusts a fuel feed stream of 100 percent wood waste, 100 percent clean lumber, 100 percent yard waste, or a 100 percent mixture of only wood waste, clean lumber, and/or yard waste, and no other municipal solid waste materials, you must meet only the emission limits in this section.

(a) Within 60 days after your air curtain incinerator reaches the maximum load level at which it will operate, but no later than 180 days after its initial startup, you must meet two limits:

(1) The opacity limit is 10 percent (6-minute average) except as provided in paragraph (a)(2) of this section.

(2) The opacity limit is 35 percent (6-minute average) during the startup period that is within the first 30 minutes of operation.

§ 60.6130 How must I monitor opacity for air curtain incinerators that burn 100 percent wood waste, clean lumber, and/or yard waste?

(a) Use the procedures specified in Table 4 to Subpart VVVV to determine compliance with the opacity limit for air curtain incinerators under § 60.6125.

(b) Conduct an initial test for opacity as specified in § 60.8 of subpart A of this part.

(c) After the initial test for opacity, conduct annual tests (no less than 9 calendar months and no more than 15 calendar months following the previous test). You must complete five performance tests in each 5-year calendar period.

§ 60.6135 What are the recordkeeping and reporting requirements for air curtain incinerators that burn 100 percent wood waste, clean lumber, and/or yard waste?

(a) Provide a notice of construction that includes four items:

(1) Your intent to construct the air curtain incinerator.

(2) Your planned initial startup date.

(3) Types of fuels you plan to combust in your air curtain incinerator.

(4) The capacity of your incinerator, including supporting capacity calculations, as specified in § 60.6015.

(b) Keep records of results of the initial opacity performance test and all subsequent opacity performance tests onsite in either paper copy or electronic format unless the Administrator approves another format.

(c) Keep all records for each incinerator for at least 5 years.

(d) Make all records available for submittal to the Administrator or for onsite review by an inspector.

(e) Submit the results (each 6-minute average) of the initial opacity performance test and all subsequent annual opacity performance tests by February 1 of the year following the year of the opacity emission test.

(f) Submit reports in either paper copy or electronic format on or before the applicable submittal date.

(g) If the Administrator agrees, you may change the annual reporting dates (see § 60.19(c)).

(h) Keep a copy of all reports onsite for a period of 5 years.

Equations

§ 60.6140 What equations must I use?

(a) *Concentration correction to 7 percent oxygen.* Correct any pollutant concentration to 7 percent oxygen using equation 1 of this section:

Equation 1 to paragraph (a)

$$C_{7\%} = C_{unc} * (13.9/(20.9 - C_{O2})) \qquad \text{(Eq.1)}$$

Where:

$C_{7\%}$ = concentration corrected to 7 percent oxygen.

C_{unc} = uncorrected pollutant concentration.

C_{O2}	=	concentration of oxygen (percent).

(b) *Quarterly carbon usage*. If you use activated carbon to comply with the dioxins/furans or mercury limits, calculate the required quarterly usage of carbon using equation 2 of this section for facility basis or equation 3 of this section for unit basis:

(1) Facility basis.

Equation 2 to paragraph (b)(1)

$$C = \sum_{i=1}^{n} f_i * h_i \qquad \text{(Eq. 2)}$$

Where:

C	=	required quarterly carbon usage for the facility in kilograms (or pounds).
f_i	=	required carbon feed rate for the municipal waste combustor in kilograms (or pounds) per hour. That is the average carbon feed rate during the most recent mercury or dioxins/furans stack tests (whichever has a higher feed rate).
h_i	=	number of hours the municipal waste combustor was in operation during the calendar quarter (hours).
n	=	number of municipal waste combustors, i, located at your plant.

(2) Unit basis.

Equation 3 to paragraph (b)(2)

$$C = f * h \qquad \text{(Eq. 3)}$$

Where:

C	=	required quarterly carbon usage for the unit in kilograms (or pounds).
f	=	required carbon feed rate for the municipal waste combustor in kilograms (or pounds) per hour. That is the average carbon feed rate during the most recent mercury or dioxins/furans stack tests (whichever has a higher feed rate).
h	=	number of hours the municipal waste combustor was in operation during the calendar quarter (hours).

(c) *Percent Reduction*. If you opt to comply with the alternative percent reduction standards for hydrogen chloride, mercury or sulfur dioxide, use the following equation to calculate the percent reduction:

Equation 4 to paragraph (c)

$$\%P_{(HCl,\ Hg,\ SO2)} = (E_i - E_o)/E_i * 100 \qquad \text{(Eq. 4)}$$

Where:

$\%P_{(HCl,\ Hg,\ SO2)}$ = percent reduction of pollutant being measured, either hydrogen chloride, mercury or sulfur dioxide.

E_i = emission concentration of measured pollutant at inlet to the applicable control device, corrected to 7 percent oxygen (dry basis).

E_o = emission concentration of measured pollutant at the outlet of the applicable control device, corrected to 7 percent oxygen (dry basis).

Definitions

§ 60.6145 What definitions apply to this subpart?

Terms used but not defined in this section are defined in the CAA and in subparts A and B of this part.

Administrator means:

(1) For approved and effective state plans, the Director of the state air pollution control agency, or employee of the state air pollution control agency that is delegated the authority to perform the specified task;

(2) For federal plans, the Administrator of the EPA, an employee of the EPA, the Director of the state air pollution control agency, or employee of the state air pollution control agency to whom the authority has been delegated by the Administrator of the EPA to perform the specified task; and

(3) For NSPS, the Administrator of the EPA, an employee of the EPA, the Director of the state air pollution control agency, or employee of the state air pollution control agency to whom the authority has been delegated by the Administrator of the EPA to perform the specified task.

Air curtain incinerator means an incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which burning occurs. Incinerators of that type can be constructed above or below ground and with or without refractory walls and floor.

Batch municipal waste combustor means a municipal waste combustor designed so it cannot combust municipal solid waste continuously 24 hours per day because the design does not allow waste to be fed to the unit or ash to be removed during combustion.

Bubbling fluidized bed combustor means a fluidized bed combustor in which the majority of the bed material remains in a fluidized state in the primary combustion zone.

Calendar quarter means a consecutive 3-month period (nonoverlapping) beginning on January 1, April 1, July 1, and October 1.

Calendar year means the period including 365 days starting January 1 and ending on December 31.

CEMS means continuous emissions monitoring system.

CEMS data during warmup, startup, and shutdown means CEMS data collected during periods of operation defined within this subpart as warmup, startup or shutdown.

Chief facility operator means the person in direct charge and control of the operation of a municipal waste combustor and who is responsible for daily onsite supervision, technical direction, management, and overall performance of the facility.

Circulating fluidized bed combustor means a fluidized bed combustor in which the majority of the fluidized bed material is carried out of the primary combustion zone and is transported back to the primary zone through a recirculation loop.

Clean wood means untreated wood or untreated wood products including clean or untreated lumber (as defined in this subpart), tree stumps (whole or chipped), and tree limbs (whole or chipped). Clean wood does not include yard waste, which is defined elsewhere in this section, wood products that have been painted, pigment-stained, or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol, and creosote, or construction, renovation, and demolition wastes (including but not limited to railroad ties and telephone poles), which are exempt from the definition of municipal solid waste in this section.

Cofired combustor means a unit combusting municipal solid waste with nonmunicipal solid waste fuel (*e.g.*, coal, industrial process waste) and subject to a federally enforceable permit limiting the unit to combusting a fuel feed stream, 30 percent or less of the weight of which is comprised, in aggregate, of municipal solid waste as measured on a calendar quarter basis.

Continuous automated sampling system means the total equipment and procedures for automated sample collection and sample recovery/analysis to determine a pollutant concentration or emission rate by collecting a single or multiple integrated sample(s) of the pollutant (or diluent gas) for subsequent on-or off-site analysis; integrated sample(s) collected are representative of the emissions for the sample time as specified by the applicable requirement.

Continuous emission monitoring system means a monitoring system that continuously measures the emissions of a pollutant from an affected facility.

Digital camera opacity technique conditions mean the following four conditions that must be followed if ASTM D7520-16, "Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere" is used as an alternative to EPA Method 9:

(1) During the digital camera opacity technique (DCOT) certification procedure outlined in Section 9.2 of ASTM D7520-16, you or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).

(2) You must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in Section 8.1 of ASTM D7520-16.

(3) You must follow the record keeping procedures outlined in 40 CFR 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.

(4) You or the DCOT vendor must have a minimum of 4 independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15 percent opacity of anyone reading and the average error must not exceed 7.5 percent opacity.

Dioxins/furans mean tetra- through octa- chlorinated dibenzo-p-dioxins and dibenzofurans. For the purposes of this subpart, dioxins/furans emission limits are expressed on a total mass basis.

EPA means the Administrator of the U.S. EPA or employee of the U.S. EPA who is delegated to perform the specified task.

Federally enforceable means all limitations and conditions that are enforceable by EPA including the requirements of 40 CFR part 60, 40 CFR part 61, and 40 CFR part 63, requirements within any applicable state implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.165 and 40 CFR 51.166.

First half of the calendar year means the period starting on January 1 and ending on June 30 in any year.

Four-hour block average or 4-hour block average means the average of all hourly emission concentrations when the affected facility is operating and combusting municipal solid waste measured over 4-hour periods from:

(1) 12:00 midnight to 4:00 a.m.

(2) 4:00 a.m. to 8:00 a.m.

(3) 8:00 a.m. to 12:00 noon.

(4) 12:00 noon to 4:00 p.m.

(5) 4:00 p.m. to 8:00 p.m.

(6) 8:00 p.m. to 12:00 midnight.

Mass burn refractory municipal waste combustor means a field-erected combustor that combusts municipal solid waste in a refractory wall furnace. Unless otherwise specified, this includes combustors with a cylindrical rotary refractory wall furnace.

Mass burn rotary waterwall municipal waste combustor means a field-erected combustor that combusts municipal solid waste in a cylindrical rotary waterwall furnace or on a tumbling-tile grate.

Mass burn waterwall municipal waste combustor means a field-erected combustor that combusts municipal solid waste in a waterwall furnace.

Materials separation plan means a plan that identifies both a goal and an approach for separating certain components of municipal solid waste for a given service area in order to make the separated materials available for recycling. A materials separation plan may include elements such as dropoff facilities, buy-back or deposit-return incentives, curbside pickup programs, or centralized mechanical separation systems. A materials separation plan may include different goals or approaches for different subareas in the service area, and may include no materials separation activities for certain subareas or, if warranted, an entire service area.

Maximum demonstrated municipal waste combustor load means the highest 4-hour arithmetic average municipal waste combustor load achieved during four consecutive hours during the most recent dioxins/furans performance test demonstrating compliance with the applicable limit for municipal waste combustor organics specified under § 60.52b.

Maximum demonstrated particulate matter control device temperature means the highest 4-hour arithmetic average flue gas temperature measured at the particulate matter control device inlet during four consecutive hours during the most recent dioxins/furans performance test demonstrating compliance with the applicable limit for municipal waste combustor organics specified under § 60.52b.

Modification or modified municipal waste combustor means a municipal waste combustor you have changed after **September 10, 2026** and that meets one of two criteria:

(1) The cumulative cost of the changes over the life of the unit exceeds 50 percent of the original cost of construction and installation the unit (not including the cost of any land purchased in connection with such construction or installation) updated to current costs.

(2) Any physical change in the municipal waste combustor or change in the method of operating the municipal waste combustor that increases the amount of any air pollutant emitted by the unit for which standards have been established under section 129 or section 111 of the CAA. Increases in the amount of any air pollutant emitted by the municipal waste combustor are determined when the municipal waste combustor operates at 100 percent of its physical load capability and are measured downstream of all air pollution control devices. Load restrictions based on permits or other nonphysical operational restrictions cannot be considered in the determination.

Modular excess-air municipal waste combustor means a combustor that combusts municipal solid waste, is not field-erected, and has multiple combustion chambers, all of which are designed to operate at conditions with combustion air amounts in excess of theoretical air requirements.

Modular starved-air municipal waste combustor means a combustor that combusts municipal solid waste, is not field-erected, and has multiple combustion chambers in which the primary combustion chamber is designed to operate at substoichiometric conditions.

Municipal solid waste or municipal-type solid waste or MSW means household, commercial/retail, or institutional waste. Household waste includes material discarded by single and multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing establishments or facilities. Commercial/retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities. Institutional waste includes materials discarded by schools, nonmedical waste discarded by hospitals, material discarded by nonmanufacturing activities at prisons and government facilities, and material discarded by other similar establishments or facilities. Household, commercial/retail, and institutional waste does not include used oil; sewage sludge; wood pallets; construction, renovation, and demolition wastes (which includes but is not limited to railroad ties and telephone poles); clean wood; industrial process or manufacturing wastes; medical waste; or motor vehicles (including motor vehicle parts or vehicle fluff). Household, commercial/retail, and institutional wastes include:

(1) Yard waste;

(2) Refuse-derived fuel; and

(3) Motor vehicle maintenance materials limited to vehicle batteries and tires except as specified in § 60.5700(d).

Municipal waste combustor, or MWC, means any setting or equipment that combusts solid, liquid, or gasified municipal solid waste including, but not limited to, field-erected combustion units (with or without heat recovery), modular incinerators (starved-air or excess-air), boilers (*i.e.*, steam generating units), furnaces (whether suspension-fired, grate-fired, mass-fired, air curtain incinerators, or fluidized bed-fired), and pyrolysis/combustion units. Two criteria further define municipal waste combustors:

(1) Municipal waste combustors do not include pyrolysis or combustion units located at a plastics or rubber recycling unit as specified under Applicability (§

60.5700(h) and (i)). Municipal waste combustors also do not include cement kilns firing municipal solid waste as specified under Applicability (§ 60.5700(j)). Municipal waste combustors also do not include internal combustion engines, gas turbines, or other combustion devices that combust landfill gases collected by landfill gas collection systems.

(2) The boundaries of a municipal waste combustor are defined as follows. The municipal waste combustor includes, but is not limited to, the municipal solid waste fuel feed system, grate system, flue gas system, bottom ash system, and the combustor water system. The municipal waste combustor boundary starts at the municipal solid waste pit or hopper and extends through three areas:

(i) The combustor flue gas system, which ends immediately following the heat recovery equipment or, if there is no heat recovery equipment, immediately following the combustion chamber.

(ii) The combustor bottom ash system, which ends at the truck loading station or similar ash handling equipment that transfers the ash to final disposal. It includes all ash handling systems connected to the bottom ash handling system.

(iii) The combustor water system, which starts at the feed water pump and ends at the piping that exits the steam drum or superheater.

(3) The municipal waste combustor does not include air pollution control equipment, the stack, water treatment equipment, or the turbine-generator set.

Municipal waste combustor capacity means the maximum charging rate of a municipal waste combustor expressed in tons per day of municipal solid waste combusted, calculated according to the procedures under § 60.6015. Section 60.6015 includes procedures for determining municipal waste combustor capacity for continuous and batch feed municipal waste combustors.

Municipal waste combustor load means the steam load of the municipal waste combustor measured as specified in § 60.5995.

Particulate matter means total particulate matter emitted from municipal waste combustors as measured using EPA Reference Method 5 (see § 60.5975)

Plastics/rubber recycling unit means an integrated processing unit for which plastics, rubber, or rubber tires are the only feed materials (incidental contaminants may be in the feed materials). The feed materials are processed into a chemical plant feedstock or petroleum refinery feedstock, where the feedstock is marketed to and used by a chemical plant or petroleum refinery as input feedstock. The following three criteria further define a plastics/rubber recycling unit:

(1) Each calendar quarter, the combined weight of the chemical plant feedstock and petroleum refinery feedstock that a plastics/rubber recycling unit produces must be more than 70 percent of the combined weight of the plastics, rubber, and rubber tires that the plastics/rubber recycling unit processes.

(2) The plastics, rubber, or rubber tires fed to the plastics/rubber recycling unit may originate from separating or diverting plastics, rubber, or rubber tires from MSW or industrial solid waste. The feed materials may include manufacturing scraps, trimmings, and off-specification plastics, rubber, and rubber tire discards.

(3) The plastics, rubber, and rubber tires fed to the plastics/rubber recycling unit may contain incidental contaminants (*e.g.*, paper labels on plastic bottles, metal rings on plastic bottle caps).

Pulverized coal/refuse-derived fuel mixed fuel-fired combustor means a combustor that fires coal and refuse-derived fuel simultaneously, in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the unit where it is fired in suspension. This includes both conventional pulverized coal and micropulverized coal.

Pyrolysis/combustion unit means a unit that produces gases, liquids, or solids by heating municipal solid waste. The gases, liquids, or solids produced are combusted and the emissions vented to the atmosphere.

Reconstruction means rebuilding a municipal waste combustor for which the reconstruction commenced after **September 10, 2026** and the cumulative costs of the construction over the life of the unit exceed 50 percent of the original cost of construction and installation of the unit (not including any cost of land purchased in connection with such construction or installation) updated to current costs (current dollars).

Refractory unit or refractory wall furnace means a combustion unit that has no energy recovery (*e.g.*, via a waterwall) in the furnace (*i.e.*, radiant heat transfer section) of the combustor.

Refuse-derived fuel means a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification. This includes all classes of refuse-derived fuel including two fuels:

(1) Low-density fluff refuse-derived fuel through densified refuse-derived fuel.

(2) Pelletized refuse-derived fuel.

Refuse-derived fuel stoker means a steam generating unit that combusts refuse-derived fuel in a semi suspension firing mode using air-fed distributors.

Same location means the same or contiguous properties under common ownership or control, including those separated only by a street, road, highway, or other public right-of-way. Common ownership or control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, subdivision, or any combination thereof. Entities may include a municipality, other governmental unit, or any quasi-governmental authority (*e.g.*, a public utility district or regional authority for waste disposal).

Second half of the calendar year means the period that starting July 1 and ending on December 31 in any year.

Shift supervisor means the person who is in direct charge and control of operating a municipal waste combustor and who is responsible for onsite supervision, technical direction, management, and overall performance of the municipal waste combustor during an assigned shift.

Shutdown means the period of time following cessation of charging waste to the combustion grate prior to entering a period where the municipal waste combustor is not operating. Shutdown may be claimed for up to three hours of operation per occurrence.

Spreader stoker coal/refuse-derived fuel mixed fuel-fired combustor means a combustor that combusts coal and refuse-derived fuel simultaneously, in which coal is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

Standard conditions means a temperature of 20 °C and a pressure of 101.3 kilopascals.

Startup means the period of time after warmup when waste is introduced to the combustion grate but prior to steady state operation. Startup may be claimed for up to three hours of operation per occurrence.

Total mass dioxins/furans or total mass means the total mass of tetra-through octa- chlorinated dibenzo-p-dioxins and dibenzofurans as determined using EPA Reference Method 23 and the procedures specified in § 60.5975

Tumbling-tile means a grate tile hinged at one end and attached to a ram at the other end. When the ram extends, the grate tile rotates around the hinged end.

Twenty-four hour daily average or 24-hour daily average means either the arithmetic mean or geometric mean (as specified) of all hourly emission concentrations when the affected facility operates and combusts municipal solid waste measured over a 24-hour period between 12:00 midnight and the following midnight.

Untreated lumber or clean lumber means wood or wood products that have been cut or shaped and include wet, air-dried, and kiln-dried wood products. Untreated lumber does not include wood products that have been painted, pigment-stained, or “pressure-treated”. Pressure-treating compounds include, but are not limited to, chromate copper arsenate, pentachlorophenol, and creosote.

Warmup means the period of time during the first hours of a municipal waste combustor operation from a cold start until waste is fed to the combustor and has no time constraints. No waste is introduced to the combustion grate during warmup.

Waterwall furnace means a combustion unit having energy (heat) recovery in the furnace (*i.e.*, radiant heat transfer section) of the combustor.

Yard waste means grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs. They come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands. Yard waste does not include two items:

(1) Construction, renovation, and demolition wastes that are exempt from the definition of “municipal solid waste” in this section.

(2) Clean wood that is exempt from the definition of “municipal solid waste” in this section.

