

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR RESOURCES**

**AIR POLLUTION CONTROL REGULATION NO. 39**

**HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS**



*Effective 21 August 2000*

*Last Amended 19 July 2007*

**AUTHORITY:** These regulations are authorized pursuant to R.I. Gen. Laws § 42-17.1-2(s) and 23-23, as amended, and have been promulgated pursuant to the procedures set forth in the R.I. Administrative Procedures Act, R.I. Gen. Laws Chapter 42-35.

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR RESOURCES

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**39.1 Definitions**

Unless otherwise expressly defined in this section, the terms used in this regulation shall be defined by reference to the Rhode Island Air Pollution Control General Definitions Regulation. As used in this regulation, the following terms shall, where the context permits, be construed as follows:

- 39.1.1     **“Batch HMIWI”** means an HMIWI that is designed such that neither waste charging nor ash removal can occur during combustion.
- 39.1.2     **“Biologicals”** means preparations made from living organisms and their products, including vaccines, cultures, etc., intended for use in diagnosing, immunizing, or treating humans or animals or in research pertaining thereto.
- 39.1.3     **“Blood products”** means any product derived from human blood, including but not limited to blood plasma, platelets, red or white blood corpuscles, and other derived licensed products, such as interferon, etc.
- 39.1.4     **“Body fluids”** means liquid emanating or derived from humans and limited to blood; dialysate; amniotic, cerebrospinal, synovial, pleural, peritoneal and pericardial fluids; and semen and vaginal secretions.
- 39.1.5     **“Bypass stack”** means a device used for discharging combustion gases to avoid severe damage to the air pollution control device or other equipment.
- 39.1.6     **“Chemotherapeutic waste”** means waste material resulting from the production or use of antineoplastic agents used for the purpose of stopping or reversing the growth of malignant cells.
- 39.1.7     **“Co-fired combustor or co-fired incinerator”** means a unit combusting hospital waste and/or medical/infectious waste with other fuels or wastes and subject to an enforceable requirement limiting the unit to combusting a fuel stream, 10 percent or less of the weight of which is comprised, in aggregate, of hospital waste and medical/infectious waste as measured on a calendar quarter basis. For purposes of this definition, pathological waste, chemotherapeutic

waste, and low-level radioactive waste are considered “other” wastes when calculating the percentage of hospital waste and medical/infectious waste combusted.

- 39.1.8 **“Continuous emission monitoring system or CEMS”** means a monitoring system for continuously measuring and recording the emissions of a pollutant from an affected facility.
- 39.1.9 **“Continuous HMIWI”** means an HMIWI that is designed to allow waste charging and ash removal during combustion.
- 39.1.10 **“Dioxins/furans”** means the combined emissions of tetra- through octa-chlorinated dibenzo-para-dioxins and dibenzofurans, as measured by EPA Reference Method 23.
- 39.1.11 **“Dry scrubber”** means an add-on air pollution control system that injects dry alkaline sorbent (dry injection) or sprays an alkaline sorbent (spray dryer) to react with and neutralize acid gases in the HMIWI exhaust stream forming a dry powder material.
- 39.1.12 **“Fabric filter or baghouse”** means an add-on air pollution control system that removes particulate matter (PM) and nonvaporous metals emissions by passing flue gas through filter bags.
- 39.1.13 **“Facilities manager”** means the individual in charge of purchasing, maintaining, and operating the HMIWI or the owner or operator’s representative responsible for the management of the HMIWI. Alternative titles may include director of facilities or vice president of support systems.
- 39.1.14 **“High-air phase”** means the stage of the batch operating cycle when the primary chamber reaches and maintains maximum operating temperatures.
- 39.1.15 **“Hospital”** means any facility which has an organized medical staff, maintains at least six inpatient beds, and where the primary function of the institution is to provide diagnostic and therapeutic patient services and continuous nursing care primarily to human patients who are not related and who stay on average in excess of 24 hours per admission. This definition does not include facilities maintained for the sole purpose of providing nursing or convalescent care to human patients who generally are not acutely ill but who require continuing medical supervision.
- 39.1.16 **“Hospital/medical/infectious waste incinerator or HMIWI or HMIWI unit”** means any device that combusts any amount of

hospital waste and/or medical/infectious waste.

- 39.1.17 **“Hospital/medical/infectious waste incinerator operator or HMIWI operator”** means any person who operates, controls or supervises the day-to-day operation of an HMIWI.
- 39.1.18 **“Hospital waste”** means discards generated at a hospital, except unused items returned to the manufacturer. The definition of hospital waste does not include human corpses, remains, and anatomical parts that are intended for interment or cremation.
- 39.1.19 **“Infectious agent”** means any organism (such as a virus or bacteria) that is capable of being communicated by invasion and multiplication in body tissues and capable of causing disease or adverse health impacts in humans.
- 39.1.20 **“Intermittent HMIWI”** means an HMIWI that is designed to allow waste charging, but not ash removal, during combustion.
- 39.1.21 **“Large HMIWI”** means:
- (1) An HMIWI whose maximum design waste burning capacity is more than 500 pounds per hour; or
  - (2) A continuous or intermittent HMIWI whose maximum charge rate is more than 500 pounds per hour; or
  - (3) A batch HMIWI whose maximum charge rate is more than 4,000 pounds per day.
- 39.1.22 **“Low-level radioactive waste”** means waste material which contains radioactive nuclides emitting primarily beta or gamma radiation, or both, in concentrations or quantities that exceed applicable federal or State standards for unrestricted release. Low-level radioactive waste is not high-level radioactive waste, spent nuclear fuel, or by-product material as defined by the Atomic Energy Act of 1954 (42 U.S.C. 2014(e)(2)).
- 39.1.23 **“Malfunction”** means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused, in part, by poor maintenance or careless operation are not malfunctions.
- 39.1.24 **“Maximum charge rate”** means:

- (1) For continuous and intermittent HMIWI, 110 percent of the lowest 3-hour average charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.
- (2) For batch HMIWI, 110 percent of the lowest daily charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.

39.1.25 **“Maximum design waste burning capacity”** means:

- (1) For intermittent and continuous HMIWI

$$C = P_v \times 15,000/8,500$$

where:

C = HMIWI capacity, lb/hr

$P_v$  = primary chamber volume, ft<sup>3</sup>

15,000 = primary chamber heat release factor, Btu/ft<sup>3</sup>/hr

8,500 = standard waste heating value, Btu/lb;

- (2) For batch HMIWI

$$C = P_v \times 4.5/8$$

where:

C = HMIWI capacity, lb/hr

$P_v$  = primary chamber volume, ft<sup>3</sup>

4.5 = waste density, lb/ft<sup>3</sup>

8 = typical hours of operation of a batch HMIWI, hours.

39.1.26 **“Maximum fabric filter inlet temperature”** means 110 percent of the lowest 3-hour average temperature at the inlet to the fabric filter (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the dioxin/furan emission limit.

