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NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION
NEW JERSEY ADMINISTRATIVE CODE
TITLE 7, CHAPTER 27
SUBCHAPTER 10

SULFUR IN SOLID FUELS

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REGULATORY HISTORY

Regulatory Action	Date Adopted	Effective Date & NJR Citation	Operative Date
New Rule		Prior to Sept 1, 1969	
Amendment		September 15, 1978 10 N.J.R. 98(a) 10 N.J.R. 328(b)	
Amendment		June 4, 1981 12 N.J.R. 571(a) 13 N.J.R. 341(a)	
Correction		21 N.J.R. 2991(a)	
Amendment	March 20, 2009	April 20, 2009 40 N.J.R. 4390(a) 41 N.J.R. 1752(a)	May 19, 2009

7:27-10.1 Definitions

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

“Anthracite coal” means coal that is classified as anthracite according to the American Society for Testing and Materials Standard Specification for Classification of Coals by Rank, ASTM D 388-77.

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“Approved stack-gas cleaning process” means a process which removes sulfur dioxide from the products of combustion of solid fuel and which has been approved by the Department.

“Bituminous coal” means coal that is classified as bituminous according to the American Society for Testing and Materials Standard Specification for Classification of Coals by Rank, ASTM D 388-77.

“Calendar day” means the 24-hour period from 12:00 midnight to 12:00 midnight the following day.

“Coal” means anthracite coal, bituminous coal, coke, lignite, nonbanded coal, and subbituminous coal.

“Coke” means a fused, cellular, porous structure that remains after free moisture and the major portion of the volatile materials have been distilled from bituminous coal and other carbonaceous material by the application of heat in the absence of air or in the presence of a limited supply of air.

“Control apparatus” means any device which prevents or controls the emissions of any air contaminant.

“Lignite” means coal that is classified as lignite A or B according to the American Society for Testing and Materials Standard Specification for Classification of Coals by Rank, ASTM D 388-77.

“Nonbanded coal” means coal that is classified as nonbanded according to the American Society for Testing and Materials Standard Definition of Terms Relating to Megascopic Description of Coal and Coal Beds and Microscopical Description and Analysis of Coal, ASTM D 2796-77.

“One-hour block” means a one hour time period starting on any hour, for example 12:00 midnight to 1:00 A.M., or 1:00 A.M. to 2:00 A.M.

“Potential combustion emission rate” means the theoretical emission rate that would result from the combustion of a fuel in an uncleaned state without control apparatus.

“Reconstruction” means the replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct an entirely new comparable facility.

“Resource recovery facility” means a facility that combusts more than 75 percent non-fossil fuel based on the moving average of heat input during 3-month periods.

“Solid fuel” means solid material or any substance derived from solid material used or to be used for the purpose of creating useful heat and includes, but is not limited to, coal, gasified coal, liquified coal, solid solvent-refined coal, municipal solid waste, refuse-derived fuel, and wood.

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“Stack or chimney” means a flue, conduit or opening designed, constructed, and/or utilized for the purpose of emitting air contaminants into the outdoor air.

“Steam generating unit” means any furnace, boiler, or other device used for combustion fuel for the purpose of producing steam.

“Subbituminous coal” means coal that is classified as subbituminous according to the American Society for Testing and Materials Standard Specification for Classification of Coals by Rank, ASTM D 388-77.

“Sulfur dioxide (SO₂)” means a colorless gas at standard conditions, having a molecular composition of one sulfur atom and two oxygen atoms.

“30-calendar-day rolling average emission rate” means the average emission rate over 30 consecutive calendar days determined pursuant to N.J.A.C. 7:27-10.5.

“24-hour emission rate” means total emissions in a calendar day determined pursuant to N.J.A.C. 7:27-10.5.

“Zone One” means Atlantic, Cape May, Cumberland, and Ocean Counties.

“Zone Two” means Hunterdon, Sussex, and Warren Counties.

“Zone Three” means Burlington, Camden, Gloucester, Mercer, and Salem Counties.