Table 1 to Subpart VVVV – Large Municipal Waste Combustor Carbon Monoxide Limits (parts per million by volume)

Municipal waste combustor technology	**New large municipal waste combustors**	
	Carbon monoxide emission limit (parts per million by volume)[a]	Averaging time (hours)[b]
Mass burn waterwall	76	4
Mass burn refractory	76	4
Mass burn rotary waterwall	76	24
Modular starved air	50	4
Modular excess air	50	4
Refuse-derived fuel stoker	100	24
Bubbling fluidized bed combustor	100	4
Circulating fluidized bed	100	4

combustor		
Pulverized coal/refuse-derived fuel mixed fuel-fired combustor	100	4
Spreader stoker coal/refuse-derived fuel mixed fuel-fired combustor	100	24

[a] Measured at the combustor outlet in conjunction with a measurement of oxygen concentration, corrected to 7 percent oxygen (dry basis). CEMS data during warmup, startup, and shutdown, as defined in this subpart, are not corrected to 7 percent oxygen, and are used as measured. The averaging times are specified in greater detail in § 60.5940(b).

[b] Averaging times are 4-hour or 24-hour block arithmetic averages.

Table 2 to Subpart VVVV – Emission Limitations for New Large Municipal Waste Combustors

For the air pollutant…	If your affected facility is a new large municipal waste combustor, you must meet this emission limit, corrected to 7 percent oxygen[a]…
Particulate matter	5.1 mg/dscm
Opacity	10 percent opacity (6-minute block average)
Cadmium	2.3 ug/dscm
Lead	23 ug/dscm
Mercury	32 ug/dscm or 85 percent reduction by weight
Sulfur dioxide	14 parts per million by volume dry basis or 79 percent reduction by weight or volume (daily 24-hour geometric average)
Hydrogen chloride	7.2 parts per million by volume dry basis or 98 percent reduction by weight or volume
Dioxins/furans	11 nanograms per dry standard cubic meter (total mass)
Nitrogen oxides	50 parts per million by volume dry basis (daily 24-hour arithmetic average)

[a] Measured at the combustor outlet in conjunction with a measurement of oxygen concentration. CEMS data during warmup, startup, and shutdown, as defined in this subpart, are not corrected to 7 percent oxygen, and are used as measured. The averaging times are specified in greater detail in § 60.5940.

Table 3 to Subpart VVVV of Part 60—Requirements for Continuous Emission Monitoring Systems (CEMS)

For the following pollutants	Use the following span values for your CEMS	Use the following performance specifications for your CEMS	During each relative accuracy test run, use the following methods to collect concurrent data
1. Particulate Matter		For operation and correlation test, P.S. 11 in appendix B of this part and	Follow the test methods in Table 4 to Subpart VVVV.

		procedure 2 of appendix F to this part. For quarterly accuracy determinations, daily calibration drift tests, and each response correlation audit or relative response audit, procedure 2 of appendix F to this part.	
2. Nitrogen Oxides	Control device outlet: 125 percent of the maximum estimated hourly nitrogen oxides emissions of the municipal waste combustor.	For operation, P.S. 2 in appendix B of this part and procedure 1 of appendix F of this part. For relative accuracy, P.S. 2 in appendix B of this part and procedure 1 of appendix F of this part. For quarterly accuracy determinations and daily calibration drift tests, procedure 1 in appendix F of this part.	Method 7, 7A, 7C, 7D, or 7E in appendix A-4 to part 60 of this chapter.
3. Sulfur Dioxide	Control device outlet: 50 percent of the maximum estimated hourly sulfur dioxide emissions of the municipal waste combustor.	For operation, P.S. 2 in appendix B of this part and procedure 1 of appendix F of this part. For relative accuracy audit, P.S. 2 in appendix B of this part and procedure 1 of appendix F of this part.	Method 6, 6A, or 6C in appendix A-4 to part 60 of this chapter.

		For quarterly accuracy determinations and daily calibration drift tests, procedure 1 in appendix F of this part	
4. Carbon Monoxide	125 percent of the maximum estimated hourly carbon with monoxide emissions of the municipal waste combustor.	For operation, P.S. 4A in appendix B of this part and procedure 1 of appendix F of this part. For relative accuracy audit, P.S. 4A in appendix B of this part and procedure 1 of appendix F of this part. For quarterly accuracy determinations and daily calibration drift tests, procedure 1 in appendix F of this part.	Method 10, 10A, or 10B in appendix A-4 to part 60 of this chapter.
5. Oxygen or Carbon Dioxide	25 percent oxygen or 20 percent carbon dioxide	P.S. 3 in appendix B of this part.	Method 3A, or 3B in appendix A-2 to part 60 of this chapter, or, as an alternative for oxygen or carbon dioxide correction, the manual method portion of ASME PTC–19–10–1981—part 10.
6. Mercury	Follow the approved site-specific monitoring plan.	For operation, P.S. 12A in appendix B of this part and procedure 5 of appendix F of this part, or the approved site-specific monitoring plan. For relative	Follow the test methods in Table 4 to Subpart VVVV.

		accuracy audit, daily calibration, weekly system integrity check, quarterly audit, procedure 5 of appendix F of this part.	
7. Hydrogen chloride	Follow the approved site-specific monitoring plan.	For operation, P.S. 18 in appendix B of this part and procedure 6 of appendix F of this part or the approved site-specific monitoring plan. For relative accuracy audit, daily calibration, quarterly audit, and other applicable quality assurance/quality control checks procedure 6 of appendix F of this part.	Follow the test methods in Table 4 to Subpart VVVV, except you may also use Methods 320 or 321 of appendix A to part 63.
8. Cadmium or Lead	Follow the approved site-specific monitoring plan.	For operation, the approved site-specific monitoring plan.	Follow the test methods in Table 4 to Subpart VVVV.

Table 4 to Subpart VVVV – Performance Test Requirements for Compliance with Emissions Limits under § 60.5895

To determine compliance with the. . .	You must conduct a performance test to. . .	Using. . .
Particulate matter emission limits	1. Select sampling ports location and the number of traverse points...	Method 1 in appendix A-1 to part 60 of this chapter.
	2. Determine oxygen and carbon dioxide concentrations of the stack gas...	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or as an alternative the manual method portion of ASME

		PTC–19–10–1981—part 10
	3. Measure the particulate matter emission concentration to determine compliance with the particulate matter emission limit...	Method 5 in appendix A-3 to part 60 of this chapter. Collect a minimum sample volume of 1.7 cubic meters. The probe and filter holder heating systems in the sample train shall be set to provide a gas temperature no greater than 160°C. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 5 run.
Opacity emission limits	Determine compliance with the opacity limit in Table 2 to Subpart VVVV...	Method 9 of appendix A-4 of part 60 to this chapter, except as provided under § 60.11(e) of subpart A of this part, or as an alternative ASTM D7520-16 provided the digital camera opacity technique conditions, as defined in this subpart, are met.
Cadmium or lead emission limits	1. Select sampling ports location and the number of traverse points	Method 1 in appendix A-1 to part 60 of this chapter.
	2. Determine oxygen and carbon dioxide concentrations of the stack gas for flue gas analysis...	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or as an alternative the manual method portion of ASME PTC–19–10–1981—part 10.
	3. Measure the cadmium or lead emission concentration to determine compliance with the emission limits...	Method 29 in appendix A-8 to part 60 of this chapter. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 29 test run for cadmium and lead required.
Mercury emission limits	1. Select sampling ports location and the number of traverse points...	Method 1 in appendix A-1 to part 60 of this chapter.
	2. Determine oxygen and carbon dioxide concentrations of the stack gas for flue gas analysis...	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or as an alternative the manual method portion of ASME PTC–19–10–1981—part 10.

	3. Measure the mercury emission concentration to determine compliance with the emission limits...	Method 29 in appendix A-8 to part 60 of this chapter or as an alternative ASTM D6784–24. Collect a minimum sample volume of 1.7 cubic meters. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 29 test run for mercury required.
Sulfur dioxide emission limits	Calculate the 24-hr daily geometric average sulfur dioxide emission concentration...	Method 19, section 12.4.3, in appendix A-7 to part 60 of this chapter.
Hydrogen chloride emission limits	Measure the hydrogen chloride emission concentration...	Method 26 or 26A in appendix A-8 of part 60 to this chapter, as applicable. The minimum sampling time shall be 1 hour. An oxygen (or carbon dioxide) measurement shall be obtained simultaneously with each Method 26 or 26A test run for hydrogen chloride.
Dioxins/furans emission limits	1. Select sampling ports location and the number of traverse points...	Method 1 in appendix A-1 to part 60 of this chapter.
	2. Determine oxygen and carbon dioxide concentrations of the stack gas for flue gas analysis...	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or as an alternative the manual method portion of ASME PTC–19–10–1981—part 10.
	3. Measure the dioxins/furans emission concentration to determine compliance with the emission limits...	Method 23 in appendix A-7 to part 60 of this chapter. The minimum sampling time shall be 4 hours. An oxygen (or carbon dioxide) measurement shall be obtained simultaneously with each Method 23 test run for dioxins/furans.
Nitrogen oxides emission limits	Determine the daily arithmetic average nitrogen oxides emission concentration...	Method 19, section 12.4.1, in appendix A-7 to part 60 of this chapter.
Fugitive ash emission limits	Measure fugitive ash emissions…	Method 22 in appendix A-7 to part 60 of this chapter. The minimum observation

		time shall be a series of three 1-hour observations. The observation period shall include times when the facility is transferring ash from the municipal waste combustor to the area where ash is stored or loaded into containers or trucks.
Opacity limit for air curtain incinerators under § 60.6125	Determine compliance with the opacity limit in § 60.6125...	Method 9 of appendix A-4 of part 60 to this chapter, or as an alternative ASTM D7520-16 provided the digital camera opacity technique conditions, as defined in this subpart, are met.

7. Add subpart WWWW consisting of §§ 60.6250 to 60.6685 to part 60 to read as follows:

Subpart WWWW—Emission Guidelines and Compliance Times for Large Municipal Waste Combustors Constructed on or Before January 23, 2024

Sec.

Introduction
60.6250 What is the purpose of this subpart?
60.6255 Am I affected by this subpart?
60.6260 Is a state plan required for all states?
60.6265 What must I include in my state plan?
60.6270 Is there an approval process for my state plan?
60.6275 What if my state plan is not approvable?
60.6280 Is there an approval process for a negative declaration letter?
60.6285 What compliance schedule must I include in my state plan?
60.6290 Are there any state plan requirements for this subpart that supersede the requirements specified in subpart B?
60.6295 Does this subpart directly affect municipal waste combustion unit owners and operators in my state?
Applicability of State Plans
60.6300 What municipal waste combustors must I address in my state plan?
60.6305 Are any large municipal waste combustors exempt from my state plan?
60.6310 What subcategories of large municipal waste combustors must I include in my state plan?
Use of Model Rule
60.6315 What is the "model rule" in this subpart?
60.6320 How does the model rule relate to the required elements of my state plan?
60.6325 What are the principal components of the model rule?
Model Rule—Increments or Progress
60.6330 What are my requirements for meeting increments of progress and achieving final compliance?
60.6335 When must I complete each increment of progress?
60.6340 What must I include in the notifications of achievement of my increments of progress?
60.6345 When must I submit the notifications of achievement of increments of progress?
60.6350 What if I do not meet an increment of progress?
60.6355 How do I comply with the increment of progress for submittal of a control plan?
60.6360 How do I comply with the increment of progress for awarding contracts?
60.6365 How do I comply with the increment of progress for initiating onsite construction?
60.6370 How do I comply with the increment of progress for completing onsite construction?
60.6375 How do I comply with the increment of progress for achieving final compliance?
60.6380 What must I do if I close my municipal waste combustion unit and then restart my municipal waste combustion unit?
60.6385 What must I do if I plan to permanently close my municipal waste combustion unit and not restart it?
Model Rule—Good Combustion Practices: Operator Training
60.6390 What types of training must I do?
60.6395 Who must complete the operator training course? By when?
60.6400 Who must complete the plant-specific training course?

60.6405 What plant-specific training must I provide?
60.6410 What information must I include in the plant-specific operating manual?
60.6415 Where must I keep the plant-specific operating manual?
Model Rule—Good Combustion Practices: Operator Certification
60.6420 What types of operator certification must the chief facility operator and shift supervisor obtain and by when must they obtain it?
60.6425 After the required date for operator certification, who may operate the municipal waste combustion unit?
60.6430 What if all the certified operators must be temporarily offsite?
Model Rule—Good Combustion Practices: Operating Requirements
60.6435 What are the operating practice requirements for my municipal waste combustion unit?
60.6440 What happens to the operating requirements during periods of startup, shutdown, and malfunction?
Model Rule—Emission Limits
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Introduction

§ 60.6250 What is the purpose of this subpart?

This subpart establishes emission guidelines and compliance schedules for the control of emissions from existing large municipal waste combustors. The pollutants addressed by the emission guidelines are listed in Tables 2 and 3 to Subpart WWWW. The emission guidelines are developed in accordance with sections 111(d) and 129 of the Clean Air Act (CAA) and subpart B of this part.

§ 60.6255 Am I affected by this subpart? What authorities does the EPA Administrator retain?

(a) If you are the Administrator of an air quality program in a state or United States protectorate with one or more existing large municipal waste combustors that commenced construction on or before January 23, 2024, you must submit a state plan to the U.S. Environmental Protection Agency (EPA) that implements the emission guidelines contained in this subpart.

(b) You must submit the state plan to EPA by **March 10, 2027**.

(c) You must submit a state plan that meets the requirements of this subpart and contains the more stringent emission limit for the respective pollutant in Table 3 to Subpart WWWW or the limits specified in § 60.52b of subpart Eb of this part to EPA by **March 10, 2027** for large municipal waste combustors that commenced construction after September 20, 1994, but no later than January 23, 2024, or commenced modification or reconstruction after June 19, 1996 but no later than **September 10, 2026**.

(d) The following authorities are retained by EPA and not transferred to the state upon delegation of authority to the state to implement an approved state plan:

(1) Approval of exemption claims in § 60.6305(a), (b), (c), (d), and (g);

(2) Approval of major alternatives to test methods;

(3) Approval of major alternatives to monitoring;

(4) Waiver of recordkeeping;

(5) Performance test and data reduction waivers under § 60.8(b);

(6) Approval of an alternative to any electronic reporting to the EPA required by this subpart.

§ 60.6260 Is a state plan required for all states?

No, you are not required to submit a state plan if there are no existing large municipal waste combustors in your state and you submit a negative declaration letter in place of the state plan.

§ 60.6265 What must I include in my state plan?

(a) Include nine items:

(1) Inventory of affected municipal waste combustors, including those that have ceased operation but have not been dismantled.

(2) Inventory of emissions from affected municipal waste combustors in your state.

(3) Compliance schedules for each affected municipal waste combustor.

(4) Good combustion practices and emission limits for affected municipal waste combustors that are at least as protective as the emission guidelines contained in this subpart.

(5) Stack testing, continuous emission monitoring, recordkeeping, and reporting requirements.

(6) Certification that the hearing on the state plan was held, a list of witnesses and their organizational affiliations, if any, appearing at the hearing, and a brief written summary of each presentation or written submission.

(7) Provision for state progress reports to EPA.

(8) Identification of enforceable state mechanisms that you selected for implementing the emission guidelines of this subpart.

(9) Demonstration of your state's legal authority to carry out the CAA sections 111(d) and 129 state plan.

(b) Your state plan can deviate from the format and content of the emission guidelines contained in this subpart. However, if your state plan does deviate, you must demonstrate that your state plan is as protective as the emission guidelines contained in this subpart. Your state plan must address regulatory applicability, increments of progress for retrofit, operator training and certification, operating practice, emission limits, continuous emission monitoring, stack testing, recordkeeping, reporting, and air curtain incinerator requirements.

(c) For approval, your state plan must include the monitoring, recordkeeping and reporting requirements in § 60.6460 through § 60.6650 of this part, as applicable, except as provided for under § 60.24(b)(1) of subpart B of this part and paragraph (d) of this section.

(d) For approval, your state plan must include the alternative performance testing schedule for dioxins/furans specified in §60.6535 of this section, as applicable, for those municipal waste combustors that achieve a dioxins/furans emission level less than or equal to 7 nanograms per dry standard cubic meter total mass, corrected to 7 percent oxygen.

(e) Follow the requirements of subpart B of this part in your state plan.

§ 60.6270 Is there an approval process for my state plan?

The EPA will review your state plan according to § 60.27.

§ 60.6275 What if my state plan is not approvable?

If you do not submit an approvable state plan (or a negative declaration letter), EPA will develop a federal plan, according to § 60.27 to implement the emission guidelines contained in this subpart. Owners and operators of municipal waste combustors not covered by an approved and currently effective state plan must comply with the federal plan. The federal plan is an interim action and, by its own terms, will cease to apply when your state plan is approved and becomes effective.

§ 60.6280 Is there an approval process for a negative declaration letter?

No, the EPA has no formal review process for negative declaration letters. Once your negative declaration letter has been received, EPA will place a copy in the public docket and publish a notice in the *Federal Register*. If, at a later date, an existing large municipal waste combustor is identified in your state, the federal plan implementing the emission guidelines contained in this subpart will automatically apply to that municipal waste combustor until your state plan is approved.

§ 60.6285 What compliance schedule must I include in my state plan?

(a) Your state plan must include compliance schedules that require large municipal waste combustors to achieve final compliance or cease operation as expeditiously as practicable but not later than the earlier of two dates:

(1) **[March 10, 2031.**

(2) Within 1 year after the effective date of state plan approval, but no later than 3 years

after the effective date of state plan approval, as specified in paragraphs (b) and (c) of this section.

(b) For compliance schedules longer than 1 year but less than 3 years after the effective date of state plan approval, or if a permit modification is required, more than 1 year but less than 3 years following the date of issuance of a revised construction or operation permit, state plans must include dates for enforceable increments of progress as specified in § 60.6340.

(c) For compliance schedules that allow designated facilities longer than 1 year but up to 3 years after the effective date of state plan approval to close, the state plan must require a closure agreement. The closure agreement must include the date of facility closure.

(d) The owner or operator of a municipal waste combustor who is planning an extensive emission control system upgrade may petition the Administrator for a longer compliance schedule than the schedule in paragraph (a)(1) of this section but must demonstrate to the satisfaction of the Administrator the need for the additional time. If approved, the compliance schedule may exceed the schedule in paragraph (a)(1) of this section, but cannot exceed **March 10, 2031**.

§ 60.6290 Are there any state plan requirements for this subpart that supersede the requirements specified in subpart B?

Subpart B of this part establishes general requirements for developing and processing CAA section 111(d) plans. This subpart applies instead of the requirements in subpart B of this part, for three items:

(a) *Option for case-by-case less stringent emission standards and longer compliance schedules*. State plans developed to implement this subpart must be as protective as the emission guidelines contained in this subpart. State plans must require all municipal waste combustors to comply no later than **March 10, 2031**. That requirement applies instead of the option for case-by-case less stringent emission standards and longer compliance schedules in § 60.24(e) and (f).

(b) *Increments of progress requirements*. A state plan that allows more than 1 year but less than 3 years following the date of issuance of a revised construction or operation permit, if a permit modification is required, or more than 1 year but less than 3 years following approval of the state plan, if a permit modification is not required, must include measurable and enforceable incremental steps of progress towards compliance. Suggested measurable and enforceable activities are specified in paragraphs (b)(1) through (b)(10) of this section. This requirement applies instead of the requirement of § 60.24(d) that would require a state plan to include all five increments of progress for all municipal waste combustors.

(1) Date for obtaining services of an architectural and engineering firm regarding the air pollution control device(s);

(2) Date for obtaining design drawings of the air pollution control device(s);

(3) Date for submittal of permit modifications, if necessary;

(4) Date for submittal of the final control plan to the Administrator [§ 60.21 (h)(1) of subpart B of this part.];

(5) Date for ordering the air pollution control device(s);

(6) Date for obtaining the major components of the air pollution control device(s);

(7) Date for initiation of site preparation for installation of the air pollution control device(s);

(8) Date for initiation of installation of the air pollution control device(s);

(9) Date for initial startup of the air pollution control device(s); and

(10) Date for initial performance test(s) of the air pollution control device(s).