39.1.27 **“Maximum flue gas temperature”** means 110 percent of the lowest 3-hour average temperature at the outlet from the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the mercury (Hg) emission limit.

39.1.28 **“Medical/infectious waste”** means any of the following waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals:

- (1) Cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures;
- (2) Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers;
- (3) Human blood and blood products including:
  - (i) Liquid waste human blood;
  - (ii) Products of blood;
  - (iii) Items saturated and/or dripping with human blood; or
  - (iv) Items that were saturated and/or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis or the development of pharmaceuticals. Intravenous bags are also included in this category;
- (4) Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes ( with or without the attached needle), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips;
- (5) Animal waste including contaminated animal carcasses, body parts, and bedding of animals that were known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals;
- (6) Isolation wastes including biological waste and discarded materials contaminated with blood, excretions, exudates, or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases; and

- (7) Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

39.1.29 **“Medium HMIWI”** means:

- (1) Except as provided in paragraph (2);
  - (i) A HMIWI whose maximum design waste burning capacity is more than 200 pounds per hour but less than or equal to 500 pounds per hour; or
  - (ii) A continuous or intermittent HMIWI whose maximum charge rate is more than 200 pounds per hour but less than or equal to 500 pounds per hour; or
  - (iii) A batch HMIWI whose maximum charge rate is more than 1,600 pounds per day but less than or equal to 4,000 pounds per day.
- (2) A HMIWI is not a "Medium HMIWI" if:
  - (i) Its design waste burning capacity exceeds 500 pounds per hour; or
  - (ii) Its maximum charge rate exceeds 500 pounds per hour for continuous or intermittent HMIWI or 4,000 pounds per day for batch HMIWI.

39.1.30 **“Minimum dioxin/furan sorbent flow”** means 90 percent of the highest 3-hour average dioxin/furan sorbent flow rate (taken, at a minimum, once every hour) measured during the most recent performance test demonstrating compliance with the dioxin/furan emission limit.

39.1.31 **“Minimum mercury (Hg) sorbent flow rate”** means 90 percent of the highest 3-hour average Hg sorbent flow rate (taken, at a minimum, once every hour) measured during the most recent performance test demonstrating compliance with the Hg emission limit.

39.1.32 **“Minimum hydrogen chloride (HCl) sorbent flow rate”** means 90 percent of the highest 3-hour average HCl sorbent flow rate (taken, at a minimum, once every hour) measured during the most recent performance test demonstrating compliance with the HCl emission limit.

39.1.33 **“Minimum horsepower or amperage”** means 90 percent of the



highest 3-hour average horsepower or amperage to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with all applicable emission limits.

- 39.1.34 **“Minimum pressure drop across the wet scrubber”** means 90 percent of the highest 3-hour average pressure drop across the wet scrubber PM control device (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM emission limit.
- 39.1.35 **“Minimum scrubber liquor flow rate”** means 90 percent of the highest 3-hour average liquor flow rate at the inlet to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with all applicable emission limits.
- 39.1.36 **“Minimum scrubber liquor pH”** means 90 percent of the highest 3-hour average liquor pH at the inlet to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the HCl emission limit.
- 39.1.37 **“Minimum secondary chamber temperature”** means 90 percent of the highest 3-hour average secondary chamber temperature (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM, carbon monoxide (CO), or dioxin/furan emission limits.
- 39.1.38 **“Modification or Modified HMIWI”** means any change to an HMIWI unit after the effective date of this regulation such that:
- (1) The cumulative costs of the modifications, over the life of the unit, exceed 50 percent of the original cost of the construction and installation of the unit (not including the cost of any land purchased in connection with such construction or installation) updated to current costs, or
  - (2) The change involves a physical change in or change in the method of operation of the unit which increases the amount of any air pollutant emitted by the unit for which standards have been established under section 129 or section 111 of the federal Clean Air Act.
- 39.1.39 **“Operating day”** means a 24-hour period between 12:00 midnight and the following midnight during which any amount of hospital waste

or medical/infectious waste is combusted at any time in the HMIWI.

- 39.1.40 **“Operation”** means the period during which waste is combusted in the incinerator excluding periods of startup or shutdown.
- 39.1.41 **“Particulate matter or PM”** means the total particulate matter emitted from an HMIWI as measured by EPA Reference Method 5 or Reference Method 29.
- 39.1.42 **“Pathological waste”** means waste material consisting of only human or animal remains, anatomical parts, and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).
- 39.1.43 **“Primary chamber”** means the chamber in an HMIWI that receives waste material, in which the waste is ignited, and from which ash is removed.
- 39.1.44 **“Pyrolysis”** means the endothermic gasification of hospital waste and/or medical/infectious waste using external energy.
- 39.1.45 **“Secondary chamber”** means a component of the HMIWI that receives combustion gases from the primary chamber and in which the combustion process is completed.
- 39.1.46 **“Shutdown”** means the period of time after all waste has been combusted in the primary chamber. For continuous HMIWI, shutdown shall commence no less than 2 hours after the last charge to the incinerator. For intermittent HMIWI, shutdown shall commence no less than 4 hours after the last charge to the incinerator. For batch HMIWI, shutdown shall commence no less than 5 hours after the high-air phase of combustion has been completed.
- 39.1.47 **“Small HMIWI”** means an HMIWI whose maximum design waste burning capacity is less than or equal to 200 pounds per hour and which has a maximum charge rate less than or equal to 200 pounds per hour for continuous or intermittent HMIWI and less than or equal to 1,600 pounds per day for batch HMIWI.
- 39.1.48 **“Standard conditions”** means a temperature of 20°C and a pressure of 101.3 kilopascals.

- 39.1.49 **“Startup”** means the period of time between the activation of the system and the first charge to the unit. For batch HMIWI, startup means the period of time between activation of the system and ignition of the waste.
- 39.1.50 **“Wet scrubber”** means an add-on air pollution control device that utilizes an alkaline scrubbing liquor to collect particulate matter (including nonvaporous metals and condensed organics) and/or to absorb and neutralize acid gases.

