7011.1265 REQUIRED PERFORMANCE TESTS, METHODS, AND PROCEDURES.

Subpart 1. **Performance test methods and procedures.** An owner or operator of a waste combustor required to conduct performance tests for a waste combustor must use the performance test methods and procedures specified in parts 7017.2001 to 7017.2060 except as modified in this part. Not operating a sorbent injection system for the sole purpose of testing to demonstrate compliance with the percent reduction standards for sulfur dioxide and hydrogen chloride is not a modification under part 7007.0100, subpart 14.

Subp. 2. **Performance test methods for criteria pollutants.** An owner or operator of a waste combustor required to conduct performance tests for particulate matter, sulfur dioxide, or nitrogen oxides must use the test methods under items A to D.

A. For particulate matter, except for class I, II, A, and C waste combustors, the minimum sample volume must be 1.7 dscm, and the probe and filter holder heating systems in the sample train must be set to provide a gas temperature no greater than 160 degrees Celsius, plus or minus 14 degrees. For class III and IV waste combustors, the minimum sample volume must be 0.85 dscm. Owners or operators may request approval for smaller sampling times or volumes from the commissioner before testing, when necessitated by process variables or site-specific limitations. An oxygen or carbon dioxide measurement must be obtained simultaneously with each Method 5 test run for particulate matter. Particulate matter emissions, expressed in gr/dscf, must be corrected to seven percent oxygen by using the following formula:

$$c_7 = \frac{14c}{(21-\%O_2)}$$

where: c_7 is the concentration of particulate matter corrected to seven percent oxygen;

c is the concentration of particulate matter as measured by Code of Federal Regulations, title 40, part 60, Appendix A-3, Method 5, and Code of Federal Regulations, title 40, part 51, Appendix M, Method 202, and

$\%O_2$ is the percentage of oxygen as measured by Code of Federal Regulations, title 40, part 60, Appendix A-2, Method 3, as amended.

(1) Filterable particulate matter emission is the concentration of particulate matter as measured by Code of Federal Regulations, title 40, part 60, Appendix A-3, Method 5, as amended.

(2) The sum of filterable and organic condensable particulate matter is the concentration of particulate matter as described in part 7017.2060, subpart 3, item B.

For each sample run employing Method 5 as provided in Appendix A-3 of Code of Federal Regulations, title 40, part 60, as amended, the emission rate must be determined using:

(a) oxygen or carbon dioxide measurements;

(b) dry basis F factor; and

(c) dry basis emission rate calculation procedures in Code of Federal Regulations, title 40, part 60, Appendix A-7, Method 19, as amended.

B. For opacity emissions, Code of Federal Regulations, title 40, part 60, Appendix A, Method 9, as amended, must be used to determine compliance with opacity limits.

C. For class IV waste combustors carbon monoxide emissions, compliance with the emission limit must be determined by using Code of Federal Regulations, title 40, part 60, Appendix A, Method 10, as amended.

D. For fugitive ash emissions, Code of Federal Regulations, title 40, part 60, Appendix A, Method 22, as amended, must be used. The minimum observation time is a series of three one-hour observations. The observation period must include times when the facility is transferring ash from the waste combustor unit to the area where ash is stored or loaded into containers or trucks. The average duration of visible emissions per hour must be calculated from the three one-hour observations. The average must be used to determine compliance with the emission limit.

Subp. 3. **Performance test methods for other air contaminants.** If not specified in this subpart, the owner or operator must use test methods in Code of Federal Regulations, title 40, part 60, Appendix A, or part 61, Appendix B, as amended, or other methods determined by the commissioner in writing to be equivalent. For class A waste combustors, other methods used for performance testing must be approved by the Environmental Protection Agency.

A. For hydrogen chloride, the percentage reduction in the potential hydrogen chloride emissions ($\%P_{HCl}$) is computed using the following formula:

$$\%P_{HCl} = \frac{(E_i - E_o)}{E_i}$$

where E_i is the potential hydrogen chloride emission rate measured at the control device inlet, corrected to seven percent O_2, and E_o is the hydrogen chloride emission rate measured at the outlet of the acid gas control device, corrected to seven percent O_2.

Code of Federal Regulations, title 40, part 60, Appendix A, Method 26 or 26A, as amended, must be used for determining the hydrogen chloride emission rate. The minimum sampling time is one hour. An oxygen or carbon dioxide measurement must be obtained simultaneously with each Method 26 test run for hydrogen chloride. The average of the hydrogen chloride emission concentration or percent reduction is used to determine compliance.