“Zone Four” means Bergen, Essex, Hudson, Middlesex, Monmouth, Morris, Passaic, Somerset, and Union Counties.

7:27-10.2 Sulfur contents standards

- (a) On and before December 14, 2012, no person shall store, offer for sale, sell, deliver or exchange in trade, for use in New Jersey, solid fuel which contains sulfur in excess of the percentages by weight set forth in Table 1, except as provided otherwise in this Subchapter.
- (b) On and before December 14, 2012, no person shall use in New Jersey, solid fuel which contains sulfur in excess of the percentages by weight set forth in Table 1.

TABLE 1 EXISTING SOLID FUEL BURNING UNITS				
Type Fuel	Maximum Allowable Percent Sulfur by Weight (Dry Basis)			
	Zone One	Zone Two	Zone Three	Zone Four
Anthracite Coal or Coke	0.8	0.8	0.8	0.8
All other solid fuels	1.0	1.0	0.2	0.2

- (c) On and before December 14, 2012, the provisions of (a) and (b) above shall not apply to solid fuel whose combustion causes sulfur dioxide (SO₂) emissions from any stack or chimney into the outdoor atmosphere which are demonstrated to the Department as not exceeding, at any time, those quantities of sulfur dioxide expressed in pounds per 1,000,000 British Thermal Units (BTU) gross heat input, set forth in Table 2.

TABLE 2 EXISTING SOLID FUEL BURNING UNITS				
Type Fuel	Maximum Allowable SO₂ Emissions (pounds/million BTU)			
	Zone One	Zone Two	Zone Three	Zone Four
Anthracite Coal and Coke	1.2	1.2	1.2	1.2
All other solid fuels	1.5	1.5	0.3	0.3

- (d) On and before December 14, 2012, any solid fuel-fired steam generating unit which is located in Zone Three or Zone Four, having a rated hourly capacity of greater than 200,000,000 British Thermal Units (BTU) gross heat input and any group of units at one facility which is located in Zone Three or Zone Four, having a combined rated hourly capacity of greater than 450,000,000 British Thermal Units (BTU) gross heat input, and which were in operation prior to May 6, 1968, shall be subject to the standards specified in Table 1 for Zone One.
- (e) On and before December 14, 2012, any person responsible for the use of bituminous coal who believes that bituminous coal containing a maximum allowable percent sulfur by weight as set forth in Table 1 cannot be used in a specific steam generating unit may submit data to the Department setting forth justification for a less restrictive percent of sulfur content by weight in bituminous coal. The Department may authorize the use of a less restrictive percent of sulfur by weight in bituminous coal. Any less restrictive percent of sulfur content by weight in bituminous coal authorized by the Department shall not exceed 1.5 percent, except as provided in (f) below.
- (f) On and before December 14, 2012, the Department may authorize the use of bituminous coal not exceeding a maximum sulfur content of 3.5 percent by weight (dry basis) at existing facilities in Zone One if:
1. The person responsible for the use of bituminous coal demonstrates that bituminous coal, containing one percent sulfur or less by weight and suitable for use in the specific steam generating unit, is not reasonably available in sufficient quantities; and
 2. Sulfur dioxide levels in the ambient atmosphere will at no time exceed or jeopardize the ambient air quality standards set forth in N.J.A.C. 7:27-13; and

