REGULATION 7.76 Standards of Performance for New Municipal Solid Waste Incinerators

Air Pollution Control District of Jefferson County
Jefferson County, Kentucky

Relates To: KRS Chapter 77 Air Pollution Control
Pursuant To: KRS 77 Chapter 77 Air Pollution Control
Necessity and Function: KRS 77.180 provides that the Air Pollution Control Board may make and enforce all needful orders, rules, and regulations necessary or proper to accomplish the purposes of KRS Chapter 77. This regulation provides for the control of emissions from new municipal solid waste incinerators.

SECTION 1 Applicability

1.1 This regulation applies to each affected facility, which means each municipal solid waste incinerator (MSWI) unit for which construction, modification, or reconstruction commenced on or after the effective date of this regulation. Refuse-derived fuel (RDF) co-fired incinerators which combust less than or equal to 20% RDF shall be exempt from this regulation. Incinerators which combine and combust Municipal Solid waste and medical waste shall be subject to District Regulation 6.41 or 7.78.

1.2 Owners or operators of MSWI plants with a capacity of 500 pounds per hour or less shall be exempt from sections 3 and 7. However, these facilities shall comply with the following requirements:

1.2.1 Emission discharged into the atmosphere shall not exhibit greater than 10% opacity. EPA Method 9 shall be used to determine compliance with the opacity standard; and

1.2.2 Regulations 3.04 and 5.12.

1.3 Emission limitations or control requirements imposed by any other regulation of the District or the Kentucky Division of Waste Management may impose more stringent requirements than those imposed by this regulation. The more stringent requirements shall govern.

1.4 No owner or operator of an affected facility subject to 401 KAR 47:030 shall construct or operate the affected facility in a manner that will violate the requirements of the State regulation.

SECTION 2 Definitions

Terms used in this regulation not defined herein shall have the meaning given them in Regulation 1.02.

2.1 "Affected facility" means each municipal solid waste incinerator unit for which construction, modification, or reconstruction commenced on or after the effective date of this regulation.

2.2 "Acid gases" means sulfur dioxide and hydrogen chlorine gases emitted from units.

2.3 "Afterburner" means an auxiliary burner for destroying unburned or partially burned combustion gases after they have passed from the combustion chamber.

2.4 "ASME" means the American Society of Mechanical Engineers.

2.5 "Biologicals" means a biological product used in prevention or treatment of disease.

2.6 "Bubbling fluidized bed incinerator" means a fluidized bed incinerator in which the majority of the bed material remains in the primary combustion zone.

2.7 "Burnout" means the percent of matter completely burned in the primary chamber of an affected facility.

2.8 "Chief facility operator" means the person in direct charge and control of the operation of an affected facility and who is responsible for daily on-site supervision, technical direction, management, and overall performance of the facility.

2.9 "Circulating fluidized bed incinerator" means a fluidized bed incinerator in which the majority of the bed material is carried out of the primary combustion zone and is transported back to the primary zone through a recirculation loop.

2.10 "Commercial solid waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding household and industrial wastes. Commercial solid waste includes waste from medical facilities, schools, and other institutions that is not medical waste.

2.11 "Contained landfill" has the meaning given it in 401 KAR 30:010.

2.12 "Continuous emission monitoring system" (CEMS) means a monitoring system for continuously measuring and recording the emissions of a pollutant from an affected facility.

2.13 "Daily average" means the average of all hourly emission rates when the affected facility is operating and firing municipal solid waste, measured over a 24 hour period between 12:00 midnight and the following midnight.

2.14 "Dioxin or furans" means total tetra- through octa- chlorinated dibenzo-p-dioxins and tetra- through octa-chlorinated dibenzofurans.

2.15 "Ferrous metals" means metals and alloys containing iron. Ferrous metals include, but are not limited to, pieces of scrap metal and household appliances made of iron containing metals, including stoves, refrigerators, air conditioners, and other appliances. Ferrous metals shall not include whole automobiles or other vehicles or vehicle bodies.

2.16 "Field-erected" means assembled from components at a final site of operations.

2.17 "Four hour block average" means the average of all hourly emission rates when the affected facility is operating and combusting municipal solid waste measured over four hour periods of from 12:00 midnight to 4:00 a.m., 4:00 a.m. to 8:00 a.m., 8:00 a.m. to 12:00 noon, 12:00 noon to 4:00 p.m., 4:00 p.m. to 8:00 p.m., and 8:00 p.m. to 12:00 midnight.

2.18 "Hazardous waste" means any discarded material or material intended to be discarded or substance or combination of such substances intended to be discarded, in any form which because of its quantity, concentration or physical, chemical or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

2.19 "Household battery" means a dry cell battery.

2.20 "Household solid waste" means solid waste, including garbage and trash generated by single and multiple family residences, hotels, motels, bunkhouses, ranger stations, crew quarters, and recreational areas such as picnic areas, parks, and campgrounds.

2.21 "Industrial waste" means a liquid, gaseous, or solid waste substance resulting from a process of industry, manufacture, trade, or business, or from the development, processing, or recovery of a natural resource.

2.22 "Large MSWI plant" means a MSWI plant with a MSWI plant capacity greater than 225 megagrams (250 tons) per day of municipal waste.

2.23 "Mass burn refractory incinerator" means an incinerator that combusts waste in a refractory wall furnace.

2.24 "Mass burn rotary waterwall incinerator" means an incinerator that combusts waste in a cylindrical rotary waterwall furnace.

