

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NEW JERSEY ADMINISTRATIVE CODE  
TITLE 7  
CHAPTER 27  
SUBCHAPTER 27

**Control and Prohibition of Mercury Emissions**

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*Please note: The Department has made every effort to ensure that this text is identical to the official, legally effective version of this rule, set forth in the New Jersey Register. However, should there be any discrepancies between this text and the official version of the rule, the official version will prevail.*

## **REGULATORY HISTORY**

Effective Date: September 5, 2006  
Operative Date: November 4, 2006  
Expiration Date: Exempt N.J.A.C. 7:27; April 21, 2010, N.J.A.C. 7:27A.  
  
Administrative Changes: September 6, 2011, 43 N.J.R. 2328(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) =

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

Annual weighted average mercury reduction efficiency ( $\eta$ ) =

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

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<sub>u</sub> is annual weighted average mercury emission of each of the coal-fired boilers in averaging plan

Hg<sub>r</sub> is milligrams of mercury tested for each of the three mercury stack emission test runs in a quarter

P<sub>r</sub> 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<sub>q</sub> 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<sub>u</sub> 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."

**“µg/dscm”** means a measurement of the concentration of a specified substance, expressed as micrograms per dry standard cubic meter.

**“mg/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.

#### **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.

**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 µg/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.
  4. If the facility fails to demonstrate mercury emissions less than the 14.0  $\mu\text{g}/\text{dscm}$  (corrected to seven percent oxygen) average for any 12 consecutive quarter period up until January 3, 2012, the requirements of (a)2iii above shall apply starting January 3, 2012.

5. If the facility demonstrates mercury emissions less than the 14.0  $\mu\text{g}/\text{dscm}$  (corrected to seven percent oxygen) average for all rolling 12 consecutive quarter periods up until January 3, 2012 and the facility chooses to continue to comply with this standard after this trial period, the 14.0  $\mu\text{g}/\text{dscm}$  limit (corrected to seven percent oxygen) shall apply for every 12 consecutive quarter periods thereafter. Compliance shall be determined using valid stack emission test data from the first quarter after the end of the trial period and using the valid stack emission test data from the 11 quarters immediately preceding the first quarter. Thereafter, the facility shall not revert back to compliance with (a)2iii above.

#### **7:27-27.5 Hospital/medical/infectious waste (HMIW) incinerators**

- (a) Each owner or operator of an HMIW incinerator of any size shall operate the incinerator in accordance with (b) below. The owners or operators of co-fired combustors are not subject to the requirements of this section. Any co-fired combustors which are co-fired with municipal solid waste are subject to the mercury emission standards of N.J.A.C. 7:27-27.4 for MSW incinerators.
- (b) On and after January 3, 2006, the emissions of mercury from any HMIW incinerator shall not exceed 55.0  $\mu\text{g}/\text{dscm}$  corrected to seven percent oxygen.
- (c) For any HMIW incinerator existing as of January 3, 2005, compliance with (b) above shall be determined by valid stack emission testing within one year after January 3, 2005 and every five years thereafter.
- (d) For any HMIW incinerator constructed, reconstructed, or modified after January 3, 2005, compliance with (b) above shall be determined by valid stack emission testing within 180 calendar days after the start-up of the constructed, reconstructed, or modified incinerator and every five years thereafter.
- (e) All stack emission tests shall consist of a minimum of three valid test runs. Compliance with (b) above shall be based on the average of all test runs conducted during stack emission testing. The stack emission testing shall be conducted in accordance with a test protocol approved pursuant to N.J.A.C. 7:27-27.8(a) and (b), except the protocol submittal deadline shall be 90 calendar days prior to the performance of stack emission testing for any HMIW incinerator.
- (f) The owner or operator of an HMIW incinerator shall submit to the Department a written plan prior to January 3, 2006, certified pursuant to N.J.A.C. 7:27-1.39, for the purchasing of mercury-free supplies that will be used at the facility and preventing mercury containing waste from being incinerated to the maximum extent feasible. The owner or operator of a HMIW incinerator shall submit to the Department the plan at the following address:

Chief, Bureau of Pre-Construction Permits  
Air Quality Permitting Element  
Division of Air Quality  
Department of Environmental Protection  
PO Box 027  
Trenton, New Jersey 08625-0027

- (g) For supplies for which mercury-free substitutes are not reasonably available, such as fluorescent bulbs, the owner or operator shall send waste from such supplies to an appropriate facility for disposal to prevent the incineration of any such waste in an HMIW incinerator.

**7:27-27.6 Iron or steel melters**

- (a) On and after January 3, 2010, each owner or operator of an iron or steel melter of any size shall operate the iron or steel melter in accordance with the 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 iron or steel melter shall not exceed 35.0 mg/ton (milligram of mercury emissions per ton of iron or steel production), based on the annual weighted average of all valid stack emission tests performed for four consecutive quarters weighted for the production each quarter; or
  - 2. The reduction efficiency for control of mercury emissions of the air pollution control apparatus of any iron or steel melter shall be at least 75 percent, based on the annual weighted average of all valid stack emission tests performed for four consecutive quarters weighted for the production each quarter.
- (b) On and after January 3, 2006, the owner or operator of an iron or steel melter who is determining compliance with (a)1 above shall conduct stack emission testing every quarter to measure mercury in the gas stream in the stack. On and after January 3, 2006, the owner or operator of an iron or steel melter who is determining compliance with (a)2 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 iron or steel melter, and simultaneously conduct stack emission testing every quarter to measure mercury in the gas stream at the exit of the air pollution control apparatus. There shall be at least three valid stack emission 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). Compliance is to be determined by averaging three stack emission test runs per quarter for four consecutive quarters, measuring the net steel production for each quarter, and then calculating annual weighted averages using the quarterly averages and the net steel production.

(c) Notwithstanding the provisions of (b) above, any owner or operator who achieves and maintains compliance with (a) above for eight consecutive quarters for all applicable iron or steel melters located at a facility, 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 weighted average compliance was determined. However, if the annual 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.

(d) The owner or operator of an iron or steel melter shall submit to the Department a written plan prior to January 3, 2006, certified in accordance with N.J.A.C. 7:27-1.39, establishing a mercury in scrap minimization program. The owner or operator shall submit the plan to the Department at the following address:

Chief, Bureau of Pre-Construction Permits  
Air Quality Permitting Element  
Division of Air Quality  
Department of Environmental Protection  
PO Box 027  
Trenton, New Jersey 08625-0027

(e) Each mercury minimization and source separation plan must include the information specified in the paragraphs below:

1. A materials acquisition program specifying that the iron or steel melter will only purchase mercury free scrap or will purchase scrap only from scrap suppliers that remove accessible mercury switches from the trunks, hoods, and anti-lock braking systems of any automobile bodies contained in the scrap. The owner or operator shall obtain and maintain on site a copy of the procedures used by the scrap supplier for either removing accessible mercury switches, or for purchasing automobile bodies that have had mercury switches removed, as applicable; and
2. Procedures for visual inspection of a representative portion, but not less than 10 percent, of all incoming mercury-free scrap shipments to ensure that the shipments contain only mercury-free scrap, and procedures for visual inspection of a representative portion, but not less than 10 percent, of all other incoming scrap to assist in verifying that mercury has been removed from the scrap.
  - i. The inspection procedures shall identify the location(s) where inspections are to be performed for each type of shipment. The selected location(s) shall provide a reasonable vantage point, considering worker safety, for visual inspection.
  - ii. The inspection procedures shall include maintaining records that document each visual inspection and the results of the inspection.

