

REGULATION III – CONTROL OF AIR CONTAMINANTS
RULE 317
HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS

INDEX

SECTION 100 – GENERAL

- 101 PURPOSE
- 102 APPLICABILITY
- 103 AVAILABILITY OF INFORMATION

SECTION 200 – DEFINITIONS

- 201 BATCH HMIWI
- 202 BIOLOGICALS
- 203 BLOOD PRODUCTS
- 204 BODY FLUIDS
- 205 CHEMOTHERAPEUTIC WASTE
- 206 CO-FIRED COMBUSTOR
- 207 CONTINUOUS HMIWI
- 208 CREMATORY
- 209 DIOXINS/FURANS
- 210 HOSPITAL
- 211 HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATOR
- 212 HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATOR OPERATOR
- 213 HOSPITAL WASTE
- 214 INFECTIOUS AGENT
- 215 INTERMITTENT HMIWI
- 216 LARGE HMIWI
- 217 LOW-LEVEL RADIOACTIVE WASTE
- 218 MAXIMUM CHARGE RATE
- 219 MAXIMUM DESIGN WASTE BURNING CAPACITY
- 220 MEDICAL/INFECTIOUS WASTE
- 221 MEDIUM HMIWI
- 222 PATHOLOGICAL WASTE

- 223 PYROLYSIS
- 224 SHUTDOWN
- 225 SMALL HMIWI

SECTION 300 – STANDARDS

- 301 HMIWI STANDARDS
- 302 HMIWI EMISSIONS GUIDELINES
- 303 OPACITY
- 304 LARGE HMIWI OPACITY
- 305 NIGHT BURNING
- 306 INCORPORATION BY REFERENCE
- 307 EXEMPTIONS

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

- 401 COMPLIANCE SCHEDULE

SECTION 500 – MONITORING AND RECORDS

- 501 PROVIDING AND MAINTAINING MONITORING DEVICES
- 502 RECORDKEEPING AND REPORTING
- 503 HMIWI MONITORING REQUIREMENTS

Adopted 04/07/93
Revised 04/07/99
Revised 11/19/03
Revised 03/15/06
Revised 12/17/08
Revised 09/16/09
Revised 07/07/10

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 317
HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATORS

SECTION 100 – GENERAL

101 PURPOSE: To control emissions of air pollutants from Hospital/Medical/Infectious Waste incinerators.

102 APPLICABILITY: A Hospital/Medical/Infectious Waste Incinerator (HMIWI) commenced on or before June 20, 1996, or for which construction commenced on or before June 20, 1996, shall comply with this rule unless it fits any one of the following exceptions:

102.1 A combustor is not subject to this rule when only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste is burned, provided the owner or operator of the combustor:

- a.** Notifies the Control Officer of an exemption claim; and
- b.** Keeps records on a calendar quarter basis of the periods of time when only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste is burned.

102.2 Any co-fired combustor is not subject to this rule if the owner or operator of the co-fired combustor:

- a.** Notifies the Control Officer of an exemption claim; and
- b.** Provides an estimate of the relative weight of hospital waste, medical/infectious waste, and other fuels and/or wastes to be combusted; and
- c.** Keeps records on a calendar quarter basis of the weight of hospital waste and medical/infectious waste combusted, and the weight of all other fuels and wastes combusted at the co-fired combustor.