B. For PCDD/PCDF emissions, Code of Federal Regulations, title 40, part 60, Appendix A, Method 23, as amended, must be used to determine compliance with the PCDD/PCDF emission limits. For class II and A facilities, the minimum sample time is four hours per test run. For class III, C, and D facilities, the minimum sample time is three hours per test run. An oxygen or carbon

dioxide measurement must be obtained simultaneously with each Method 23 test run for PCDD/PCDF. The average of the PCDD/PCDF test runs is used to determine compliance.

C. For mercury, lead, and cadmium emissions, Code of Federal Regulations, title 40, part 60, Appendix A, Method 29, as amended, must be used for measuring emissions of lead, cadmium, and mercury. The minimum sample volume is 1.7 dscm. An oxygen or carbon dioxide measurement must be obtained simultaneously with each Method 29 test run for lead and cadmium. The average of the lead or cadmium emission concentrations from three test runs or more must be used to determine compliance. The procedures in item D must be used to determine compliance with the mercury emission limits.

D. To determine the mercury concentration, the arithmetic average of three or more samples at the outlet of the air pollution control device must be used. The minimum sample volume is 1.7 dscm. The maximum sample run time is two hours. An oxygen or carbon dioxide measurement must be obtained simultaneously with each Method 29 test run for mercury.

To determine the percent reduction of mercury, concurrent sampling for mercury at the inlet and outlet of the air pollution control system must be performed at each occurrence of mercury emissions performance testing.

Owners and operators of RDF combustors may choose to conduct mercury emissions testing either every 90 days or every 12 months. If the owner or operator of an RDF combustor chooses to conduct testing every 90 days, the requirements of subitems (1) and (2) apply. If the RDF combustor chooses to test every 12 months, the requirements of subitem (3) apply.

(1) Procedures to determine compliance with the short-term mercury emission concentration limit are described in unit (a). If the waste combustor does not show compliance as determined in unit (a), compliance must be determined as described in units (b) and (c).

(a) The waste combustor is in compliance with the mercury concentration limit if the arithmetic average of three or more samples is less than or equal to the applicable short-term mercury emission concentration limit.

(b) If the average computed in unit (a) exceeds the short-term mercury emission concentration limit, the removal efficiency for each run must be computed as follows:

$$\%Hg_{\text{removal efficiency}} = [Hg_{in} - Hg_{out}]/HG_{in} \times 100$$

Where: $Hg_{\text{removal efficiency}}$ is the removal efficiency of each sample run, HG_{in} is the mercury concentration measured at the inlet of the air pollution control device, and $Hg_{out}$is the mercury concentration measured at the outlet.

(c) The waste combustor is in compliance with the short-term mercury emission limit if the arithmetic average of each of the removal efficiencies as computed in unit (b) is greater than or equal to 85 percent.

(2) Procedures to determine compliance with the long-term mercury emission concentration limit are described in unit (a). If the waste combustor does not show compliance as determined in unit (a), compliance must be determined as described in unit (b).

(a) To determine compliance with the mercury emission concentration limit, the arithmetic average of all mercury emission concentrations measured in a compliance test available for the previous calendar year must be used. Initial compliance with the long-term mercury concentration limit must be determined upon completion of the first calendar year. Subsequent compliance must be determined at each occurrence of mercury emission performance testing.

(b) If the average that was computed in unit (a) exceeds the long-term mercury emission concentration, the removal efficiency for each run must be computed by the equation in subitem (1), unit (b). The waste combustor is in compliance with the long-term mercury emission limit if the arithmetic average of each of the removal efficiencies is greater than or equal to 85 percent.

(3) Owners or operators of waste combustors combusting RDF who choose to conduct mercury emission testing every 12 months must use the procedures in this subitem to determine compliance with mercury emission limits.

(a) The waste combustor is in compliance with the 12-month mercury emission concentration limit if the arithmetic average of three or more samples is less than the 12-month test interval mercury emission concentration limit.

(b) If the average computed in unit (a) exceeds the 12-month mercury emission concentration limit, the removal efficiency for each run must be computed by the equation in subitem (1), unit (b). The waste combustor is in compliance with the 12-month mercury emission limit if the arithmetic average of the removal efficiencies is greater than 85 percent.