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3. The sulfur content of the bituminous coal burned at the facility represents the minimum sulfur content coal which can be used by the facility and is reasonably available in sufficient quantity; and
 4. The person responsible for the use of bituminous coal agrees to such monitoring and reporting requirements as the Department may deem appropriate to ensure compliance with the conditions set forth in this subsection; and
 5. The person responsible for the use of bituminous coal submits to the Department for such authorization an application which considers and addresses as a minimum, in addition to the above, the following criteria:
 - i. Physical surroundings of the coal-fired steam generating unit;
 - ii. Population density of the surrounding area;
 - iii. Dispersion characteristics of the source;
 - iv. Topography of the immediate vicinity; and
 - v. Aesthetic and nuisance effects.
- (g) On and before December 14, 2012, authorizations granted pursuant to (f) above shall be valid for a period not to exceed five years from the date of issuance and may be renewed upon application to the Department, setting forth reasons and justifications for such renewal, including a demonstration of continued conformance with the provisions of (f) above.
- (h) On and after December 15, 2012, unless otherwise specified in an enforceable agreement with the Department, the owner or operator of any source that combusts solid fuel shall cause it to emit SO₂ at a 24-hour emission rate no greater than 0.250 pounds per 1,000,000 BTU gross heat input for every calendar day, and at a 30-calendar-day rolling average emission rate no greater than 0.150 pounds per 1,000,000 BTU gross heat input. The owner or operator shall determine each 24-hour emission rate and each 30-calendar-day rolling average emission rate in accordance with N.J.A.C. 7:27-10.5.
- (i) Any source that combusts solid fuel, and that is constructed, installed, reconstructed or modified, is also subject to state-of-the-art requirements at N.J.A.C. 7:27-8.12 and 22.35, lowest achievable emission rate requirements at N.J.A.C. 7:27-18, and best available control technology requirements at 40 C.F.R. 52.21 incorporated herein by reference, as applicable.
- (j) The owner or operator of a boiler that is subject to (h) above may request up to a one year extension to the December 15, 2012 compliance deadline required by (h) by sending a written request to the address at N.J.A.C. 7:27-10.5(d). The request shall document the reasons the extension is needed. The Department will approve

an extension request only if compliance by December 15, 2012 is not possible due to circumstances beyond the control of the owner or operator that are not reasonably foreseeable, including, but not limited to, the unavailability of a control apparatus needed to comply with the December 15, 2012 compliance deadline or a contractor needed to install the control apparatus.

7:27-10.3 Expansion, reconstruction or construction of solid fuel burning units

- (a) No person shall expand or reconstruct an existing solid fuel-fired steam generating unit or construct a new solid fuel-fired steam generating unit having a rated hourly capacity that exceeds, or would exceed, as a result of expansion, construction, and/or reconstruction, 250,000,000 British Thermal Units (BTU) gross heat input unless it is demonstrated to the Department that:
1. The sulfur dioxide emissions caused by the combustion of solid fuel from any stack or chimney into the outdoor atmosphere, except as provided under (a)2 or (a)3 below, do not exceed 0.60 pounds of sulfur dioxide per 1,000,000 British Thermal Units (BTU) gross heat input and 30 percent of the potential combustion emission rate of sulfur dioxide determined as a 30-day rolling average; or
 2. The sulfur dioxide emissions from a unit which combusts anthracite coal exclusively do not exceed 1.20 pounds of sulfur dioxide per 1,000,000 British Thermal Units (BTU) gross heat input determined as a 30-day rolling average; or
 3. The sulfur dioxide emissions, if the unit is a resource recovery facility, do not exceed 1.20 pounds of sulfur dioxide per 1,000,000 British Thermal Units (BTU) gross heat input determined as a 30-day rolling average.
- (b) Compliance with the standards of (a) above shall be determined in accordance with the provisions of 40 CFR Part 60 Subpart Da.
- (c) No person shall expand or reconstruct an existing solid fuel-fired steam generating unit or construct a new solid fuel-fired steam generating unit, not subject to the provisions of (a) above, having a rated hourly capacity that equals or exceeds, or would equal or exceed as a result of expansion, construction, and/or reconstruction, 1,000,000 British Thermal Units (BTU) gross heat input unless it is demonstrated to the Department that:
1. The sulfur dioxide emissions, caused by the combustion of solid fuel, excluding coke and anthracite coal, from any stack or chimney into the outdoor atmosphere can be controlled to levels that do not exceed at any time 0.30 pounds of sulfur dioxide per 1,000,000 British Thermal Units (BTU) gross heat input; or

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2. The solid fuel, excluding coke and anthracite coal, used to fire such a facility will at no time contain more than 0.20 percent sulfur by weight; or
3. Anthracite coal or coke used to fire such a facility will at no time contain more than 0.8 percent sulfur by weight; or
4. The sulfur dioxide emissions, if the unit is a resource recovery facility, do not exceed 1.20 pounds of sulfur dioxide per 1,000,000 British Thermal Units (BTU) gross heat input determined as a 30-day rolling average.