## **39.2 Applicability**

- 39.2.1 Except as provided in subsections 39.2.2 through 39.2.7, the provisions of this regulation shall apply to all HMIWI.
- 39.2.2 An incinerator is not subject to sections 39.3 through 39.10 of this regulation if it is burning only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste, provided that the owner or operator of the incinerator:
- (a) Has notified the Office of Air Resources, in writing, that it is burning only pathological, low-level radioactive, and/or chemotherapeutic waste and has received a determination in writing from the Office of Air Resources that it is not subject to those subsections; and
  - (b) Records continuously, summarizes quarterly, and keeps available for inspection for a period of five years records of all times when only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste is burned.
- 39.2.3 A co-fired incinerator is not subject to sections 39.3 through 39.10 of this regulation if the owner or operator of the incinerator:
- (a) Has notified the Office of Air Resources, in writing, that it is a co-fired incinerator, and has received a determination from the Office of Air Resources that it is not subject to those subsections;
  - (b) As part of this notification, provides a range of the relative weights of hospital waste, medical/infectious waste, and other fuels and/or wastes to be combusted; and

- (c) Records continuously, summarizes quarterly, and keeps available for inspection for a period of five years records of the type and weight of hospital waste and medical/infectious waste burned, and the weight of all other fuels and wastes burned at the co-fired incinerator.
- 39.2.4 Any combustor/incinerator required to have a permit under Section 3005 of the Federal Solid Waste Disposal Act is not subject to this regulation.
- 39.2.5 Any combustor/incinerator which meets the applicability requirements under subpart Cb, Ea, or Eb of 40 CFR Part 60 (standards or guidelines for certain municipal waste combustors) is not subject to this regulation.
- 39.2.6 Any pyrolysis unit, as defined in subsection 39.1.44, is not subject to this regulation.
- 39.2.7 Physical or operational changes made to an existing HMIWI unit (those constructed prior to June 20,1996) solely for the purpose of complying with the requirements of this regulation shall not be considered a modification as defined in subsection 39.1.38 and shall not cause the HMIWI to be subject to the provisions in this regulation for new HMIWI (those constructed after June 20, 1996).
- 39.2.8 For any HMIWI, this regulation supercedes Rhode Island Air Pollution Control Regulation No.12 for those areas where there are overlapping requirements. HMIWI must comply with all applicable provisions of this regulation.

### **39.3 Plan Submittals and Compliance Schedules**

- 39.3.1 The owner or operator of a HMIWI subject to this regulation must submit a HMIWI Emissions Control Plan (ECP) to the Office of Air Resources for review and approval by October 20, 2000. If an ECP is not submitted by October 20, 2000 or if the Department determines the ECP is not approvable, the HMIWI shall immediately cease operations, and shall not operate until an ECP is approved. A HMIWI subject to this regulation must operate pursuant to an operating permit issued according to the provisions of RI APC Regulation No. 29, "Operating Permits." The facility's operating permit will be modified upon approval of the ECP to include all required elements of the ECP. The ECP must contain the following information:

- (a) The control efficiency, equipment description and specifications, and standard operating and maintenance procedures for any control equipment which will be used to comply with this regulation;
- (b) A proposed construction schedule and anticipated completion date for any planned installation or modification of equipment to comply with this regulation;
- (c) Any additional information requested by the Office of Air Resources regarding the process and control equipment used to comply with this regulation; and
- (d) A Waste Management Plan as specified in subsection 39.3.2; or
- (e) A closure plan if the facility plans to permanently cease operations pursuant to subsection 39.3.5.

39.3.2 The Waste Management Plan must include the following:

- (a) A description of waste separation programs to be implemented at the facility which, to the maximum degree feasible, remove from the waste stream, prior to incineration, products that contribute to emissions of hazardous air pollutants from the HMIWI. The feasibility of removal of the following products from the waste stream must be evaluated: mercury-containing products, paper, cardboard, plastics, glass, battery, metals, and materials that contain polyvinyl chloride (PVC) and/or other dioxin/furan precursors;
- (b) A description of recycling programs to be implemented at the facility, such as programs to recycle mercury products, paper, cardboard, plastics, glass, batteries, materials which contain PVC and/or other dioxin/furan precursors and metals; and/ or purchasing recycled or recyclable products;
- (c) A description of reasonably available additional waste management measures (for example, product substitution) which will be implemented at the facility, taking into account the effectiveness of waste management measures already in place, the costs of additional measures, the emission reductions expected to be achieved, and any other environmental or energy impacts associated with such measures;

- (d) Measures and milestones towards becoming a mercury free facility by 2003;
- (e) Milestones towards reducing PVC in the waste stream by 50% by 2003;
- (f) Dates that the programs and measures specified in paragraphs 39.3.2(a), (b), and (c) will be implemented;
- (g) A statement that the HMIWI will require, through a contract or another legally binding mechanism, that any other facility which generates and transports hospital/ medical/ infectious waste to the HMIWI for incineration has adopted and is complying with a Waste Management Plan consistent with that adopted by the HMIWI;
- (h) All aspects of this Waste Management Plan must be in compliance with the RI DEM Office of Waste Management's regulation entitled, "Rules and Regulations Governing the Generation, Transportation, Storage, Treatment, Management and Disposal of Regulated Medical Waste in Rhode Island" (Regulation DEM-DAH-MW-01-92) and other applicable rules and policies of that Office;
- (i) "An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities," a 1993 publication by the American Society for Health Care Environmental Services of the American Hospital Association, Chicago, Illinois, shall be utilized in the development of the Waste Management Plan. This document is available for purchase from the American Hospital Association (AHA) Service, Inc., Post Office Box 92683, Chicago, Illinois 60675-2683. Other appropriate publications as they become available should also be utilized in the development of the Waste Management Plan; and
- (j) The Waste Management Plan may specify different goals or approaches for different areas or departments at the facility and need not include waste management goals for every waste stream.

39.3.3 Except as provided in subsections 39.3.4 and 39.3.6, any HMIWI subject to this regulation must be in full compliance with the applicable emission limitations specified in Section 39.5 of this regulation or cease operations by October 20, 2000.

39.3.4 The owner of a HMIWI may apply for an extension to the compliance date specified in subsection 39.3.3. This extension request must be

submitted as part of the ECP, by the date specified in subsection 39.3.1, and must include the following information:

- (a) Reasons why the facility cannot comply with the requirements of this regulation by the date specified in subsection 39.3.3.
- (b) The date by which contracts will be awarded and/or purchase orders issued for any air pollution control systems and/or components or for process modifications to comply with this regulation. All such awards and orders must be issued by October 20, 2000.
- (c) The date that onsite construction or installation of any air pollution control device(s) or process changes to comply with this regulation will begin. All such construction or process changes must be initiated by August 21, 2001.
- (d) The expected date of the completion of onsite construction or installation of control equipment or process changes to comply with this regulation. All such equipment installation and process changes must be completed by August 21, 2002.
- (e) The date that final compliance with all applicable limitations will be achieved. Final compliance must be achieved by September 16, 2002.

39.3.5 If the owner of a HMIWI plans to comply with this regulation by permanently ceasing operation of the HMIWI, the owner or operator of the HMIWI must submit a closure plan to the Office of Air Resources as part of its ECP by October 20, 2000. The closure plan must include the following information:

- (a) The date that the facility will cease operation of the HMIWI. Operations must cease by February 21, 2001 except as provided in subsection 39.3.6.
- (b) The facility's plans for disposal of waste previously incinerated in the HMIWI after the incinerator ceases operation.

39.3.6 The owner or operator of a HMIWI which plans to comply with this regulation by ceasing operations may apply to the Director for an extension to the closure date specified in subsections 39.3.3 and 39.3.5(a) by submitting the following information as part of its ECP:

- (a) Justification of why an extension is warranted;

- (b) A written commitment to enter into an Administrative Consent Order with the Department by February 21, 2001 which contains enforceable milestones and commitments towards closure including a date that the facility will cease operations. In no case shall operations extend beyond August 21, 2001.