Subp. 4. **Steam flow measurement method.** The method contained in ASME PTC 4.1, section 4, incorporated by reference in part 7011.1205, must be used for calculating the steam flow required under part 7011.1260, subpart 3, item A, subitem (2). The recommendations of Application: Part II of Fluid Meters, Interim Supplement 19.5 on Instruments and Apparatus, chapter 4, incorporated by reference in part 7011.1205, must be followed for design, construction, installation, calibration, and use of nozzles and orifices, except that measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed. All signal conversion elements associated with steam flow measurements must be calibrated according to the manufacturer's instructions before each PCDD/PCDF test, and at least once per year. This annual calibration must be recorded in the daily operating record as described in part 7011.1285, subpart 2.

Subp. 4a. **Alternative methods for measuring unit load.** Alternative continuous measuring methods in place of steam flow may be installed and operated, provided that the method continuously measures the waste combustor unit load, is equivalent to results obtained when using the method in subpart 4, and the use of the method is approved by the commissioner.

Subp. 4b. **Procedures for correlating carbon dioxide and oxygen concentrations.** If carbon dioxide is selected for use in diluent corrections, the relationship between oxygen and carbon dioxide

levels must be established during the initial performance test according to the procedures and methods under items A to E.

A. The fuel factor equation in Code of Federal Regulations, title 40, part 60, Appendix A, Method 3B, must be used to determine the relationship between oxygen and carbon dioxide at a sampling location. Method 3, 3A, or 3B must be used to determine the oxygen concentration at the same location as the carbon dioxide monitor.

B. Samples must be taken for at least 30 minutes in each hour.

C. Each sample must represent a one-hour average.

D. A minimum of three runs must be performed.

E. The relationship between carbon dioxide and oxygen concentrations that is established must be submitted as part of the initial performance test report.

Subp. 5. **Performance tests required.** Performance tests must be conducted on waste combustors to determine the emission concentrations of the following air contaminants:

A. lead;

B. cadmium;

C. mercury; and

D. any other air contaminant for which an emission limitation applies to the waste combustor, except for opacity and those contaminants for which compliance is demonstrated by using a continuous monitor.

Subp. 6. **Operation during performance testing.** The owner or operator of a waste combustor must report operating conditions to the commissioner, including operating parameters of the air pollution control equipment, flue gas temperatures, air flow rates, and pressure drop across the combustion system.

Subp. 7. **Maximum demonstrated capacity.** For class I, II, III, A, C, and D waste combustors, maximum demonstrated capacity of each waste combustor unit must be determined during the initial performance test for PCDD/PCDF and each subsequent performance test during which compliance with the PCDD/PCDF emission limit in part 7011.1225 is achieved. For class IV waste combustors, maximum demonstrated capacity must be determined during the initial performance test and each subsequent performance test during which compliance with emission limits is demonstrated.

Subp. 8. **Particulate matter control; device temperature.** The owner or operator of a waste combustor with postcombustion particulate matter control must determine and record the four-hour arithmetic average gas stream temperature as measured at the inlet to each particulate matter control device during the initial and each subsequent performance test for PCDD/PCDFs demonstrating compliance with the PCDD/PCDF emission limit in part 7011.1225.

Subp. 9. [Repealed, 22 SR 1975]

Subp. 10. **Solid waste composition.** Solid waste composition studies must be conducted as described in part 7007.0501, subpart 2.

Subp. 11. **Exceeding emission limits.** If accurate and valid data results of a performance test demonstrate an exceedance of a standard of performance under part 7011.1225 or in the waste combustor's air emission facility permit after normal start-up, the waste combustor owner or operator must take the actions in items A to D.

A. The owner or operator must immediately report the exceedance to the commissioner and comply with the applicable reporting provisions of part 7007.0800, subpart 6.

B. The owner or operator must take appropriate steps to return the waste combustor to compliance and must demonstrate compliance within 60 days of the initial report of the exceedance.

C. If the commissioner determines that compliance has not been achieved within 60 days of the initial report of exceedance, the waste combustor must be shut down.

D. If shutdown was required under item C, the waste combustor may be restarted under the conditions specified by the commissioner. The owner or operator must notify the commissioner in writing of the date on which the owner or operator plans to start up and to begin compliance testing. Notification must be at least ten days in advance of the compliance test date.

Statutory Authority: *MS s 115.03; 116.07*

History: *18 SR 2584; 22 SR 1975; 28 SR 1482; 41 SR 763; 44 SR 1030*

Published Electronically: *September 17, 2020*