2.25 "Mass burn waterwall incinerator" means an incinerator that combusts waste in a conventional waterwall furnace.

2.26 "Maximum MSWI unit load" means the maximum one hour MSWI load achieved when compliance with all applicable regulations is demonstrated or during a subsequent test demonstrating compliance with a higher unit load.

2.27 "Medical waste" means:

2.27.1 Cultures and stocks of infectious agents, including specimen cultures collected from medical and pathological laboratories, cultures and stocks of infectious agents from research and industrial laboratories, waste from the production of biologicals, discarded live and attenuated vaccines, and culture dishes and devices used to transfer, inoculate, and mix cultures;

2.27.2 Waste human blood and blood products such as serum, plasma, and other blood components;

2.27.3 Pathological wastes, such as tissues, organs, body parts, and body fluids that are removed during surgery and autopsy;

2.27.4 All discarded sharps including, but not limited to, hypodermic needles, syringes, Pasteur pipettes, broken glass, scalpels, scalpel blades, glass vials, etc., used in patient care, autopsy, embalming, or which have come into contact with infectious agents during use in medical, research, or industrial laboratories;

2.27.5 Carcasses and body parts of animals that were exposed to pathogens in research, in production of biologicals, or in the in vivo testing of pharmaceuticals; and

2.27.6 Other wastes as may be designated by a permit issued by the District.

2.28 "Metals" means condensible metals emitted from units. For the purpose of this regulation, particulate matter shall serve as a surrogate for the measurement and controls of metals.

2.29 "Modular excess air incinerator" means an incinerator that combusts waste and that 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.

2.30 "Modular starved air incinerator" means an incinerator that combusts waste and that is not field erected and has multiple combustion chambers in which the primary combustion chamber is designed to operate at substoichiometric conditions.

2.31 "Municipal solid waste" or "MSW" means household solid waste and commercial solid waste. Medical waste shall not be considered to be MSW and is regulated by Regulation 6.41 or 7.78.

2.32 "Municipal solid waste incinerator" (MSWI) or "municipal solid waste incinerator unit" (MSWI unit) means a device that combusts material which, if included in the waste stream, would be municipal waste. This includes, but is not limited to, field erected incinerators, (with or without heat recovery), modular incinerators (starved air or excess air), boilers, (i.e., steam generating units), and furnaces (whether suspension-fired, grate fired, mass-fired, or fluidized bed-fired).

2.33 "Multiple-chamber incinerator" means an incinerator consisting of at least two refractory lined combustion chambers (primary and secondary) in series, physically separated by refractory walls, and interconnected by gas passage ports or ducts.

2.34 "Normal" means a volumetric measurement at 32 ^{o}F and one atmosphere.

2.35 "Organics" means organic compounds emitted from units and includes dioxins or furans. For the purpose of this regulation, dioxin or furan shall serve as a surrogate for the measurement and control of organics.

2.36 "Particulate matter" means total particulate matter emitted from affected facilities.

2.37 "Particulate matter carryover" means particulate matter which is passed from the primary chamber of an incinerator into the flue gas stream.

2.38 "Plant" means one or more units at the same location for which construction, modification, or reconstruction is commenced on or after the effective date of this regulation.

2.39 "Plant capacity" means the aggregate unit capacity of all units at a plant for which construction, modification, or reconstruction is commenced on or after the effective date of this regulation.

2.40 "Processed municipal solid waste or refuse-derived fuel" or "processed MSW or RDF" means MSW or RDF that has been processed to separate materials for recovery prior to combustion in a MSWI unit. MSW or RDF is considered to be processed MSW or RDF if an overall 40% or greater reduction by weight (annual average) of MSW is achieved through separation of recoverable materials. A maximum of 15% reduction by weight of overall MSW shall be attributed to separation of yard waste. The 40% or greater overall reduction requirement may be achieved by on-site mechanical separation, on-site manual separation, off-site mechanical separation, off-site manual separation, or a curb side source reduction or a materials separation (recycling) program, or a combination thereof.

2.41 "Recoverable materials" means paper, paperboard, ferrous metals, nonferrous metals, glass, plastics, household batteries, and yard waste.

2.42 "Refuse-derived fuel" or "RDF" means a type of MSW produced by processing MSW through shredding and size classification. This includes all classes of RDF including low density fluff RDF through densified RDF fuel pellets.

2.43 "Refuse-derived fuel co-fired incinerator" or "RDF co-fired incinerator" means an incinerator that is designed to fire refuse-derived fuel simultaneously with other fuels.

2.44 "RDF spreader stoker" means a steam generating unit that combusts RDF in a semi-suspension firing mode using air-fed distributors.

2.45 "Same location" means the same or contiguous property that is under common ownership or control, including properties that are 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 a combination thereof, including a municipality or other governmental unit, or a quasi-governmental authority (e.g., a public utility district or waste management district).

2.46 "Shift supervisor" means the person in direct charge and control of the operation of an affected facility who is responsible for on-site supervision, technical direction, management, and overall performance of the affected facility during an assigned shift.

2.47 "Small MSWI plant" means a MSWI plant with a MSWI plant capacity of greater than 500 pounds per hour but less than or equal to 225 megagrams per day (250 tons per day) of municipal solid waste.

