APPENDIX 129C1

LARGE MUNICIPAL WASTE COMBUSTORS
(MWC units > 250 tons per day capacity)

NEW SOURCE PERFORMANCE STANDARDS
(40 CFR 60 Subparts E, Ea, and Eb)

EXISTING SOURCE EMISSION GUIDELINES
(40 CFR 60 Subpart Cb)

CAA SECTION 129
SOLID WASTE COMBUSTION STANDARDS

REGULATION STATUS

The 1990 Clean Air Act amendments required EPA to establish emission standards for existing and new Municipal Waste Combustors (MWCs).

New Source Performance Standards (NSPS) 40 CFR 60 Subparts Ea and Eb

The EPA promulgated subpart E on 23 Dec 71 (36 FR 24877), subpart Ea on 11 Feb 91 (56 FR 5488) and subpart Eb on 19 Dec 95 (60 FR 65387). EPA substantially amended subpart Eb on 25 Aug 97 (62 FR 45115).

Existing Sources Emission Guidelines 40 CFR 60 Subpart Cb

On 19 Dec 95 (60 FR 65387), EPA promulgated emission guidelines for existing MWCs in subpart Cb. EPA substantially amended subpart Cb on 25 Aug 97 (62 FR 45115).

Court Ordered 1997 Amendments to Subparts Cb and Eb

When issued on 19 Dec 95, subparts Cb and Eb affected units with an ***aggregate combustion capacity*** greater than 35 megagrams per day (39 tons per day). However, on 8 Apr 97, the United States Court of Appeals vacated subparts Cb and Eb forcing EPA to remove all requirements for MWC units with the ***individual*** capacity to combust less than or equal to 250 tons per day of municipal solid waste (MSW) and all cement kilns that combust MSW. As a result, EPA amended subparts Cb and Eb on 25 Aug 97 (62 FR 45115). These rules now only apply to MWC ***units*** with the individual capacity to combust more than 250 tons per day of MSW.

Important Note: The court order does not mean that EPA has given up on the idea of regulating small MWCs. In fact, EPA has already begun redeveloping emission standards for small MWCs that combust between 39 and 250 tons per day of MSW and is also developing standards for very small MWCs that combust less than 39 tons per day. Refer to Appendix 129C2 for information on regulations for small MWC units.

RULE SUMMARY

Applicability

To determine which rules for large MWCs apply to a specific unit you must know the date that construction commenced (or the date that modification or reconstruction commenced, if applicable) and the combustion capacity of the MWC unit.

Use **Table 1** to determine which subpart applies to a MWC. This table also shows the applicability of subpart E which contains a rather lenient particulate emission standard for any incinerator constructed or modified after 17 Aug 71 that combusts more than 50 tons per day of any waste. Subpart Eb specifically states that affected sources are not subject to subparts E or Ea. Unfortunately, subpart Cb did not provide the same language to prevent overlap. In cases where subpart E overlaps

with a newer regulation, the newer rule contains more stringent particulate limits but both rules legally apply. The most important area of overlap is between subparts Ea and Cb. Owners of MWCs who installed emission controls to comply with subpart Ea emission limits will comply with most of the subpart Cb guidelines. However, additional controls will be required to reduce mercury and fugitive ash emissions.

This appendix contains a brief summary of the emission limits of each rule.

Table 1. Applicability of MWC Regulations for Large Units

Date of Commencement of...	MWC Unit Capacity [(tpd)]	Applicable Regulation in 40 CFR 60
...Construction		
≤ 17 Aug 71	>250	Subpart Cb
18 Aug 71 - 20 Dec 89	>50 to 250	Subpart E
	>250	Subpart E and Cb
21 Dec 89 to 20 Sep 94	>250	Subparts E, Ea and Cb[1]
> 20 Sep 94	>250	Subpart Eb
...Reconstruction/Modification		
18 Aug 71 - 21 Dec 89	>50	Subpart E
21 Dec 89 to 19 Jun 96	>250	Subparts E, Ea and Cb[1]
> 19 Jun 96	>250	Subpart Eb

[1] Although subparts Ea and Eb do not overlap, some MWCs affected by subpart Cb are also subject to subpart Ea. Owners of MWCs who installed emission controls to comply with subpart Ea emission limits will comply with most of the subpart Cb guidelines. However, additional controls will be required to reduce mercury and fugitive ash emissions.