- 102.3** Any combustor required to have a permit under Title 42, United States Code (U.S.C.), Section 6925, Section 3005 of the Solid Waste Disposal Act is not subject to this rule.
- 102.4** Any combustor which meets the applicability requirements under 40 CFR 60, Subparts Cb, Ea, or Eb (standards or guidelines for certain municipal waste combustors) is not subject to this rule.
- 102.5** Any pyrolysis unit is not subject to this rule.
- 102.6** Cement kilns firing hospital waste or medical/infectious waste are not subject to this rule.
- 102.7** Physical or operational changes made to an existing HMIWI unit solely for the purpose of complying with emission guidelines under this rule are not considered a modification and do not result in an existing HMIWI unit becoming subject to the provisions of 40 CFR 60, Subpart Ec.
- 102.8** HMIWI subject to this Section are not subject to Rule 313.
- a.** A crematory whose incinerator burns only human remains is not a HMIWI and is not subject to this rule. It is subject to Rule 313. However, if the incinerator burns 10 percent or less of hospital waste and medical/infectious waste, it is a co-fired combustor subject only to notification and recordkeeping requirements, as specified in Section 102.2.c of this rule. If the incinerator burns more than 10 percent hospital waste and medical/infectious waste, it is subject to all of the requirements of this rule.
 - b.** Any co-fired combustor or combustor that is not subject to this rule is still subject to Rule 313. (See Applicability, Sections 102.2, 102.3 and 102.4 of this rule.)

103 AVAILABILITY OF INFORMATION: Copies of the CFR referenced in this rule are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ, 85004, or by calling (602) 506-0169 for information.

SECTION 200 – DEFINITIONS: See Rule 100 of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 BATCH HMIWI – An HMIWI that is designed such that neither waste charging nor ash removal can occur during combustion.

202 BIOLOGICALS – Preparations made from living organisms and their products. This includes vaccines, cultures, etc., intended for use in diagnosing, immunizing, or treating humans or animals or in research.

- 203 BLOOD PRODUCTS** – 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.
- 204 BODY FLUIDS** – Liquid emanating or derived from humans and limited to blood; dialysate; amniotic, cerebrospinal, synovial, pleural, peritoneal and pericardial fluids; and semen and vaginal secretions.
- 205 CHEMOTHERAPEUTIC WASTE** – Waste material resulting from the production or use of antineoplastic agents used for the purpose of stopping or reversing the growth of malignant cells.
- 206 CO-FIRED COMBUSTOR** – A unit combusting hospital waste and/or medical/infectious waste with other fuels or wastes (e.g., coal, municipal solid waste) and subject to an enforceable requirement limiting the unit to combusting a fuel feed 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.
- 207 CONTINUOUS HMIWI** – An HMIWI that is designed to allow waste charging and ash removal during combustion.
- 208 CREMATORY** – An incinerator used for the cremation of human and animal bodies, their body parts, and for the incineration of associated animal bedding.
- 209 DIOXINS/FURANS** – The combined emissions of tetra-through octa-chlorinated dibenzo-para-dioxins and dibenzofurans, as measured by the EPA Reference Method 23, found in 40 CFR Part 60, Appendix A.
- 210 HOSPITAL** – 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 impatience 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.
- 211 HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATOR OR HMIWI OR HMIWI UNIT** – Any device that combusts any amount of hospital waste or medical/infectious waste.
- 212 HOSPITAL/MEDICAL/INFECTIOUS WASTE INCINERATOR OPERATOR OR HMIWI OPERATOR** – Any person who operates, controls or supervises the day-to-day operation of an HMIWI.

- 213 HOSPITAL WASTE** – 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.
- 214 INFECTIOUS AGENT** – 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.
- 215 INTERMITTENT HMIWI** – An HMIWI that is designed to allow waste charging, but not ash removal, during combustion.
- 216 LARGE HMIWI:**
- 216.1** Except as provided in Section 216.2:
- a. An HMIWI whose maximum design waste burning capacity is more than 500 pounds per hour; or
 - b. A continuous or intermittent HMIWI whose maximum charge rate is more than 500 pounds per hour; or
 - c. A batch HMIWI whose maximum charge rate is more than 4,000 pounds per day.
- 216.2** Each of the following is not a large HMIWI:
- a. A continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 500 pounds per hour; or
 - b. A batch HMIWI whose maximum charge rate is less than or equal to 4,000 pounds per day.
- 217 LOW-LEVEL RADIOACTIVE WASTE** – 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)).
- 218 MAXIMUM CHARGE RATE:**
- 218.1** 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.
- 218.2** 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.