- iii. The inspection procedures shall include provisions for rejecting or returning entire or partial scrap shipments from which mercury has not been removed, and limiting purchases from suppliers of mercury-free scrap whose shipments fail to provide mercury-free scrap for more than three inspections in one calendar year.
- (f) The owner or operator shall operate at all times according to the mercury minimization and source separation plan to minimize, to the extent practicable, the amount of mercury in the charge material used by the iron or steel melters.
- (g) The mercury minimization and source separation plan is subject to Department approval and may be incorporated into a pre-construction or operating permit.
- (h) The owner or operator shall maintain a copy of the mercury minimization and source separation plan on site and make it readily available to all plant personnel with materials acquisition or inspection duties.
- (i) The owner or operator shall provide a copy of the materials acquisition program described in (e)1 above to each of its scrap suppliers.

**7:27-27.7 Coal-fired boilers**

- (a) On and after December 15, 2007, each owner or operator of a coal-fired boiler of any size shall operate the coal-fired boiler in accordance with the provisions specified in either (a)1 or 2 below, except as specified in (d), (e), or (k) below. Compliance with this standard shall be measured pursuant to (b) below.
  - 1. The emissions of mercury from any coal-fired boiler shall not exceed 3.00 mg/MW-hr, based on an annual weighted average of all valid stack emission tests performed for four consecutive quarters weighted by megawatt hours produced each quarter; or
  - 2. The reduction efficiency for control of mercury emissions of the air pollution control apparatus for control of mercury of any coal-fired boiler shall be at least 90 percent, based on the annual weighted average of all valid stack emission tests performed for four consecutive quarters weighted by megawatt hours produced each quarter.
- (b) On and after December 15, 2007, the owner or operator of any coal-fired boiler determining compliance with (a)1 above shall conduct stack emission testing every quarter to measure mercury in the gas stream in the stack. On and after December 15, 2007, the owner or operator of a coal-fired boiler determining compliance with (a)2 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 coal-fired boiler, and simultaneously conduct stack emission testing every quarter to measure mercury in the gas stream at the exit of the air pollution control apparatus. There shall be at least three

valid stack emission 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). Compliance is to be determined by averaging three stack emission test runs per quarter for four consecutive quarters, measuring the net megawatt hours for each quarter, and then calculating annual weighted averages using the quarterly averages and the net megawatt hours generated. If the steam produced by two or more coal-fired boilers is used to run a common electric generator, the stack emission testing of all of the boilers shall be done simultaneously. The relative contribution to the amount of electricity generated from each of the coal-fired boilers shall be determined during stack emission testing for the purpose of determining compliance with the mercury emission limit in mg/MW-hr. For combined heat and power facilities, the MW-hr shall include useful heat which is not used for electric generation in determining mercury emission per MW-hr.

- (c) Notwithstanding the provisions of (b) above, any owner or operator who achieves and maintains compliance with (a) above for eight consecutive quarters for all applicable coal-fired boilers located at a facility, 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 weighted average compliance was determined. However, if annual 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.
- (d) The mercury emissions standard specified in (a) above are applicable on and after December 15, 2012, for each owner or operator of a coal fired boiler who has entered into an enforceable agreement with the Department by December 15, 2007, to install and operate air pollution control systems to meet the following standards by December 15, 2012, provided compliance with (a) above is achieved by December 15, 2007 for approximately 50 percent of the total New Jersey coal-fired megawatt capacity of the company:
  - 1. The emissions of nitrogen oxides shall not exceed 0.100 pounds per million BTU for dry bottom utility boilers and 0.130 pounds per million BTU based on 30-day rolling average for wet bottom utility boilers;
  - 2. The emissions of sulfur dioxide shall not exceed 0.150 pounds per million BTU based on 30-day rolling average; and
  - 3. The emissions of particulate matter shall not exceed 0.030 pounds per million BTU based on the average of three test runs USEPA Test Method 5, incorporated herein by reference, available from the USEPA's website at [www.epa.gov/ttn/emc/promgate/m-05.pdf](http://www.epa.gov/ttn/emc/promgate/m-05.pdf).
- (e) The December 15, 2007 deadline for compliance with the mercury emissions standards specified in (a) above is not applicable to an owner or operator of any coal-fired boiler

who has entered into an enforceable agreement by December 15, 2007, with the Department to shut down the coal-fired boiler by December 15, 2012.

