# Chapter 121: EMISSION LIMITATIONS AND EMISSION TESTING OF RESOURCE RECOVERY FACILITIES

 **SUMMARY**: This regulation establishes stack emission limitations, operating practices, compliance and performance testing, and reporting and recordkeeping requirements for resource recovery facilities.

**1. Scope and Applicability.** This regulation shall be applicable in all ambient air quality control regions in the State of Maine and shall apply to all new, existing, and modified resource recovery facilities.

**2. Effective Date.** This regulation shall be effective immediately.

1. **Incorporation by Reference**

As indicated in this Chapter, portions of federal regulations codified at 40 C.F.R. Part 60, Subparts A, B, Cb, Eb, and BBBB and Appendices, as amended through July 1, 2018, have been incorporated by reference.This includes the following subparts from 40 C.F.R. Part 60:

**Subpart A,** *General Provisions*;

**Subpart B,** *Adoption and Submittal of State Plans for Designated Facilities*;

**Subpart Cb,** *Emission Guidelines and Compliance Times for Large Municipal Waste Combustors constructed on or before September 20, 1994*;

**Subpart Eb,** *Standards of Performance for Large Municipal Waste Combustors for which construction commenced after September 20, 1994 or for which modification or reconstruction commenced after June 19, 1996*;

**Subpart BBBB,** *Emission Guidelines and Compliance Times for Small Municipal Waste Combustion units constructed on or before August 30, 1999*.

**4. Definitions**

A. **Class I Unit.** “Class I Unit” means a small municipal waste combustion unit with aggregate plant combustion capacity greater than 250 tons per day of municipal solid waste.

1. **Class II Unit.** “Class II Unit” means a small municipal waste combustion unit with aggregate plant combustion capacity no more than 250 tons per day of municipal solid waste.
2. **Commercial Operation.** “Commercial Operation” means the time, not to exceed 180 days after initial startup, after which the emission unit achieves operation at the maximum production rate at which it will be operated.
3. **Dioxins/furans.** “Dioxins/furans means tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans, (PCDDs and PCDFs).
4. **Large Municipal Waste Combustor Unit.** “Large Municipal Waste Combustor Unit” means a municipal waste combustor unit with a maximum municipal solid waste charging rate greater than 250 tons per day.
5. **Resource Recovery Facility.** “Resource Recovery Facility” means any building, structure, or installation where municipal wastes are incinerated to produce usable energy.
6. The definitions contained in and referred to in 40 C.F.R. Part 60, Subparts Cb, Eb, and BBBB are hereby incorporated by reference.

**5.** **Large Municipal Waste Combustor Units Subject to 40 C.F.R. Part 60, Subpart Cb**

For all Large Municipal Waste Combustor Units for which construction is commenced on or before September 20, 1994, and for all designated units as set forth in 40 C.F.R. Part 60, Subpart Cb, the following shall apply:

A. **Emission Limiting Standards.** As set forth in 40 C.F.R. Part 60, Subpart Cb, the emissions limits are hereby adopted and incorporated by reference except where the state may have established more stringent standards as specified in this subsection.

 An owner or operator may request that compliance with the following applicable emission standards be determined using carbon dioxide measurements corrected to an equivalent of seven (7) percent oxygen, determined in accordance with 40 C.F.R. Part 60, Subpart Eb.

(1) **Particulate Matter.** The emission limit for particulate matter contained in the gases discharged to the atmosphere from a designated unit is 25 milligrams per dry standard cubic meter, corrected to 7 percent oxygen.

(2) **Opacity.** The emission limit for opacity exhibited by the gases discharged to the atmosphere from a designated unit is 10 percent (6-minute average).

(3) **Cadmium and Lead.** The emission limit for cadmium contained in the gases discharged to the atmosphere from a designated unit is 0.035 milligrams per dry standard cubic meter, corrected to 7 percent oxygen. The emission limit for lead contained in the gases discharged to the atmosphere from a designated unit is 0.40 milligrams per dry standard cubic meter, corrected to 7 percent oxygen.

(4) **Mercury.** The emission limit for mercury contained in the gases discharged to the atmosphere from a designated unit is 28 micrograms per dry standard cubic meter (µg/dscm), corrected to 7 percent oxygen or 15 percent of the potential mercury emission concentration (85 percent reduction by weight), corrected to 7 percent oxygen (dry basis), whichever is less stringent.

(5) **Sulfur Dioxide.** The emission limit for sulfur dioxide contained in the gases discharged to the atmosphere from a designated unit is 29 parts per million by volume or 20 percent of the potential sulfur dioxide emission concentration (80 percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent. Compliance with this emission limit is based on a 24-hour daily geometric mean.