Exemptions

The following units or combustion situations are exempt from both the EG (Subpart Cb) and NSPS (Subpart Eb).

MWC Plants Permitted to Combust Less Than 11 tons/day:

Any medical, industrial manufacturing, or other type of waste combustor plant capable of combusting more than 250 tons/day MSW but actually combusting less than 11 tons/day of MSW (plant-wide) is not subject to this rule, provided it submits an initial report containing a copy of the plant's federally enforceable permit limiting the amount of MSW that may be combusted by the plant to less than 11 tons/day and keeps records on the daily weight of MSW fired.

Cofired Combustors:

Cofired combustors (that combust less than 30 percent MSW) located at a unit with a unit combustion capacity greater than 250 tons/day are exempt from the

requirements of the guidelines as long as they submit a notification of exemption and keep records of the weight of MSW combusted on a calendar quarter basis.

Used Oil Combustors:

The Services Steering Committee commented on the proposed rules expressing concern that ambiguity in the definitions would lead to the regulation of used oil combustors as MWCs. The EPA agreed that used oil is a liquid waste and not a solid waste and therefore should not be considered municipal solid waste (MSW). EPA revised the definition of MSW to exclude used oil.

Although used oil combustors are not affected by these rules, MWCs that combust used oil in addition to MSW will be affected unless they qualify for either the "cofired combustor" or "11 ton/day plant" exemption.

Key Definitions

MWC, or MWC unit means any setting or equipment that combusts solid, liquid, or gasified municipal solid waste including, but not limited to, field-erected incinerators (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. MWCs do not include pyrolysis/combustion units located at a plastics/rubber recycling unit (as specified in Sec. 60.50b(m)). MWCs do not include cement kilns firing municipal solid waste (as specified in Sec. 60.50b(p)). MWCs do not include internal combustion engines, gas turbines, or other combustion devices that combust landfill gases collected by landfill gas collection systems.

Municipal solid waste or *municipal-type solid waste* means household, commercial/retail, and/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 material 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 § 60.50b(g).

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. (Note: cofired combustors as defined here are not considered MWCs. However, units combusting both municipal solid waste (MSW) and non-MSW that burns or is permitted to burn more that 30% MSW are considered MWCs.)

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 low-density fluff refuse-derived fuel through densified refuse-derived fuel and pelletized refuse-derived fuel.

Note: MWCs are not precluded from firing non MSW such as tires or construction and demolition debris, however, if other types of wastes besides MSW are burned, the standards for MWCs must still be met.

Summary of 40 CFR 60 Subpart E New Source Performance Standards:

Table 2 summarizes the requirements of subpart E.

Table 2. Subpart E Emission Limits for Incinerators [1]

Pollutant	Emission Standards	Compliance Method
Particulate	18 g/dscm (0.08 gr/dscf) @ 12% CO2	EPA Method 5

Notes:
[1] Applies to incinerator units that have an individual combustion capacity > 50 tons per day that commences construction or modification after 17 Aug 91.

Summary of 40 CFR 60 Subpart Ea New Source Performance Standards:

Table 3 summarizes the requirements of subpart Ea. Subpart Ea also contains other applicable requirements including good combustion practices and monitoring.

Summary of 40 CFR 60 Subpart Eb New Source Performance Standards:

Subpart Eb establishes more stringent standards for the same pollutants and operating practices regulated under subpart Ea. In addition, Eb includes standards for cadmium (Cd), lead (Pb), mercury (Hg), fugitive ash, and MWC facility site location.

Table 4 summarizes the emission limits. Subpart Eb also contains other applicable requirements including: good combustion practices, facility siting process, performance testing, and monitoring.

Table 3. Subpart Ea Emission Limits for Large MWC Units [1]

Pollutant	Emission Standards [2]	Compliance Method
Particulate	34 mg/dscm	EPA Method 5
Opacity	10% (6 min. avg.)	EPA Method 9
Dioxins/furans	30 ng/dscm	EPA Method 23
SO2	80% reduction or 30 ppmv (24 hour)	CEMS
HCl	95% reduction or 25 ppmv	EPA Method 26
NOx	180 ppmv (24 hour)	CEMS

Notes:
[1] A large MWC unit has an individual combustion capacity > 250 tons per day.
[2] Emission standard concentrations (mg/dscm, ppmv) are corrected to 7 percent oxygen.

