

Source and Effective Date

R.1994 d.537, effective November 7, 1994
 (operative November 27, 1994).
 See: 26 N.J.R. 1050(a), 26 N.J.R. 4355(a).

7:27-27.1 Definitions

The following words and terms, when used in this subchapter, shall have the following meaning, unless the context clearly indicates otherwise.

“Air contaminant” means any substance, other than water or distillates of air, present in the atmosphere as solid particles, liquid particles, vapors or gases.

“Annual average” means the arithmetic average of all stack emission tests conducted for four consecutive quarters. The annual average is obtained by first determining the arithmetic average of all test runs conducted each quarter and then determining the arithmetic average of the quarterly averages.

“Annual weighted average” is calculated as follows:

Annual weighted average mercury emission (H) =

$$H = \frac{\sum_{q=1}^4 ((\sum H_{gr} / \sum P_r)_q \times P_q)}{\sum_{q=1}^4 \sum P_q}$$

Annual weighted average mercury reduction efficiency (η) =

$$\eta = \frac{\sum_{q=1}^4 (\sum ((\text{inlet } H_{gr} - \text{outlet } H_{gr}) \times 100 / (\text{inlet } H_{gr})) / 3)_q \times P_q)}{\sum_{q=1}^4 \sum P_q}$$

Annual weighted average mercury emission for an averaging plan for multiple coal-fired boilers:

$$= \frac{\sum_u (H_u \times P_u)}{\sum_u P_u}$$

where: H is annual weighted average mercury emission of a iron or steel melter, or coal-fired boiler
 H_u is annual weighted average mercury emission of each of the coal-fired boilers in averaging plan
 H_{gr} is milligrams of mercury tested for each of the three mercury stack emission test runs in a quarter
 P_r is net iron or steel production in tons for iron or steel melters or megawatt hour generated from a coal-fired boiler during each stack test run in a quarter
 P_q is net iron or steel production in tons for iron or steel melters or megawatt hour generated from a coal-fired boiler for a quarter
 P_u is net megawatt hour generated for a coal-fired boiler in four consecutive quarters
 q is quarter
 u is number of coal-fired boilers

“Biologicals” means preparations made from living organisms and their products, including but not limited to vaccines and cultures, intended for use in diagnosing, immunizing, or treating humans or animals or in research pertaining thereto.

“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.

“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.

“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.

“Coal” means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials, Designation D388-77.

“Coal-fired boiler” means a furnace used in the process of burning coal for the purpose of producing steam by heat transfer.

“Co-fired combustor” means a unit combusting hospital/medical/ infectious waste (HMIW) with any other fuels or wastes, such as coal, municipal solid waste, and subject to an enforceable requirement by the Department and USEPA limiting the unit to combust a fuel feed stream, 10 percent or less of the weight of which is comprised, in aggregate, of HMIW as measured on a calendar quarter basis. For the purposes of this definition, pathological waste, low level radioactive waste, and chemotherapeutic waste are not considered HMIW when calculating HMIW combusted.

“Combined heat and power facilities” means steam produced from the same coal-fired boiler is partly used to generate electricity and partly used for heating or cooling in industrial processes or buildings.

“Continuous emission monitoring system” or “CEM system” means a device that continuously measures the emissions from one or more source operations.

“Control apparatus” means any device which prevents or controls the emission of any air contaminant directly or indirectly into the outdoor atmosphere.

“Department” means the New Jersey Department of Environmental Protection.

“Dry bottom utility boiler” means a utility boiler equipped with an ash disposal hopper bottom with sufficient cooling surface so that ash particles, when removed from the hopper, are in a solid state.

“Equipment” means any device capable of causing the emission of any air contaminant either directly or indirectly into the outdoor atmosphere, and any stack or chimney, conduit, flue, duct, vent or similar device connected or attached to, or serving the equipment.

“Facility” means the combination of all structures, buildings, equipment, source operations, and other operations located on one or more contiguous or adjacent properties owned or operated by the same person.

“Hazardous waste” means any solid waste or combination of solid wastes, including toxic, corrosive, irritating, sensitizing, radioactive, biologically infectious, explosive or flammable solid waste, which poses a present or potential threat to human health, living organisms or the environment, provided that the solid waste is hazardous in accordance with the standards and procedures set forth in N.J.A.C. 7:26-8.