(6) **Hydrogen Chloride.** The emission limit for hydrogen chloride contained in the gases discharged to the atmosphere from a designated unit is 29 parts per million by volume or 5 percent of the potential hydrogen chloride emission concentration (95 percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent.

(7) **Dioxins/Furans.** The emission limit for dioxins/furans contained in the gases discharged to the atmosphere from a designated unit is 25 nanograms per dry standard cubic meter (total mass), corrected to 7 percent oxygen.

(8) **Nitrogen Oxides.** The emission limits for nitrogen oxides shall be the limits specified in Table 1 of 40 C.F.R. Part 60, Subpart Cb. The averaging provisions specified in 40 C.F.R. Part 60, Subpart Cb shall apply.

(9) **Carbon Monoxide.** The emission limits for carbon monoxide shall be the limits specified in Table 3 of 40 C.F.R. Part 60, Subpart Cb.

(10) **Fugitive Ash Visible Emissions.** No owner or operator of a resource recovery facility shall cause to be discharged to the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points and buildings or enclosures of ash conveying systems and storage areas) in excess of 5 percent of the observation period (i.e., 9 minutes in any 3-hour period), as determined by EPA Reference Method 22 in 40 C.F.R. Part 60, Appendix A. The provisions specified in this section do not apply during maintenance and repair of ash conveying systems.

B. **Operating Practices.** The operating practices applicable to each large municipal waste combustor unit shall be the operating practices specified in 40 C.F.R. Part 60, Subpart Eb.

C. **Operator Training.** The operator training and certification requirements of 40 C.F.R. Part 60, Subpart Eb shall apply to all facilities with large municipal waste combustor units. Compliance with these requirements shall be conducted according to the schedule specified in 40 C.F.R. Part 60, Subpart Cb.

D. **Compliance and Performance Testing Requirements.** The compliance and performance testing requirements applicable to each large municipal waste combustor unit set forth in 40 C.F.R. Part 60, Subpart Eb except as provided for under 40 C.F.R. Part 60, Subpart B are hereby adopted and incorporated by reference.

(1) When effluents from two or more affected units subject to the same standard are combined and exhausted through a common stack, the owner or operator may install a CEMS on each effluent or on the combined effluent. If the owner or operator elects to use one CEMS in a common stack, and the CEMS measures an exceedance of the emission standard, then the CEMS data shall represent an exceedance from each affected unit in operation at the time the exceedance was measured.

(2) When effluents from two or more affected units subject to the same standard are combined and exhausted through a common stack, the owner or operator may conduct performance testing on each effluent or on the combined effluent. If the owner or operator elects to conduct performance testing in a common stack, and the performance test measures an exceedance of the emission standard, then the performance test data shall represent an exceedance from each affected unit in operation at the time the exceedance was measured.

(a) For those affected units exhausting through a common stack and conducting a performance test for particulate matter, hydrogen chloride, lead, cadmium, mercury, and dioxins/furans, the following criteria shall be met in order to conduct performance testing in the common stack on the combined effluent: All affected units and emission controls shall be identical, units shall combust waste from the same waste stream, all affected units shall operate at the same unit load capacity during the performance test, and common stack testing shall be permitted only when the common stack test results measure below 50% of the emission limits in Section 5.A. When subsequent unit testing [or alternate demonstration] for any pollutant demonstrates compliance with the emission limits in Section 5.A, the facility may resume performance testing in the common stack.

(3) The alternative performance testing schedule for dioxins/furans specified in 40 C.F.R. Part 60, Subpart Eb shall apply to large municipal waste combustor units where the performance tests for all affected units over a two-year period achieve a dioxins/furans emission level less than or equal to 15 nanograms per dry standard cubic meter total mass, corrected to 7 percent oxygen.

(4) Initial Performance Test. Except for facilities where a retrofit was not required, which have conducted performance testing in accordance with the performance test methods specified in 40 C.F.R. Part 60, Subpart Eb, under similar operating conditions, within 12 months prior to the final compliance date; performance tests, as specified under 40 C.F.R. Part 60, Subpart A, shall be completed no later than 180 days after the final compliance date for the affected facility.

(5) In addition to the performance testing required in 40 C.F.R. Part 60, Subpart Cb, large municipal waste combustor units shall conduct performance testing for the following metals:

Emissions testing for arsenic, nickel, chromium, and beryllium shall be conducted using EPA Method 29 (40 C.F.R. Part 60, Appendix A). Testing shall be conducted according to a testing schedule consistent with 40 C.F.R. Part 60, Subpart Cb. In no case shall the interval between testing exceed three years.