2.48 "Solid waste" means any garbage, refuse, sludge and other discarded material, including solid, liquid, semi-solid or contained gaseous material resulting from industrial, commercial, mining (excluding coal mining waste, coal mining by-products, refuse and overburden), agricultural operations, and from community activities, but does not include those materials, including, but not limited to, sand, soil, rock, gravel, or bridge debris extracted as a part of a public road construction project funded wholly or in part with state funds, recovered material, special waste as designated by KRS 224.50-760, solid or dissolved material in domestic sewage, manure, crops, crop residue, or a combination thereof which is placed on the soil for return to the soil as fertilizers or soil conditioners, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under the Federal Water Pollution Control Act (86 Stat. 880) Section 402 or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954 (68 Stat. 923).

2.49 "Standard" means a volumetric measurement at 68 ^{o}F and one atmosphere.

2.50 "Uncontrolled hydrogen chloride emission rate" means the HCl emission rate that would occur from the combustion of MSW in the absence of HCl emissions control.

2.51 "Uncontrolled sulfur dioxide emission rate" means the SO_2 emission rate that would occur from the combustion of MSW in the absence of SO_2 emissions control.

2.52 "Unit" means an affected facility 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), and furnaces (whether suspension-fired, grate-fired, mass-fired, or fluidized bed-fired).

2.53 "Unit capacity" means the maximum designed charging rate of the waste for an individual unit.

2.54 "Unit load" means the volume of steam produced, expressed in kilograms per hour (pounds per hour) of steam.

2.55 "Unprocessed MSW or RDF" means MSW or RDF that has not been processed to separate materials for recovery prior to combustion or for which less than 40% reduction by weight (annual average) of MSW is achieved as specified under processed MSW or RDF.

2.56 "Vehicle battery" means a wet lead-acid battery.

2.57 "Yard waste" means vegetative matter removed as a result of outdoor maintenance practices from residential and commercial yards, municipal parks, gardens, golf courses, and other similar areas, and includes, but is not limited to, grass trimmings, tree branches, straw, and leaves.

SECTION 3 Emission Standards

3.1 Standards for Metals. On or after the date on which the initial performance test is completed or required to be completed by section 6, no owner or operator of an affected facility shall cause or allow to be discharged into the atmosphere from the affected facility:

3.1.1 Particulate matter in excess of 34 milligrams per dry standard cubic meter (0.015 grains per dry standard cubic foot) of exhaust gas, corrected to 7% O_2 (dry basis); and

3.1.2 Visible air contaminants in excess of 10% opacity.

3.2 Standards for Organics. On or after the date on which the initial performance test is completed or required to be completed by section 6, no owner or operator of an affected facility:

3.2.1 Located within a small MSWI plant shall cause or allow to be discharged into the atmosphere from that affected facility emissions that contain dioxin or furan emissions that exceed 75 nanograms per normal cubic meter (30 grains (parts) per billion standard cubic feet), corrected to 7% O_2 (dry basis); or

3.2.2 Located within a large MSWI plant shall cause or allow to be discharged into the atmosphere from that affected facility emissions that contain dioxin or furan emissions that exceed 30 nanograms per normal cubic meter (13.11 grains (parts) per billion standard cubic feet), corrected to 7% O_2 (dry basis).

3.3 Standards for Acid Gases.

3.3.1 Small MSWI plant. On or after the date on which the initial performance test is completed or required to be completed by section 6, no owner or operator of an affected facility located within a small MSWI plant shall cause or allow to be discharged into the atmosphere from that effected facility, emissions that contain:

3.3.1.1 HCl emissions in excess of 20% of the uncontrolled HCl emission rate (80% reduction by weight) on an hourly basis or 25 parts per million by volume, corrected to 7% O_2 (dry basis), whichever is less stringent; or

3.3.1.2 SO_2 emissions in excess of 50% of the uncontrolled S_2O emission rate (50% reduction by weight) on an hourly basis or 30 parts per million by volume, corrected to 7% O_2 (dry basis), whichever is less stringent; and

3.3.2 Large MSWI plant. On or after the date on which the initial performance test is completed or required to be completed by section 6, no owner or operator of an affected facility located within a large MSWI plant shall cause or allow to be discharged into the atmosphere from that affected facility, emissions that contain:

3.3.2.1 HCl emissions in excess of 5% of the uncontrolled HCl emission rate (95% reduction by weight) on an hourly basis or 25 parts per million by volume, corrected to 7% O_2 (dry basis), whichever is less stringent; and

3.3.2.2 SO_2 emissions in excess of 15% of the uncontrolled S_2O emission rate (85% reduction by weight) on an hourly basis or 30 parts per million by volume, corrected to 7% O_2 (dry basis), whichever is less stringent.

3.4 Standard for Nitrogen Oxides. On or after the date on which the initial performance test is completed or required to be completed by section 6, no owner or operator of an affected facility located within a large MSWI plant shall cause or allow to be discharged into the atmosphere from that facility, emissions that contain nitrogen oxides in excess of 120 parts per million by volume, corrected to 7% O_2 (dry basis).

3.5 Standard for Carbon Monoxide. On or after the date on which the initial performance test is completed or required to be completed by section 6, no owner or operator of an affected facility shall cause or allow the facility to exceed the CO standard for MSWI technology:

3.5.1	Mass burn waterwall	100 ppmv
3.5.2	Mass burn refractory	100 ppmv
3.5.3	Mass burn rotary waterwall	150 ppmv
3.5.4	Modular starved air	50 ppmv
3.5.5	Modular excess air	50 ppmv
3.5.6	Refuse-derived fuel spreader stoker	150 ppmv
3.5.7	Bubbling fluidized bed incinerator	100 ppmv

3.5.8	Circulating fluidized bed incinerator	100 ppmv
3.5.9	RDF co-fired incinerator	150 ppmv
3.5.10	Other technologies	150 ppmv

Carbon monoxide emissions shall be measured at the incinerator outlet in conjunction with a measurement of oxygen concentration, corrected to 7% O_2 (dry basis) using a four hour block average.