(c) *Date of submittal of state plan.* Each state in which a designated facility is located shall submit to EPA a plan to implement and enforce all provisions of this subpart no later than **March 10, 2027**. This requirement is in accordance with section 129(b)(2) of the Clean Air Act and applies instead of the schedule required in § 60.23(a)(1) of subpart B of this part.

§ 60.6295 Does this subpart directly affect municipal waste combustor owners and operators in my state?

(a) No, this subpart does not directly affect large municipal waste combustor owners and operators in your state. However, large municipal waste combustor owners and operators must comply with the state plan you develop to implement the emission guidelines contained in this subpart. Some states may incorporate the emission guidelines contained in this subpart into their state plans by direct incorporation by reference. Others may include the model rule text directly in their state plan.

(b) All municipal waste combustors must be in compliance with the requirements established in this subpart by **March 10, 2031**, whether the municipal waste combustor is regulated under a state or federal plan.

APPLICABILITY OF STATE PLANS

§ 60.6300 What municipal waste combustors must I address in my state plan?

(a) Your state plan must address all existing large municipal waste combustors in your state that meet two criteria:

(1) The municipal waste combustor has the capacity to combust greater than 250 tons per day of municipal solid waste.

(2) The municipal waste combustor commenced construction on or before January 23, 2024.

(b) If an owner or operator of a municipal waste combustor makes changes that meet the definition of modification or reconstruction after **September 10, 2026** for subpart VVVV of this part, the municipal waste combustor becomes subject to subpart VVVV of this part and the state plan no longer applies to that unit.

(c) If an owner or operator of a municipal waste combustor makes physical or operational changes to an existing municipal waste combustor primarily to comply with your state plan, subpart VVVV of this part (Standards of Performance for Large Municipal Waste Combustors) does not apply to that unit. Such changes do not constitute modifications or reconstructions under subpart VVVV of this part.

(d) If an owner or operator of a municipal waste combustor meets the applicability requirements of this section, the unit is not subject to subparts Db or E of this part.

§ 60.6305 Are any large municipal waste combustors exempt from my state plan?

(a) ***Small municipal waste combustors that combust less than 11 tons per day***. Units are exempt from your state plan if five requirements are met:

(1) The municipal waste combustor is subject to a federally enforceable permit limiting the amount of municipal solid waste combusted to less than 11 tons per day.

(2) You are notified by the owner or operator that the unit qualifies for the exemption.

(3) You receive from the owner or operator of the unit a copy of the federally enforceable permit.

(4) The owner or operator of the unit keeps daily records of the amount of municipal solid waste combusted.

(5) The owner or operator of the unit submits the notification and data required by (a)(2) and (3) of this section as a portable document format (PDF) file electronically according to § 60.6605(e).

(b) *Small power production units*. Units are exempt from your state plan if five requirements are met:

(1) The unit qualifies as a small power production facility under section 3(17)(C) of the Federal Power Act (16 U.S.C. 796(17)(C)).

(2) The unit combusts homogeneous waste (such as automotive tires or used oil, but excluding refuse-derived fuel) to produce electricity.

(3) You are notified by the owner or operator that the unit qualifies for the exemption.

(4) You receive documentation from the owner or operator that the unit qualifies for the exemption.

(5) The owner or operator of the unit submits the notification and data required by (b)(3) and (4) of this section as a PDF file electronically according to § 60.6605(e).

(c) *Cogeneration units*. Units are exempt from your state plan if five requirements are met:

(1) The unit qualifies as a cogeneration facility under section 3(18)(B) of the Federal Power Act (16 U.S.C. 796(18)(B)).

(2) The unit combusts homogeneous waste (such as automotive tires or used oil, but excluding refuse-derived fuel) to produce electricity and steam or other forms of energy used for industrial, commercial, heating, or cooling purposes.

(3) You are notified by the owner or operator that the unit qualifies for the exemption.

(4) You receive documentation from the owner or operator that the unit qualifies for the exemption.

(5) The owner or operator of the unit submits the notification and data required by (c)(3) and (4) of this section as a PDF file electronically according to § 60.6605(e).

(d) *Municipal waste combustors that combust only tires*. Units are exempt from your state plan if four requirements are met:

(1) The municipal waste combustor combusts a single-item waste stream of tires.

(2) You are notified by the owner or operator that the unit qualifies for the exemption.

(3) You receive documentation from the owner or operator that the unit qualifies for the exemption.

(4) The owner or operator of the unit submits the notification and data required by (d)(2) and (3) of this section as a PDF file electronically according to § 60.6605(e).

(e) *Hazardous waste combustion units*. Units are exempt from your state plan if the units have received a permit under section 3005 of the Solid Waste Disposal Act.

(f) *Materials recovery units*. Units are exempt from your state plan if the units combust waste mainly to recover metals. Primary and secondary smelters may qualify for the exemption.

(g) *Co-fired units*. Units are exempt from your state plan if five requirements are met:

(1) The unit is a co-fired combustor as defined under § 60.6685 and has a federally

enforceable permit limiting municipal solid waste combustion to 30 percent of the total fuel input by weight.

(2) You are notified by the owner or operator that the unit qualifies for the exemption.

(3) You receive from the owner or operator of the unit a copy of the federally enforceable permit.

(4) The owner or operator records the weights, each quarter, of municipal solid waste and of all other fuels combusted.

(5) The owner or operator of the unit submits the notification and data required by (g)(2) and (3) of this section as a PDF file electronically according to § 60.6605(e).

(h) *Plastics/rubber recycling units*. Units are exempt from your state plan if five requirements are met:

(1) The pyrolysis/combustion unit is an integrated part of a plastics/rubber recycling unit as defined under "Definitions" (§ 60.6685).

(2) The owner or operator of the unit records the weight, each quarter, of plastics, rubber, and rubber tires processed.

(3) The owner or operator of the unit records the weight, each quarter, of feed stocks produced and marketed from chemical plants and petroleum refineries.

(4) The owner or operator of the unit keeps the name and address of the purchaser of the feed stocks.

(5) The owner or operator of the unit submits a notification that the pyrolysis/combustion is not subject to this subpart as a PDF file electronically according to § 60.6605(e).

(i) *Units that combust fuels made from products of plastics/rubber recycling plants*. Units are exempt from your state plan if two requirements are met:

(1) The unit combusts gasoline, diesel fuel, jet fuel, fuel oils, residual oil, refinery gas, petroleum coke, liquified petroleum gas, propane, or butane produced by chemical plants or petroleum refineries that use feed stocks produced by plastics/rubber recycling units.

(2) The unit does not combust any other municipal solid waste.

(j) *Cement kilns*. Cement kilns that combust municipal solid waste are exempt from your state plan.

(k) *Air curtain incinerators*. If an air curtain incinerator (see § 60.6685 for definition) meets the capacity specifications in § 60.6300(a) and combusts a fuel stream composed of 100 percent wood waste, 100 percent clean lumber, 100 percent yard waste, or a 100 percent mixture of only wood waste, clean lumber, and/or yard waste, then the unit must only meet the opacity standard, testing procedures, and the reporting and recordkeeping requirements under "Model Rule—Air Curtain Incinerators That Burn 100 Percent Yard Waste" (§§ 60.6655 through 60.6675). If an air curtain incinerator meets the capacity specifications in § 60.6300(a) and combusts municipal solid waste other than 100 percent wood waste, 100 percent clean lumber, 100 percent yard waste, or a 100 percent mixture of only wood waste, clean lumber, and/or yard waste, the unit is subject to all requirements of this subpart.

§ 60.6310 What subcategories of large municipal waste combustors must I include in my state plan?

(a) This subpart specifies different requirements for different subcategories of municipal waste combustors. You must use those same subcategories in your state plan. Those subcategories are based on the municipal waste combustor type as follows (see § 60.6685 for definitions):

(1) Mass burn refractory.

(2) Mass burn rotary waterwall.

(3) Mass burn waterwall.

(4) Modular starved air.

(5) Modular excess air.

(6) Refuse-derived fuel stoker.

(7) Bubbling fluidized bed combustor.

(8) Circulating fluidized bed combustor.

(9) Pulverized coal/refuse-derived fuel mixed fuel-fired combustor.

(10) Spreader stoker coal/refuse-derived fuel mixed fuel-fired combustor.

(b) The requirements for municipal waste combustors of all types are identical except that carbon monoxide emissions limits are set separately for mass burn, modular, and refuse-derived fuel combustor types (see Table 2 to Subpart WWWW).

Use of Model Rule

§ 60.6315 What is the “model rule” in this subpart?

(a) The model rule is the portion of the emission guidelines (§§ 60.6330 through 60.6680) that addresses the regulatory requirements applicable to large municipal waste combustors. The model rule provides the requirements in a regulation format.

(b) In the model rule, “you” means the owner or operator of a large municipal waste combustor.

§ 60.6320 How does the model rule relate to the required elements of my state plan?

The model rule may be used to satisfy the state plan requirements specified in § 60.6265(a)(4) and (5). Alternative language may be used in your state plan, but only if you can demonstrate that the alternative language is as protective as the model rule.

§ 60.6325 What are the principal components of the model rule?

The model rule contains five major components:

(a) Increments of progress toward compliance.

(b) Good combustion practices:

(1) Operator training.

(2) Operator certification.

(3) Operating requirements.

(c) Emission limits.

(d) Monitoring and stack testing.

(e) Recordkeeping and reporting.

Model Rule—Increments Or Progress

§ 60.6330 What are my requirements for meeting increments of progress and achieving final compliance?

If you plan to achieve compliance more than 1 year but less than 3 years following the effective date of state plan approval and a permit modification is not required, or more than 1 year but less than 3 years following the date of issuance of a revised construction or operation permit if a permit modification is required, you must meet five increments of progress:

(a) Submit a final control plan.

(b) Submit a notification of retrofit contract award.

(c) Initiate onsite construction.

(d) Complete onsite construction.

(e) Achieve final compliance.

§ 60.6335 When must I complete each increment of progress?

Table 1 to Subpart WWWW specifies compliance dates for each of the increments of progress.

§ 60.6340 What must I include in the notifications of achievement of my increments of progress?

Your notification of achievement of increments of progress must include three items:

(a) Notification that the increment of progress has been achieved.

(b) Any items required to be submitted with the increment of progress (§§ 60.6355 through 60.6375).

(c) The notification must be signed by the owner or operator of the municipal waste combustor.

§ 60.6345 When must I submit the notifications of achievement of increments of progress?

Notifications of the achievement of increments of progress must be postmarked no later than 10 days after the compliance date for the increment.

§ 60.6350 What if I do not meet an increment of progress?

If you fail to meet an increment of progress, you must submit a notification to the Administrator postmarked within 10 business days after the specified date in Table 1 to Subpart WWWW for achieving that increment of progress. The notification must inform the Administrator that you did not meet the increment. You must include in the notification an explanation of why the increment of progress was not met and your plan for meeting the increment as expeditiously as possible. You must continue to submit reports each subsequent month until the increment of progress is met.

§ 60.6355 How do I comply with the increment of progress for submittal of a control plan?

For your control plan increment of progress, you must complete two items:

(a) Submit the final control plan, including a description of the devices for air pollution control and process changes that you will use to comply with the emission limits and other requirements of this subpart.

(b) You must maintain an onsite copy of the final control plan.

§ 60.6360 How do I comply with the increment of progress for awarding contracts?

You must submit a signed copy of the contracts awarded to initiate onsite construction, initiate onsite installation of emission control equipment, and incorporate process changes. Submit the copy of the contracts with the notification that the increment of progress has been achieved. You do not need to include documents incorporated by reference or the attachments to the contracts.

§ 60.6365 How do I comply with the increment of progress for initiating onsite construction?

You must initiate onsite construction and installation of emission control equipment and initiate the process changes outlined in the final control plan.

§ 60.6370 How do I comply with the increment of progress for completing onsite

construction?

You must complete onsite construction and installation of emission control equipment and complete process changes outlined in the final control plan.

§ 60.6375 How do I comply with the increment of progress for achieving final compliance?

For the final compliance increment of progress, you must complete two items:

(a) Complete all process changes and complete retrofit construction as specified in the final control plan.

(b) Connect the air pollution control equipment with the municipal waste combustor identified in the final control plan and complete process changes to the municipal waste combustor so that if the affected municipal waste combustor is brought online, all necessary process changes and air pollution control equipment are operating as designed.

§ 60.6380 What must I do if I close my municipal waste combustor and then restart my municipal waste combustor?

(a) If you close your municipal waste combustor but will reopen it prior to the final compliance date in your state plan, you must meet the increments of progress specified in § 60.6380.

(b) If you close your municipal waste combustor but will restart it after your final compliance date, you must complete emission control retrofit and meet the emission limits and good combustion practices on the date your municipal waste combustor restarts operation.

§ 60.6385 What must I do if I plan to permanently close my municipal waste combustor and not restart it?

(a) If you plan to close your municipal waste combustor rather than comply with the state plan, you must submit a closure notification, including the date of closure, to the Administrator by the date your final control plan is due.

(b) If the closure date is later than 1 year but up to 3 years after the effective date of state plan approval, you must enter into a legally binding closure agreement with the Administrator by the date your final control plan is due. The agreement must specify the date by which operation will cease.

Model Rule—Good Combustion Practices: Operator Training

§ 60.6390 What types of training must I do?

There are two types of required training:

(a) Training of operators of municipal waste combustors using the EPA or a state-approved training course.

(b) Training of plant personnel using a site-specific training course.

§ 60.6395 Who must complete the operator training course? By when?

(a) Three types of employees must complete the EPA or state-approved operator training course:

(1) Chief facility operators.

(2) Shift supervisors.

(3) Control room operators.

(b) Those employees must complete the operator training course by the later of two dates:

(1) Six months after your municipal waste combustor starts up.

(2) The date before an employee assumes responsibilities that affect operation of the municipal waste combustor.

(c) The requirement in paragraph (a) of this section does not apply to chief facility operators, shift supervisors, and control room operators who have obtained full certification from the American Society of Mechanical Engineers on or before the effective date of state plan approval.

(d) You may request that the EPA Administrator waive the requirement in paragraph (a) of this section for chief facility operators, shift supervisors, and control room operators who have obtained provisional certification from the American Society of Mechanical Engineers on or before the effective date of state plan approval.

§ 60.6400 Who must complete the site-specific training course?

All employees with responsibilities that affect how a municipal waste combustor operates must complete the site-specific training course. Include at least six types of employees:

(a) Chief facility operators.

(b) Shift supervisors.

(c) Control room operators.

(d) Ash handlers.

(e) Maintenance personnel.

(f) Crane or load handlers.

§ 60.6405 What site-specific training must I provide?

For site-specific training, you must do four things:

(a) For training at a particular facility, develop a site-specific operating manual for that facility by the later of two dates:

(1) Six months after your municipal waste combustor starts up.

(2) The date prior to the date an employee assumes responsibilities that affect operation of the municipal waste combustor.

(b) Establish a training program to review the site-specific operating manual with people whose responsibilities affect the operation of your municipal waste combustor. Complete the initial review by the later of two dates:

(1) Six months after your municipal waste combustor starts up.

(2) The date prior to the date an employee assumes responsibilities that affect operation of the municipal waste combustor.

(c) Update your manual annually.

(d) Following the initial review, review your operating manual with staff annually.

§ 60.6410 What information must I include in the site-specific operating manual?

You must include 11 items in the operating manual for your facility:

(a) A summary of all applicable standards in this subpart.

(b) A description of the basic combustion theory that applies to a municipal waste combustor.

(c) Procedures for receiving, handling, and feeding municipal solid waste.

(d) Procedures to be followed during periods of startup, shutdown, and malfunction of the municipal waste combustor.

(e) Procedures for maintaining a proper level of combustion air supply.

(f) Procedures for operating the municipal waste combustor in compliance with the standards contained in this subpart.

(g) Procedures for responding to periodic upset or off-specification conditions.

(h) Procedures for minimizing carryover of particulate matter.

(i) Procedures for handling ash.

(j) Procedures for monitoring emissions from the municipal waste combustor.

(k) Procedures for recordkeeping and reporting.

§ 60.6415 Where must I keep the site-specific operating manual?

You must keep your operating manual in a readily accessible location at your facility. It must be available for review or inspection for all persons required to undergo training as specified in § 60.6395. The operating manual and records of training as specified in § 60.6585 shall be available for inspection by the EPA or its delegated enforcement agency upon request.

Model Rule—Good Combustion Practices: Operator Certification

§ 60.6420 What types of operator certification must the chief facility operator and shift supervisor obtain and by when must they obtain it?

(a) Each chief facility operator and shift supervisor must obtain and keep a current provisional operator certification from the American Society of Mechanical Engineers (QRO-1-2005) (incorporated by reference in § 60.17 of subpart A of this part) or a current provisional operator certification from your state certification program by the later of two dates:

(1) Six months after the municipal waste combustor starts up.

(2) Six months after they transfer to the municipal waste combustor or 6 months after they are hired to work at the municipal waste combustor.

(b) Each chief facility operator and shift supervisor must obtain and maintain a provisional certification, and must complete the full certification or be scheduled to take the full certification exam, by the later of two dates:

(1) Six months after the municipal waste combustor starts up.

(2) For a provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position, a full certification exam must be completed within six months after they transfer to the municipal waste combustor or 6 months after they are hired to work at the municipal waste combustor.

(c) Each chief facility operator and shift supervisor must take one of three actions:

(1) Obtain and maintain a current provisional operator certification from the American Society of Mechanical Engineers or a state certification program in your state.

(2) Schedule a full certification exam with the American Society of Mechanical Engineers (QRO-1-2005) (incorporated by reference in § 60.17 of subpart A of this part).

(3) Schedule a full certification exam with your state certification program.

§ 60.6425 After the required date for operator certification, who may operate the municipal waste combustor?

After the required date for full or provisional certification, you must not operate your municipal waste combustor unless one of four employees is on duty:

(a) A fully certified chief facility operator.

(b) A fully certified shift supervisor.

(c) A provisionally certified chief facility operator or a provisionally certified shift supervisor who is scheduled to take the full certification exam specified in § 60.6420.

§ 60.6430 What if all the certified operators must be temporarily offsite?

If the certified chief facility operator and certified shift supervisor both are unavailable, a provisionally certified control room operator at the municipal waste combustor may fulfill the certified operator requirement. Depending on the length of time that a certified chief facility operator and certified shift supervisor are away, you must meet one of three criteria:

(a) When the certified chief facility operator and certified shift supervisor are both offsite for 12 hours or less and no other certified operator is onsite, the provisionally certified control room operator may perform the duties of the certified chief facility operator or certified shift supervisor.

(b) When the certified chief facility operator and certified shift supervisor are offsite for more than 12 hours, but for 2 weeks or less, and no other certified operator is onsite, the provisionally certified control room operator may perform those duties without notice to, or approval by, the Administrator. However, you must record the periods when the certified chief facility operator and certified shift supervisor are offsite and include the information in the annual report as specified under § 60.6630(l).

(c) When the certified chief facility operator and certified shift supervisor are offsite for more than 2 weeks, and no other certified operator is onsite, the provisionally certified control room operator may perform those duties without notice to, or approval by, the Administrator. However, you must take two actions:

(1) Notify the Administrator in writing. In the notice, state what caused the absence and what you are doing to ensure that a certified chief facility operator or certified shift supervisor is onsite. as expeditiously as practicable. Submit this notification as a PDF file electronically according to § 60.6605(e).

(2) Submit a status report and corrective action summary to the Administrator every 4 weeks following the initial notification. If the Administrator notifies you that your status report or corrective action summary is disapproved, the municipal waste combustor may continue operation for 90 days, but then must cease operation. If corrective actions are taken in the 90-day

period such that the Administrator withdraws the disapproval, municipal waste combustor operation may continue. Submit this status report as a PDF file electronically according to § 60.6605(e).

(d) A provisionally certified operator who is newly promoted or recently transferred to a shift supervisor position or a chief facility operator position at the municipal waste combustor may perform the duties of the certified chief facility operator or certified shift supervisor without notice to, or approval by, the Administrator for up to six months before taking the ASME QRO certification exam as specified in § 60.6420.

Model Rule—Good Combustion Practices: Operating Requirements

§ 60.6435 What are the operating practice requirements for my municipal waste combustor?

(a) You must meet the carbon monoxide emission limits specified in Table 2 to Subpart WWWW no later than **March 10, 2031**.