- (f) The Department may authorize an owner or operator of any coal-fired boiler to comply with an averaging plan approved by the Department pursuant to this section. An owner or operator in compliance with such an approved averaging plan is not required to have each coal-fired boiler comply with any emission limit set forth in this subchapter that would be applicable in the absence of an approved averaging plan. An owner or operator of two or more coal-fired boilers at the same facility may request the Department to authorize an averaging plan for two or more coal-fired boilers designated by the owner or operator. The owner or operator seeking authorization for averaging shall submit a written application to the Department at the following address:

Department of Environmental Protection  
Division of Air Quality  
Air Quality Permitting Program  
Bureau of Air Permits  
401 East State Street  
Mail Code 401-02  
PO Box 420  
Trenton, NJ 08625-0420

- (g) The person seeking approval under (f) above shall include the following information in the application for averaging:
1. The maximum energy generation rate of each coal-fired boiler in the averaging plan, expressed in MW-hr; average energy generated by each coal-fired boiler in the averaging plan, expressed in MW-hr;
  2. The type of coal and any other fuel, if any, combusted in each coal-fired boiler;
  3. The proposed method to calculate the weighted average mercury emissions per MW-hr for the coal-fired boilers on a site;
  4. A certification of the application, satisfying the requirements of N.J.A.C. 7:27-1.39; and
  5. Any other information which the Department requests, which is reasonably necessary to enable it to determine whether the coal-fired boilers designated by the owner or operator will comply with the requirements of this section.
- (h) The Department shall approve an averaging plan only if the owner or operator of the coal-fired boilers to be included in the averaging plan enters into an enforceable agreement with the Department (such as the inclusion of conditions in the applicable permits or operating certificates, or both) requiring the annual weighted average of mercury emissions from the coal-fired boilers at a facility to not exceed 3.00 mg/MW-hr,



based on the net megawatt generated each quarter and mercury emissions using the results of the valid stack emission tests required at (b) above.

- (i) The owner or operator of the coal-fired boilers included in the averaging plan shall maintain the records listed below for five years from the date on which each record was made. The owner or operator shall maintain such records in a permanently bound log book or an electronic method, in a format that enables the Department to readily determine whether the coal-fired boilers included in the averaging plan are in compliance. The owner or operator shall maintain the following records:
1. The identifier for each coal-fired boiler included in the averaging plan specified in (g)1 above;
  2. The time period for which the data is being recorded;
  3. The date upon which the data was recorded;
  4. The amount of coal and/or other fuels, if any, consumed over the subject time period;
  5. The actual annual weighted average of mercury (expressed in mg/MW-hr) emitted and the net megawatt generated by each coal-fired boiler in the averaging plan over the subject time period;
  6. The weighted average of the amounts listed in (i)5 above for all coal-fired boilers at a facility in the averaging plan; and
  7. Any other information required to be maintained as a condition of approval granted pursuant to (f) above.
- (j) Within 30 days after the end of each quarter, the owner or operator of a facility with an approved averaging plan shall provide the Department with a report setting forth the information required to be kept under (i)1 through 7 above.
- (k) The Department may approve a facility-specific mercury control plan for a coal-fired boiler, which will apply to the boiler in lieu of the standards in (a) above. An exceedance of the standards in (a) above shall not be considered a violation of those standards during the term of the Department's approval of the plan, if there is full compliance with the plan during that term.
1. The plan shall apply to the boiler for a one-year period.
  2. The owner or operator of a coal-fired boiler seeking the Department's approval of a plan shall submit an application for approval no later than 90 days before the compliance deadline applicable to the boiler under (a) or (d) above. The owner or operator shall send the application to the Department at the following address:

Department of Environmental Protection  
Division of Air Quality  
Air Quality Permitting Program  
Bureau of Air Permits  
401 East State Street  
Mail Code 401-02  
PO Box 420  
Trenton, New Jersey 08625-0420

3. In the application, the owner or operator shall include:
  - i. A brief description of the coal-fired boiler(s) that are the subject of the application, air pollution control permit number(s), and any other identifying numbers;
  - ii. A list of all air pollution control technologies and measures that have been installed and are operating to control emissions of air contaminants from each coal-fired boiler;
  - iii. For each of the technologies and measures listed in (k)3ii above, the date of installation and commencement of operation;
  - iv. For each of the technologies and measures listed in (k)3ii above, an explanation of how the technology and measure was installed properly and is being operated properly;
  - v. A list of any air pollution control technologies or measures not listed in (k)3ii above that the owner or operator proposes to install and operate to control emissions of air contaminants from the coal-fired boiler(s);
  - vi. A summary of how the coal-fired boiler is expected to be operated and maintained during the term of the Department's approval of the plan, including any associated air pollution control equipment and measures, which are designed to maintain compliance with all applicable air pollution control requirements other than those in (a) above, and which are designed and operated to minimize emissions of mercury to the extent practicable;
  - vii. A summary of additional efforts that are to be undertaken to achieve compliance with the standards in (a) above before the expiration of the Department's approval of the plan;
  - viii. The results of each mercury stack test and other emissions measurements for the coal-fired boiler following the installation and commencement of

- operation of the air pollution control technologies and measures listed in (k)3ii above;
- ix. Any other information which the Department requests that is reasonably necessary to enable it to determine whether the application satisfies the requirements of (k)6 below; and
  - x. A certification signed by the owner or operator, satisfying the requirements of N.J.A.C. 7:27-1.39.
4. Within 30 days after receiving an application for approval of a plan, the Department shall notify the owner or operator in writing whether the submission includes all of the information required under (k)3 above. If the application is incomplete, then:
- i. The Department shall include in the notice a list of the deficiencies, a statement of the additional information required to make the proposed plan or request complete, and a time by which the owner or operator must submit a complete proposed plan or request;
  - ii. The owner or operator shall correct the deficiencies listed in the Department's notice within the time stated in the Department's notice; and
  - iii. The Department may deny the application if the owner or operator fails to correct the deficiencies within the allotted time.
5. The Department may approve, approve and modify, or disapprove the plan proposed in the application. The Department will notify the owner or operator of the action in writing.
6. The Department shall approve a plan only if the application satisfies the following requirements:
- i. The application contains all of the information required under (k)3 above;
  - ii. The Department determines that the owner or operator has properly installed air pollution control technologies and implemented measures that could reasonably have been expected to enable the boiler(s) to comply with the standards in (a) above. The Department shall consider this requirement to have been met if, in taking action under N.J.A.C. 7:27-8 or 7:27-22 to permit the installation of air pollution control technology on the boiler(s), the Department confirmed that the boiler's air pollution control technologies and measures are expected to achieve at least a 90 percent reduction in mercury emissions or less than three mg/MWhr;

- iii. The Department determines that the technologies and measures described in (k)6ii above are being properly implemented;
  - iv. The Department determines that the technologies and measures described in (k)6ii above were implemented at a time that made it reasonable to expect that the boiler could comply with the standards in (a) above by the applicable deadline for compliance;
  - v. The Department determines that the operation and maintenance described in (k)3vi above are reasonably likely to maintain compliance with all applicable air pollution control requirements other than those in (a) above, and will reasonably minimize emissions of mercury to the extent practicable; and
  - vi. The Department determines that the efforts that are to be undertaken to achieve compliance with the standards in (a) above, as described in (k)3vii above, have a reasonable possibility of success.
7. During the term of the plan, the Department may issue written notice requiring the owner or operator to provide an explanation of additional efforts that are to be undertaken to achieve compliance with the standards in (a) above, beyond the efforts described in (k)3vii above, if the efforts described in (k)3vii above no longer appear to have a reasonable possibility of success. The written notice shall include the time by which the owner or operator is required to provide this explanation.
8. The Department may revoke its approval of a plan by written notice to the owner or operator, if the Department determines that its decision to approve was materially affected by a misstatement or omission of fact in the application or in any supporting documentation, or if the owner or operator fails to provide an explanation of additional efforts and implement those additional efforts within the time allotted in the Department's notice under (k)7 above.