E. **Reporting, Record Keeping, and Compliance Schedules**

1. **Emissions Test Report Requirements.** The reporting and record keeping requirements applicable to each large municipal waste combustor unit subject to this Chapter shall be the requirements as set forth in 40 C.F.R. Part 60, Subpart A, except for the siting requirements under 40 C.F.R. Part 60, Subpart Eb, and except for the following:

(a) All reports required to be submitted under 40 C.F.R. Part 60, Subpart Eb shall be submitted to the Department on a quarterly basis within (30) days of the last date of the reporting period.

(b) All performance test reports shall be submitted to the Department within sixty (60) days from the date of test completion.

(2) **Schedule for Compliance**

All large municipal waste combustor units shall comply with the compliance schedule specified 40 C.F.R. Part 60, Subpart Cb.

(a) Final compliance with the emission limitation requirements of Section 5.A of this Chapter shall be achieved or ceasing of operation shall occur by May 10, 2008.

1. The owners or operators of facilities for which 40 C.F.R. Part 60, Subpart Cb applies that cannot achieve compliance by that date shall submit a closure agreement to the Department no later than May 6, 2008.

(3) Any municipal waste combustor plant which contains a large municipal waste combustor unit subject to this Chapter is subject to the licensing requirements of 06‑096 C.M.R. ch. 140.

**6.** **Large Municipal Waste Combustor Units Subject to 40 C.F.R. Part 60, Subpart Eb.** For all resource recovery facilities defined as 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, the following shall apply:

1. **Emission limitations** and other requirements as specified in 40 C.F.R. Part 60, Subpart Eb; and the following:

**Dioxins/Furans.** The emission limit for dioxins/furans contained in the gases discharged to the atmosphere from a designated unit constructed, reconstructed, or modified prior to September 20, 1994, is 25 nanograms per dry standard cubic meter (total mass), corrected to 7 percent oxygen.

For any unit constructed, reconstructed, or modified after September 20, 1994, the emission limit shall be 13 nanograms per dry standards cubic meter (total mass), corrected to 7 percent oxygen.

B. **Performance Testing Requirements**

Testing during the first two (2) years, following 180 days after initial startup of facility operations, must be conducted at least once in every six‑month period, with a minimum of three months between performance tests.

In addition to the performance testing required in 40 C.F.R. Part 60, Subpart Eb, large municipal waste combustor units shall conduct emissions testing for arsenic, nickel, chromium, and beryllium using EPA Method 29 (40 C.F.R. Part 60, Appendix A). In no case shall the interval between testing exceed three years.

C. **Reporting and Recordkeeping Requirements**

All applicable reports required to be submitted under 40 C.F.R. Part 60, Subpart Eb shall be submitted to the Department on a quarterly basis within (30) days of the last date of the reporting period.

All emission and performance test reports shall be submitted to the Department within sixty (60) days from the date of test completion.

**7.** **Small Municipal Waste Combustor Class I or Class II Units**

For all resource recovery facilities, either Class I or Class II units, the following shall apply (except for periods of startup, shutdown, and malfunction) per 40 C.F.R. Part 60, Subpart BBBB:

A. **Emission Limiting Standards.** An owner or operator may request that compliance with the following applicable emission standards be determined using carbon dioxide measurements corrected to an equivalent of 7 percent oxygen.

(1) **Particulate Matter**

(a) For Class I units, emission limits for particulate matter are specified in Tables 2 and 3 of 40 C.F.R. Part 60, Subpart BBBB.

(b) For Class II units, the emission limit for particulate matter contained in the gases discharged to the atmosphere is 23 milligrams per dry standard cubic meter, corrected to 7 percent oxygen. The averaging time is specified in Table 4 of 40 C.F.R. Part 60, Subpart BBBB.

(2) **Opacity**

The emission limit for opacity exhibited by the gases discharged to the atmosphere from a resource recovery unit is 10 percent (6-minute block average basis).

(3) **Cadmium, Lead, Mercury, Nitrogen Oxides, and Dioxins/Furans**

(a) For Class I units, applicable emission limits for these pollutants are specified in Tables 2 and 3 of 40 C.F.R. Part 60, Subpart BBBB.

For Class II units, the emission limits in the gases discharged to the atmosphere are as follows. These emission limits are all corrected to 7 percent oxygen.