(b) You must not operate your municipal waste combustor at loads greater than 110 percent of the maximum demonstrated load of the municipal waste combustor (4-hour block average), as specified under “Definitions” (§ 60.6685), except as specified in paragraphs (b)(1) and (2) of this section. The averaging time is specified under § 60.6550.

(1) During the annual dioxins/furans or mercury performance test and the 2 weeks preceding the annual dioxins/furans or mercury performance test, the municipal waste combustor load limit is not applicable if the provisions of paragraph (b)(2) of this section are met.

(2) The Administrator may waive in writing the municipal waste combustor load limit for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions. The municipal waste combustor load limit continues to apply, and remains enforceable, until and unless the Administrator grants the waiver.

(c) You must not operate your municipal waste combustor so that the temperature measured at the inlet of the particulate matter control device exceeds 17 °C above the maximum demonstrated temperature of the particulate matter control device (4-hour block average), as specified under “Definitions” (§ 60.6685), except as specified in paragraphs (c)(1) and (2) of this section. The averaging time is specified under § 60.6555. The requirements specified in this paragraph apply to each particulate matter control device used.

(1) During the annual dioxins/furans or mercury performance test and the 2 weeks preceding the annual dioxins/furans or mercury performance test, the particulate matter control device temperature limitations are not applicable if the provisions of paragraph (c)(2) of this section are met.

(2) The Administrator may waive in writing the particulate matter control device temperature limits for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions. The temperature limits continue to apply, and remain enforceable, until and unless the Administrator grants the waiver.

(d) If your municipal waste combustor uses activated carbon to control dioxins/furans or mercury emissions, you must meet the requirements for activated carbon injection rate during dioxins/furans or mercury testing as specified in § 60.6560.

§ 60.6440 What happens to the operating requirements during periods of startup, shutdown, and malfunction?

The operating requirements under this subpart apply at all times including periods of municipal waste combustor warmup, startup, shutdown, and malfunction. Monitoring data cannot be dismissed or excluded from compliance calculations during periods of startup, shutdown, or malfunction, but must be recorded and reported in accordance with the provisions of § 60.6595(e).

Model Rule—Emission Limits

§ 60.6445 What pollutants are regulated by this subpart?

Eleven pollutants, in four groupings, are regulated:

(a) Organics. Dioxins/furans.

(b) Metals.

(1) Cadmium.

(2) Lead.

(3) Mercury.

(4) Opacity.

(5) Particulate matter.

(c) Acid gases.

(1) Hydrogen chloride.

(2) Nitrogen oxides.

(3) Sulfur dioxide.

(d) Other.

(1) Carbon monoxide.

(2) Fugitive ash.

§ 60.6450 What emission limits must I meet? By when?

(a) You must meet the emission limits specified in Table 3 to Subpart WWWW. You must meet the limits no later than **March 10, 2031**.

(b) The visible emissions of combustion ash discharged to the atmosphere from an ash conveying system (including conveyor transfer points) must not exceed 5 percent of the observation period (i.e., 9 minutes per 3-hour period), as determined by EPA Reference Method 22 observations as specified in § 60.6530(a). You must meet the limits no later than **March 10, 2031**. This visible emission limit does not cover visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the visible emission limit does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems. This visible emissions limit does not apply to visible emissions that occur during repair and maintenance of the combustion ash conveying systems while the municipal waste combustor is not operating.

§ 60.6455 What happens to the emission limits during periods of startup, shutdown, and malfunction?

The emission limits under this subpart apply at all times including periods of municipal waste combustor warmup, startup, shutdown, and malfunction. Monitoring data cannot be dismissed or excluded from compliance calculations during periods of startup, shutdown, or malfunction, but must be recorded and reported in accordance with the provisions of § 60.6595(e).

Model Rule—Continuous Emission Monitoring

§ 60.6460 What types of continuous emission monitoring must I perform?

To continuously monitor emissions, you must perform four tasks:

(a) Install continuous emission monitoring systems for certain gaseous pollutants.

(b) Make sure your continuous emission monitoring systems are operating correctly.

(c) Make sure you obtain the minimum amount of monitoring data.

(d) Install a continuous opacity monitoring system.

§ 60.6465 What continuous emission monitoring systems must I install for gaseous pollutants?

(a) You must install, calibrate, maintain, and operate continuous emission monitoring systems for oxygen (or carbon dioxide), sulfur dioxide, carbon monoxide, and nitrogen oxides to demonstrate compliance with the emission limits specified in Tables 2 and 3 to Subpart WWWW. Install the continuous emission monitoring systems for sulfur dioxide, nitrogen oxides, carbon monoxide, and oxygen (or carbon dioxide) at the outlet of the air pollution control device.

(b) If you elect to continuously monitor emissions for particulate matter, cadmium, lead, mercury, or hydrogen chloride in lieu of performance testing, you must install, calibrate, maintain, and operate continuous emissions monitoring systems for monitoring the particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions discharged to the atmosphere and continuous emissions monitoring systems for oxygen (or carbon dioxide) at the outlet of the air pollution control device.

(c) You must install, evaluate, and operate each continuous emission monitoring system according to the "Monitoring Requirements" in § 60.13.

(d) You must monitor the oxygen (or carbon dioxide) concentration at each location where you monitor carbon monoxide, sulfur dioxide, and nitrogen oxides. If you elect to continuously monitor emissions for particulate matter, cadmium, lead, mercury, or hydrogen chloride, you must monitor the oxygen (or carbon dioxide) concentration at each location where you monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride.

(e) You may choose to monitor carbon dioxide instead of oxygen as a diluent gas. If you choose to monitor carbon dioxide, then an oxygen monitor is not required and you must follow the requirements in § 60.6485.

§ 60.6470 How are the data from the continuous emission monitoring systems used?

(a) You must use data from the continuous emission monitoring systems for sulfur dioxide, nitrogen oxides, and carbon monoxide to demonstrate continuous compliance with the applicable emission limits specified in Tables 2 and 3 to Subpart WWWW. To demonstrate compliance for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash, see § 60.6520.

(b) You may elect to continuously monitor emissions for particulate matter, cadmium, lead, mercury, or hydrogen chloride to demonstrate continuous compliance with the emission limits specified in Table 3 to Subpart WWWW.

(c) For pollutants that you continuously monitor as described in paragraphs (a) and (b) of this section, you may request that compliance with the emission limits be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in § 60.6485.

(d) For pollutants that you continuously monitor as described in paragraphs (a) and (b) of this section, demonstrate compliance with the emission limits in Tables 2 and 3 to Subpart WWWW by using the continuous emission monitoring system specified § 60.6465 to collect the minimum amount of monitoring data specified in § 60.6490 and calculating the average emission concentration as specified in § 60.6495 and Table 5 to Subpart WWWW, as applicable.

§ 60.6475 How do I make sure my continuous emission monitoring systems are operating correctly?

(a) Conduct initial, daily, quarterly, and annual evaluations of your continuous emission monitoring systems that measure oxygen (or carbon dioxide), sulfur dioxide, nitrogen oxides, and carbon monoxide and your continuous emission monitoring systems for any pollutants (particulate matter, cadmium, lead, mercury, or hydrogen chloride) for which you elect to continuously monitor emissions, as appropriate.

(b) Complete your initial evaluation of the continuous emission monitoring systems no later than 180 days after your final compliance date, or, for pollutants for which you elect to continuously monitor emissions and for which you previously determined compliance by conducting a performance test, within 180 days of notification of the Administrator of use of the continuous monitoring system, whichever is later.

(c) For initial and annual evaluations, you must collect data concurrently (or within 30 to 60 minutes) from your oxygen (or carbon dioxide) continuous emission monitoring system, your sulfur dioxide, nitrogen oxides, and carbon monoxide continuous emission monitoring systems, as appropriate, from continuous emission monitoring systems for any pollutants (particulate matter, cadmium, lead, mercury, or hydrogen chloride) for which you elect to continuously monitor emissions, as appropriate, and the appropriate test methods specified in Tables 4 and 5 to Subpart WWWW. Collect the data during each initial and annual evaluation of your continuous emission monitoring systems following the applicable performance specifications in Table 4 to Subpart WWWW.

(d) For continuous emission monitoring systems that measure oxygen (or carbon dioxide), sulfur dioxide, nitrogen oxides, and carbon monoxide, follow the quality assurance procedures in Procedure 1 of appendix F of this part for each continuous emission monitoring system. The procedures include annual relative accuracy test audit, daily calibration drift, and quarterly accuracy determinations. For continuous emission monitoring systems for any pollutants (particulate matter, cadmium, lead, mercury, or hydrogen chloride) for which you elect to continuously monitor emissions, as appropriate, follow the quality assurance procedures of the applicable procedures of appendix F as specified in Table 3 to Subpart WWWW or the site-specific monitoring plan.

§ 60.6480 What is my schedule for evaluating continuous emission monitoring systems?

(a) Conduct annual relative accuracy test audits of your continuous emission monitoring systems no less than 9 calendar months and no more than 15 calendar months following the previous performance test; you must complete five relative accuracy test audits in each 5-year calendar period.

(b) Evaluate your continuous emission monitoring systems daily and quarterly as specified in procedure 1 in appendix F of this part.

§ 60.6485 What must I do if I choose to monitor carbon dioxide instead of oxygen as a diluent gas?

You must establish the relationship between oxygen and carbon dioxide during the initial evaluation of your continuous emission monitoring systems. You may reestablish the relationship during annual performance compliance tests. To establish the relationship use three procedures:

(a) Use EPA Reference Method 3A or 3B in appendix A of this part, or as an alternative the manual method portion of ASME PTC–19–10–1981—part 10, as applicable, to determine oxygen concentration at the location of your carbon dioxide monitor.

(b) Conduct at least three test runs for oxygen. Make sure each test run represents a 1-hour average and that sampling continues for at least 30 minutes in each hour.

(c) Use the fuel-factor equation in EPA Reference Method 3B in appendix A of this part to determine the relationship between oxygen and carbon dioxide.

§ 60.6490 What is the minimum amount of monitoring data I must collect with my continuous emission monitoring systems?

(a) Where continuous emission monitoring systems are required, obtain 1-hour arithmetic averages. Make sure the averages for sulfur dioxide, nitrogen oxides, and carbon monoxide, and, if you elect to continuously monitor emissions, the averages for particulate matter, cadmium, lead, mercury, or hydrogen chloride, are in the units specified in Tables 2 and 3 to Subpart WWWW at 7 percent oxygen (or the equivalent carbon dioxide level). Use the 1-hour averages of oxygen (or carbon dioxide) data from your continuous emission monitoring system to determine the actual oxygen (or carbon dioxide) level and to calculate emissions at 7 percent oxygen (or the equivalent carbon dioxide level). The 1-hour arithmetic averages shall be calculated using the data points required under § 60.13(e)(2) of subpart A of this part. Do not correct CEMS data during warmup, startup, and shutdown, as defined in this subpart, to 7 percent oxygen. CEMS data during warmup, startup, and shutdown are used as measured.

(b) Obtain at least two data points per hour in order to calculate a valid 1-hour arithmetic average.

(c) Valid continuous monitoring system hourly averages shall be obtained for all times the affected facility is operated except as specified in § 60.13(e).

(d) If you do not obtain the minimum data required in paragraphs (a) through (c) of this section, you must still use all valid data from the continuous emission monitoring systems in calculating emission concentrations in accordance with § 60.6495.

§ 60.6495 How do I convert my 1-hour arithmetic averages into appropriate averaging times and units?

(a) Use equation 1 in § 60.6680(a) to calculate emissions at 7 percent oxygen.

(b) Use the test methods in Table 4 to Subpart WWWW to calculate the 24-hr daily geometric average concentrations and percent reductions of sulfur dioxide emissions and the 24-hr daily arithmetic average for concentrations of nitrogen oxides.

(c) Calculate the 4-hour block or 24-hour daily arithmetic averages specified in Table 2 to Subpart WWWW (as applicable) from 1-hour arithmetic averages expressed in parts per million by volume corrected to 7 percent oxygen (dry basis) for concentrations of carbon monoxide. CEMS data during warmup, startup, and shutdown, as defined in this subpart, are not corrected to 7 percent oxygen, and are used as measured.

(d) If you elect to continuously monitor emissions of particulate matter, mercury, cadmium, lead, or hydrogen chloride, use EPA Reference Method 19, section 12.4.1, in appendix A of this part, to calculate a 24-hour daily block arithmetic average for emission concentrations.

§ 60.6500 What is required for my continuous opacity monitoring system and how are the data used?

(a) Install, calibrate, maintain, and operate a continuous opacity monitoring system.

(b) Install, evaluate, and operate each continuous opacity monitoring system according to § 60.13.

(c) The output of the continuous opacity monitoring system shall be recorded on a 6-minute average basis.

(d) Complete an initial evaluation of your continuous opacity monitoring system according to Performance Specification 1 in appendix B of this part. Complete the evaluation no later than 180 days after your final compliance date.

(e) Follow Table 4 to Subpart WWWW to establish the procedures and test methods to determine compliance with the opacity limit in Table 3 to Subpart WWWW. The data obtained from your continuous opacity monitoring system are not used to determine compliance with the opacity limit.

§ 60.6505 What additional requirements must I meet for the operation of my continuous emission monitoring systems and continuous opacity monitoring system?

(a) Use the required span values and applicable performance specifications in Table 4 to Subpart WWWW.

(b) For continuous emission monitoring systems measuring carbon monoxide, if your municipal waste combustor is subject to the 100 parts per million dry volume carbon monoxide standard, the relative accuracy criterion of 5 parts per million dry volume is calculated as the absolute value of the mean difference between the reference method and continuous emission monitoring systems.

§ 60.6510 What must I do if any of my continuous emission monitoring systems are temporarily unavailable to meet the data collection requirements?

(a) When you are unable to obtain emissions of particulate matter, sulfur dioxide, or nitrogen oxides because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, you must obtain emissions data by using other monitoring systems as approved by the Administrator or EPA Reference Method 19 and provide, as necessary, valid emissions data for all times that the municipal waste combustor is operated.

(b) If you are unable to obtain emissions of carbon monoxide emissions because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, you must obtain emissions data by using other monitoring systems as approved by the Administrator or EPA Reference Method 10 and provide, as necessary, valid emissions data for all times that the municipal waste combustor is operated.

(c) If you elect to continuously monitor mercury, cadmium, lead, or hydrogen chloride and you are unable to obtain emissions data because of continuous emission monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, you must obtain emissions data by using other monitoring systems as approved by the Administrator.

Model Rule—Stack Testing

§ 60.6515 What types of stack tests must I conduct?

Conduct initial and annual stack tests to measure the emission levels of particulate matter, opacity, cadmium, lead, mercury, hydrogen chloride, dioxins/furans, and fugitive ash in accordance with the methods specified in Table 5 to Subpart WWWW.

§ 60.6520 How are the stack test data used?

You must use results of stack tests for particulate matter, opacity, cadmium, lead, mercury, hydrogen chloride, dioxins/furans, and fugitive ash to demonstrate compliance with the applicable emission limits in Table 3 to Subpart WWWW. When calculating total dioxins/furans, zero may be used for congeners that are below the estimated detection limit (EDL). For estimated maximum possible concentration (EMPC) results, zero may be used when the EMPC is below the EDL, otherwise the EMPC must be used in determining total dioxins/furans. To demonstrate compliance for carbon monoxide, nitrogen oxides, and sulfur dioxide, see § 60.6470.

§ 60.6525 What schedule must I follow for the stack testing?

(a) Conduct initial stack tests for sulfur dioxide, nitrogen oxides, and each of the pollutants listed in § 60.6515 by 180 days after your final compliance date.

(b) Conduct annual stack tests for each of the pollutants listed in § 60.6515 after the initial stack test. Conduct each annual stack test no less than 9 calendar months and no more than 15 calendar months following the previous performance test, except as specified in § 60.6540 of this section. You must complete five performance tests in each 5-year calendar period.

§ 60.6530 What procedures and test methods must I use to stack test?

(a) Follow Table 5 to Subpart WWWW to establish the procedures and test methods, and other specific testing requirements for the different pollutants.

(b) Stack tests for all the pollutants must consist of at least three test runs, as specified in

§ 60.8, conducted under representative full load operating conditions. For particulate matter, opacity, cadmium, lead, mercury, hydrogen chloride, and dioxins/furans, use the arithmetic average of the pollutant emission concentrations from the three test runs to determine compliance with the applicable emission limits in Table 3 to Subpart WWWW. For fugitive ash, use the average duration of visible emissions per hour as calculated from three 1-hr observations to determine compliance with the emission limits in Table 2 to Subpart WWWW.

(c) Obtain an oxygen (or carbon dioxide) measurement at the same time as your pollutant measurements to determine diluent gas levels, as specified in § 60.6465.

(d) You may request that compliance with emission limits be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in § 60.6485.

(e) Use equation 1 in § 60.6680(a) to calculate emission levels at 7 percent oxygen (or an equivalent carbon dioxide basis). See the individual test methods in Table 5 to Subpart WWWW for other required equations.

§ 60.6535 May I conduct stack testing less often?

(a) For annual performance stack tests for dioxins/furans, you may conduct annual stack tests on an alternate performance testing schedule for the purposes of evaluating system performance to establish new operating parameter levels, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions. You may test one unit for dioxins/furans and apply the dioxins/furans operating parameters to similarly designed and equipped units on site if you meet the following conditions. First, you have multiple municipal waste combustors onsite that are subject to this subpart. Second, all those municipal waste combustors have demonstrated levels of dioxins/furans emissions less than or equal to 7 nanograms per dry standard cubic meter (total mass) for 2 consecutive years. In that case, you may choose to conduct annual stack tests on only one municipal waste combustor per year at your plant. The provision only applies to performance testing for dioxins/furans emissions. You must meet the requirements in paragraphs (b) through (e) of this section.

(b) At a minimum, you must conduct a performance test for dioxins/furans emissions for one municipal waste combustor on an annual basis (no less than 9 calendar months and no more than 15 months following the previous performance test), and you must complete five performance tests in each 5-year calendar period. Each year a different municipal waste combustor must be tested, and the municipal waste combustor must be tested in sequence (*e.g.*, unit 1, unit 2, unit 3, as applicable).

(1) If each annual performance test continues to indicate a dioxins/furans emission level less than or equal to 7 nanograms per dry standard cubic meter (total mass), you may continue to conduct a performance test on only one municipal waste combustor per year.

(2) If any annual performance test indicates a dioxins/furans emission level greater than 3.6 nanograms per dry standard cubic meter (total mass), you must conduct all subsequent annual performance tests on all municipal waste combustor. You must continue to conduct performance tests on all units annually until you can demonstrate dioxins/furans emission level less than or equal to 7 nanograms per dry standard cubic meter (total mass) through performance tests for all units subject to this subpart for 2 consecutive years.

(c) Upon meeting the requirements in paragraph (b) of this section for one affected facility, you may elect to apply the average carbon mass feed rate and associated carbon injection system operating parameter levels for dioxins/furans as established in § 60.6560 to similarly designed and equipped units on site.

(d) Upon testing each subsequent unit in accordance with the testing schedule established in paragraph (b) of this section, the dioxins/furans and mercury emissions of the subsequent unit must not exceed the dioxins/furans and mercury emissions measured in the most recent test of that unit prior to the revised operating parameter levels.

(e) If you follow the performance testing schedule specified in paragraph (b) of this section and apply the carbon injection system operating parameters to similarly designed and equipped units on site, you must follow the procedures specified in § 60.6630(j) for reporting, including the procedures specified in § 60.6630(i) for reporting the selection of this schedule.

§ 60.6540 May I conduct continuous monitoring or sampling in lieu of stack testing?

(a) In lieu of conducting performance stack tests according to the requirements of § 60.6515 to demonstrate continuous compliance for particulate matter, cadmium, lead, mercury, or hydrogen chloride, you may install, calibrate, maintain, and operate continuous emissions monitoring systems for monitoring emissions according to the requirements of § 60.6460 through § 60.6510. If you elect to continuously monitor emissions instead of conducting performance testing, you are not required to complete annual performance testing as specified in Table 5 to Subpart WWWW. If you elect to continuously monitor particulate matter emissions, you are not required to continuously monitor opacity as specified in § 60.6460(d) and § 60.6500.