**7:27-27.8 Stack emission testing, permit applications and continuous emission monitoring**

- (a) Stack emission testing performed pursuant to this subchapter shall be conducted in accordance with a test protocol approved by the Department. To obtain the approval of the Department of a test protocol, the owner or operator of any source subject to this subchapter shall submit to the Department a proposed test protocol setting forth all test methods, including, but not limited to, sampling and analytical procedures; a description of sampling equipment and the source sampling locations; and provide sample calculations that will be used to determine the concentration of mercury in the gas stream, mercury in milligrams per ton of iron or steel production, and mercury in mg/MW-hr, as appropriate. The owner or operator of a source subject to this subchapter shall submit for

review and approval a proposed test protocol each year, no fewer than 90 calendar days prior to conducting its first quarter stack emission testing, to the following address:

Department of Environmental Protection  
Division of Air Quality  
Air Quality Permitting Program  
Bureau of Technical Services  
Emission Measurement Section  
Mail Code 380-01A  
PO Box 420  
Trenton, New Jersey 08625-0420

- (b) The Department shall not approve any proposed stack emission test protocol submitted pursuant to (a) above unless the stack emission test method proposed to measure mercury is:
1. The USEPA Reference Method 29 incorporated herein by reference, including all supplements and amendments thereto. This method can be downloaded from the USEPA website: <http://www.epa.gov/ttn/emc/methods/method29.html>;
  2. An equivalent method demonstrated to the satisfaction of the Department to be as conservative and reliable as the USEPA Reference Method 29 for measuring mercury; or
  3. A continuous emission monitoring (CEM) approval pursuant to (c) below.
- (c) When a Federal performance specification is developed and published in the Federal Register, and a mercury continuous emission monitoring system capable of meeting the Federal specifications is available, an owner or operator of a source regulated by this subchapter may propose and install a mercury continuous emission monitoring system to determine compliance with this subchapter if approved by the Department. The owner or operator must demonstrate that the mercury continuous emission monitoring system that is installed complies with the quality assurance requirements detailed in the Federal specifications. After the Department determines conformance with quality assurance requirements, the owner or operator may thereafter use the CEM to demonstrate compliance with the emission standards of this subchapter in accordance with the conditions of approval for the CEM. Thereafter, quarterly stack testing is not required.
- (d) The owner or operator of any source subject to this subchapter that has a reagent based mercury emission control system shall conduct optimization tests for mercury emissions control apparatus to determine the optimized reagent feed rate at which emissions of mercury for those sources are reasonably minimized below the applicable limits, as follows:
1. The optimization tests shall be performed as follows:

- i. For iron and steel melters and coal-fired boilers, optimization testing shall be conducted within one year after the compliance date;
    - ii. For MSW incinerators, optimization testing shall be conducted by February 4, 2006, except if the owner or operator has demonstrated to the Department that it has achieved at least 95 percent control in all tests over the preceding two years;
  2. If the owner or operator of any source subject to this subchapter owns or operates more than one identical applicable source at the same facility, the optimization tests may be performed on one source selected in the test protocol, and the results applied to the other identical sources at that facility;
  3. Within 60 calendar days of the conclusion of the optimization tests, the owner or operator shall submit to the Department for approval a proposed optimized reagent feed rate which minimizes mercury emissions below the applicable limits, while considering the amount of reagent used; and
  4. The owner or operator shall operate each applicable source at or above the optimized reagent feed rate approved by the Department.
- (e) Any owner or operator of a source subject to this subchapter who is required to make changes to a current preconstruction permit or to an operating permit in order to operate in conformance with any requirements of this subchapter shall obtain an air pollution control permit for any required preconstruction permit actions, or for any required operating permit actions.