#### **39.4 Pre-construction Requirements**

- 39.4.1 Any HMIWI for which construction commences after August 21, 2000, must comply with all construction permit requirements in RI APC Regulation No. 9.

#### **39.5 Emission Limitations**

- 39.5.1 Any HMIWI that commenced construction prior to June 20, 1996 must comply with the emission limitations listed in Table 1(a) and subsection 39.5.1(a) by the applicable dates specified in section 39.3 of this regulation.

- (a) Stack emissions shall not exhibit greater than 10 percent opacity (6-minute block average).

- 39.5.2 Any HMIWI that commenced construction on or after June 20, 1996 must comply with the emission limits listed in Table 1(b) according to the applicable dates specified in Section 39.3, or upon commencing operations, whichever is later.

- 39.5.3 Any HMIWI that commenced construction on or after June 20, 1996 must also comply with the following fugitive ash emission limits by the applicable dates specified in section 39.3 or upon start-up, whichever is later:

- (a) Stack emissions shall not exhibit greater than 10 percent opacity (6-minute block average);
- (b) Emissions of combustion ash from ash conveying systems (including conveyor transfer points) at large HMIWI shall not be visible for more than 5 percent of an observation period (i.e., 9 minutes per 3-hour period), as determined by EPA Reference Method 22, except as provided in paragraphs (c) and (d) of this section;
- (c) The emission limit specified in paragraph (b) of this section does not apply to visible emissions discharged inside buildings or



enclosures of ash conveying systems; however, the emission limit does apply to visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems; and

- (d) The provisions specified in paragraph (b) of this section do not apply during maintenance and repair of ash conveying systems. Maintenance and/or repair shall not occur on more than 10 operating days per calendar quarter unless the owner or operator obtains written approval from the Office of Air Resources establishing a date whereby all necessary maintenance and repairs of ash conveying systems shall be completed.

39.5.4 The emission limits in subsections 39.5.1, 39.5.2, and 39.5.3 do not apply during periods of startup or shutdown, provided that no hospital waste or medical/infectious waste is charged to the HMIWI during those periods. During periods of malfunction the operator shall operate within established parameters as much as possible, and shall continue monitoring all applicable operating parameters until all waste has been combusted or until the malfunction ceases, whichever comes first. In addition, the malfunction must be reported to the Office of Air Resources within 24 hours. A written report must be submitted to the Office of Air Resources within 7 days, which includes the cause of the malfunction, any exceedance, and actions taken to prevent reoccurrence.

39.5.5 Any violation of the emission limitations in subsections 39.5.1, 39.5.2, and 39.5.3 must be reported to the Office of Air Resources within 24 hours. A written explanation of the cause of the violation, the magnitude of the exceedance and its duration, as well as actions taken to prevent a reoccurrence must be submitted to the Office of Air Resources within 7 calendar days.

### **39.6 Inspection & Repair Requirements**

39.6.1 The owner or operator of any HMIWI subject to the emission limits in Table 1(a) or Table 1(b), must conduct an initial equipment inspection identifying any necessary repairs by October 20, 2000 and yearly thereafter. All inspections must include the following:

- (a) Inspect all burners, pilot assemblies, and pilot sensing devices for proper operation; clean pilot flame sensor, as necessary;
- (b) Ensure proper adjustment of primary and secondary chamber combustion air, and adjust as necessary;

- (c) Inspect hinges and door latches, and lubricate as necessary;
- (d) Inspect dampers, fans, and blowers for proper operation;
- (e) Inspect HMIWI door and door gaskets for proper sealing;
- (f) Inspect motors for proper operation;
- (g) Inspect primary chamber refractory lining; clean and repair/replace lining as necessary;
- (h) Inspect incinerator shell for corrosion and/or hot spots;
- (i) Inspect secondary/tertiary chamber and stack and clean as necessary;
- (j) Inspect mechanical loader, including limit switches, for proper operation, if applicable;
- (k) Visually inspect waste bed (grates), and repair/seal, as appropriate;
- (l) For the burn cycle that follows the inspection, document that the incinerator is operating properly and make any necessary adjustments;
- (m) Inspect air pollution control device(s) for proper operation, if applicable;
- (n) Inspect waste heat boiler systems to ensure proper operation, if applicable;
- (o) Inspect bypass stack components;
- (p) Ensure proper calibration of thermocouples, sorbent feed systems and any other monitoring equipment; and
- (q) Generally observe that the equipment is maintained in good operating condition.

39.6.2 Any equipment deficiencies identified in the inspections as required in subsection 39.6.1 or as a result of an equipment failure shall be completed within 10 days upon identification unless the owner or operator obtains written approval from the Department establishing an alternative date whereby all corrections of deficiencies shall be

completed.

### **39.7 Compliance and Performance Testing Requirements**

- 39.7.1 Any HMIWI subject to the emissions limitations in Table 1(a) or Table 1(b) must conduct an initial performance test to demonstrate compliance with those emission limits according to the following schedule:
- (a) Except as provided in paragraph (b) of this subsection, initial performance tests for facilities constructed prior to August 21, 2000 shall be conducted by May 21, 2001.
  - (b) If a compliance extension request was submitted by a facility according to the provisions of subsection 39.3.4 and was approved by the Office of Air Resources, an initial performance test of that HMIWI must be conducted within 90 days after the equipment or process changes necessary to comply with this regulation are complete, but not later than September 16, 2002.
  - (c) For HMIWI that commence construction on or after August 21, 2000, initial performance tests must be conducted within 90 days after initial startup of the HMIWI.
  - (d) All stack testing must be observed by the Office of Air Resources or its authorized representatives to be considered acceptable.
- 39.7.2 A performance test protocol must be submitted for review and approval to the Office of Air Resources at least 60 days prior to conducting the initial or repeat performance test. The use of the bypass stack during a performance test shall invalidate the performance test. The initial performance tests shall be conducted according to the following specifications:
- (a) All performance tests shall consist of a minimum of three test runs conducted under representative operating conditions;
  - (b) The minimum sampling time shall be 1 hour per test run unless otherwise required by the Office of Air Resources;
  - (c) EPA Reference Method 1 in appendix A of 40 CFR Part 60 shall be used to select the sampling location and number of traverse points;
  - (d) EPA Reference Method 3 or 3A in appendix A of 40 CFR Part 60 shall be used for gas composition analysis, including measurement

of oxygen concentration. EPA Reference Method 3 or 3A of appendix A of 40 CFR Part 60 shall be used simultaneously with each reference method;

- (e) The pollutant concentrations shall be adjusted to 7 percent oxygen using the following equation:

$$C_{\text{adj}} = C_{\text{meas}} (20.9-7)/(20.9-\%O_2)$$

where:

$C_{\text{adj}}$  = pollutant concentration adjusted to 7 percent oxygen;

$C_{\text{meas}}$  = pollutant concentration measured on a dry basis

$(20.9-7)$  = 20.9 percent oxygen - 7 percent oxygen (defined oxygen correction basis);