(b) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride, you must also meet the following requirements:

(1) Notify the Administrator one month before starting use of the system.

(2) Notify the Administrator one month before stopping use of the system.

(c) If you elect to install, calibrate, maintain, and operate a continuous emission monitoring system for cadmium, lead, mercury, or hydrogen chloride, develop and submit for approval by EPA, a site-specific mercury, cadmium, lead, or hydrogen chloride monitoring plan that addresses the elements and requirements in paragraphs (c)(1) through (7) of this section.

(1) Installation of the continuous emission monitoring system sampling probe or other interface at a measurement location relative to each municipal waste combustor such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device).

(2) Performance and equipment specifications for the sample interface, the pollutant

concentration analyzer, and the data collection and reduction system.

(3) Performance evaluation procedures and acceptance criteria (*e.g.*, calibrations).

(4) Provisions for periods when the continuous emission monitoring system is out of control, including the requirements described in paragraphs (c)(4)(i) through (iii) of this section:

(i) A continuous emission monitoring system is out of control if either of the following conditions are met: the zero (low-level), mid-level (if applicable), or high-level calibration drift exceeds two times the applicable calibration drift specification in the applicable performance specification or in the relevant standard; or the continuous emission monitoring system fails a performance test audit (*e.g.*, cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit.

(ii) When the continuous emission monitoring system is out of control, take corrective action and repeat all necessary tests that indicate that the system is out of control until the performance requirements are within the applicable limits. The beginning of the out-of-control period is the hour you conduct a performance check (*e.g.*, calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and your successful demonstration that the system is within the allowable limits. You may not use recorded data from the period the continuous emission monitoring system is out of control in data averages and calculations or to meet any data availability requirements.

(iii) You must submit all information concerning out-of-control periods for your continuous emission monitoring system, including start and end dates and hours and descriptions of corrective actions taken, in the annual or semiannual compliance reports required in § 60.6645(d).

(5) Ongoing data quality assurance procedures for continuous emission monitoring systems as described in paragraphs (c)(5)(i) and (ii) of this section.

(i) A continuous emission monitoring system quality control program. You must develop and, upon request, submit to EPA for approval a site-specific performance evaluation test plan for the continuous emission monitoring system performance evaluation required under paragraph (c)(5)(ii) of this section. In addition, each quality control program shall include, at a minimum, a written protocol that describes procedures for each of the operations described in paragraphs (c)(5)(i)(A) through (c)(5)(i)(F) of this section.

(A) Initial and any subsequent calibration of the continuous emission monitoring system;

(B) Determination and adjustment of the calibration drift of the continuous emission monitoring system;

(C) Preventive maintenance of the continuous emission monitoring system, including spare parts inventory;

(D) Data recording, calculations, and reporting;

(E) Accuracy audit procedures, including sampling and analysis methods; and

(F) Program of corrective action for a malfunctioning continuous emission monitoring system.

(ii) Your performance evaluation test plan must include the evaluation program objectives, an evaluation program summary, the performance evaluation schedule, data quality objectives, and both an internal and external quality assurance program. Data quality objectives are the pre-evaluation expectations of precision, accuracy, and completeness of data. The internal quality assurance program must include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of continuous emission monitoring system performance, for example, plans for relative accuracy testing using the appropriate reference method in § 60.6475(c). The external quality assurance program shall include, at a minimum, systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

(6) You must conduct a performance evaluation of each continuous emission monitoring

system in accordance with the site-specific monitoring plan.

(7) You must operate and maintain the continuous emission monitoring system in continuous operation according to the site-specific monitoring plan and procedures 5 and 6 of appendix F of this part.

(d) You may use a continuous emission monitoring system for mercury or hydrogen chloride following the date of approval of the site-specific monitoring plan required in paragraph (c) of this section. You may use a continuous emission monitoring system for cadmium or lead following the date a final performance specification applicable to a cadmium or lead monitor is published in the *Federal Register* and the date of approval of the site-specific monitoring plan required in paragraph (c) of this section.

(e) In lieu of conducting performance stack tests according to the requirements of § 60.6515 to demonstrate continuous compliance for mercury or dioxins/furans, you may install, calibrate, maintain, and operate a continuous automated sampling system for monitoring mercury or dioxins/furans emissions and record the output of the system. For dioxins/furans emissions, you must also analyze the sample using EPA Method 23.

(f) You may use a continuous automated sampling system for dioxins/furans following the date a final performance specification applicable to dioxins/furans from monitors is published in the *Federal Register* or the date of approval of a site-specific monitoring plan.

(g) If you elect to use a continuous automated sampling system for dioxins/furans or mercury, you must meet the following requirements:

(1) Notify the Administrator one month before starting use of the system.

(2) Notify the Administrator one month before stopping use of the system.

(3) Complete your initial performance evaluation of the continuous automated sampling system no later than 180 days after your final compliance date, or, if you previously determined compliance by conducting a performance test, within 180 days of notification to the Administrator of use of the continuous automated sampling system, whichever is later.

(4) You may request that compliance with the emission limits be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen. The relationship between oxygen and carbon dioxide levels for the affected facility shall be established as specified in § 60.6485.

(5) Conduct an initial performance test for emissions as required under § 60.8 of subpart A of this part. Determine compliance with the emission limits in Table 2 to Subpart WWWW using the continuous automated sampling system specified in paragraph (e) of this section to collect integrated samples and analyze emissions for the following time periods:

(i) For dioxins/furans, collect an integrated sample over each 2-week period. Analyze the collected samples using Method 23.

(ii) For mercury, collect an integrated sample over each 24-hour daily period. Analyze the sample according to the applicable final performance specification or the approved site-specific monitoring plan required by paragraph (h) of this section.

(6) Determine compliance with the emission limits in Table 2 to Subpart WWWW based on 2-week emission concentrations for dioxins/furans and on the 24-hour daily emission concentrations for mercury using samples collected at the system outlet. For mercury percent reductions, also use the corresponding 24-hour daily emission concentration samples collected at the system inlet. The emission concentrations shall be expressed in nanograms per dry standard cubic meter (total mass) for dioxins/furans and micrograms per dry standard cubic meter for mercury, corrected to 7 percent oxygen (dry basis). Do not correct CEMS data during warmup, startup, and shutdown to 7 percent oxygen. CEMs data during warmup, startup, and shutdown are used as measured.

(7) Beginning on the date two years after the respective final performance specification for continuous automated sampling systems for dioxins/furans is published in the *Federal Register* or on the date two years after approval of a site-specific monitoring plan, you must operate your continuous automated sampling system and collect emissions for all times that your

municipal waste combustor is operating.

(8) Use all valid data in calculating emission concentrations.

(9) For mercury, operate the continuous automated sampling system according to Performance Specification 12B in appendix B of this part or, for mercury or dioxins/furans, the approved site-specific monitoring plan.

(10) If you elect to install, calibrate, maintain, and operate a continuous automated sampling system for dioxins/furans or mercury, develop and implement a site-specific monitoring plan as specified in paragraph (h) of this section. If you rely on a performance specification, you may refer to that document in addressing the applicable procedures and criteria. For mercury, you must incorporate procedure 5 of appendix F to this part into the site-specific monitoring plan.

(11) When you are unable to obtain emissions data because of continuous automated sampling system breakdowns, repairs, quality assurance checks, or adjustments, you must obtain parametric monitoring data by using other monitoring systems as approved by EPA.

(h) If you elect to install, calibrate, maintain, and operate a continuous automated sampling system for dioxins/furans or mercury, develop and submit for approval by EPA a site-specific monitoring plan that has sufficient detail to assure the validity of the continuous automated sampling system data and that addresses the elements and requirements in paragraphs (h)(1) through (7) of this section.

(1) Installation of the continuous automated sampling system sampling probe or other interface at a measurement location relative to each municipal waste combustor such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device).

(2) Performance and equipment specifications for the sample interface, the pollutant concentration analytical method, and the data collection system.

(3) Performance evaluation procedures and acceptance criteria.

(4) Provisions for periods when the continuous automated sampling system is malfunctioning or is out of control, including the requirements described in paragraphs (h)(4)(i) through (iii) of this section.

(i) The site-specific monitoring plan must identify criteria for determining that the continuous automated sampling system is out of control, including periods when the sampling system is not collecting a representative sample or is malfunctioning, or when the analytical method does not meet site-specific quality criteria established in paragraph (h)(5) of this section.

(ii) When the continuous automated sampling system is out of control, take corrective action and repeat all necessary tests that indicate that the system is out of control until the performance requirements are within the applicable limits. The out-of-control period includes all hours that the sampling system was not collecting a representative sample or was malfunctioning, or hours represented by a sample for which the analysis did not meet the relevant quality criteria. You may not use emissions data from the period the continuous automated sampling system is out-of-control period to determine compliance with the emission limits or to meet any data availability requirements.

(iii) You must submit all information concerning out-of-control periods for your continuous automated sampling system, including start and end dates and hours, estimates of emissions during the out-of-control period and the basis of the estimate, and descriptions of corrective actions taken, in the annual or semiannual compliance reports required in § 60.6645(d).

(5) Ongoing data quality assurance procedures for continuous automated sampling systems as described in paragraphs (h)(5)(i) and (ii) of this section.

(i) A continuous automated sampling system and analysis quality control program. You must develop and submit to EPA for approval, upon request, a site-specific performance evaluation test plan for the continuous automated sampling system performance evaluation required in paragraph (h)(5)(ii) of this section. In addition, each quality control program shall include, at a minimum, a written protocol that describes procedures for each of the operations described in paragraphs (h)(5)(i)(A) through (G) of this section.

(A) Correct placement, installation of the continuous automated sampling system such that the system is collecting a representative sample of gas;

(B) Initial and subsequent calibration of flow such that the sample collection rate of the continuous automated sampling system is known and verifiable;

(C) Procedures to assure representative (*e.g.*, proportional or isokinetic) sampling;

(D) Preventive maintenance of the continuous automated sampling system, including spare parts inventory and procedures for cleaning equipment, replacing sample collection media, or other servicing at the end of each sample collection period;

(E) Data recording and reporting, including an automated indicator and recording device to show when the continuous automated monitoring system is operating and collecting data and when it is not collecting data;

(F) Accuracy audit procedures for analytical methods; and

(G) Program of corrective action for a malfunctioning continuous automated sampling system.

(ii) Your performance evaluation test plan must include the evaluation program objectives, an evaluation program summary, the performance evaluation schedule, data quality objectives, and both an internal and external quality assurance program. Data quality objectives are the pre-evaluation expectations of precision, accuracy, and completeness of data. The internal quality assurance program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of continuous automated sampling system performance, for example, plans for relative accuracy testing using the appropriate reference method in paragraph (h)(3) of this section, and an assessment of quality of analysis results. The external quality assurance program shall include, at a minimum, systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

(6) You must conduct a performance evaluation of each continuous automated sampling system in accordance with the site-specific monitoring plan.

(7) You must operate and maintain the continuous automated sampling system in continuous operation according to the site-specific monitoring plan.

Model Rule—Other Monitoring Requirements

§ 60.6545 Must I meet other requirements for continuous monitoring?

You must also monitor all the following three operating parameters:

(a) Load level of each municipal waste combustor.

(b) Temperature of flue gases at the inlet of your particulate matter air pollution control device.

(c) Carbon feed rate if activated carbon is used to control dioxins/furans or mercury emissions.

§ 60.6550 How do I monitor the load of my municipal waste combustor?

(a) If your municipal waste combustor generates steam, you must install, calibrate, maintain, and operate a steam flowmeter or a feed water flowmeter and meet all the following five requirements:

(1) Continuously measure and record the measurements of steam (or feed water) flow in kilograms (or pounds) per hour.

(2) Calculate your steam (or feed water) flow in 4-hour block arithmetic averages.

(3) Calculate the steam (or feed water) flow rate using the method in "American Society of Mechanical Engineers Power Test Codes: Test Code for Steam Generating Units, Power Test Code 4.1—1964 (R1991)," section 4 (incorporated by reference, see § 60.17 of subpart A of this part).

(4) Design, construct, install, calibrate, and use nozzles or orifices for flow rate measurements, using the recommendations in "American Society of Mechanical Engineers

Interim Supplement 19.5 on Instruments and Apparatus: Application, part II of Fluid Meters," 6th Edition (1971), chapter 4 (incorporated by reference, see § 60.17 of subpart A of this part).

(5) Before each dioxins/furans performance stack test, or at least once a year, calibrate all signal conversion elements associated with steam (or feed water) flow measurements according to the manufacturer instructions. Measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed.

(b) Determine the maximum demonstrated municipal waste combustor load during the initial performance test for dioxins/furans and each subsequent performance test specified in § 60.6525 during which you achieve compliance with the dioxins/furans emission limit in Table 3 to Subpart WWWW. The maximum demonstrated municipal waste combustor load is the highest 4-hour arithmetic average load achieved during four consecutive hours during the most recent test. If a subsequent dioxins/furans performance test is being performed on only one municipal waste combustor as specified in § 60.6535, you may apply the same maximum municipal waste combustor load from the tested facility for all the similarly designed and operated municipal waste combustors.

§ 60.6555 How do I monitor the temperature of flue gases at the inlet of my particulate matter control device?

(a) You must install, calibrate, maintain, and operate a device to continuously measure the temperature of the flue gas stream at the inlet of each particulate matter control device.

(b) Calculate the temperature of the flue gas stream in 4-hour block arithmetic averages.

(c) Determine the maximum demonstrated particulate matter control device temperature for each particulate matter control device during the initial performance test for dioxins/furans and each subsequent performance test specified in § 60.6525 during which you achieve compliance with the dioxins/furans emission limit. The maximum demonstrated particulate matter control device temperature is the highest 4-hour arithmetic average temperature achieved at the particulate matter control device inlet during four consecutive hours during the most recent test. If a subsequent dioxins/furans performance test is being performed on only one municipal waste combustor as specified in § 60.6535, you may apply the same maximum particulate matter control device temperature from the tested facility for all the similarly designed and operated municipal waste combustors.

§ 60.6560 How do I monitor the injection rate of activated carbon?

If your municipal waste combustor uses activated carbon to control dioxins/furans or mercury emissions, you must meet three requirements:

(a) Select a carbon injection system operating parameter(s) that can be used to calculate carbon feed rate (for example, screw feeder speed, hopper volume, or hopper refill frequency).

(b) During the initial and each subsequent dioxins/furans and mercury performance stack test specified in § 60.6525, estimate an average carbon feed rate in kilograms (or pounds) per hour. You must determine an average operating parameter level that correlates to the carbon feed rate and establish a relationship between the operating parameter(s) and the carbon feed rate in order to estimate the average carbon feed rate. If a subsequent dioxins/furans performance test is being performed on only one municipal waste combustor as specified in § 60.6535, you may apply the same estimated average carbon mass feed rate from the tested facility for all the similarly designed and operated municipal waste combustors.

(c) Continuously monitor the selected carbon injection operating parameter(s) (as specified in paragraph (b) of this section) during all periods when the municipal waste combustor is operating and combusting waste and calculate the 8-hour block average carbon feed rate in kilograms (or pounds) per hour, based on the selected operating parameter. The 8-hour block average must equal or exceed the level(s) documented during the performance tests specified under paragraph (b) of this section, except that during the annual dioxins/furans or mercury performance test and the 2 weeks preceding the annual dioxins/furans or mercury performance test, the limit for average mass carbon feed rate may be waived following permission of the Administrator if the tests are for the purpose of evaluating system performance, testing new technology or control technologies, diagnostic testing, or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions.

(d) You must estimate the total carbon usage of the facility (kilograms or pounds) for each calendar quarter using two independent methods:

(1) The weight of carbon delivered to the facility.

(2) Estimate the average carbon mass feed rate in kilograms per hour or pounds per hour for each hour of operation for each municipal waste combustor, based on the selected carbon injection operating parameter(s) specified in paragraph (b) of this section, and as specified in equation 2 to § 60.6680.

(e) Use pneumatic injection pressure or another carbon injection system operational indicator for additional verification of proper carbon injection system operation. The operational indicator must provide an instantaneous visual and/or audible alarm to alert the operator of a potential interruption in the carbon feed that would not normally be indicated by direct monitoring of carbon mass feed rate (*e.g.*, continuous weight loss feeder) or monitoring of the carbon system operating parameter(s) that are the indicator(s) of carbon mass feed rate (*e.g.*, screw feeder speed). The carbon injection system operational indicator used to provide additional verification of carbon injection system operation, including basis for selecting the indicator and operator response to the indicator alarm, shall be included in the site-specific operating manual required under § 60.6410 of this subpart.

§ 60.6565 What is the minimum amount of monitoring data I must collect with my continuous parameter monitoring systems?

(a) Where continuous parameter monitoring systems are used, obtain 1-hour arithmetic averages for all the following three parameters:

(1) Load level of the municipal waste combustor.

(2) Temperature of the flue gases at the inlet of your particulate matter control device.

(3) Carbon feed rate if activated carbon is used to control dioxins/furans or mercury emissions.

(b) Obtain at least two data points per hour in order to calculate a valid 1-hour arithmetic average.

(c) Obtain valid 1-hour arithmetic averages for at least 75 percent of the operating hours per day for 90 percent of the operating days per calendar quarter.

§ 60.6570 What requirements must I meet for estimating my municipal waste combustor capacity?

(a) You must calculate the capacity for each continuous municipal waste combustor (*e.g.*, capable of combusting continuously for a 24-hour period) based on 24 hours of operation at the maximum charging rate. You must determine the maximum charging rate separately for combustors that are designed based on heat capacity and for combustors that are not designed based on heat capacity.

(1) For combustors that are designed based on heat capacity, calculate the maximum charging rate based on the maximum design heat input capacity of the unit and a heating value of 12,800 kilojoules per kilogram for combustors firing refuse-derived fuel or a heating value of 10,500 kilojoules per kilogram for combustors firing municipal solid waste that is not refuse-derived fuel.

(2) For combustors that are not designed based on heat capacity, the maximum charging rate is the maximum design charging rate.

(b) You must calculate the capacity for each batch feed municipal waste combustor based on the maximum design amount of municipal solid waste that can be charged per batch multiplied by the maximum number of batches that could be processed in a 24-hour period.

(1) You must calculate the maximum number of batches that could be processed in a 24-hour period by dividing 24 hours by the design number of hours required to process one batch of municipal solid waste. The maximum number of batches may include a fraction (*e.g.*, if one

batch requires 16 hours, then 24/16, or 1.5 batches, could be combusted in a 24-hour period).

(2) For batch combustors that are designed based on heat capacity, calculate the municipal waste combustor capacity in megagrams per day, based on the design heating value of 12,800 kilojoules per kilogram for combustors firing refuse-derived fuel, or a heating value of 10,500 kilojoules per kilogram for combustors firing municipal solid waste that is not refuse-derived fuel.

Model Rule—Recordkeeping

§ 60.6575 What records must I keep?

You must keep all the following four types of records:

(a) Operator training and certification.

(b) Stack tests.

(c) Continuously monitored pollutants and parameters.

(d) Carbon feed rate.

§ 60.6580 Where must I keep my records and for how long?

(a) Keep all records onsite in paper copy or electronic format unless the Administrator approves another format. Any records required to be maintained by this subpart that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

(b) Keep all records on each municipal waste combustor for at least 5 years.

(c) Make all records available for submittal to the Administrator, or for onsite review by an inspector.

§ 60.6585 What records must I keep for operator training and certification?

You must keep records of all the following six items:

(a) *Records of provisional certifications*. Include three items:

(1) Names of the municipal waste combustor chief facility operator, shift supervisors, and control room operators who are provisionally certified by the American Society of Mechanical Engineers or an equivalent state-approved certification program.

(2) Dates of the initial and renewal provisional certifications.

(3) Documentation showing current provisional certifications.

(b) *Records of full certifications*. Include three items:

(1) Names of the chief facility operator, shift supervisors, and control room operators who are fully certified by the American Society of Mechanical Engineers or an equivalent state-approved certification program.

(2) Dates of initial and renewal full certifications.

(3) Documentation showing current full certifications.

(c) *Records showing completion of the operator training course*. Include all the following three items:

(1) Names of the chief facility operator, shift supervisors, and control room operators who have completed the EPA or state municipal waste combustion operator training course.