“Hazardous waste incinerator” means any enclosed device burning hazardous waste using controlled flame combustion that neither meets the criteria for classification as an industrial boiler nor is defined as an industrial furnace. It also includes boilers and industrial furnaces which do not conform with the criteria for these devices under N.J.A.C. 7:26-9.1(c)9.

“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 inpatients 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.

“Hospital/medical/infectious waste incinerator” or “HMIW incinerator” means any device that combusts any amount of hospital waste and/or medical/infectious waste.

“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.

“Incinerator” means any device, apparatus, equipment, or structure using combustion or pyrolysis for destroying, reducing or salvaging any material or substance, but does not include thermal or catalytic oxidizers used as control apparatus on manufacturing equipment.

“Infectious agent” means any organism, such as 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.

“Iron or steel melter” means a source where shredded metals or other ferrous materials are melted to produce steel or iron products.

“Low-level radioactive waste” means waste material that 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)).

“Manufacturing process” means any action, operation or treatment embracing chemical, industrial, manufacturing, or processing factors, method or forms including, but not limited to, furnaces, kettles, ovens, converters, cupolas, kilns, crucibles, stills, dryers, roasters, crushers, grinders, mixers, reactors, regenerators, separators, filters, reboilers, columns, classifiers, screens, quenchers, cookers, digesters, towers, washers, scrubbers, mills, condensers, or absorbers.

“Medical/infectious waste” means any solid waste that is generated in the diagnosis, treatment (for example, provision of medical services), or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that is listed in paragraphs 1 through 7 of this definition. Medical/infectious waste does not include hazardous waste identified or listed under 40 CFR Part 261; household waste, as defined in 40 CFR Part 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 or cremation; and domestic sewage materials as identified in 40 CFR Part 261.4(a)(1).

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, that 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 wastes 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 hypodermic needles, suture needles, syringes and scalpel blades.

“Mercury (Hg)” means all inorganic and organic compounds of mercury, including elemental mercury, expressed as elemental mercury.

“Mercury-free scrap” is defined to mean scrap solely from sources that do not contain any intentionally added mercury. For example, automobile scrap, even when the mercury switches have been removed, would not be considered “mercury-free scrap.” In contrast, steel beams obtained from demolished buildings would be considered “mercury-free scrap.”

“ $\mu\text{g}/\text{dscm}$ ” means a measurement of the concentration of a specified substance, expressed as micrograms per dry standard cubic meter.

“ $\text{mg}/\text{MW-hr}$ ” means mercury emissions in milligram per megawatt of net electricity generation.

“Municipal solid waste (MSW)” means residential, commercial and institutional solid waste generated within a community.

“Municipal solid waste incinerator” means an incinerator which burns municipal solid waste.

“Operating permit” means a permit issued pursuant to N.J.A.C. 7:27-22.

“Operator” means any person who operates, leases, controls, or supervises a facility.

“Optimized reagent feed rate” means the reagent feed rate such that a higher reagent feed rate will not appreciably

reduce mercury emissions compared to the amount of reagent added.

“Owner” means any person who owns a facility.

“Pathological waste” means waste material consisting of only human or animal remains, anatomical parts and/or tissue, the bags or containers used to collect and transport the waste material, and animal bedding.

“Person” means any individual or entity and shall include, without limitation, corporations, companies, associations, societies, firms, partnerships and joint stock companies as well as individuals, and shall also include, without limitation, all political subdivisions of this state or any agencies or instrumentalities thereof.

“Preconstruction permit” means a permit issued pursuant to N.J.A.C. 7:27-8.

“Quarter” means a period of three consecutive months (non-overlapping) beginning on January 1, April 1, July 1, or October 1, in any year.

“Reagent” for the purpose of this subchapter means a substance used to adsorb mercury or to convert mercury into a form which is more easily captured by air pollution control devices.

“Sewage sludge” means a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage, scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge.

“Solid waste” has the meaning as defined for this term at N.J.A.C. 7:26-1.6.

“Stack emission testing” means a series of no fewer than three test runs conducted in a calendar quarter in accordance with a protocol approved by the Department. The results of stack emission testing shall be expressed as the arithmetic average of the results of all test runs conducted during the quarter.

“Test run” means a single integrated measurement or procedure used for the purpose of collecting a sample of air contaminants emitted to the outdoor atmosphere during a specified time interval.

“USEPA” means United States Environmental Protection Agency.

“Wet bottom utility boiler” means a utility boiler in which the ash is removed from the boiler in a molten state.