20.9 = oxygen concentration in air, percent; and

$\%O_2$  = oxygen concentration measured on a dry basis, percent;

- (f) EPA Reference Method 5 or 29 of appendix A of 40 CFR Part 60 shall be used to measure the particulate matter (PM) emissions;
- (g) EPA Reference Method 9 of appendix A of 40 CFR Part 60 shall be used to measure stack opacity;
- (h) EPA Reference Method 10 or 10B of appendix A of 40 CFR Part 60 shall be used to measure the carbon monoxide (CO) emissions;
- (i) EPA Reference Method 23 of appendix A of 40 CFR Part 60 shall be used to measure total dioxin/furan emissions. The minimum sampling time shall be 4 hours per test run. The following procedures should be used to demonstrate compliance with the toxic equivalency quotient standards for dioxins/furans specified in Table 1(a) or 1(b):
  1. Measure the concentration of each dioxin/furan tetra-through octa-congener emitted using EPA Reference Method 23.
  2. For each dioxin/furan congener measured in accordance with subparagraph 39.7.2(i)1, multiply the congener concentration by its corresponding toxic equivalency factor, as specified in Table 2 of this regulation.
  3. Sum the products calculated in accordance with subparagraph 39.7.2(i)2 to obtain the total toxic equivalent quotient for dioxins/furans;

- (j) EPA Reference Method 26 of appendix A of 40 CFR Part 60 shall be used to measure hydrogen chloride (HCl) emissions;
- (k) EPA Reference Method 29 of appendix A of 40 CFR Part 60 shall be used to measure lead (Pb), cadmium (Cd), and mercury (Hg) emissions.
- (l) EPA Reference Method 22 of Appendix A of 40 CFR Part 60 shall be used to determine compliance with the fugitive ash emission limits for HMIWI that commenced construction on or after June 20, 1996 specified in subsection 39.5.3. The minimum observation time shall be a series of three 1-hour observations.

39.7.3 The owner of a HMIWI shall conduct periodic performance tests to determine continuing compliance with the emission limits specified in section 39.5 of this regulation for opacity, PM, CO, and HCl using the applicable test methods specified in subsection 39.7.2. The use of a bypass stack during a performance test shall invalidate the performance test. Periodic tests shall be conducted according to the following schedule:

- (a) Except as provided in paragraph (b) of this subsection, periodic tests shall be conducted no more than 12 months after the initial performance test at the facility and, thereafter, no more than 12 months following the previous performance test.
- (b) If, in a 3-year period, all three annual performance tests demonstrate compliance with the emission limit for a pollutant (PM, CO, or HCl), the frequency of testing for that pollutant may be reduced to once in three years. If any performance test indicates noncompliance with an applicable emission limit, performance tests for that pollutant shall be conducted annually until all annual performance tests in a 3-year period indicate compliance with the emission limit. In no case shall the period between performance tests for PM, CO, or HCl be longer than 3 years.

39.7.4 For large HMIWI that commenced construction on or after June 20, 1996, continuing compliance with the visible emission limits for fugitive emissions from fly ash/bottom ash storage and handling in paragraph 39.5.3(b) of this regulation must be demonstrated by conducting a performance test using EPA Reference Method 22 no more than 12 months after the initial performance test and annually thereafter.

39.7.5 HMIWI may use a CEMS to demonstrate continuing compliance with any of the applicable emission limits in Table 1(a) or Table 1(b) provided that:

- (a) Compliance with the applicable emission limit(s) is determined using a 12-hour rolling average, calculated each hour as the average of the previous 12 operating hours (not including startup, shutdown, or malfunction) and
- (b) All CEMS are operated in accordance with the applicable procedures specified in appendices B and F of 40 CFR Part 60.

39.7.6 The owner or operator of a HMIWI equipped with a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and wet scrubber shall:

- (a) During the initial performance test, establish maximum and minimum values for each of the applicable operating parameters listed in Table 3 as site-specific operating parameters; and
- (b) Following the date on which the initial performance test is completed or is required to be completed, whichever is earlier, ensure that the HMIWI does not operate above any of the applicable maximum operating parameters or below any of the applicable minimum operating parameters, measured as 3-hour rolling averages (calculated each hour as the average of the previous 3 operating hours) at all times except during periods of startup, shutdown and malfunction. Operating parameter limits do not apply during performance tests. Operation above the established maximum or below the established minimum operating parameter(s) shall constitute a violation of that operating parameter(s).

39.7.7 Except as provided in subsection 39.7.10, continuous compliance status for HMIWI equipped with a dry scrubber followed by a fabric filter shall be determined as follows:

- (a) Operation of the HMIWI above the maximum charge rate and below the minimum secondary chamber temperature (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the CO emission limit.
- (b) Operation of the HMIWI above the maximum fabric filter inlet temperature, above the maximum charge rate, and below the minimum dioxin/furan sorbent flow rate (each measured on a 3-hour rolling average) simultaneously shall constitute a violation

of the dioxin/furan emission limit.

- (c) Operation of the HMIWI above the maximum charge rate and below the minimum HCl sorbent flow rate (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the HCl emission limit.
- (d) Operation of the HMIWI above the maximum charge rate and below the minimum Hg sorbent flow rate (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the Hg emission limit.
- (e) Use of the bypass stack (except during startup, shutdown, or malfunction) shall constitute a violation of the PM, dioxin/furan, HCl, Pb, Cd and Hg emission limits.

39.7.8 Except as provided in subsection 39.7.10, continuous compliance status for HMIWI equipped with a wet scrubber shall be determined as follows:

- (a) Operation of the HMIWI above the maximum charge rate and below the minimum pressure drop across the wet scrubber or below the minimum horsepower or amperage to the system (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the PM emission limit.
- (b) Operation of the HMIWI above the maximum charge rate and below the minimum secondary chamber temperature (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the CO emission limit.
- (c) Operation of the HMIWI above the maximum charge rate, below the minimum secondary chamber temperature, and below the minimum scrubber liquor flow rate (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the dioxin/furan emission limit.
- (d) Operation of the HMIWI above the maximum charge rate and below the minimum scrubber liquor pH (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the HCl emission limit.
- (e) Operation of the HMIWI above the maximum flue gas temperature and above the maximum charge rate (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the

Hg emission limit.

- (f) Use of the bypass stack (except during startup, shutdown, or malfunction) shall constitute a violation of the PM, dioxin/furan, HCl, Pb, Cd and Hg emission limits.

39.7.9 Except as provided in subsection 39.7.10, continuous compliance status for HMIWI equipped with a dry scrubber followed by a fabric filter and a wet scrubber shall be determined as follows:

- (a) Operation of the HMIWI above the maximum charge rate and below the minimum secondary chamber temperature (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the CO emission limit.
- (b) Operation of the HMIWI above the maximum fabric filter inlet temperature, above the maximum charge rate, and below the minimum dioxin/furan sorbent flow rate (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the dioxin/furan emission limit.
- (c) Operation of the HMIWI above the maximum charge rate and below the minimum scrubber liquor pH (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the HCl emission limit.
- (d) Operation of the HMIWI above the maximum charge rate and below the minimum Hg sorbent flow rate (each measured on a 3-hour rolling average) simultaneously shall constitute a violation of the Hg emission limit.
- (e) Use of the bypass stack (except during startup, shutdown, or malfunction) shall constitute a violation of the PM, dioxin/furan, HCl, Pb, Cd and Hg emission limits.