(2) Dates of completion of the operator training course.

(3) Documentation showing completion of operator training course.

(d) *Records of reviews for site-specific operating manuals*. Include three items:

(1) Names of persons who have reviewed the operating manual.

(2) Date of the initial review.

(3) Dates of subsequent annual reviews.

(e) *Records of when a certified operator is temporarily offsite*. Include two main items:

(1) If the certified chief facility operator and certified shift supervisor are offsite for more than 12 hours, but for 2 weeks or less, and no other certified operator is onsite, record the dates that the certified chief facility operator and certified shift supervisor were offsite.

(2) When all certified chief facility operators and certified shift supervisors are offsite for

more than 2 weeks and no other certified operator is onsite, keep records of four items:

(i) Time of day that all certified persons are offsite.

(ii) The conditions that cause those people to be offsite.

(iii) The corrective actions you are taking to ensure a certified chief facility operator or certified shift supervisor is onsite as soon as practicable.

(iv) Copies of the written reports submitted every 4 weeks that summarize the actions taken to ensure that a certified chief facility operator or certified shift supervisor will be onsite as soon as practicable.

(f) *Records of calendar dates*. Include the calendar date on each record.

§ 60.6590 What records must I keep for stack tests?

For stack tests required under § 60.6515, you must keep records of all the following four items:

(a) The results of the stack tests for eight pollutants or parameters recorded in the appropriate units of measure specified in Table 3 to Subpart WWWW:

(1) Dioxins/furans.

(2) Cadmium.

(3) Lead.

(4) Mercury.

(5) Opacity.

(6) Particulate matter.

(7) Hydrogen chloride.

(8) Fugitive ash.

(b) Test reports including supporting calculations that document the results of all stack tests.

(c) The maximum demonstrated load of your municipal waste combustors and maximum temperature at the inlet of your particulate matter control device during all stack tests for dioxins/furans emissions.

(d) The calendar date of each record.

§ 60.6595 What records must I keep for continuously monitored pollutants or parameters?

You must keep records of all the following eight items.

(a) *Records of monitoring data*. Document all the following eight parameters measured using continuous monitoring systems:

(1) All 6-minute average levels of opacity.

(2) All 1-hour average concentrations of sulfur dioxide emissions.

(3) All 1-hour average concentrations of nitrogen oxides emissions.

(4) All 1-hour average concentrations of carbon monoxide emissions.

(5) All 1-hour average load levels of your municipal waste combustor.

(6) All 1-hour average flue gas temperatures at the inlet of the particulate matter control device.

(7) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance testing, all 1-hour average concentrations of particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions.

(8) If you monitor emissions with a CEMS, you must indicate which data are CEMS data during warmup, startup, and shutdown.

(b) *Records of average concentrations*. Document seven parameters:

(1) All 24-hour daily block geometric average concentrations and percent reductions of sulfur dioxide emissions.

(2) All 24-hour daily arithmetic average concentrations of nitrogen oxides emissions.

(3) All 4-hour block or 24-hour daily block arithmetic average concentrations of carbon monoxide emissions, as applicable.

(4) All 4-hour block arithmetic average load levels of your municipal waste combustor.

(5) All 4-hour block arithmetic average flue gas temperatures at the inlet of the

particulate matter control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance testing, all 24-hour daily arithmetic average concentrations and percent reductions, as appropriate, of particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions.

(7) If you elect to use a continuous automated sampling system to monitor mercury or dioxins/furans instead of conducting performance testing, all integrated 24-hour mercury concentrations (or percent reductions) or all integrated 2-week dioxins/furans concentrations.

(c) *Records of exceedances*. Document all the following three items:

(1) Calendar dates whenever any of the seven pollutant or parameter levels recorded in paragraph (b) of this section or the opacity level recorded in paragraph (a)(1) of this section did not meet the emission limits or operating levels specified in this subpart.

(2) Reasons you exceeded the applicable emission limits or operating levels.

(3) Corrective actions you took, or are taking, to meet the emission limits or operating levels.

(d) *Records of minimum data*. Document three items:

(1) Calendar dates for which you did not collect the minimum amount of data required under §§ 60.6490 and 60.6565. Record those dates for the following types of pollutants and parameters:

(i) Sulfur dioxide emissions.

(ii) Nitrogen oxides emissions.

(iii) Carbon monoxide emissions.

(iv) Load levels of your municipal waste combustor.

(v) Temperatures of the flue gases at the inlet of the particulate matter control device.

(vi) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance tests, the particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions.

(vii) If you elect to use continuous automated sampling systems for dioxins/furans or mercury, dates and times when the sampling systems were not operating or were not collecting a valid sample.

(2) Reasons you did not collect the minimum data.

(3) Corrective actions you took or are taking to obtain the required amount of data.

(e) *Records of exclusions*. Document each time you have excluded data from your calculation of averages for any of the following pollutants or parameters and the reasons the data were excluded:

(1) Sulfur dioxide emissions.

(2) Nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load levels of your municipal waste combustor.

(5) Temperatures of the flue gases at the inlet of the particulate matter control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride, or who elect to use continuous automated sampling systems for dioxins/furans or mercury emissions, instead of conducting performance tests:

(i) Particulate matter emissions data.

(ii) Cadmium emissions data.

(iii) Lead emissions data.

(iv) Mercury emissions data.

(v) Hydrogen chloride emissions data.

(vi) Dioxins/furans emissions data.

(f) *Records of drift and accuracy*. Document the results of your daily drift tests and quarterly accuracy determinations according to the following:

(1) For sulfur dioxides, nitrogen oxides, and carbon monoxides, according to Procedure 1

of appendix F of this part. Keep the records for the sulfur dioxide, nitrogen oxides, and carbon monoxide continuous emissions monitoring systems.

(2) If you elect to continuously monitor particulate matter instead of conducting performance testing, according to Procedure 2, appendix F of this part. Keep the records for the particulate matter continuous emissions monitoring systems.

(3) If you elect to continuously monitor cadmium, lead, mercury, or hydrogen chloride instead of conducting performance testing, maintain the results of all quality evaluations, including daily drift tests and periodic accuracy determinations, specified in the approved site-specific performance evaluation test plan or as specified in Procedures 5 and 6 of appendix F of this part, as applicable.

(4) If you elect to use continuous automated sampling systems for dioxins/furans or mercury, the results of all quality evaluations specified in the approved site-specific performance evaluation test plan or Procedure 5 of appendix F of this part, as applicable.

(g) *Records of the relationship between oxygen and carbon dioxide*. If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, document the relationship between oxygen and carbon dioxide, as specified in § 60.6485.

(h) *Records of calendar dates*. Include the calendar date on each record.

(i) *Time system.* All continuous monitoring systems data must be recorded using “local time” for the location where the municipal waste combustor is located, unless the Administrator approves an alternative time system.

(j) *Additional recordkeeping for continuous cadmium, lead, mercury, or hydrogen chloride monitoring systems.* In addition to the requirements of paragraphs (a) through (i), if you elect to install a continuous emission monitoring system for cadmium, lead, mercury, or hydrogen chloride, you must maintain the following additional records:

(1) All required continuous emission monitoring measurements (including monitoring data recorded during unavoidable continuous emission monitoring system breakdowns and out-

of-control periods).

(2) The date and time identifying each period during which the continuous emission monitoring system was inoperative except for zero (low-level) and high-level checks.

(3) The date and time identifying each period during which the continuous emission monitoring system was out of control, as defined in § 60.6540.

(4) The date and time of commencement and completion of each period of excess emissions and parameter monitoring exceedances that occurs during warmups, startups, shutdowns, and malfunctions of the municipal waste combustor.

(5) The date and time of commencement and completion of each time period of excess emissions and parameter monitoring exceedances, that occurs during periods other than warmups, startups, shutdowns, and malfunctions of the municipal waste combustor.

(6) The nature and cause of any malfunction (if known).

(7) The corrective action taken to correct any malfunction or preventive measures adopted to prevent further malfunctions.

(8) The nature of the repairs or adjustments to the continuous emission monitoring system that was inoperative or out of control.

(9) All procedures that are part of a quality control program developed and implemented for the continuous emission monitoring system.

(10) When more than one continuous emission monitoring system is used to measure the emissions from one municipal waste combustor (*e.g.*, multiple breechings, multiple outlets), record the results as required for each continuous emission monitoring system.

(k) *Additional recordkeeping for continuous automated sampling systems.* If you elect to install a continuous automated sampling system for dioxins/furans or mercury, you must maintain the following additional records:

(1) All required 24-hour integrated mercury concentration (or percent reduction) or 2-week integrated dioxins/furans concentration data (including any data obtained during

unavoidable system breakdowns and out-of-control periods).

(2) The date and time identifying each period during which the continuous automated sampling system was inoperative.

(3) The date and time identifying each period during which the continuous automated sampling system was out of control.

(4) The date and time of commencement and completion of each period of excess emissions and parameter monitoring exceedances that occurs during warmups, startups, shutdowns, and malfunctions of the municipal waste combustor.

(5) The date and time of commencement and completion of each time period of excess emissions and parameter monitoring exceedances that occurs during periods other than warmups, startups, shutdowns, and malfunctions of the municipal waste combustor.

(6) The nature and cause of any malfunction (if known).

(7) The corrective action taken to correct any malfunction or preventive measures adopted to prevent further malfunctions.

(8) The nature of the repairs or adjustments to the continuous automated sampling system that was inoperative or out of control.

(9) All procedures that are part of a quality control program developed and implemented for the continuous automated sampling system.

(10) When more than one continuous automated sampling system is used to measure the emissions from one municipal waste combustor (*e.g.*, multiple breechings, multiple outlets), record the results as required for each system.

§ 60.6600 What records must I keep for municipal waste combustors that use activated carbon?

For municipal waste combustors that use activated carbon to control dioxins/furans or mercury emissions, you must keep records of all of the following five items:

(a) *Records of average carbon feed rate*. Document five items:

(1) Average carbon feed rate in kilograms (or pounds) per hour during all stack tests for dioxins/furans and mercury emissions. Include supporting calculations in the records.

(2) For the operating parameter chosen to monitor carbon feed rate, average operating level during all stack tests for dioxins/furans and mercury emissions. Include supporting data that document the relationship between the operating parameter and the carbon feed rate.

(3) Average carbon feed rate in kilograms (or pounds) per hour estimated for each hour of operation. Include supporting calculations in the records.

(4) Total carbon usage for each calendar quarter as estimated in § 60.6560(d). Include supporting calculations in the records.

(5) Carbon injection system operating parameter data for the parameter(s) that are the primary indicator(s) of carbon feed rate (*e.g.*, screw feeder speed).

(b) *Records of low carbon feed rates*. Document three items:

(1) The calendar dates when the average carbon feed rate was less than the average hourly carbon feed rates determined during the most recent stack test for dioxins/furans or mercury emissions.

(2) Reasons for the low carbon feed rates.

(3) Corrective actions you took or are taking to meet the average carbon feed rate requirement.

(c) *Records of carbon injection system operating parameter indicators*. Document three items:

(1) Calendar dates for which the carbon injection system operating parameter(s) that are the primary indicator(s) of carbon mass feed rate (*e.g.*, screw feeder speed) recorded are below the level(s) estimated during the performance tests.

(2) Reasons for the occurrences.

(3) Corrective actions you took or are taking to meet the levels estimated during the performance tests.

(d) *Records of exclusions*. Document each time you have excluded data from your calculation of average carbon feed rates and the reasons the data were excluded.

(e) *Records of calendar dates*. Include the calendar date on each record.

Model Rule—Reporting

§ 60.6605 What reports must I submit and in what form?

(a) Submit an initial report and annual reports, plus semiannual reports for any emission or parameter level that does not meet the limits specified in this subpart.

(b) Within 60 days after the date of completing each performance test or continuous emissions monitoring systems (CEMS) performance evaluation that includes a relative accuracy test audit (RATA), you must submit the results following the procedures specified in paragraph (e) of this section. Data collected using test methods and performance evaluations of CEMS measuring RATA pollutants that are supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test or performance evaluation must be submitted in a file format generated using the EPA's ERT. Alternatively, you may submit an electronic file consistent with the extensible markup language (XML) schema listed on the EPA's ERT website. Data collected using test methods and performance evaluations of CEMS measuring RATA pollutants that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test or performance evaluation must be included as an attachment in the ERT or an alternate electronic file.

(c) For the semiannual and annual reports specified under paragraph (a) of this section, beginning on **March 10, 2027** or once the report template for this subpart has been available on the Compliance and Emissions Data Reporting Interface (CEDRI) website (https://www.epa.gov/electronic-reporting-air-emissions/cedri) for one year, whichever date is later, submit all subsequent reports using the appropriate electronic report template on the CEDRI website for this subpart and following the procedure specified in paragraph (e) of this section. The date report templates become available will be listed on the CEDRI website. Unless the Administrator or delegated state agency or other authority has approved a different schedule for submission of reports, the report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted.

(d) If you are required to submit notifications or reports following the procedure specified in this paragraph (d), you must submit notifications or reports to the EPA via the CEDRI, which can be accessed through the EPA's Central Data Exchange (CDX) (https://cdx.epa.gov/). The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as CBI. Although we do not expect persons to assert a claim of CBI, if you wish to assert a CBI claim for some of the information in the report or notification, you must submit a complete file in the format specified in this subpart, including information claimed to be CBI, to the EPA following the procedures in paragraphs (d)(1) and (2) of this section. Clearly mark the part or all of the information that you claim to be CBI. Information not marked as CBI may be authorized for public release without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. All CBI claims must be asserted at the time of submission. Anything submitted using CEDRI cannot later be claimed CBI. Furthermore, under CAA section 114(c), emissions data is not entitled to confidential treatment, and the EPA is required to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available. You must submit the same file submitted to the CBI office with the CBI omitted to the EPA via the EPA’s CDX as described earlier in this paragraph (d).

(1) The preferred method to receive CBI is for it to be transmitted electronically using email attachments, File Transfer Protocol, or other online file sharing services. Electronic submissions must be transmitted directly to the OAQPS CBI Office at the email address oaqps_cbi@epa.gov, and as described above, should include clear CBI markings. ERT files should be flagged to the attention of the Branch Manager, Measurement Strategies Branch; all

other files should be flagged to the attention of the Large Municipal Waste Combustor Sector Lead. If assistance is needed with submitting large electronic files that exceed the file size limit for email attachments, and if you do not have your own file sharing service, please email oaqps_cbi@epa.gov to request a file transfer link.

(2) If you cannot transmit the file electronically, you may send CBI information through the postal service to the following address: OAQPS Document Control Officer (C404-02), OAQPS, U.S. Environmental Protection Agency, 109 T.W. Alexander Drive, P.O. Box 12055, Research Triangle Park, North Carolina 27711. ERT files should be sent to the attention of the Branch Manager, Measurement Strategies Branch, and all other files should be sent to the attention of the Large Municipal Waste Combustor Sector Lead. The mailed CBI material should be double wrapped and clearly marked. Any CBI markings should not show through the outer envelope.

(e) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with that reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (e)(1) through (7) of this section.

(1) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA's CEDRI or CDX systems.

(2) The outage must have occurred within the period of time beginning five business days prior to the date that the submission is due.

(3) The outage may be planned or unplanned.

(4) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(5) You must provide to the Administrator a written description identifying:

(i) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(6) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(7) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(f) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with that reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (f)(1) through (5) of this section.

(1) You may submit a claim if a *force majeure* event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a *force majeure* event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.*, hurricanes, earthquakes,

or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.*, large scale power outage).

(2) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(3) You must provide to the Administrator:

(i) A written description of the *force majeure* event;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the *force majeure* event;

(iii) A description of measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(4) The decision to accept the claim of *force majeure* and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(5) In any circumstance, the reporting must occur as soon as possible after the *force majeure* event occurs.

(g) Keep a copy of all reports required by §§ 60.6615, 60.6625, and 60.6640 onsite for 5 years.

(h) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride or to use continuous automated sampling systems for dioxins/furans or mercury emissions instead of conducting performance tests, notify the Administrator one month prior to starting or stopping use of the particulate matter, cadmium, lead, mercury, hydrogen chloride, and dioxins/furans continuous emission monitoring systems or continuous automated sampling systems.

(i) If you elect to install a continuous emission monitoring system for cadmium, lead, mercury, or hydrogen chloride, or you elect to install a continuous automated sampling system for dioxins/furans or mercury, you must also submit to EPA for approval, the site-specific monitoring plan, including the site-specific performance evaluation test plan for the continuous emission monitoring system or the continuous automated sampling system. You must maintain copies of the site-specific monitoring plan on record for the life of the municipal waste combustor to be made available for inspection, upon request, by the Administrator. If the site-specific monitoring plan is revised and approved, you must maintain the previous (i.e., superseded) versions of the plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan.

§ 60.6610 What are the appropriate units of measurement for reporting my data?

See Tables 2 and 3 to Subpart WWWW for appropriate units of measurement.

§ 60.6615 When must I submit the initial performance test report?

As specified in § 60.8(a), submit your initial report by 180 days after your final compliance date.

§ 60.6620 What must I include in my initial performance test report?

You must include seven items:

(a) The emission levels measured on the date of the initial evaluation of your continuous emission monitoring systems for all of the following pollutants or parameters as recorded in accordance with § 60.6595(b).

(1) The 24-hour daily block geometric average concentration or percent reduction of sulfur dioxide emissions.

(2) The 24-hour daily arithmetic average concentration of nitrogen oxides emissions.

(3) The 4-hour block or 24-hour daily arithmetic average concentration of carbon monoxide emissions, as applicable.

(4) The 4-hour block arithmetic average load level of your municipal waste combustor.

(5) The 4-hour block arithmetic average flue gas temperature at the inlet of the particulate matter control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance testing, all 1-hour average concentrations of particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions.

(7) If you monitor emissions with a CEMS, you must indicate which data are CEMS data during warmup, startup, and shutdown.

(b) The results of the initial performance stack tests for eight pollutants or parameters (use appropriate units as specified in Table 3 to Subpart WWWW):

(1) Dioxins/furans.

(2) Cadmium.

(3) Lead.

(4) Mercury.

(5) Opacity.

(6) Particulate matter.

(7) Hydrogen chloride.

(8) Fugitive ash.

(c) The test report that documents the initial stack tests including supporting calculations.

(d) The initial performance evaluation of your continuous emissions monitoring systems. Use the applicable performance specifications in appendix B of this part in conducting the evaluation.

(e) The maximum demonstrated load of your municipal waste combustor and the maximum demonstrated temperature of the flue gases at the inlet of the particulate matter control device. Use values established during your initial stack test for dioxins/furans emissions and include supporting calculations.

(f) If your municipal waste combustor uses activated carbon to control dioxins/furans or mercury emissions, the average carbon mass feed rates that you recorded during the stack tests for dioxins/furans and mercury emissions. Include supporting calculations as specified in § 60.6660(a)(1) and (2).

(g) If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, documentation of the relationship between oxygen and carbon dioxide, as specified in § 60.6485.

§ 60.6625 When must I submit the annual report?

Submit the annual report no later than February 1 of each year that follows the calendar year in which you collected the data. If you have an operating permit for any unit under title V of the CAA you must submit semiannual reports. Parts 70 and 71 of this chapter contain program requirements for permits.

§ 60.6630 What must I include in my annual report?

Summarize data collected for all pollutants and parameters regulated under this subpart. Your summary must include twelve items:

(a) A list of the results achieved during the annual stack test, using appropriate units, for eight pollutants, as recorded under § 60.6590(a):

(1) Dioxins/furans.

(2) Cadmium.

(3) Lead

(4) Mercury.

(5) Particulate Matter.

(6) Opacity.

(7) Hydrogen chloride.

(8) Fugitive ash.

(b) List of the highest average levels recorded, in the appropriate units, for the following pollutants or parameters:

(1) Sulfur dioxide emissions.

(2) Nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load level of the municipal waste combustor.

(5) Temperature of the flue gases at the inlet of the particulate matter air pollution control device (4-hour block average).

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, hydrogen chloride, or dioxins/furans emissions instead of conducting performance testing:

(i) Particulate matter emissions.

(ii) Cadmium emissions.

(iii) Lead emissions.

(iv) Mercury emissions.

(v) Hydrogen chloride emissions.