SECTION 4 Standards for Operating Practices

4.1 No owner or operator of an affected facility that generates steam shall cause the facility to operate at a load level greater than 100% of the maximum MSWI unit load. An owner or operator of an affected facility who wishes to operate at a load greater than the maximum MSWI unit load may do so by conducting all applicable compliance tests to establish a higher maximum MSWI unit load.

4.2 No owner or operator of an affected facility shall burn MSW except in a multiple-chamber incinerator with a solid hearth, or in a device found to be equally effective for the purpose of air contaminant control as determined by the District.

4.3 Temperature and residence time requirements for affected facilities equipped with a secondary chamber while the affected facility is combusting MSW are as follows:

4.3.1 The incinerator secondary chamber shall be maintained at a temperature of 982 $\pm$ 93 ^{o}C (1800 $\pm$ 200 ^{o}F);

4.3.2 The minimum secondary chamber residence time shall be 1.0 seconds; and

4.3.3 The incinerator shall have interlocks or other process control devices to prevent operation of the incinerator until the conditions in sections 4.3.1, 4.3.2 and 4.4 are assured.

4.4 No owner or operator of an affected facility other than a facility using a wet scrubber as a particulate matter control device shall allow the temperature of the flue gases entering the particulate matter control device inlet to exceed 149 ^{o}C (300 ^{o}F) while the affected facility is combusting MSW.

4.5 Except as provided in section 4.8, on or after the date of the initial start-up, no owner or operator of an affected facility shall cause or allow unprocessed MSW or RDF to be combusted in this facility.

4.6 No owner or operator of an affected facility shall cause or allow yard waste or vehicle batteries to be combusted in the facility.

4.7 Prior to initial start-up, the owner or operator of an affected facility shall establish a program which has been approved by the District to remove household batteries from MSW prior to combustion. On or after the date of initial start-up, the owner or operator shall comply with the approved plan for removing household batteries from MSW.

4.8 401 KAR 59:021 section 8 Standards for MSWI Operating Practices does not apply to affected facilities in Jefferson County, Kentucky.

4.9 Owners or operators of affected facilities shall cause ash from affected facilities to be tested to determine the toxicity of the ash using tests required in 401 KAR Chapter 31. Ash which is determined to be hazardous waste shall be disposed of according to the regulations of the Kentucky Division of Waste Management. Ash which is determined to not be hazardous waste shall be disposed of in a landfill permitted by the Kentucky Division of Waste Management.

4.10 Owners or operators of affected facilities that receive MSW from generators that are noncontiguous to the incineration site shall comply with the operating requirements for contained landfills; i.e., shall implement a program at the facility for detecting and preventing the disposal of regulated hazardous waste as defined in 401 KAR Chapter 31 and polychlorinated biphenyls (PCBs) as defined in 40 CFR Section 761. This program shall include at a minimum:

4.10.1 Random inspections of incoming waste;

4.10.2 Inspection of suspicious waste;

4.10.3 Records of inspections;

4.10.4 Training of facility personnel to recognize regulated hazardous waste;

4.10.5 Procedures for notifying the proper authorities and the District if a regulated hazardous waste is discovered at the facility; and isolation of same from waste stream;

4.10.6 Employee safety, health, training and equipment to be used in inspections; and

4.10.7 The owner or operator shall have a program approved by the Kentucky Division of Waste Management, to inspect all waste entering the source for combustion. This program to exclude hazardous waste shall include:

4.10.7.1 Random inspections in time, but uniformly distributed to all contributing waste sources based on volume received from each;

4.10.7.2 Identification data concerning the hauler on the formal operating inspection record:

4.10.7.2.1 The name of the driver;

4.10.7.2.2 The name of the hauler;

4.10.7.2.3 The address of the hauler;

4.10.7.2.4 The name of the source of the waste;

4.10.7.2.5 The address of the source of the waste;

4.10.7.2.6 The weight and volume of the delivered; and

4.10.7.2.7 The waste characteristics.

4.10.7.2.8 The isolation of suspect waste and notification of authorities pursuant to section 4.10.5; and

4.10.7.3 The owner or operator shall maintain a record of the inspections in accordance with the approved record keeping requirements of the Kentucky Division of Waste Management.

SECTION 5 Operator Certification and Training

5.1 Within 24 months from the date that ASME adopts a certification program for municipal solid waste combustor (incinerator) unit operators, each chief facility operator and shift supervisor of an affected facility shall obtain and keep current either a provisional or operator certification from ASME.

5.2 No owner or operator of an affected facility shall cause or allow a unit to be operated unless an ASME certified chief facility operator or an ASME certified shift supervisor on duty at the affected facility at all times during periods of unit operation. This requirement shall take effect 24 months after the date that ASME adopts a certification program for municipal solid waste combustor (incinerator) unit operators.