39.7.10 The owner or operator of a HMIWI may conduct a repeat performance test within 30 days of violation of applicable operating parameter(s) to demonstrate that the affected facility is not in violation of the applicable emission limit(s). Repeat performance tests conducted for this purpose shall be conducted under the identical operating parameters that indicated a violation under subsections 39.7.7, 39.7.8, or 39.7.9 of this regulation. All stack testing must be observed by the Office of Air Resources or its authorized representatives to be considered acceptable.



39.7.11 The owner or operator of a HMIWI using an air pollution control device other than a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and a wet scrubber to comply with the applicable emission limits in Table 1(a) or Table 1(b) shall:

(a) As part of the performance test protocol required in subsection 39.7.2, the owner or operator must submit to the Director for approval site-specific operating parameters to be monitored during the initial performance test and continuously thereafter. The following information must be included in the submittal:

1. A description of the facility, including the devices controlled with the air pollution control device;
2. The proposed operating parameters to be monitored; and
3. Technical data and information demonstrating that the operating parameters submitted to be monitored are sufficient for monitoring operation of the alternative air pollution control device.

(b) The owner or operator shall not conduct the initial performance test until after the performance test protocol has been approved by the Director.

(c) Compliance with operating parameters shall be determined as follows:

1. During the initial performance test, establish maximum and minimum values for each of the operating parameters approved by the Director as site-specific operating parameters; and
2. Following the date on which the initial performance test is completed or is required to be completed, ensure that the HMIWI does not operate above any of the applicable maximum operating parameters or below any of the applicable minimum operating parameters, measured as 3-hour rolling averages (calculated each hour as the average of the previous 3 operating hours) at all times except during periods of startup, shutdown and malfunction. Operating parameter limits do not apply during performance tests. Operation above the established maximum or below the established minimum operating parameter(s) shall constitute a violation of that

operating parameter(s).

- 39.7.12 The owner or operator of a HMIWI may conduct a repeat performance test at any time to establish new values for the operating parameters. The Department may request a repeat performance test at any time. All stack testing must be observed by the Office of Air Resources or its authorized representatives to be considered acceptable.

### **39.8 Monitoring Requirements**

- 39.8.1 The owner or operator of a HMIWI shall install, calibrate (to manufacturers' specifications), maintain, and operate devices (or establish methods) for monitoring and recording the applicable maximum and minimum operating parameters listed in Table 3 at the frequencies indicated in that table at all times except during periods of startup and shutdown.
- 39.8.2 The owner or operator of a HMIWI shall install, calibrate (to manufacturers' specifications), maintain, and operate a device or method for measuring the use of the bypass stack including date, time, and duration.
- 39.8.3 The owner or operator of a HMIWI using an air pollution control device other than a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and a wet scrubber to comply with the emission limits in Table 1(a) or Table 1(b) shall install, calibrate (to the manufacturers' specifications), maintain, and operate the equipment necessary to monitor the site-specific operating parameters established according to the provisions of subsection 39.7.11 of this regulation.
- 39.8.4 The owner or operator of a HMIWI shall obtain and record monitoring data at all times during operation of the HMIWI except during periods of monitoring equipment malfunction, calibration, or repair. At a minimum, valid monitoring data shall be obtained for 75 percent of the operating hours per day and for 90 percent of the operating days per calendar quarter that the HMIWI is combusting hospital waste and /or medical/infectious waste.

### **39.9 Reporting and Recordkeeping Requirements**

- 39.9.1 The owner or operator of any HMIWI subject to this regulation shall maintain records of the following information, as applicable, for a period of at least 5 years. The records must be made available for

inspection, upon request by the Department:

- (a) Calendar date of each record;
- (b) Concentrations of pollutants listed in Table 1(a) or Table 1(b) and measurements of opacity, as determined by the continuous emission monitoring system, if applicable;
- (c) Results of fugitive emissions tests using EPA Reference Method 22, if applicable;
- (d) HMIWI charge dates, times, and weights and hourly charge rates;
- (e) Fabric filter inlet temperatures during each minute of operation, as applicable;
- (f) Amount and type of dioxin/furan sorbent used during each hour of operation, as applicable;
- (g) Amount and type of Hg sorbent used during each hour of operation, as applicable;
- (h) Amount and type of HCl sorbent used during each hour of operation, as applicable;
- (i) Secondary chamber temperatures recorded during each minute of operation;
- (j) Liquor flow rate to the wet scrubber inlet during each minute of operation, as applicable;
- (k) Horsepower or amperage to the wet scrubber during each minute of operation, as applicable;
- (l) Pressure drop across the wet scrubber system during each minute of operation, as applicable;
- (m) Temperature at the outlet from the wet scrubber during each minute of operation, as applicable;
- (n) pH at the inlet to the wet scrubber during each minute of operation, as applicable;
- (o) Records of all operating parameter data collected pursuant to subsection 39.8;

- (p) Records of each time the bypass stack was used, including date, time and duration, reason for malfunction, and corrective action taken;
- (q) Records of periods for which the monitoring data specified in subsection 39.8 was not obtained, including the date, time, duration, an identification of the emission rates or operating parameters not measured, reasons for not obtaining the data, and a description of corrective actions taken.
- (r) Identification of the calendar day, time and duration of any malfunction, and a description of the malfunction and the corrective action taken.
- (s) Identification of calendar days for which emission rates or operating parameters exceeded the applicable limits, with a description of the exceedance, reasons for the exceedance, and corrective actions taken.
- (t) The results of initial, annual, and any subsequent performance tests conducted to determine compliance with the emission limits and/or to establish operating parameters, as applicable.
- (u) All documentation produced to comply with the pre-construction requirements specified in subsection 39.4;
- (v) Records of the names of HMIWI operators who have completed review of the information specified in subsection 39.10.8, as required in subsection 39.10.9 of this regulation, including the date of the initial review and all subsequent annual reviews;
- (w) Records of the names of HMIWI operators who have completed the operator training and qualification requirements specified in subsections 39.10.3 through 39.10.7 of this regulation, including documentation of training received, dates of training and dates of qualification;
- (x) Records of installation, calibration, inspection, operation and maintenance of any monitoring devices used to comply with section 39.8 of this regulation; and
- (y) Records of annual equipment inspections, as required in section 39.6 of this regulation, including required maintenance and repairs, and any repairs not completed by the dates specified in subsection 39.6.2.