Amended by R.2004 d.443, effective December 6, 2004 (operative January 3, 2005).
See: 36 N.J.R. 123(a), 36 N.J.R. 5406(a).
Rewrote the section.

7:27-27.2 Purpose and applicability

(a) This subchapter establishes the requirements and procedures concerning the control and prohibition of air pollution by mercury. This subchapter applies to the following:

1. Any municipal solid waste incinerator, including any municipal solid waste incinerator located at an apartment building or commercial facility, regardless of size;
2. Any hospital/medical/infectious waste incinerator, except co-fired combustors;
3. Any iron or steel melter; and
4. Any coal-fired boiler.

Amended by R.2004 d.443, effective December 6, 2004 (operative January 3, 2005).
See: 36 N.J.R. 123(a), 36 N.J.R. 5406(a).
Rewrote the section.

7:27-27.3 General provisions

(a) Each owner or operator of any equipment or source operation subject to this subchapter is responsible for ensuring compliance with all applicable requirements of this subchapter.

(b) If there is more than one owner or operator of the equipment or source operation, each owner and each operator is jointly and severally liable for any penalties for violation of this subchapter.

(c) Any person who fails to comply with any applicable provision of this subchapter shall be subject to civil penalties in accordance with N.J.A.C. 7:27A-3 and to applicable criminal penalties and sanctions including, but not limited to, those set forth at N.J.S.A. 2C-28.3 and N.J.S.A. 26:2C-19(f)1 and 2.

7:27-27.4 Municipal solid waste (MSW) incinerators

(a) Each owner or operator of an MSW incinerator of any size shall operate the MSW incinerator in accordance with provisions specified in either (a)1 or 2 below. Compliance with this standard shall be measured pursuant to (b) below.

1. The emissions of mercury from any MSW incinerator shall not exceed 28.0 $\mu\text{g}/\text{dscm}$, corrected to seven percent oxygen, based on the annual average of all valid stack emission tests performed for four consecutive quarters; or
2. The reduction efficiency for control of mercury emissions of the air pollution control apparatus of any MSW incinerator shall be at least:
 - i. 80 percent until January 3, 2006 determined quarterly based on all valid stack emission testing performed during each quarter;

- ii. 85 percent on and after January 3, 2006 based on the annual average of all valid tests performed for each four consecutive quarters; and

- iii. 95 percent on and after January 3, 2012 based on the annual average of all valid tests performed for each four consecutive quarters.

(b) The owner or operator of a MSW incinerator that is demonstrating compliance with the mercury emission standard of (a)1 above shall conduct stack emission testing every quarter to measure mercury in the gas stream at the exit of the control apparatus. The owner or operator of a MSW incinerator that is demonstrating compliance with the control efficiency standards of (a)2i, ii or iii above shall conduct stack emission testing every quarter to measure mercury in the gas stream at the inlet of the air pollution control apparatus serving each incinerator and simultaneously conduct stack emission testing every quarter to measure mercury in the gas stream at the exit of the control apparatus. There shall be at least three valid tests per quarter and at least 45 days between the stack emission testing performed for a given quarter and the stack emission testing performed for the preceding quarter, unless a shorter period is approved by the Department. The stack emission testing shall be conducted in accordance with a stack emission test protocol approved pursuant to N.J.A.C. 7:27-27.8(a) and (b).

(c) Notwithstanding the provisions of (b) above, any owner or operator who achieves and maintains compliance with (a) above, for all applicable incinerators located at a facility, during eight consecutive quarters, may reduce the frequency of stack emission testing from each quarter to stack emission testing performed every fourth quarter after the eighth quarter test in which annual average compliance was determined. However, if subsequent stack emission testing fails to demonstrate compliance with (a) above, then the frequency of stack emission testing shall revert to that indicated in (b) above for the unit that failed.

(d) An MSW incinerator that complies with the requirements of this subsection is not subject to the requirements of (a)2iii above.

1. Beginning on April 1, 2006, the average emissions of mercury from the entire MSW incinerator facility calculated under (d)3 below shall not exceed 14.0 $\mu\text{g}/\text{dscm}$, corrected to seven percent oxygen.

2. In each quarter, three valid stack emission tests shall be conducted for each unit at the MSW incinerator facility.

3. The average emissions of mercury from the entire MSW incinerator facility shall be calculated for each period of 12 consecutive quarters. The average emissions shall be equal to the sum of the mercury emissions in all valid stack emission tests for all units, divided by the number of stack emission tests conducted during the 12 quarter period.