(vi) Dioxins/furans emissions.

(c) For continuously monitored pollutants identified in paragraphs (b)(1) through (3) and (b)(6) of this section, a list of the block averages recorded during all operations for the reporting year, identifying measurements recorded during periods of warmup, startup, and shutdown as defined in this subpart.

(d) The highest 6-minute opacity level measured. Base the value on all 6-minute average opacity levels recorded by your continuous opacity monitoring system (§ 60.6595(a)(1)).

(e) The total number of hours per calendar quarter and hours per calendar year that you did not obtain valid data for the following pollutants or parameters. For each continuously monitored pollutant or parameter, the hours of valid emissions data per calendar quarter and per calendar year expressed as a percent of the hours per calendar quarter or year that the municipal waste combustor was operating and combusting municipal solid waste. Include data on:

(1) Sulfur dioxide emissions.

(2) Nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load level of the municipal waste combustor.

(5) Temperature of the flue gases at the inlet of the particulate matter air pollution control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, hydrogen chloride, or dioxins/furans emissions instead of conducting performance testing:

(i) Particulate matter emissions.

(ii) Cadmium emissions.

(iii) Lead emissions.

(iv) Mercury emissions.

(v) Hydrogen chloride emissions.

(vi) Dioxins/furans emissions.

(7) If you elect to use continuous automated sampling systems for dioxins/furans or mercury, the total number of hours per calendar quarter and hours per calendar year that the sampling systems were not operating or were not collecting a valid sample. Include the number of hours during which the continuous automated sampling system was operating and collecting a valid sample as a percent of hours per calendar quarter or year that the municipal waste combustor was operating and combusting municipal solid waste.

(f) The total number of hours you have excluded data from the calculation of average levels (include the reasons for excluding it). Include data for the following pollutants or parameters:

(1) Sulfur dioxide emissions.

(2) Nitrogen oxides emissions.

(3) Carbon monoxide emissions.

(4) Load level of the municipal waste combustor.

(5) Temperature of the flue gases at the inlet of the particulate matter air pollution control device.

(6) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, hydrogen chloride, or dioxins/furans emissions instead of conducting performance testing:

(i) Particulate matter emissions.

(ii) Cadmium emissions.

(iii) Lead emissions.

(iv) Mercury emissions.

(v) Hydrogen chloride emissions.

(vi) Dioxins/furans emissions.

(7) If you elect to use continuous automated sampling systems for dioxins/furans or mercury, the total number of hours that the data for mercury and dioxins/furans were excluded from the calculation of average emission concentrations or parameters.

(g) A summary of the data in paragraphs (a) through (g), excluding (c), of this section from the year preceding the reporting year which gives the Administrator a summary of the performance of the municipal waste combustor over a 2-year period.

(h) A summary of any emission or parameter level, including the information specified in paragraphs (a) through (f) of this section, that did not meet the limits specified in this subpart.

(i) A notice of your intent to begin a reduced stack testing schedule for dioxins/furans emissions during the following calendar year if you are eligible for alternative scheduling (§ 60.6535(a) or (b)).

(j) A notice of your intent to apply the average carbon mass feed rate and associated carbon injection system operating parameter levels to similarly designed and equipped units on site. (§ 60.6535(c)).

(k) If you choose to monitor carbon dioxide instead of oxygen as a diluent gas, documentation of the relationship between oxygen and carbon dioxide, as specified in § 60.6485.

(l) Documentation of periods when all certified chief facility operators and certified shift supervisors are offsite for more than 12 hours.

§ 60.6635 What must I do if I am out of compliance with the requirements of this subpart?

You must submit a semiannual report on any recorded emission or parameter level that does not meet the requirements specified in this subpart.

§ 60.6640 If a semiannual report is required, when must I submit it?

(a) For data collected during the first half of a calendar year, submit your semiannual report by August 1 of that year.

(b) For data you collected during the second half of the calendar year, submit your semiannual report by February 1 of the following year.

§ 60.6645 What must I include in the semiannual out-of-compliance reports?

You must include all of the following three items in the semiannual report:

(a) For any of the pollutants or parameters listed in paragraphs (a)(1)-(8) of this section that exceeded the limits specified in this subpart, include the calendar date they exceeded the limits, the reasons for exceeding the limits, and your corrective actions. You must also include the averaged and recorded data for that date:

(1) Concentration of sulfur dioxide emissions.

(2) Concentration of nitrogen oxides emissions.

(3) Concentration of carbon monoxide emissions.

(4) Load level of your municipal waste combustor.

(5) Temperature of the flue gases at the inlet of your particulate matter air pollution control device.

(6) Average 6-minute opacity level. The data obtained from your continuous opacity monitoring system are not used to determine compliance with the limit on opacity emissions.

(7) If you elect to continuously monitor particulate matter, cadmium, lead, mercury, or hydrogen chloride emissions instead of conducting performance testing:

(i) Concentration of particulate matter emissions.

(ii) Concentration of cadmium emissions.

(iii) Concentration of lead emissions.

(iv) Concentration of mercury emissions.

(v) Concentration of hydrogen chloride emissions.

(8) If you elect to use a continuous automated sampling system to monitor mercury or dioxins/furans instead of conducting performance testing, the integrated 24-hour mercury concentrations (or percent reductions) or the integrated 2-week dioxins/furans concentration.

(b) If the results of your annual stack tests (as recorded in § 60.6590(a)) show emissions above the limits specified in Table 3 to Subpart WWWW as applicable for dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash, include a copy of the test report that documents the emission levels and your corrective actions. The semiannual report shall contain a statement indicating that pollutant levels were exceeded during the performance test and list the pollutants whose limits were exceeded and a copy of the performance test is no longer required.

(c) For municipal waste combustors that apply activated carbon to control dioxins/furans or mercury emissions, include documentation of all dates when the carbon injection system operating parameter(s) that are the primary indicator(s) of carbon mass feed rate (*e.g.*, screw feeder speed) are below the levels established during the most recent mercury and dioxins/furans stack test (as specified in § 60.6600(a)(1)). Include four items:

(1) The average carbon mass feed rate (in kilograms per hour or pounds per hour) estimated for each hour of operation.

(2) Reasons for occurrences of low carbon feed rates.

(3) The corrective actions you have taken to meet the carbon feed rate requirement.

(4) The calendar date.

(d) If you elect to install a continuous emission monitoring system for cadmium, lead, mercury, or hydrogen chloride, or you elect to install a continuous automated sampling system for dioxins/furans or mercury, submit information concerning all out-of-control periods for each continuous emission monitoring system or each continuous automated sampling system, including start and end dates and hours and descriptions of corrective actions taken.

§ 60.6650 Can reporting dates be changed?

(a) If the Administrator agrees, you may change the semiannual or annual reporting dates.

(b) See § 60.19(c) for procedures to seek approval to change your reporting date.

Model Rule—Air Curtain Incinerators That Burn 100 Percent Wood Waste, Clean Lumber, And Yard Waste

§ 60.6655 What is an air curtain incinerator?

An air curtain incinerator operates by forcefully projecting a curtain of air across an open chamber or open pit in which combustion occurs. Incinerators of that type can be constructed above or below ground and with or without refractory walls and floor.

§ 60.6660 What is yard waste?

Yard waste is grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs. They come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands. Yard waste does not include two items:

(a) Construction, renovation, and demolition wastes that are exempt from the definition of "municipal solid waste" in § 60.6685.

(b) Clean wood that is exempt from the definition of "municipal solid waste" in § 60.6685.

§ 60.6665 What are the emission limits for air curtain incinerators that burn 100 percent wood waste, clean lumber, and/or yard waste?

If your air curtain incinerator with a capacity to combust greater than 250 tons per day of municipal solid waste combusts a fuel feed stream of 100 percent wood waste, 100 percent clean lumber, 100 percent yard waste, or a 100 percent mixture of only wood waste, clean lumber, and/or yard waste, and no other municipal solid waste materials, you must only meet the emission limits in this section.

(a) By 180 days after your final compliance date, you must meet two limits:

(1) The opacity limit is 10 percent (6-minute average) except as provided in paragraph (a)(2) of this section.

(2) The opacity limit is 35 percent (6-minute average) during the startup period that is within the first 30 minutes of operation.

(b) Reserved

§ 60.6670 How must I monitor opacity for air curtain incinerators that burn 100 percent wood waste, clean lumber, and/or yard waste?

(a) Use the procedures specified in Table 5 to Subpart WWWW to determine compliance with the opacity limit for air curtain incinerators under § 60.6665.

(b) Conduct an initial test for opacity as specified in § 60.8 of subpart A of this part.

(c) After the initial test for opacity, conduct annual tests (no less than 9 calendar months and no more than 15 calendar months following the previous test). You must complete five performance tests in each 5-year calendar period.

§ 60.6675 What are the recordkeeping and reporting requirements for air curtain incinerators that burn 100 percent wood waste, clean lumber, and/or yard waste?

(a) Provide a notice of construction that includes four items:

(1) Your intent to construct the air curtain incinerator.

(2) Your planned initial startup date.

(3) Types of fuels you plan to combust in your air curtain incinerator.

(4) The capacity of your incinerator, including supporting capacity calculations, as specified in § 60.6570.

(b) Keep records of results of the initial opacity performance test and all subsequent opacity performance tests onsite in either paper copy or electronic format unless the Administrator approves another format.

(c) Keep all records for each incinerator for at least 5 years.

(d) Make all records available for submittal to the Administrator or for onsite review by an inspector.

(e) Submit the results (each 6-minute average) of the initial opacity performance test and all subsequent opacity performance tests by February 1 of the year following the year of the opacity emission test.

(f) Submit reports in either paper copy or electronic format on or before the applicable submittal date.

(g) If the Administrator agrees, you may change the annual reporting dates (see § 60.19(c)).

(h) Keep a copy of all reports onsite for a period of 5 years.

Equations

§ 60.6680 What equations must I use?

(a) *Concentration correction to 7 percent oxygen*. Correct any pollutant concentration to 7 percent oxygen using equation 1 of this section:

Equation 1 to paragraph (a)

$$C_{7\%} = C_{unc} * (13.9/(20.9 - C_{O2})) \qquad \text{(Eq.1)}$$

Where:

$C_{7\%}$	=	concentration corrected to 7 percent oxygen.
C_{unc}	=	uncorrected pollutant concentration.
C_{O2}	=	concentration of oxygen (percent).

(b) *Quarterly carbon usage*. If you use activated carbon to comply with the dioxins/furans or mercury limits, calculate the required quarterly usage of carbon using equation 2 of this section for facility basis or equation 3 of this section for unit basis:

(1) Plant basis.

Equation 2 to paragraph (b)(1)

$$C = \sum_{i=1}^{n} f_i * h_i \qquad \text{(Eq. 2)}$$

Where:

C = required quarterly carbon usage for the facility in kilograms (or pounds).

f_i = required carbon feed rate for the municipal waste combustor in kilograms (or pounds) per hour. That is the average carbon feed rate during the most recent mercury or dioxins/furans stack tests (whichever has a higher feed rate).

h_i = number of hours the municipal waste combustor was in operation during the calendar quarter (hours).

n = number of municipal waste combustors, i, located at your plant.

(2) Unit basis.

Equation 3 to paragraph (b)(2)

$$C = f * h \qquad \text{(Eq. 3)}$$

Where:

C = required quarterly carbon usage for the unit in kilograms (or pounds).

f = required carbon feed rate for the municipal waste combustor in kilograms (or pounds) per hour. That is the average carbon feed rate during the most recent mercury or dioxins/furans stack tests (whichever has a higher feed rate).

H = number of hours the municipal waste combustor was in operation during the calendar quarter (hours).

(c) *Percent Reduction*. If you opt to comply with the alternative percent reduction standards for hydrogen chloride, mercury or sulfur dioxide, use the following equation to calculate the percent reduction:

Equation 4 to paragraph (c)

$$\%P_{(HCl,\ Hg,\ SO2)} = (E_i - E_o)/E_i * 100 \qquad \text{(Eq. 4)}$$

Where:

$\%P_{(HCl,\ Hg,\ SO2)}$ = percent reduction of pollutant being measured, either hydrogen chloride, mercury or sulfur dioxide

E_i = emission concentration of measured pollutant at inlet to the applicable control device, corrected to 7 percent oxygen (dry basis)

E_o = emission concentration of measured pollutant at the outlet of the applicable control device, corrected to 7 percent oxygen (dry basis)

Definitions

§ 60.6685 What definitions apply to this subpart?

Terms used but not defined in this section are defined in the CAA and in subparts A and Ba of this part.

Administrator means:

(1) For approved and effective state plans, the Director of the state air pollution control agency, or employee of the state air pollution control agency that is delegated the authority to perform the specified task;

(2) For federal plans, the Administrator of the EPA, an employee of the EPA, the Director of the state air pollution control agency, or employee of the state air pollution control agency to whom the authority has been delegated by the Administrator of the EPA to perform the specified task; and

(3) For NSPS, the Administrator of the EPA, an employee of the EPA, the Director of the state air pollution control agency, or employee of the state air pollution control agency to whom the authority has been delegated by the Administrator of the EPA to perform the specified task.

Air curtain incinerator means an incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which burning occurs. Incinerators of that type can be constructed above or below ground and with or without refractory walls and floor.

Batch municipal waste combustor means a municipal waste combustor designed so it cannot combust municipal solid waste continuously 24 hours per day because the design does not allow waste to be fed to the unit or ash to be removed during combustion.

Bubbling fluidized bed combustor means a fluidized bed combustor in which the majority of the bed material remains in a fluidized state in the primary combustion zone.

Calendar quarter means a consecutive 3-month period (nonoverlapping) beginning on January 1, April 1, July 1, and October 1.

Calendar year means the period including 365 days starting January 1 and ending on December 31.

CEMS means continuous emissions monitoring system.

CEMS data during warmup, startup, and shutdown means CEMS data collected during periods of operation defined within this subpart as warmup, startup or shutdown.

Chief facility operator means the person in direct charge and control of the operation of a municipal waste combustor and who is responsible for daily onsite supervision, technical direction, management, and overall performance of the facility.

Circulating fluidized bed combustor means a fluidized bed combustor in which the majority of the fluidized bed material is carried out of the primary combustion zone and is transported back to the primary zone through a recirculation loop.

Clean wood means untreated wood or untreated wood products including clean or untreated lumber (as defined in this subpart), tree stumps (whole or chipped), and tree limbs (whole or chipped). Clean wood does not include yard waste, which is defined elsewhere in this section, wood products that have been painted, pigment-stained, or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol, and creosote, or construction, renovation, and demolition wastes (including but not limited to railroad ties and telephone poles), which are exempt from the definition of municipal solid waste in this section.

Cofired combustor means a unit combusting municipal solid waste with nonmunicipal solid waste fuel (*e.g.*, coal, industrial process waste) and subject to a federally enforceable permit limiting the unit to combusting a fuel feed stream, 30 percent or less of the weight of which is comprised, in aggregate, of municipal solid waste as measured on a calendar quarter basis.

Continuous automated sampling system means the total equipment and procedures for automated sample collection and sample recovery/analysis to determine a pollutant concentration or emission rate by collecting a single or multiple integrated sample(s) of the pollutant (or diluent gas) for subsequent on-or off-site analysis; integrated sample(s) collected are representative of the emissions for the sample time as specified by the applicable requirement.

Continuous emission monitoring system means a monitoring system that continuously measures the emissions of a pollutant from an affected facility.

Dioxins/furans mean tetra- through octa- chlorinated dibenzo-p-dioxins and dibenzofurans. For the purposes of this subpart, dioxins/furans emission limits are expressed on a total mass basis.

Digital camera opacity technique conditions mean the following four conditions that must be followed if ASTM D7520-16, "Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere" (incorporated by reference, see § 60.17), is used as an alternative to EPA Method 9:

(1) During the digital camera opacity technique (DCOT) certification procedure outlined in section 9.2 of ASTM D7520-16, you or the DCOT vendor must present the plumes in front of various backgrounds of color and contrast representing conditions anticipated during field use such as blue sky, trees, and mixed backgrounds (clouds and/or a sparse tree stand).

(2) You must also have standard operating procedures in place including daily or other frequency quality checks to ensure the equipment is within manufacturing specifications as outlined in section 8.1 of ASTM D7520-16.

(3) You must follow the record keeping procedures outlined in 40 CFR 63.10(b)(1) for the DCOT certification, compliance report, data sheets, and all raw unaltered JPEGs used for opacity and certification determination.

(4) You or the DCOT vendor must have a minimum of 4 independent technology users apply the software to determine the visible opacity of the 300 certification plumes. For each set of 25 plumes, the user may not exceed 15 percent opacity of anyone reading and the average error must not exceed 7.5 percent opacity.

EPA means the Administrator of the U.S. EPA or employee of the U.S. EPA who is delegated to perform the specified task.

Federally enforceable means all limitations and conditions that are enforceable by EPA including the requirements of 40 CFR part 60, 40 CFR part 61, and 40 CFR part 63, requirements within any applicable state implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.165 and 40 CFR 51.166.

First half of the calendar year means the period starting on January 1 and ending on June 30 in any year.

Four-hour block average or 4-hour block average means the average of all hourly emission concentrations when the affected facility is operating and combusting municipal solid waste measured over 4-hour periods from:

(1) 12:00 midnight to 4:00 a.m.

(2) 4:00 a.m. to 8:00 a.m.

(3) 8:00 a.m. to 12:00 noon.

(4) 12:00 noon to 4:00 p.m.

(5) 4:00 p.m. to 8:00 p.m.

(6) 8:00 p.m. to 12:00 midnight.

Mass burn refractory municipal waste combustor means a field-erected combustor that combusts municipal solid waste in a refractory wall furnace. Unless otherwise specified, this includes combustors with a cylindrical rotary refractory wall furnace.

Mass burn rotary waterwall municipal waste combustor means a field-erected combustor that combusts municipal solid waste in a cylindrical rotary waterwall furnace or on a tumbling-tile grate.

Mass burn waterwall municipal waste combustor means a field-erected combustor that combusts municipal solid waste in a waterwall furnace.

Materials separation plan means a plan that identifies both a goal and an approach for separating certain components of municipal solid waste for a given service area in order to make the separated materials available for recycling. A materials separation plan may include elements such as dropoff facilities, buy-back or deposit-return incentives, curbside pickup programs, or centralized mechanical separation systems. A materials separation plan may include different goals or approaches for different subareas in the service area, and may include no materials separation activities for certain subareas or, if warranted, an entire service area.

Maximum demonstrated municipal waste combustor load means the highest 4-hour arithmetic average municipal waste combustor load achieved during four consecutive hours during the most recent dioxins/furans performance test demonstrating compliance with the applicable limit for municipal waste combustor organics specified under § 60.6450.

Maximum demonstrated particulate matter control device temperature means the highest 4-hour arithmetic average flue gas temperature measured at the particulate matter control device inlet during four consecutive hours during the most recent dioxins/furans performance test demonstrating compliance with the applicable limit for municipal waste combustor organics specified under § 60.6450.

Modification or modified municipal waste combustor means a municipal waste combustor you have changed after **September 10, 2026** and that meets one of two criteria:

(1) The cumulative cost of the changes over the life of the unit exceeds 50 percent of the original cost of construction and installation the unit (not including the cost of any land purchased in connection with such construction or installation) updated to current costs.

(2) Any physical change in the municipal waste combustor or change in the method of operating the municipal waste combustor that increases the amount of any air pollutant emitted by the unit for which standards have been established under section 129 or section 111 of the CAA. Increases in the amount of any air pollutant emitted by the municipal waste combustor are determined when the municipal waste combustor operates at 100 percent of its physical load capability and are measured downstream of all air pollution control devices. Load restrictions based on permits or other nonphysical operational restrictions cannot be considered in the determination.

Modular excess-air municipal waste combustor means a combustor that combusts municipal solid waste, is not field-erected, and has multiple combustion chambers, all of which are designed to operate at conditions with combustion air amounts in excess of theoretical air requirements.

Modular starved-air municipal waste combustor means a combustor that combusts municipal solid waste, is not field-erected, and has multiple combustion chambers in which the primary combustion chamber is designed to operate at substoichiometric conditions.