1. Cadmium: 30 micrograms per dry standard cubic meter (dscm);
2. Lead: 660 micrograms per dry standard cubic meter;
3. Mercury: 28 micrograms per dry standard cubic meter or 15 percent of the potential mercury emission concentration (85 percent reduction by weight), corrected to 7 percent oxygen (dry basis), whichever is less stringent;
4. Nitrogen Oxides: 315-330 parts per million by volume.
5. **Dioxins/Furans.** The emission limit for dioxins/furans contained in the gases discharged to the atmosphere from a designated unit is 25 nanograms per dry standard cubic meter (total mass), corrected to 7 percent oxygen.

(4) **Sulfur Dioxide**

The emission limit for sulfur dioxide contained in the gases discharged to the atmosphere from a Class I or a Class II resource recovery facility is 30 parts per million by volume or 20 percent of the potential sulfur dioxide emission concentration (80 percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent. Compliance with this emission limit is based on a 24-hour daily geometric mean.

(5) **Hydrogen Chloride**

The emission limit for hydrogen chloride contained in the gases discharged to the atmosphere from a Class I or a Class II resource recovery facility is 25 parts per million by volume or 5 percent of the potential hydrogen chloride emission concentration (95 percent reduction by weight or volume), corrected to 7 percent oxygen (dry basis), whichever is less stringent.

(6) **Carbon Monoxide**

The emission limitation for carbon monoxide, as measured at a location upstream of the control device, shall not exceed 100 parts per million (ppm) as an 8-hr running average corrected to 7 percent oxygen.

1. **Fugitive Ash Visible Emissions**

No owner or operator of a resource recovery facility shall cause to be discharged to the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points and buildings or enclosures of ash conveying systems and storage areas) in excess of 5 percent of the observation period (i.e., 9 minutes in any 3-hour period), as determined by EPA Reference Method 22 in 40 C.F.R. Part 60, Appendix A. The provisions specified in this section do not apply during maintenance and repair of ash conveying systems.

B. **Operating Practices.** The operating practices for Class I and Class II waste combustion units are specified in 40 C.F.R. Part 60, Subpart BBBB.

C. **Operator Training.** Operator training and certification requirements of 40 C.F.R. Part 60, Subpart BBBB shall apply to all facilities with Class I or Class II municipal waste combustor units.

D. **Compliance and Performance Testing.** The owner or operator of any applicable resource recovery facility shall prepare and submit to the Commissioner for approval a plan for performing tests required under this regulation. Such plan shall include, but is not limited to, sampling locations, test methods, sample analysis procedures, and quality assurance procedures. For any resource recovery facility which is issued an approved air emission license after the effective date of this regulation, the plan must be submitted ninety (90) days prior to the facility’s start up.

(1) **Emission Testing Schedule.** Testing required pursuant to this section shall be conducted in accordance with the following schedule:

(a) Testing during the first two (2) years of operation must be conducted at least once in every 6‑month period, with a minimum of three months between performance tests. The two year test period shall begin upon the Department’s determination that the facility has begun commercial operation.

1. After the first two (2) years of operation, a test every twelve months is required with the following allowances: If all stack tests for a given pollutant over three consecutive years show compliance with the emission limit, the next subsequent stack test is required within 36 months of the anniversary of the third consecutive stack test showing compliance with the emission limit. Thereafter, stack testing is required every third year but no later than 36 months following the previous stack test. If a stack test shows noncompliance with an emission limit, annual stack tests for that pollutant will then be required until all stack tests for three consecutive years show compliance with the emission limit for that pollutant. This provision applies to all pollutants subject to stack testing requirements per the applicable NSPS: dioxins/furans, cadmium, lead, mercury, particulate matter, opacity, hydrogen chloride, and fugitive ash.

Dioxins/furans stack testing may be required less often if the facility owns or operates multiple municipal waste combustion units and all municipal waste combustion units have demonstrated levels of dioxins/furans emissions less than or equal to 15 nanograms per dry standard cubic meter (total mass) for Class I units, or 30 nanograms per dry standard cubic meter (total mass) for Class II units, for two consecutive years. In that case, the facility may choose to conduct annual stack tests on only one municipal waste combustion unit per year per facility. If any annual stack test indicates levels of dioxins/furans emissions greater than the applicable level specified in this paragraph, subsequent annual stack tests are required on all municipal waste combustion units at a facility. A facility may return to testing one municipal waste combustion unit per year if dioxins/furans emissions levels are demonstrated to meet the applicable levels specified in this paragraph for all municipal waste combustion units at the facility for two consecutive years.

(c) Any alternative stack testing schedule must be submitted to the Department for preapproval and must meet the requirements of 40 C.F.R. Part 60, Subpart BBBB.