- 39.9.2 The owner or operator of a HMIWI shall submit the following information to the Office of Air Resources, signed by the facilities manager, no later than 60 days following the initial performance test:
- (a) Emissions rates, operating parameters, and other applicable data pertaining to the initial performance test, as specified in paragraphs (a) through (l) of subsection 39.7.2; and
  - (b) The maximum and minimum values for the site-specific operating parameters established pursuant to subsection 39.7.6 or 39.7.11 of this regulation, as applicable.
- 39.9.3 The owner or operator of a HMIWI shall submit semiannual reports to the Office of Air Resources for the reporting periods January 1 – June 30 and July 1 – December 31. The reports must be submitted no later than 60 days following the ending of the semiannual reporting period in which the data were collected. The first semiannual reporting period ends either June 30 or December 31, whichever comes first, following the submission of information in subsection 39.9.2 of this regulation. All reports shall be signed by the facilities manager and all applicable information and records in this report must be maintained for 5 years. The report must include the following information:
- (a) Any information recorded under subsections 39.9.1(q) through 39.9.1(s) of this regulation.
  - (b) The maximum and minimum values for the site-specific operating parameters established pursuant to subsection 39.7.6 or 39.7.11, as applicable;
  - (c) The highest and lowest values recorded for each applicable operating parameter during the reporting period and during the calendar year of the period being reported and the previous calendar year, as applicable;
  - (d) Any information recorded pursuant to paragraphs (p) through (s) of subsection 39.9.1 of this regulation for the reporting period, the calendar year being reported and the previous calendar year, as applicable;
  - (e) If no exceedances or malfunctions were reported under subsections 39.9.1(q) through 39.9.1(s) of this regulation for the reporting period, a statement that no exceedance occurred during the reporting period; and

(f) If a performance test was conducted during the reporting period, the results of that test.

39.9.4 All records specified under subsection 39.9.1 of this regulation shall be maintained onsite in either paper copy or computer-readable format, unless an alternative format is approved by the Director. Records must be signed by the facilities manager.

### **39.10 HMIWI Operation, Training, and Qualification Requirements**

39.10.1 No owner or operator of an affected facility shall allow the facility to operate at any time unless a fully trained and qualified HMIWI operator is at the facility at all times that the HMIWI is operating. The trained and qualified HMIWI operator may operate the HMIWI directly or be the direct supervisor of one or more HMIWI operators.

39.10.2 HMIWI operator training and qualification shall be obtained and maintained according to the specifications in subsections 39.10.3 through 39.10.7 of this regulation.

39.10.3 HMIWI operator training shall be obtained by completing and passing an HMIWI operator training course that includes, at a minimum, the following elements:

(a) 24 hours of training on the following subjects:

1. Environmental concerns, including pathogen destruction and types of emissions;
2. Basic combustion principles, including products of combustion;
3. Operation of the type of incinerator to be used by the operator, including proper startup, waste charging, and shutdown procedures;
4. Combustion controls and monitoring;
5. Operation of air pollution control equipment and factors affecting performance, if applicable;
6. Methods to monitor pollutants (i.e. continuous emission monitoring systems and monitoring of HMIWI and air pollution control device operating parameters) and

equipment calibration procedures, where applicable;

7. Inspection and maintenance of the HMIWI, air pollution control devices, and continuous emission monitoring systems;
8. Actions to correct malfunctions or conditions that may lead to malfunction;
9. Bottom and fly ash characteristics and handling procedures;
10. Applicable Federal, State, and local regulations;
11. Work safety procedures;
12. Pre-startup inspections; and
13. Recordkeeping requirements;

(b) An examination designed and administered by the instructor; and

(c) Reference material distributed to the attendees covering the course topics.

39.10.4 HMIWI operator qualification shall be obtained by:

- (a) Completing and passing a training course that satisfies the criteria listed in subsection 39.10.3 of this regulation; and
- (b) Either 6 months experience as an HMIWI operator, 6 months experience as a direct supervisor of an HMIWI operator, or completion of at least two burn cycles under the observation of two qualified HMIWI operators.

39.10.5 HMIWI operator qualification is valid for 1 year from the date on which the examination specified in subsection 39.10.3 of this regulation is passed, or the completion of the required experience specified in subsection 39.10.4 of this regulation, whichever is later.

39.10.6 The trained and qualified HMIWI operator must maintain and renew qualification yearly by completing and passing an annual review or refresher course of at least 4 hours covering, at a minimum, the following:

- (a) Applicable regulations;
- (b) Incinerator operation, including startup and shutdown procedures;
- (c) Inspection and maintenance;
- (d) Responses to malfunctions or conditions that may lead to malfunction; and
- (e) Discussion of operating problems encountered by attendees.

39.10.7 A lapsed qualification for a HMIWI operator may be renewed by one of the following methods:

- (a) For a lapse of less than 3 years, the HMIWI operator shall complete and pass a standard annual refresher course described in subsection 39.10.6 of this regulation.
- (b) For a lapse of 3 years or more, the HMIWI operator shall complete and pass a training course with the minimum criteria described in subsection 39.10.3 of this regulation.

39.10.8 The owner or operator of an affected facility shall maintain the following documentation at the facility:

- (a) A summary of applicable Federal, State, and local regulations;
- (b) A description of basic combustion theory applicable to an HMIWI;
- (c) Procedures for receiving, handling, and charging waste;
- (d) HMIWI startup, shutdown, and malfunction procedures;
- (e) Procedures for maintaining proper combustion air supply levels;
- (f) Procedures for operating the HMIWI and associated air pollution control systems according to the requirements of this regulation;
- (g) Procedures for responding to periodic malfunction or conditions that may lead to malfunction;
- (h) Procedures for monitoring HMIWI emissions;
- (i) Reporting and recordkeeping procedures; and



(j) Procedures for handling ash.

39.10.9 The owner or operator of an affected facility shall review the information listed in subsection 39.10.8 of this regulation semi-annually with each HMIWI operator according to the following schedule:

(a) The initial review of the information listed in subsection 39.10.8 of this regulation shall be conducted by February 21, 2001 or prior to the operator's assumption of responsibilities affecting HMIWI operation, whichever date is later.

(b) Subsequent reviews of the information listed in subsection 39.10.8 of this regulation shall be conducted annually (no later than 12 months after the previous review).

39.10.10 The information listed in subsection 39.10.8 of this regulation shall be kept in a readily accessible location for all HMIWI operators. This information, along with records of training, shall be available for inspection by the Department or EPA upon request.

### **39.11 Inspection and Entry**

39.11.1 Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter any facility subject to this regulation at all reasonable times for the purpose of:

(a) Having access to and copying any applicable records to determine compliance with this regulation;

(b) Inspecting any equipment, practices, or operations required in this regulation;

(c) Sampling or monitoring substances or parameters for the purpose of assuring compliance with this regulation or other applicable requirements; and

(d) Any other areas or operations the Director deems necessary.

39.11.2 Nothing in this regulation shall limit the ability of EPA to inspect or enter the premises of a HMIWI under the provisions of the Clean Air Act.

39.11.3 No person shall obstruct, hamper, or interfere with any such authorized representative while in the process of carrying out his/her official duties.