5.3 The owner or operator of an affected facility shall develop, update on an annual basis, and provide the District with one copy of, a site specific operations and maintenance manual that shall, at a minimum, address the following:

5.3.1 Summary of the applicable standards under this regulation;
5.3.2 Description of basic combustion theory applicable to a unit;
5.3.3 Procedures for receiving, handling and feeding waste;
5.3.4 Unit start-up, shutdown and malfunction procedures;
5.3.5 Procedures for maintaining proper combustion air supply levels;
5.3.6 Procedures for operating the unit within the standards established under this regulation;
5.3.7 Procedures for responding to periodic upset or off- specification conditions;
5.3.8 Procedures for minimizing particulate matter carry- over;
5.3.9 Procedures for monitoring burnout;
5.3.10 Procedures for handling ash;
5.3.11 Procedures for monitoring unit emissions; and,
5.3.12 Reporting and record keeping procedures,

5.4 The owner or operator of an affected facility shall establish a program for reviewing the operating manual annually with each person who has responsibilities affecting the operation of an affected facility including, but not limited to, chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel and crane or load handlers.

5.5 The initial review of the operating manual, as specified under section 5.4, shall be conducted prior to the assumption of responsibilities affecting unit operation by a person required to undergo training under section 5.1. Subsequent reviews of the manual shall be carried out annually by each person required to undergo training.

5.6 The operating manual shall be kept in a readily accessible location for all persons required to undergo training under section 5.1. The operating manual and records of training shall be available for inspection by District personnel, upon request.

5.7 The owner or operator of each affected facility shall maintain documentation to support compliance with this section. The information shall be made available upon request, and shall include, at a minimum, a description of the instruction given, the date of the instruction, the signature of the person receiving the instruction, and copies of the certificates issued to the chief facility operator and shift supervisor documenting successful completion of the training required in section 5.1.

SECTION 6 Compliance and Performance Testing

Within 60 days after achieving the maximum production rate at which an affected facility will be operated, but no later than 180 days after initial start-up of the facility, and at other times as may be required by the District, the owner or operator of an affected facility shall conduct performance tests according to Regulation 1.04 and shall furnish the District a written report of the performance tests. This section shall apply at all times, except for a period of one hour for start-up or shutdown of the affected facility and for a period not to exceed three hours during the malfunction of an affected facility. Except as provided in Regulation 1.04, the following methods shall be used to determine compliance with Section 3: 40 CFR Section 60.13 Methods 1, 2, 3, 5, 6, 6A, 6C, 7, 7E, 9, 10, and 19 and Performance Specifications 1, 2, 3, and 4, 40 CFR Part 60 Appendix F are adopted without change in Regulation 1.15. Kentucky Methods 23 and 26, Kentucky Specification 4A, and Kentucky Procedure 1 are incorporated by reference. For each performance test, an owner or operator may request that compliance be determined using CO_2 measurements corrected to an equivalent of 7% O_2. The relationship between O_2 and CO_2 levels for the affected facility shall be established during each initial performance test.

6.1 Metals. The following procedures and test methods shall be used to determine compliance with the standards for metal in Section 3:

6.1.1 Method 1 shall be used to select sampling sites and the number of traverse points.

6.1.2 Method 2 shall be used for determining stack gas velocity and volumetric flow rates.

6.1.3 Method 3 shall be used for gas analysis.

6.1.4 Method 5 shall be used for determining compliance with particulate matter emission standards. The minimum sample volume shall be 1.7 cubic meters (60 cubic feet). The temperature of the sample gas in the probe and filter holder shall be no greater 120 $\pm$ 14 °C (248 $\pm$ 25 °F). An O_2 or CO_2 measurement shall be obtained simultaneously with each Method 5 run.

6.1.5 Both Method 9 and CEMS shall be used for determining compliance with the opacity standard. However, Method 9 results shall take precedence over CEMS data if concurrent readings occur.

6.1.6 The owner or operator of an affected facility with a unit capacity greater than 500 pounds per hour that does not have a wet scrubber, shall install, calibrate, maintain , and operate a CEMS for measuring opacity and shall record the output of the system.

6.1.7 Following the date the initial performance test for the mass emission standard for particulate matter is completed to comply with this regulation, the owner or operator of an affected facility shall conduct a performance test for particulate matter on an annual basis (no more than 12 calendar months following the previous compliance test). For an affected facility located within a small MSWI plant, if all three performance tests for a three year period indicate compliance with the particulate matter standard, the owner or operator may forego a performance test for the subsequent two years. At a minimum, a performance test for particulate matter for an affected facility located within a small MSWI plant shall be conducted every third year (no more than 36 months following the previous compliance test). If a performance test conducted every third year within a small MSWI plant indicates compliance with the mass emission particulate standard, the owner or operator may forego a performance test for an additional two years. If the aforementioned unit in a small MSWI plant should fail any of its emission tests, it shall return to an annual performance testing schedule.

6.1.8 Following the date the initial performance test is completed or is required to be completed in this regulation, compliance with the opacity standard shall be determined by a six minute average opacity readings obtained from CEMS.

6.2 Sulfur dioxide. The following procedures and test methods shall be used for determining compliance with the SO_2 standards in Section 3.

6.2.1 The percentage reduction in the uncontrolled sulfur dioxide emissions ($\%PSO_2$) shall be computed using the following formula:

$$\%PSO_2 = \frac{E_i - E_o}{E_i} * 100$$

where:

$\%PSO_2$ = is the percentage reduction in uncontrolled SO_2 emissions.

E_i = is the daily uncontrolled SO_2 emission rate.
E_o = is the daily SO_2 rate measured at the outlet of the acid gas control device.