Table 4. Subpart Eb Emission Standards for Large MWC Units [1]

Pollutant	Emission Standards [2]	Compliance Method
Particulate	24 mg/dscm	EPA Method 5
Opacity	10% (6 min. avg.)	EPA Method 9
Cadmium	0.020 mg/dscm	EPA Method 29
Lead	0.20 mg/dscm	EPA Method 29
Mercury	0.080 mg/dscm or 85% reduction by weight	EPA Method 29
SO2	80% reduction or 30 ppmv (24 hr)	CEMS
HCl	95% reduction or 25 ppmv (dry basis)	EPA Method 26
Dioxin/furan	13 ng/dscm or optional 7 ng/dscm to qualify for less frequent testing	EPA Method 23
NOx	150 ppmv except 180 ppmv during 1st year of operation (dry basis)	CEMS
Fugitive ash	Visible emissions less than 5 percent of the time from the ash transfer system except during maintenance and repair activities. (9 minutes per 3-hour period.)	EPA Method 22

Notes:
[1] A large MWC unit has an individual combustion capacity > 250 tons per day.
[2] Emission standard concentrations (mg/dscm, ppmv) are corrected to 7 percent oxygen.

Summary of 40 CFR 60 Subpart Cb Existing Source Emission Guidelines:

The intent of emission guidelines in subpart Cb is to initiate action by the States to develop individual State regulations controlling emissions from existing MWCs. State plans will be at least as stringent as the subpart Cb.

Table 5 summarizes the emission limits in the guidelines. Subpart Cb contains other applicable requirements including: good combustion practices, facility siting process, performance testing, and monitoring.

Table 5. Subpart Cb Emission Guidelines for Large Existing MWC Units [1]

Pollutant	Emission Standards [2]	Compliance Method
Particulate	27 mg/dscm	EPA Method 5
Opacity	10% (6 min. avg.)	EPA Method 9
Cadmium	0.040 mg/dscm	EPA Method 29
Lead	0.49/0.44 mg/dscm [3]	EPA Method 29
Mercury	0.080 mg/dscm or 85% reduction by weight	EPA Method 29
HCl	95% reduction or 31/29 ppmv [3]	EPA Method 26
SO2	75% reduction or 31/29 ppmv (24 hr) [3]	CEMS
Dioxin/furan	MWC with ESP: 60 ng/dscm or optional 30 ng/dscm to qualify for less frequent testing MWC with nonESP: 30 ng/dscm or optional 15 ng/dscm to qualify for less frequent testing	EPA Method 23
NOx	Mass burn refractory: No limit Mass burn waterwall: 205 ppmv Mass burn rotary waterwall: 250 ppmv Refuse-derived fuel combustor: 250 ppmv Fluidized bed combustor: 240/180 ppmv [3]	CEMS
Fugitive ash	Visible emissions less than 5 percent of the time from the ash transfer system except during maintenance and repair activities. (9 minutes per 3-hour period.)	EPA Method 22

Notes:
[1] A large MWC unit has an individual combustion capacity > 250 tons per day.
[2] Emission standard concentrations (mg/dscm, ppmv) are corrected to 7 percent oxygen.
[3] Incremental standard. Compliance with first limit required by 2000 or 3 years after approval of a state plan that incorporates this limit. Compliance with second limit required by 2002 or 3 years after approval of a revised state plan that incorporates this limit.

SUBSEQUENT REGULATORY ACTIVITY

25 Aug 97 (62 FR 45115) Final Amendments to Subparts Cb and Eb

EPA complied with a court order by removing all requirements for MWC units with the individual capacity to combust less than or equal to 250 tons per day of municipal solid waste (MSW) and all cement kilns that combust MSW. These rules now only apply to MWC units with the individual capacity to combust more than 250 tons per day of MSW. These amendments included more stringent limits for lead, sulfur dioxide, hydrogen chloride, and for fluidized bed combustors, a more stringent limit for oxides of nitrogen. These limits changed because the MACT floor changed when MWC units with capacities less than 250 tons per day were removed from EPA's database.

MILITARY SOURCES

The HAP Subcommittee is not aware of any existing military MWC units in the United States or its Territories with a capacity exceeding 250 tons/day.

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