7:27-10.4 Exemptions

- (a) The provisions of this subchapter shall not apply to coal used by ocean-going vessels.
- (b) In any case in which it is demonstrated to the department that a bona fide pilot installation of an approved stack-gas cleaning process is to be made, the use of nonconforming solid fuel to the extent necessary, in the judgment of the Department, to evaluate the effectiveness of the process will not be prohibited by this subchapter.
- (c) Nonbanded coal containing not more than 1.0 percent sulfur by weight may be burned solely for heating purposes in one or two family residences only in combustion equipment in use for such purposes prior to October 1, 1971.

7:27-10.5 SO₂ emission rate determinations

- (a) For purposes of N.J.A.C. 7:27-10.2(h), a 24-hour emission rate shall be calculated as follows:
 1. Measure the emissions for each one-hour block using a certified Continuous SO₂ Emissions Monitoring System, a certified continuous oxygen emissions monitoring system, and EPA Method 19, "Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates," as identified at 40 CFR Part 60, Appendix A, incorporated herein by reference. An owner or operator may seek approval of an alternative Department approved method to use instead of EPA Method 19, only if the owner or operator is combusting clean, unprocessed wood, in which case the owner or operator shall submit a written application to the Department at the address at (d) below; and
 2. Average the emissions determined for the one-hour blocks from (a)1 above for one calendar day during which combustion of solid fuel occurred. The 24-hour emission rate shall include only the one-hour blocks during which solid fuel is combusted. For example, if a source combusted solid fuel from midnight to 4:00 A.M. and did not operate from 4:00 A.M. to midnight, the 24-hour emission rate is calculated by adding

the total of the emissions from the four one-hour blocks from midnight to 4:00 A.M. and dividing that sum by four.

(b) For purposes of N.J.A.C. 7:27-10.2(h), a 30-calendar-day rolling average emission rate shall be calculated as follows:

1. Pursuant to (a) above, determine the 24-hour emission rates for 30 consecutive calendar days;
2. Divide the sum of the 24-hour emission rates by the total number of days on which the source was operated, during the 30-consecutive-day period, pursuant to (b)4 below. The result is the 30-calendar-day rolling average emission rate for the 30th day;
3. Calculate a new 30-calendar-day rolling average emission rate for each subsequent calendar day pursuant to (b)1 and 2 above; and
4. Any calendar day during which no combustion of solid fuel occurred shall not be included in the 30-calendar-day rolling average emission rate. For example, if a source did not combust solid fuel during two calendar days of a 30-calendar-day rolling average emission rate period, the 24-hour-emission rates of the 28 days during which emissions occurred would be used to determine the 30-calendar-day rolling average emission rate. The total emissions for the 28 days would be divided by 28, not 30.

(c) For purposes of N.J.A.C. 7:27-10.2(h), when calculating a SO₂ emission rate for an affected coal-fired unit, the owner or operator may exclude SO₂ emissions as follows:

1. In calculating a 30-calendar-day rolling average SO₂ emission rate for a unit that has ceased firing fossil fuel, for a period of time not to exceed two hours, from the restart of the unit to the time that the unit is fired with coal; and
2. In calculating a 24-hour SO₂ emission rate for a unit, the period of time in which the unit is not fired with coal.

(d) The owner or operator submitting a written application to the Department pursuant to (a)1 above shall submit the application to the following address:

Assistant Director, Air Quality Permitting Element
Division of Air Quality
New Jersey Department of Environmental Protection
401 East State Street
PO Box 027
Trenton, NJ 08625-0027