6.2.2 Methods 6, 6A or 6C, and 19 shall be used for determining the SO_2 emission rate.

6.2.3 The SO_2 performance test shall be conducted over 24 consecutive unit operating hours at maximum unit load. Compliance with the SO_2 standard shall be determined using a daily average.

6.2.4 The owner or operator of an affected facility with a unit capacity greater than 500 pounds per hour shall install, calibrate, maintain, and operate a CEMS for measuring SO_2 emissions discharged to the atmosphere and shall record the output of the system.

6.2.5 Following the date of the initial performance test or the date on which the initial performance test is required to be completed by this regulation, compliance with the SO_2 standard shall be determined based on the arithmetic average of the hourly emission rates during each 24 hour daily period measured between 12:00 midnight and the following midnight using CEMS inlet and outlet data, if compliance is based on a percentage reduction; or outlet data only if compliance is based on an emission limit.

6.2.6 The one hour average required under section 6.2.5 shall be expressed in nanograms per hour (pounds per hour) and shall be used to calculate the daily average emission rates. The one hour averages shall be calculated using the data points required in 40 CFR section 60.13(h).

6.2.7 For affected facilities which shall install CEMS, the span value of the CEMS at the inlet to the SO_2 control device shall be 125% of the maximum estimated hourly uncontrolled SO_2 emissions of the unit, and the span value of the CEMS at the outlet to the $_2$SO control device shall be 50% of the maximum estimated hourly uncontrolled SO_2 emissions of the unit.

6.3 Hydrogen chloride. The following procedures and test methods shall be used for determining compliance with the HCl standards under section 3.

6.3.1 The percentage reduction in uncontrolled HCl emissions (%PHCl) shall be computed using the following formula:

$$\%PHCl = \frac{E_i - E_o}{E_i} * 100$$

where:

%PHCl = is the percentage reduction in uncontrolled HCl emissions.
E_i = is the daily uncontrolled HCl emission rate.
E_o = is the daily HCl rate measured at the outlet of the acid gas control device.

6.3.2 Method 26 shall be used for determining the HCl emission rate.

6.3.3 Following the date of the initial performance test or the date on which the initial performance test is required by this regulation, the owner or operator of an affected facility shall conduct a performance test for HCl on an annual basis (no more than 12 calendar months following the previous performance test). For an affected facility located within a small MSWI plant, if all three performance tests in a three year period indicate

compliance with the HCl standard, the owner or operator may forego a performance test for the subsequent two years. At a minimum, a performance test for HCl for an affected facility within a small MSWI plant shall be conducted every third year (no more than 36 months following the previous compliance test). If a performance test conducted every third year at a small MSWI plant indicates compliance with the HCl standard, the owner or operator may forego conducting a performance test for an additional two years. If the unit at a small MSWI plant fails to pass a performance test, then the unit shall return to an annual performance testing schedule.

6.4 Nitrogen oxides. The following procedures and test methods shall be used to determine compliance with the NO_x standard under Section 3:

6.4.1 Methods 7 or 7E, and 19 shall be used for determining the NO_x emission rate.

6.4.2 The owner or operator of an affected facility subject to the NO_x standard under Section 3 shall conduct an initial performance test for NO_x as required by this section. The initial performance test for NO_x shall be conducted over 24 consecutive hours of unit operation to determine compliance with the NO_x standard. CEMS data shall be used if required by section 6.4.4. Compliance with the NO_x standard shall be determined using a daily basis.

6.4.3 The owner or operator of an affected facility with a MSWI unit capacity greater than 500 pounds per hour which is subject to the NO_x standard in Section 3 shall install, calibrate, maintain, and operate a CEMS for measuring NO_x discharged to the atmosphere and shall record the output of the system.

6.4.4 Following the initial performance test or the date on which the initial performance test is required to be completed under this regulation, compliance with the emission limits for NO_x required under Section 3 shall be determined based on the arithmetic average of the hourly emission rates during each 24 hour daily period measured between 12:00 midnight and the following midnight using CEMS data.

6.4.5 The one hour average required under section 6.4.4 shall be expressed in parts per million volume (dry basis) and shall be used to calculate the daily average emission rates under section 3. The one hour averages shall be calculated using the data points required under 40 CFR section 60.13.

6.5 Carbon monoxide. The following procedures shall be used for determining compliance with the CO emission limits listed in Section 3:

6.5.1 Compliance with the CO emission limits listed in Section 3 shall be determined using Method 10;

6.5.2 The owner or operator of an affected facility with a MSWI unit capacity greater than 500 pounds per hour shall install, calibrate, maintain, and operate a CEMS for measuring CO at the incinerator outlet and shall record the output of the system; and

6.5.3 Following the initial performance test or the date on which the initial performance test is required to be completed by this regulation, compliance with the emission limits for CO required under Section 3 shall be determined based on the arithmetic average of the four hour emission rates measured using CEMS data.

6.6 The following procedures shall be used for determining compliance with the operating practices under Section 4:

6.6.1 The owner or operator of an affected facility which generates steam with a MSWI unit capacity greater than 500 pounds per hour shall install, calibrate, maintain, and operate a steam flow meter, shall measure steam flow in kilograms per hour (pounds per hour)

steam on a continuous basis, and shall record the output of the monitor. Steam flow shall be calculated in one hour block averages; and

6.6.2 The owner or operator of an affected facility with a MSWI unit capacity greater than 500 pounds per hour shall install, calibrate, maintain, and operate a CEMS for measuring both secondary chamber temperature and the temperature of the flue gas stream at the inlet to the particulate matter air pollution control device and shall record the output of the device. Temperature shall be calculated in four hour block averages.