219 MAXIMUM DESIGN WASTE BURNING CAPACITY:

219.1 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^3

15,000 = primary chamber heat release rate factor, $\text{Btu}/\text{ft}^3/\text{hr}$

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

219.2 For batch HMIWI, $C = PV \times 4.5/8$

Where:

C = HMIWI capacity, lb/hr

PV = primary chamber volume, ft^3

4.5 = waste density, lb/ft^3

8 = typical hours of operation of a batch HMIWI.

220 MEDICAL/INFECTIOUS WASTE – Any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research, or in the production or testing of biologicals that is listed in Sections 220.1 through 220.7 of this rule. The definition of medical/infectious waste does not include hazardous waste identified or listed under the regulations in 40 CFR Part 261; household waste, as defined in 40 CFR 261.4(b)(1); ash from incineration of medical/infectious waste, once the incineration process has been completed; human corpses, remains, and anatomical parts that are intended for interment; cremation; and domestic sewage materials identified in 40 CFR 261.4(a)(1). Medical/infectious waste does include:

220.1 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.

220.2 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.

220.3 Human blood and blood products including:

a. Liquid waste human blood;

b. Products of blood;

c. Items saturated and/or dripping with human blood; or

d. 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.

- 220.4** 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.
- 220.5** 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.
- 220.6** 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.
- 220.7** Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

221 MEDIUM HMIWI:

- 221.1** Except as provided in Section 221.2:
 - a.** An 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
 - b.** 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
 - c.** 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.
- 221.2** The following are not medium HMIWI:
 - a.** A continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 200 pounds per hour or more than 500 pounds per hour; or
 - b.** A batch HMIWI whose maximum charge rate is more than 4,000 pounds per day or less than or equal to 1,600 pounds per day.

222 PATHOLOGICAL WASTE – 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).

- 223 PYROLYSIS** – The endothermic gasification of hospital waste or medical/infectious waste using external energy.
- 224 SHUTDOWN** – 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.

225 SMALL HMIWI:

225.1 Except as provided in Section 225.2:

- a. An HMIWI whose maximum design waste burning capacity is less than or equal to 200 pounds per hour; or
- b. A continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 200 pounds per hour; or
- c. A batch HMIWI whose maximum charge rate is less than or equal to 1,600 pounds per day.

225.2 The following are not small HMIWI:

- a. A continuous or intermittent HMIWI whose maximum charge rate is more than 200 pounds per hour; or
- b. A batch HMIWI whose maximum charge rate is more than 1,600 pounds per day.

SECTION 300 – STANDARDS

301 HMIWI STANDARDS: An existing HMIWI covered by this Section shall comply with 40 CFR 60, Subpart Ec, and all accompanying appendices, as modified by this subsection. 40 CFR 60, Subpart Ec “Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996” is incorporated by reference in Rule 360 of the Maricopa County Air Pollution Control Regulations. Each owner or operator of an affected facility shall comply with the requirements of 40 CFR 60, Subpart Ec, as adopted and, where applicable, revised herein.

302 HMIWI EMISSIONS GUIDELINES: An HMIWI shall comply with the emissions guidelines listed in Table 317.1 below:

Table 317.1. Emission Limits for Small, Medium, and Large HMIWI.

Pollutant	Units (7% oxygen, dry basis)	Emission Limits (by HMIWI size)		
		Small	Medium	Large
Cadmium	Milligrams per dry standard	0.16 (0.07)	0.16 (0.07)	0.16 (0.07)