Municipal solid waste or municipal-type solid waste or MSW means household, commercial/retail, or institutional waste. Household waste includes material discarded by single and multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing establishments or facilities. Commercial/retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities. Institutional waste includes materials discarded by schools, nonmedical waste discarded by hospitals, material discarded by nonmanufacturing activities at prisons and government facilities, and material discarded by other similar establishments or facilities. Household, commercial/retail, and institutional waste does not include used oil; sewage sludge; wood pallets; construction, renovation, and demolition wastes (which includes but is not limited to railroad ties and telephone poles); clean wood; industrial process or manufacturing wastes; medical waste; or motor vehicles (including motor vehicle parts or vehicle fluff). Household, commercial/retail, and institutional wastes include:

(1) Yard waste;

(2) Refuse-derived fuel; and

(3) Motor vehicle maintenance materials limited to vehicle batteries and tires except as specified in § 60.6305(d).

Municipal waste combustor, or MWC, means any setting or equipment that combusts solid, liquid, or gasified municipal solid waste including, but not limited to, field-erected combustion units (with or without heat recovery), modular incinerators (starved-air or excess-air), boilers (*i.e.*, steam generating units), furnaces (whether suspension-fired, grate-fired, mass-fired, air curtain incinerators, or fluidized bed-fired), and pyrolysis/combustion units. Two criteria further define municipal waste combustors:

(1) Municipal waste combustors do not include pyrolysis or combustion units located at a plastics or rubber recycling unit as specified under Applicability (§ 60.6305(h) and (i)). Municipal waste combustors also do not include cement kilns firing municipal solid waste as specified under Applicability (§ 60.6305(j)). Municipal waste combustors also do not include internal combustion engines, gas turbines, or other combustion devices that combust landfill gases collected by landfill gas collection systems.

(2) The boundaries of a municipal waste combustor are defined as follows. The municipal waste combustor includes, but is not limited to, the municipal solid waste fuel feed system, grate system, flue gas system, bottom ash system, and the combustor water system. The municipal waste combustor boundary starts at the municipal solid waste pit or hopper and extends through three areas:

(i) The combustor flue gas system, which ends immediately following the heat recovery equipment or, if there is no heat recovery equipment, immediately following the combustion chamber.

(ii) The combustor bottom ash system, which ends at the truck loading station or similar ash handling equipment that transfers the ash to final disposal. It includes all ash handling systems connected to the bottom ash handling system.

(iii) The combustor water system, which starts at the feed water pump and ends at the piping that exits the steam drum or superheater.

(3) The municipal waste combustor does not include air pollution control equipment, the stack, water treatment equipment, or the turbine-generator set.

Municipal waste combustor capacity means the maximum charging rate of a municipal waste combustor expressed in tons per day of municipal solid waste combusted, calculated according to the procedures under § 60.6570. Section 60.6570 includes procedures for determining municipal waste combustor capacity for continuous and batch feed municipal waste combustors.

Municipal waste combustor load means the steam load of the municipal waste combustor measured as specified in § 60.6550.

Particulate matter means total particulate matter emitted from municipal waste combustors as measured using EPA Reference Method 5 (see § 60.6530)

Plastics/rubber recycling unit means an integrated processing unit for which plastics, rubber, or rubber tires are the only feed materials (incidental contaminants may be in the feed materials). The feed materials are processed into a chemical plant feedstock or petroleum refinery feedstock, where the feedstock is marketed to and used by a chemical plant or petroleum refinery as input feedstock. The following three criteria further define a plastics/rubber recycling unit:

(1) Each calendar quarter, the combined weight of the chemical plant feedstock and petroleum refinery feedstock that a plastics/rubber recycling unit produces must be more than 70 percent of the combined weight of the plastics, rubber, and rubber tires that the plastics/rubber recycling unit processes.

(2) The plastics, rubber, or rubber tires fed to the plastics/rubber recycling unit may originate from separating or diverting plastics, rubber, or rubber tires from MSW or industrial solid waste. The feed materials may include manufacturing scraps, trimmings, and off-specification plastics, rubber, and rubber tire discards.

(3) The plastics, rubber, and rubber tires fed to the plastics/rubber recycling unit may contain incidental contaminants (*e.g.*, paper labels on plastic bottles, metal rings on plastic bottle caps).

Pulverized coal/refuse-derived fuel mixed fuel-fired combustor means a combustor that fires coal and refuse-derived fuel simultaneously, in which pulverized coal is introduced into an air stream that carries the coal to the combustion chamber of the unit where it is fired in suspension. This includes both conventional pulverized coal and micropulverized coal.

Pyrolysis/combustion unit means a unit that produces gases, liquids, or solids by heating municipal solid waste. The gases, liquids, or solids produced are combusted and the emissions vented to the atmosphere.

Reconstruction means rebuilding a municipal waste combustor for which the reconstruction commenced after **September 10, 2026** and the cumulative costs of the construction over the life of the unit exceed 50 percent of the original cost of construction and installation of the unit (not including any cost of land purchased in connection with such construction or installation) updated to current costs (current dollars).

Refractory unit or refractory wall furnace means a combustion unit that has no energy recovery (*e.g.*, via a waterwall) in the furnace (i.e., radiant heat transfer section) of the combustor.

Refuse-derived fuel means a type of municipal solid waste produced by processing municipal solid waste through shredding and size classification. This includes all classes of refuse-derived fuel including two fuels:

(1) Low-density fluff refuse-derived fuel through densified refuse-derived fuel.

(2) Pelletized refuse-derived fuel.

Refuse-derived fuel stoker means a steam generating unit that combusts refuse-derived fuel in a semisuspension firing mode using air-fed distributors.

Same location means the same or contiguous properties under common ownership or control, including those separated only by a street, road, highway, or other public right-of-way. Common ownership or control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, subdivision, or any combination thereof. Entities may include a municipality, other governmental unit, or any quasi-governmental authority (*e.g.*, a public utility district or regional authority for waste disposal).

Second half of the calendar year means the period that starting July 1 and ending on December 31 in any year.

Semi-suspension refuse-derived fuel-fired combustor/wet refuse-derived fuel process conversion means a combustion unit that was converted from a wet refuse-derived fuel process to a dry refuse-derived fuel process, and because of constraints in the design of the system, includes a low furnace height (less than 60 feet between the grate and the roof) and a high waste capacity-to-undergrate air zone ratio (greater than 300 tons of waste per day (tpd) fuel per each undergrate air zone).

Shift supervisor means the person who is in direct charge and control of operating a municipal waste combustor and who is responsible for onsite supervision, technical direction, management, and overall performance of the municipal waste combustor during an assigned shift.

Shutdown means the period of time following cessation of charging waste to the combustion grate prior to entering a period where the municipal waste combustor is not operating. Shutdown may be claimed for up to three hours of operation per occurrence.

Spreader stoker coal/refuse-derived fuel mixed fuel-fired combustor means a combustor that combusts coal and refuse-derived fuel simultaneously, in which coal is introduced to the combustion zone by a mechanism that throws the fuel onto a grate from above. Combustion takes place both in suspension and on the grate.

Spreader stoker fixed floor refuse-derived fuel-fired combustor/100 percent coal capable means a spreader stoker type combustor with a fixed floor grate design that typically fires 100 percent refuse-derived fuel but is equipped to burn 100 percent coal instead of refuse-derived fuel to fulfill 100 percent steam or energy demand.

Standard conditions means a temperature of 20 °C and a pressure of 101.3 kilopascals.

Startup means the period of time after warmup when waste is introduced to the combustion grate but prior to steady state operation. Startup may be claimed for up to three hours of operation per occurrence.

Total mass dioxins/furans or total mass means the total mass of tetra-through octachlorinated dibenzo-p-dioxins and dibenzofurans as determined using EPA Reference Method 23 and the procedures specified in § 60.6530.

Tumbling-tile means a grate tile hinged at one end and attached to a ram at the other end. When the ram extends, the grate tile rotates around the hinged end.

Twenty-four hour daily average or 24-hour daily average means either the arithmetic mean or geometric mean (as specified) of all hourly emission concentrations when the affected facility operates and combusts municipal solid waste measured over a 24-hour period between 12:00 midnight and the following midnight.

Untreated lumber or clean lumber means wood or wood products that have been cut or shaped and include wet, air-dried, and kiln-dried wood products. Untreated lumber does not include wood products that have been painted, pigment-stained, or "pressure-treated". Pressure-treating compounds include, but are not limited to, chromate copper arsenate, pentachlorophenol, and creosote.

Warmup means the period of time during the first hours of a municipal waste combustor operation from a cold start until waste is fed to the combustor and has no time constraints. No waste is introduced to the combustion grate during warmup.

Waterwall furnace means a combustion unit having energy (heat) recovery in the furnace (i.e., radiant heat transfer section) of the combustor.

Yard waste means grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs. They come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands. Yard waste does not include two items:

(1) Construction, renovation, and demolition wastes that are exempt from the definition of "municipal solid waste" in this section.

(2) Clean wood that is exempt from the definition of "municipal solid waste" in this section.

Table 1 to Subpart WWWW of Part 60—Model Rule—Compliance Schedules and

Increments of Progress

Affected units	Increment 1 (Submit final control plan)	Increment 2 (Award contracts)	Increment 3 (Begin onsite construction)	Increment 4 (Complete onsite construction)	Increment 5 (Final compliance)
1. All municipal waste combustors[a]	(Dates to be specified in state plan)	(Dates to be specified in state plan)	(Dates to be specified in state plan)	(Dates to be specified in state plan)	(Dates to be specified in state plan).[b]

[a] Plant specific schedules can be used at the discretion of the state.

[b] The date can be no later than 3 years after the effective date of state plan approval or **March 10, 2031**.

Table 2 to Subpart WWWW – Municipal Waste Combustor Carbon Monoxide Guidelines (parts per million by volume)

Municipal waste combustor technology	The following emission limits and averaging times apply…	
	Carbon monoxide emission limit (parts per million by volume)[a]	Averaging time (hours)[b]
Mass burn waterwall	100	4
Mass burn refractory	100	4
Mass burn rotary refractory	110	24
Mass burn rotary waterwall	110	24
Modular starved air	50	4
Modular excess air	50	4
Refuse-derived fuel stoker	110	24
Fluidized bed, mixed fuel (wood/refuse-derived fuel)	110	24
Bubbling fluidized bed combustor	100	4
Circulating fluidized bed combustor	100	4
Pulverized coal/refuse-derived fuel mixed fuel-fired combustor	110	4
Spreader stoker coal/refuse-derived fuel mixed fuel-fired combustor	110	24
Semi-suspension refuse-derived fuel-fired combustor/wet refuse-derived fuel process conversion	250	24[c]
Spreader stoker fixed floor refuse-derived fuel-fired combustor/100 percent coal capable	250	24[c]

[a] Measured at the combustor outlet in conjunction with a measurement of oxygen concentration, corrected to 7

percent oxygen (dry basis). Calculated as an arithmetic average. CEMS data during warmup, startup, and shutdown, as defined in this subpart, are not corrected to 7 percent oxygen, and are used as measured. The averaging times are specified in greater detail in § 60.6495(b).

[b] Averaging times are 4-hour or 24-hour block arithmetic averages.

[c] 24-hour block average, geometric mean.

Table 3 to Subpart WWWW of Part 60—Model Rule—Emission Limits for Existing Large Municipal Waste Combustors

For the air pollutant…	For this combustor type…	You must meet this emission limit, corrected to 7 percent oxygen[a]…
Particulate matter	All	20 mg/dscm
Opacity	All	10 percent opacity (6-minute block average)
Cadmium	All	10 ug/dscm
Lead	All	68 ug/dscm
Mercury	All	50 ug/dscm or 85 percent reduction by weight
Sulfur dioxide	All	22 parts per million by volume dry basis or 75 percent reduction by weight or volume (daily 24-hr geometric average)
Nitrogen oxide [b]	Mass burn waterwall	205 parts per million by volume dry basis (daily 24-hr arithmetic average)
	Mass burn rotary	150 parts per million by volume dry basis (daily 24-hr arithmetic average)
	Refuse-derived fuel stoker	160 parts per million by volume dry basis (daily 24-hr arithmetic average)
	Refuse-derived fuel spreader stoker and semi-suspension	160 parts per million by volume dry basis (daily 24-hr arithmetic average)
	Refuse-derived fuel fluidized bed	180 parts per million by volume dry basis (daily 24-hr arithmetic average)
Hydrogen chloride	All	10 parts per million by volume dry basis or 96 percent reduction by weight or volume
Dioxins/furans	All	14 nanograms per dry standard cubic meter (total mass)

[a] CEMS data during warmup, startup, and shutdown, as defined in this subpart, are not corrected to 7 percent oxygen and are used as measured.

[b] Existing mass burn waterwall units equipped with air-to-air heat exchanger flue gas reheat in advance of a selective catalytic reduction control device are subject to a 50 parts per million by volume dry basis emission limit.

Table 4 to Subpart WWWW of Part 60—Requirements for Continuous Emission Monitoring Systems (CEMS)

For the following pollutants	Use the following span values for your CEMS	Use the following performance specifications for your CEMS	During each relative accuracy test run, use the following methods to collect concurrent data

1. Particulate Matter		For operation and correlation test, P.S. 11 in appendix B of this part and procedure 2 of appendix F to this part. For quarterly accuracy determinations, daily calibration drift tests, and each response correlation audit or relative response audit, procedure 2 of appendix F to this part.	Follow the test methods in Table 5 to Subpart WWWW.
2. Nitrogen Oxides	Control device outlet: 125 percent of the maximum estimated hourly nitrogen oxides emissions of the municipal waste combustor.	For operation, P.S. 2 in appendix B of this part and procedure 1 in appendix F of this part. For relative accuracy audit, P.S. 2 in appendix B of this part and procedure 1 of appendix F of this part. For quarterly accuracy determinations and daily calibration drift tests, procedure 1 in appendix F of this part.	Method 7, 7A, 7C, 7D, or 7E in appendix A-4 to part 60 of this chapter.
3. Sulfur Dioxide	Control device outlet: 50 percent of the maximum estimated hourly sulfur dioxide emissions of the municipal waste combustor.	For operation, P.S. 2 in appendix B of this part. For relative accuracy audit, P.S. 2 in appendix B of this part and procedure 1 of	Method 6, 6A, or 6C, in appendix A-4 to part 60 of this chapter.

		appendix F of this part. For quarterly accuracy determinations and daily calibration drift tests, procedure 1 in appendix F of this part	
4. Carbon Monoxide	125 percent of the maximum estimated hourly carbon with monoxide emissions of the municipal waste combustor.	For operation, P.S. 4A in appendix B of this part and procedure 1 of appendix F of this part. For relative accuracy audit, P.S. 4A in appendix B of this part and procedure 1 of appendix F of this part. For quarterly accuracy determinations and daily calibration drift tests, procedure 1 in appendix F of this part.	Method 10, 10A, or 10B in appendix A-4 to part 60 of this chapter.
5. Oxygen or Carbon Dioxide	25 percent oxygen or 20 percent carbon dioxide	P.S. 3 in appendix B of this part.	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or, as an alternative for oxygen or carbon dioxide correction, the manual method portion of ASME PTC–19–10–1981—part10.
6. Mercury	Follow the approved site-specific monitoring plan.	For operation, P.S. 12A in appendix B of this part and procedure 5 of appendix F of this part or the approved site-specific monitoring plan.	Follow the test methods in Table 5 to Subpart WWWW.

		For relative accuracy audit, daily calibration, weekly system integrity check, quarterly audit, procedure 5 of appendix F of this part.	
7. Hydrogen chloride	Follow the approved site-specific monitoring plan.	For operation, P.S. 18 in appendix B of this part and procedure 6 of appendix F of this part or the approved site-specific monitoring plan. For relative accuracy audit, daily calibration, quarterly audit, and other applicable quality assurance/quality control checks procedure 6 of appendix F of this part.	Follow the test methods in Table 5 to Subpart WWWW, except you may also use Methods 320 or 321 of appendix A to part 63.
8. Cadmium or Lead	Follow the approved site-specific monitoring plan.	For operation, the approved site-specific monitoring plan.	Follow the test methods in Table 5 to Subpart WWWW.

Table 5 to Subpart WWWW – Performance Test Requirements for Compliance with Emissions Limits under § 60.6450

To determine compliance with the. . .	You must conduct a performance test to. . .	Using. . .
Particulate matter emission limits	1. Select sampling ports location and the number of traverse points...	Method 1 in appendix A-1 to part 60 of this chapter.
	2. Determine oxygen and carbon dioxide concentrations of the stack gas...	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or as an alternative the manual method portion of ASME PTC–19–10–1981—part10
	3. Measure the particulate	Method 5 in appendix A-3 to part 60

	matter emission concentration to determine compliance with the particulate matter emission limit...	of this chapter. Collect a minimum sample volume of 1.7 cubic meters. The probe and filter holder heating systems in the sample train shall be set to provide a gas temperature no greater than 160°C. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 5 run.
Opacity emission limits	Determine compliance with the opacity limit in Table 3 to Subpart WWWW...	Method 9 of appendix A-4 of part 60 to this chapter, except as provided under § 60.11(e) of subpart A of this part, or as an alternative ASTM D7520-16 provided the digital camera opacity technique conditions, as defined in this subpart, are met.
Cadmium or lead emission limits	1. Select sampling ports location and the number of traverse points	Method 1 in appendix A-1 to part 60 of this chapter.
	2. Determine oxygen and carbon dioxide concentrations of the stack gas for flue gas analysis...	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or as an alternative the manual method portion of ASME PTC–19–10–1981—part10.
	3. Measure the cadmium or lead emission concentration to determine compliance with the emission limits...	Method 29 in appendix A-8 to part 60 of this chapter. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 29 test run for cadmium and lead required.
Mercury emission limits	1. Select sampling ports location and the number of traverse points...	Method 1 in appendix A-1 to part 60 of this chapter.
	2. Determine oxygen and carbon dioxide concentrations of the stack gas for flue gas analysis...	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or as an alternative the manual method portion of ASME PTC–19–10–1981—part10.
	3. Measure the mercury emission concentration to determine compliance with the emission limits...	Method 29 in appendix A-8 to part 60 of this chapter or as an alternative ASTM D6784–24. Collect a minimum sample volume of 1.7 cubic meters. An oxygen or carbon dioxide measurement shall be obtained simultaneously with each Method 29

		test run for mercury required.
Sulfur dioxide emission limits	Calculate the 24-hr daily geometric average sulfur dioxide emission concentration...	Method 19, section 12.4.3, in appendix A-7 to part 60 of this chapter.
Hydrogen chloride emission limits	Measure the hydrogen chloride emission concentration...	Method 26 or 26A in appendix A-8 of part 60 to this chapter, as applicable. The minimum sampling time shall be 1 hour. An oxygen (or carbon dioxide) measurement shall be obtained simultaneously with each Method 26 or 26A test run for hydrogen chloride.
Dioxins/furans emission limits	1. Select sampling ports location and the number of traverse points...	Method 1 in appendix A-1 to part 60 of this chapter.
	2. Determine oxygen and carbon dioxide concentrations of the stack gas for flue gas analysis...	Method 3, 3A or 3B in appendix A-2 to part 60 of this chapter, or as an alternative ASME PTC–19–10–1981—part10.
	3. Measure the dioxins/furans emission concentration to determine compliance with the emission limits...	Method 23 in appendix A-7 to part 60 of this chapter. The minimum sampling time shall be 4 hours. An oxygen (or carbon dioxide) measurement shall be obtained simultaneously with each Method 23 test run for dioxins/furans.
Nitrogen oxides emission limits	Determine the daily arithmetic average nitrogen oxides emission concentration...	Method 19, section 12.4.1, in appendix A-7 to part 60 of this chapter.
Fugitive ash emission limits	Measure fugitive ash emissions…	Method 22 in appendix A-7 to part 60 of this chapter. The minimum observation time shall be a series of three 1-hour observations. The observation period shall include times when the facility is transferring ash from the municipal waste combustor to the area where ash is stored or loaded into containers or trucks.
Opacity limit for air curtain incinerators under § 60.6665	Determine compliance with the opacity limit in § 60.6665.	Method 9 of appendix A-4 of part 60 to this chapter, or as an alternative ASTM D7520-16 provided the digital camera opacity technique conditions, as defined in this subpart, are met.

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