6.7 Additional CEMS requirements are:

6.7.1 CEMS data, if required, shall be used to determine compliance with emission standards and operating practice standards;

6.7.2 At a minimum, CEMS data, if required, shall be obtained for 90% of the hours per day for 90% of the days per month that the unit is operated and combusting MSW or RDF;

6.7.3 All valid CEMS data, if required, shall be used in calculating emission rates and percent reductions even if the minimum CEMS data requirements in section 6.7.2 are not met;

6.7.4 The procedures under 40 CFR Section 60.13 shall be followed for installation, evaluation, and operation of the CEMS;

6.7.5 If emission data from the CEMS are not obtained because of CEMS breakdown, repairs, calibration checks, or zero and span adjustments, emission data shall be obtained by using other monitoring systems as approved by the District or EPA Methods 6, 6A, 6C, 7, 7E, 10 and 19, as appropriate, to provide necessary emission data for a minimum of 90% of the hours per day for 90% of the days per month the unit is operated and combusting MSW or RDF;

6.7.6 CEMS shall conform to the applicable performance specifications in 40 CFR Part 60 Appendix B;

6.7.7 The requirements of 40 CFR Part 60 Appendix F shall be met in the operation of CEMS;

6.7.8 The owner or operator shall install and maintain an electronic data acquisition system that shall monitor and record the following parameters of proper unit operation:

6.7.8.1 Waste feed rate;

6.7.8.2 Ph values in the packed scrubber solution, if applicable; and

6.7.8.3 Time and duration of emergency by-pass of any emission control device; and

6.7.9 The owner or operator shall maintain, operate, calibrate and audit a data logging system and telemetry system compatible with the District's electronic data retrieval monitoring system. If the source is required to install and maintain any CEMS, the owner or operator shall supply at its own expense, a dedicated telephone access to the data logger.

6.8 Organics. The following procedures and test methods shall be used to determine compliance with standards for organics under Section 3:

6.8.1 Kentucky Method 23 shall be used for determining compliance with dioxin or furan emission standards. The sampling time shall be four hours and the minimum sampling volume shall be 4.0 cubic meters (140 cubic feet); and

6.8.2 Following the date of the initial performance test or the date on which the initial performance test was to be completed by the regulation, the owner or operator of an affected facility shall conduct a performance test for dioxin or furan emissions on an annual basis (no more than 12 months following the previous performance test). For affected facilities located within a small MSWI plant, if all three performance tests in a three year period indicate compliance with the dioxin or furan emission standard, the

owner or operator may forego a performance test for the subsequent two years. At a minimum, a performance test for dioxin or furan emissions at an affected facility located within a small MSWI plant shall be conducted every third year (no more than 36 months following the previous performance test). If a performance test conducted every third year within a small MSWI plant indicates compliance with dioxin or furan emissions standards, the owner or operator may forego conducting a performance test for an additional two years. If the aforementioned facility fails a performance test, then it shall return to an annual testing schedule.

6.9 Percent Reduction Requirements. The following procedures shall be used to determine compliance with Section 3:

6.9.1 Except as provided in section 6.9.4, the initial demonstration of compliance with the percent reduction requirement for processes MSW or RDF and Section 3 shall be required at the end of the first full calendar year (January through December) after the date of the initial start-up;

6.9.2 Compliance with the percent reduction requirement for processed MSW or RDF shall be determined by calculating the percentage difference between the weight of MSW received at the affected facility and the weight of the MSW combusted in the MSWI unit or the weight of the separated materials. Except as provided in section 6.9.4, beginning the month after the date of the initial start-up for new MSWIs, the percent reduction in MSW shall be calculated on a monthly basis using the monthly total weights recorded in compliance with Section 7. At the end of each full calendar year (January through December) the annual average percent MSW reduction (by weight) shall be calculated by using the annual total weights. In calculating the percent MSW reduction, a maximum of 15% weight reduction shall be attributed to the separation of yard waste. If the annual average percent reduction requirement for processed MSW or RDF is not achieved, the MSW or RDF shall not be considered processed MSW or RDF;

6.9.3 An owner or operator may elect to achieve, either wholly or partially, the percent reduction requirement for processed MSW or RDF, the prohibition of yard waste or vehicle batteries or the removal of household batteries of this regulation through an off-site source reduction or materials separation (recycling) program. The owner or operator shall submit a separation plan which contains sufficient information to measure the performance of the off-site separation program on an annual basis beginning the first full calendar year (January through December) after the initial start-up of the affected facility, except as provided in section 6.9.4. The off-site separation plan shall be submitted along with the initial compliance demonstration results; and

6.9.4 The owner or operator of an affected facility shall be responsible for operating the affected facility in compliance with all standards including the prohibition of combustion of unprocessed MSW, yard waste, vehicle batteries and household batteries. If another party provides processed MSW, or removes yard waste or vehicle batteries or household batteries, the provider of the service may become a co-operator of the affected facility. If the party providing the off site processing of MSW, removal of yard waste, or vehicle batteries, or household batteries elects to become a co-operator for the purpose of demonstrating compliance with this regulation, the owner or operator of the affected facility shall submit at the time of submittal of the initial compliance demonstration related to the requirements of this section:

6.9.4.1 A copy of a validly executed contract between the owner and operator of the affected facility and the party providing the processing of MSW, removal of vehicle batteries, removal of yard waste, or removal of household batteries which contains the following provisions:

6.9.4.1.1 An undertaking by the party that is co-operator or sole operator of the affected facility regarding compliance with the requirements of sections 4.6 and 4.7; and

6.9.4.1.2 An undertaking by the party to meet the requirements of sections 4.6 and 4.7 and a description of the specific actions that will be implemented to comply with these requirements; and

6.9.4.2 A certified statement signed by an authorized official representing the party that they agree to become a co-operator, or sole operator, for the purpose of demonstrating compliance with sections 4.6 and 4.7 and recognizing that enforcement action, including penalties, may be taken against the party for failure to demonstrate compliance with these requirements.