(2) **Emission Testing.** The owner or operator of any applicable resource recovery facility shall conduct the following emission tests (all performance tests shall consist of three test runs):

(a) **Oxygen (or Carbon Dioxide).** Emissions testing for oxygen (or carbon dioxide) shall be conducted using EPA Method 3A or 3B (40 C.F.R. Part 60, Appendix A).

(b) **Dioxins/Furans.** Emissions testing for dioxins/furans emissions shall be conducted using EPA Method 23 (40 C.F.R. Part 60, Appendix A).

(c) **Hydrogen Chloride.** Emissions testing for hydrogen chloride shall be conducted using EPA Method 26 (40 C.F.R. Part 60, Appendix A).

(d) **Particulate Matter.** Emissions testing for particulate matter shall be conducted using EPA Method 5 (40 C.F.R. Part 60, Appendix A).

(e) **Metals.** Emissions testing for lead, cadmium, arsenic, nickel, mercury, beryllium, and chromium shall be conducted using EPA Method 29 (C.F.R. 40, Part 60, Appendix A).

(f) **Fugitive Emissions.** Emissions testing for fugitive emissions shall be conducted using EPA Method 22 (40 C.F.R. Part 60, Appendix A).

(3) **Continuous Emissions Monitoring.** Resource recovery facilities subject to this section must install and operate instruments for continuously monitoring carbon monoxide (CO) emissions, sulfur dioxide emissions (SO2), and opacity. An O2 or CO2 CEMS shall be calibrated, maintained, and operated at each location where the CO and SO2 CEMS are operated. When demonstrating compliance with the 80% reduction in SO2 emissions, SO2 and diluent gas (O2 or CO2) shall be measured via CEMS at both the inlet and outlet of the control device. Continuous emissions monitoring instrumentation shall meet the requirements in 40 C.F.R. Part 60, Appendices B and F.

C. **Reporting and Recordkeeping**

(1) When continuous emission monitoring (CEM) or continuous opacity monitoring (COM) indicates that the limits in Section 7.A have been exceeded, the licensee shall document in writing the probable cause(s) for each exceeded emission limit and the corrective action taken after each exceeded emission limit in accordance with 06-096 C.M.R. ch. 117, Section 7. Continuous emissions monitoring data is to be retained by the owner or operator of the resource recovery facility for a minimum of six years.

(2) All applicable reports shall be submitted to the Department on a quarterly basis within (30) days of the last date of the reporting period in accordance with 06-096 C.M.R. ch. 117, Section 7.

(3) All emission and performance test reports shall be submitted to the Department within sixty (60) days from the date of test completion.

**8. General Requirements for Large and Small Resource Recovery Facilities.** The following section shall be applicable to all resource recovery facilities including large municipal waste combustor units:

The owner or operator of the resource recovery facility or his representative shall submit to the Department within 60 days of emission test completion the following information:

A. **Facility Operating Status.** A summary of facility process data shall be included in the resource recovery facility emission test report including:

(1) Load Level of waste expressed as

1. the rate of steam production,
2. the percentage of the design capacity steam production,

(2) When requested by the Commissioner, comprehensive data reflecting and documenting the composition of the refuse (fuel);

(3) Temperature measured at the particulate matter control device inlet;

(4) Percent excess air;

(5) Air pollution control device parameters;

(6) If a soot blowing episode(s) was included in the sampling period, its duration; and

(7) Facility status prior to test, i.e. “cold” start or continuing operation.

B. **Pollutant Emission Data.** For each pollutant tested, the report shall include, in tabular form, the value(s) measured for each run as well as the mean of the three (or more) replicate tests.

C. **Combustion Process Data.** The report shall include, in tabular form, a summary of data relating to the overall combustion and air pollution control device(s) performance. This data shall include for each test run:

(1) stack temperature;

(2) stack gas % moisture;

(3) percent isokineticity;

(4) stack gas flow rate (m/sec); and

(5) concentrations of combustion gases and acid gases.

D. **License Conditions.** The report should include a tabular summary of the emission limitations as required of the facility as air emission license conditions.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

STATUTORY AUTHORITY:

38 M.R.S. §§ 585, 585-B & 590

EFFECTIVE DATE:

March 21, 1989 – filing 89-110

EFFECTIVE DATE (ELECTRONIC CONVERSION):

May 8, 1996 – filing 96-190

REPEALED AND REPLACED:

April 7, 1998 – filing 98-164

NON-SUBSTANTIVE CORRECTIONS:

June 18, 1998 - formatting only, filing C-98-139

AMENDED:

November 41, 2007 – filing 2007-486

September 14, 2019 – filing 2019-162

APAO WORD VERSION CONVERSION (IF NEEDED) AND ACCESSIBILITY CHECK: July 15, 2025