#### **7:27-27.9 Reporting and recordkeeping**

- (a) Unless prior approval is granted by the Department for later submittal, the owner or operator of any source subject to this subchapter shall submit a copy of the report of the results of the stack emission testing, including all test runs, conducted within 60 calendar days after completion of the stack emission testing required for that quarter to the regional air compliance and enforcement office for the county in which the facility is located and the following address:

Department of Environmental Protection  
Division of Air Quality  
Air Quality Permitting Program  
Bureau of Technical Services  
Emission Measurement Section  
Mail Code 380-01A  
PO Box 420  
Trenton, New Jersey 08625-0420

- (b) Unless prior approval is granted by the Department for later submittal, the owner or operator of any source subject to the optimization requirements of N.J.A.C. 7:27-27.8(d) shall submit a copy of the report of the results of optimization tests conducted pursuant to this subchapter within 60 calendar days after completion of the required tests, to the following address:

Department of Environmental Protection  
Division of Air Quality  
Air Quality Permitting Program  
Bureau of Air Permits  
Mail Code 401-02  
PO 420  
Trenton, NJ 08625-0420

- (c) If compliance is based on annual averages pursuant to N.J.A.C. 7:27-27.4(a)1, 2ii and iii or (c), or annual weighted average pursuant to N.J.A.C. 7:27-27.6 and 27.7, an owner or operator of any source subject to this subchapter shall report, for the preceding year, the annual average or annual weighted average mercury emissions within 60 calendar days after the end of the last quarter of the preceding year. If compliance is based on quarterly averages pursuant to N.J.A.C. 7:27-27.4(a)2i, an owner or operator of a MSW incinerator shall report the quarterly average control efficiency within 60 calendar days after completion of each calendar quarter. An owner or operator of an HMIW incinerator subject to this subchapter shall report mercury emissions test results within 60 calendar days after the end of the stack emission testing. Such reports shall be submitted to the regional air compliance and enforcement office for the county which the facility is located.
- (d) Any owner or operator of any source subject to this subchapter that submits to the Department a report of stack emission testing, including all test runs, shall have such report reviewed prior to submission and certified by a licensed professional engineer or an industrial hygienist certified by the American Board of Industrial Hygiene.
- (e) Any owner or operator of any source subject to this subchapter shall maintain at the facility a complete record, including all test reports of all stack emission testing, including all test runs, conducted at the facility on equipment subject to this subchapter. The Department may specify in writing that such reports be maintained in a specific format.
- (f) Any owner or operator of any source subject to this subchapter who submits to the Department a report of stack emission testing, including all test runs, shall certify that report in accordance with N.J.A.C. 7:27-1.39.
- (g) The owner or operator of any source subject to this subchapter shall make any record made pursuant to (e) above available to the Department, or its authorized representatives, for inspection for a period of five years after the date the record is made.

**7:27-27.10 Penalties**

Failure to comply with any provision of this subchapter shall subject the owner or operator to civil administrative penalties in accordance with N.J.A.C. 7:27A-3 and applicable civil and criminal penalties including, but not limited to, those set forth at N.J.S.A. 2C-28.3 and N.J.S.A. 26:2C-19.

**7:27-27.11 Severability**

If any portion of this subchapter or the application thereof to any person or circumstance is adjudged invalid or unconstitutional by a court of competent jurisdiction, the remainder of this subchapter and the application thereof to other persons or circumstances shall not be affected thereby, and shall remain in full force and effect.