	cubic meter (grains per thousand dry standard cubic feet) or percent reduction	or 65%	or 65%	or 65%
Carbon monoxide	Parts per million by volume	40	40	40
Dioxins/furans	Nanograms per dry standard cubic meter total dioxins/furans (grains per billion dry standard cubic feet) or nanograms per dry standard cubic meter TEQ (grains per billion dry standard cubic feet)	125 (55) or 2.3 (1.0)	125 (55) or 2.3 (1.0)	125 (55) or 2.3 (1.0)
Hydrogen chloride	Parts per million by volume or percent reduction	100 or 93%	100 or 93%	100 or 93%
Lead	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction	1.2 (0.52) or 70%	1.2 (0.52) or 70%	1.2 (0.52) or 70%
Mercury	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction	0.55 (0.24) or 85%	0.55 (0.24) or 85%	0.55 (0.24) or 85%
Nitrogen oxides	Parts per million by volume	250	250	250
Particulate matter	Milligrams per dry standard cubic meter (grains per dry standard cubic foot)	115 (0.05)	69 (0.03)	34 (0.015)
Sulfur dioxide	Parts per million by volume	55	55	55

- 303 OPACITY:** No owner or operator of an HMIWI shall cause to be discharged into the atmosphere from the stack of that HMIWI any gases that exhibit greater than 10 percent opacity (6-minute block average) or darker than 20 percent opacity for an aggregate of more than 30 seconds in any consecutive 60 minutes.
- 304 LARGE HMIWI OPACITY:** A large HMIWI shall comply with the opacity requirements as specified in 40 CFR 60, Sections 60.52c(c), (d), and (e).
- 305 NIGHT BURNING:** No person shall operate a medical waste incinerator between sunset and the following sunrise unless a continuous opacity (particulate) recorder is operating at all times when there is any combustion within the incinerator. Such recorder shall be in compliance with Section 501.1 of this rule.
- 306 INCORPORATION BY REFERENCE:** All CFR references as of July 1, 2009 that are listed below and in various sections of this rule are adopted and incorporated by reference. These adoptions by reference include no future editions or amendments. Copies of these CFR references are available at the Maricopa County Air Quality Department, 1001 N. Central Ave., Phoenix, AZ, 85004, or by calling (602) 506-0169 for information.

40 CFR 60, Subpart Ec
40 CFR 60, Sections 60.52c(c), (d), and (e)
40 CFR 60, Section 60.56c
40 CFR 60, Section 60.57c
40 CFR 60, Sections 60.58c(b), (c), (d), (e), and (f)
40 CFR 60, Appendix A and Appendix B
40 CFR 70

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: On the effective date of an EPA approved operating permit program under Clean Air Act Title V and the implementing regulations under 40 CFR 70 in Arizona, whichever date is later, designated facilities subject to this rule shall operate pursuant to a permit issued under the EPA-approved operating permit program.

SECTION 500 – MONITORING AND RECORDS

501 PROVIDING AND MAINTAINING MONITORING DEVICES: Except as provided in Section 502, all requirements for compliance and performance testing listed in 40 CFR 60.56c shall be required of each HMIWI, excluding the fugitive emissions testing requirements under Sections 60.56c(b)(12) and (c)(3).

501.1 Any person subject to Section 304 of this rule shall operate and maintain all of the following continuous data recording systems. All required systems shall be completely and properly operating during all periods of combustion within the incinerator, and each shall include a real-time recording device that creates a clear, legible record at all times of operation.

501.2 Opacity of stack emissions or other indicator of particulate matter which is approved by the Control Officer. Pursuant to Section 305 of this rule, any incinerator burning after sunset must be equipped with a continuously recording opacity monitor, regardless of capacity. The opacity monitor shall be located after (downstream of) all control equipment, prior to the stack exit, and prior to any dilution with ambient air. The opacity monitor shall at all times comply with the EPA Performance Specification 1 (40 CFR 60, Appendix B) and shall be calibrated no less than once each day.

502 RECORDKEEPING AND REPORTING: Each HMIWI shall comply with the requirements listed in 40 CFR 60.58c(b), (c), (d), (e), and (f), excluding 40 CFR 60.58c(b)(2)(ii) (fugitive emissions) and (b)(7) (siting).

503 HMIWI MONITORING REQUIREMENTS: An existing HMIWI shall comply with the monitoring requirements of 40 CFR 60.57c.