SECTION 7 Reporting and Recordkeeping Requirements

7.1 The owner or operator of an affected facility subject to Sections 3 and 4 shall maintain records of the following information for each affected facility:

7.1.1 Calendar date that the data from performance tests or CEMS were obtained;

7.1.2 Emission rates and parameters measured using the units and time bases required for demonstrating compliance;

7.1.3 Identification of the operating periods that the calculated SO_2, NO_x, or CO emission rates, opacity, or the operating parameters exceeded the applicable standards, with reasons for the exceedences and a description of corrective actions taken;

7.1.4 Identification of operating periods for SO_2, NO_x, or CO emissions, opacity or operational data have not been obtained, including reasons for not obtaining sufficient data and a description of the corrective actions taken;

7.1.5 Identification of the times that SO_2, NO_x, or CO emissions, opacity, or operational data have been excluded from the calculation of average emission rates or parameters and the reasons for excluding the data;

7.1.6 The results of daily SO_2, NO_x, and CO CEMS drift tests and accuracy assessments required in 40 CFR Part 60 Appendix B;

7.1.7 The results of all applicable and annual performance tests conducted to determine compliance with the mass particulate matter and hydrogen chloride standards;

7.1.8 Beginning the month after the date of the initial compliance tests, the amount by weight of MSW or RDF received on a monthly basis at the affected facility, the amount by weight of MSW or RDF combusted on a monthly basis, and the amount of recoverable materials by type and weight separated on a monthly basis. Separated paper and paperboard shall be stored in a covered area and shall be protected from rain and moisture, so the moisture of the paper and paperboard when weighed is similar to their moisture content when received in the MSW or RDF at the affected facility;

7.1.9 Beginning the month after the date of the initial start-up, the estimated amount (by type and weight) of recoverable materials reduced or separated for recovery on a monthly basis through an off-site or community source reduction or materials separation (recycling) program;

7.1.10 Beginning at the end of the first full calendar year after the date of initial start-up, the calculations of annual average percentage reduction in MSW achieved for the previous calendar year; and

7.1.11 Beginning the month after the initial start-up and for each month thereafter, the amount (by weight) of vehicle batteries separated.

7.2 The owner or operator of an affected facility shall submit the initial performance test data, the performance evaluation of the CEMS using the applicable performance specifications in 40 CFR Part 60 Appendix B and the maximum unit load within 60 days of completing the tests.

7.3 A plan describing the procedures for separating materials for recovery to achieve the 40% or greater MSW reduction requirement for processed MSW or RDF, a plan describing the procedures for ensuring that vehicle batteries are not combusted in an affected facility, and a description of the program for removal of household batteries shall be provided at the time of submittal of the initial demonstration of compliance with the requirements of section 6. The information shall be provided by the thirtieth day following the end of the first full calendar year after initial start-up.

7.4 The owner or operator of an affected facility shall submit quarterly compliance reports to the District containing the information recorded under section 7 for all records required by this regulation which are applicable to the facility.

7.4.1 The owner or operator required to install a CEMS shall submit for each calendar quarter, a written report of excess emissions (as defined in the applicable sections of this regulation) to the District. Both a printed report and a computer disc, formatted as specified by the District shall be submitted. All quarterly reports shall be postmarked by the thirtieth day following the end of each quarter and shall include the following information:

7.4.1.1 The magnitude of excess emissions computed in accordance with the applicable section of this regulation, any conversion factors used, and the date and time of commencement and completion of each time period of excess emission;

7.4.1.2 All hourly averages shall be reported for SO_2 and NO_x oxides monitors;

7.4.1.3 Specific identification of each period of excess emissions that occurs during start-ups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken, or preventative measures adopted;

7.4.1.4 The date and time identifying and the duration of each period during which the CEMS was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and

7.4.1.5 When no excess emissions have occurred or the CEMS has not been inoperative, repaired, or adjusted, such information shall be stated in the report.

7.5 Records of CEMS, steam flow, and temperature data shall be maintained for at least three years after date of recording and shall be available for inspection upon request.

7.6 Records showing the names of persons who have completed review of the operating manual and the documentation required by section 5.4, including the date of the initial review and all subsequent annual reviews, shall be maintained for at least three years after date of manual review and shall be made available for inspection upon request.

7.7 A description of the procedures employed for ensuring that unprocessed MSW or RDF is not combusted in an affected facility shall be maintained along with associated records to demonstrate use of the procedures, and shall be made available for inspection upon request.

7.8 Documentation demonstrating that ash disposal from an affected facility complies with section 4.7 and has been submitted to the Kentucky Division of Waste Management in the frequency required by the Kentucky Division of Waste Management.

Adopted v1/10-20-93; effective 10-20-93.