## **39.12 General Provisions**

### **39.12.1 Purpose**

The purpose of this regulation is to limit emissions from hospital, medical and infectious waste incinerators.

### **39.12.2 Authority**

These regulations are authorized pursuant to R.I. Gen. Laws § 42-17.1-2(s) and 23-23, as amended, and have been promulgated pursuant to the procedures set forth in the R.I. Administrative Procedures Act, R.I. Gen. Laws Chapter 42-35

### **39.12.3 Application**

The terms and provisions of this regulation shall be liberally construed to permit the Department to effectuate the purposes of state law, goals and policies.

### **39.12.4 Severability**

If any provision of this regulation or the application thereof to any person or circumstance, is held invalid by a court of competent jurisdiction, the validity of the remainder of the regulation shall not be affected thereby.

### **39.12.5 Effective Date**

The foregoing regulation, "Hospital/Medical/Infectious Waste Incinerators", as amended, after due notice, is hereby adopted and filed with the Secretary of State this 29th day of June, 2007 to become effective twenty (20) days thereafter, in accordance with the provisions of Chapters 23-23, 42-35, 42-17.1, 42-17.6, of the General Laws of Rhode Island of 1956, as amended.

W. Michael Sullivan, PhD., Director  
Department of Environmental Management

**Notice Given on: February 21, 2007**

**Public Hearing held: March 23, 2007**

**Filing Date: June 29, 2007**

**Effective Date: July 19, 2007**

**Table 1 (a) . Emission limits for HMIWI constructed on or before June 20, 1996**

Pollutant	Units (7 percent oxygen, dry basis)	Emission limits		
		HMIWI size		
		Small	Medium	Large
Particulate matter	milligrams per dry standard cubic meter (grains per dry standard cubic foot)	115 (0.05)	69 (0.03)	34 (0.015)
Carbon monoxide	parts per million by volume	40	40	40
Dioxins/furans	either: <u>total dioxins/furans</u> <sup>1</sup> nanograms per dry standard cubic meter (grains per billion dry standard cubic feet), or <u>total dioxin/furan TEQ</u> nanograms per dry standard cubic meter (grains per billion dry standard cubic feet)	125 (55)	125 (55)	125 (55)
Hydrogen chloride	parts per million by volume	100	100	100
Sulfur dioxide	parts per million by volume	55	55	55
Nitrogen oxides	parts per million by volume	250	250	250
Lead	milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet)	1.2 (0.52)	1.2 (0.52)	1.2 (0.52)
Cadmium	milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet)	0.16 (0.07)	0.16 (0.07)	0.16 (0.07)
Mercury	milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet)	0.055 (0.024)	0.055 (0.024)	0.055 (0.024)

<sup>1</sup> Total dioxin/furan is the sum of the emissions of all tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans, as measured by EPA Reference Method 23. To calculate Toxic Equivalent Quantity (TEQ), emissions of those congeners are weighted according to international toxic equivalency factors and then summed.

**Table 1(b). Emission limits for HMIWI constructed after June 20, 1996**

Pollutant	Units (7 percent oxygen, dry basis)	Emission limits		
		HMIWI size		
		Small	Medium	Large
Particulate matter	milligrams per dry standard cubic meter (grains per dry standard cubic foot)	69 (0.03)	34 (0.015)	34 (0.015)
Carbon monoxide	parts per million by volume	40	40	40
Dioxins/furans	either: <u>total dioxins/furans<sup>2</sup></u> nanograms per dry standard cubic meter (grains per billion dry standard cubic feet), or	125 (55)	25 (11)	25 (11)
	<u>total dioxin/furan TEQ</u> nanograms per dry standard cubic meter (grains per billion dry standard cubic feet)	2.3 (1.0)	0.6 (0.26)	0.6 (0.26)
Hydrogen chloride	parts per million by volume	15	15	15
Sulfur dioxide	parts per million by volume	55	55	55
Nitrogen oxides	parts per million by volume	250	250	250
Lead	milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet)	1.2 (0.52)	0.07 (0.03)	0.07 (0.03)
Cadmium	milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet)	0.16 (0.07)	0.04 (0.02)	0.04 (0.02)
Mercury	milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet)	0.055 (0.024)	0.055 (0.024)	0.055 (0.024)

<sup>2</sup> Total dioxin/furan is the sum of the emissions of all tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans, as measured by EPA Reference Method 23. To calculate Toxic Equivalent Quantity (TEQ), emissions of those congeners are weighted according to international toxic equivalency factors and then summed.

**Table 2. Toxic Equivalency Factors**

Dioxin/furan congener	Toxic Equivalency Factor
2,3,7,8-tetrachlorinated dibenzo-p-dioxin	1
1,2,3,7,8-pentachlorinated dibenzo-p-dioxin	0.5
1,2,3,4,7,8-hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,7,8,9-hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,6,7,8-hexachlorinated dibenzo-p-dioxin	0.1
1,2,3,4,6,7,8-heptachlorinated dibenzo-p-dioxin	0.01
octachlorinated dibenzo-p-dioxin	0.001
2,3,7,8-tetrachlorinated dibenzofuran	0.1
2,3,4,7,8-pentachlorinated dibenzofuran	0.5
1,2,3,7,8-pentachlorinated dibenzofuran	0.05
1,2,3,4,7,8-hexachlorinated dibenzofuran	0.1
1,2,3,6,7,8-hexachlorinated dibenzofuran	0.1
1,2,3,7,8,9-hexachlorinated dibenzofuran	0.1
2,3,4,6,7,8-hexachlorinated dibenzofuran	0.1
1,2,3,4,6,7,8-heptachlorinated dibenzofuran	0.01
1,2,3,4,7,8,9-heptachlorinated dibenzofuran	0.01
octachlorinated dibenzofuran	0.001

**Table 3. Operating Parameters to be Monitored and Minimum Measurement and Recording Frequencies**

Operating parameters to be monitored	Minimum frequency		Control system		
	Data measurement	Data recording	Dry scrubber followed by fabric filter	Wet scrubber	Dry scrubber followed by fabric filter and wet scrubber
<b>Maximum operating parameters</b>					
Maximum charge rate	continuous	1 per hour	√	√	√
Maximum fabric filter inlet temperature	continuous	1 per minute	√		√
Maximum flue gas temperature	continuous	1 per minute		√	
<b>Minimum operating parameters</b>					
Minimum secondary chamber temperature	continuous	1 per minute	√	√	√
Minimum dioxin/furan sorbent flow rate	hourly	1 per hour	√		√
Minimum HCl sorbent flow rate	hourly	1 per hour	√		√
Minimum mercury (Hg) sorbent flow rate	hourly	1 per hour	√		√
Minimum pressure drop across the wet scrubber or minimum horsepower or amperage to wet scrubber	continuous	1 per minute		√	√
Minimum scrubber liquor flow rate	continuous	1 per minute		√	√
Minimum scrubber liquor pH	continuous	1 per minute		√	√