OTC Recommendation for Establishing Daily Limits for Coal-Fired EGUs in Pennsylvania to Ensure that Existing Control Technologies are Optimized to Minimize Nitrogen Oxide Emissions Each Day of the Summer Ozone Season

The Ozone Transport Commission (OTC) recommends that the U.S. EPA require Pennsylvania to revise the Pennsylvania State Implementation Plan to include additional control measures which would establish daily nitrogen oxides (NOx) emission limits for all coal-fired EGUs with already installed Selective Catalytic Reduction (SCR) or Selective Non Catalytic Reduction (SNCR) control technology to ensure that these technologies are optimized to minimize NOx emissions each day of the ozone season.

These requirements must be as stringent as any one of the rules attached. These rules all establish daily limits designed to optimize the use of SCR and SNCR control technologies to minimize NOx emissions each day of the ozone season. Daily NOx limits for coal-fired EGUs have been adopted by Delaware, New Jersey and Maryland, three of the states adjacent to and directly downwind of Pennsylvania. Pennsylvania contributes significantly to four downwind nonattainment areas in the OTC including Washington D.C., Baltimore, Philadelphia, and New York City. During the summer of 2018, NOx emissions from coal-fired EGUs in Pennsylvania equipped with SCR and SNCR were more than four times greater than the NOx emissions from coal-fired EGUs in Delaware, New Jersey and Maryland combined.

Pennsylvania has not yet adopted daily NOx limits for coal-fired EGUs. Therefore, the OTC is recommending that EPA require Pennsylvania to adopt and implement daily NOx limits as expeditiously as practicable. It is our hope that the three options embodied in the Delaware, New Jersey and Maryland regulations will provide Pennsylvania with the flexibility to implement daily NOx limits in a time frame to help downwind OTC states attain the 2015 ozone standard by the dates required in the Clean Air Act.

Because this recommendation does not involve the purchase or installation of new control technologies, the OTC urges EPA to require that Pennsylvania implement these requirements in time to reduce ozone levels during the summers of 2020 and 2021. All of the marginal nonattainment areas in the Ozone Transport Region (OTR) are on a path to not attain the 2015 ozone standard by 2021, the mandated attainment date for marginal nonattainment areas, if additional NOx reductions are not achieved.

Attachments

1. Delaware Administrative Code, Title 7 Natural Resources & Environmental Control, 1100 Air Quality Management Section, 1146 “Electric Generating Unit (EGU) Multi-Pollutant Regulation” (pages 1-9)

2. New Jersey State Department of Environmental Protection, New Jersey Administrative Code, Title 7, Chapter 27, Subchapter 19, “Control and Prohibition of Air Pollution from Oxides of Nitrogen” (pages 1 & 27-29)

3. Maryland - Code of Maryland Regulations (COMAR), Title 26 Department of the Environment, Subtitle 11 Air Quality, Chapter 38, “Control of NO_x Emissions from Coal-Fired Electric Generating Units” (pages 1-6)

1100 Air Quality Management Section

1146 Electric Generating Unit (EGU) Multi-Pollutant Regulation

12/11/2006

1.0 Preamble

This regulation establishes Nitrogen Oxides (NO_x), Sulfur Dioxide (SO_2),and mercury emissions limits to achieve reductions of those pollutants from Delaware's large electric generation units. The reduction in NO_X, SO_2, and mercury emissions will: 1) reduce the impact of those emissions on public health; 2) aid in Delaware's attainment of the State and National Ambient Air Quality Standard (NAAQS) for ground level ozone and fine particulate matter; 3) help address local scale fine particulate and mercury problems attributable to coal and residual oil-fired electric generating units, 4) satisfy Delaware's obligations under the Clean Air Mercury Rule (CAMR), and 5) improve visibility and help satisfy Delaware's EGU-related regional haze obligations.

While the purpose of this regulation is to reduce air emissions, any emission control equipment installed to meet the requirements of this regulation may impact other media (e.g., water), and any overall environmental impacts must be considered by subject entities when they design their overall compliance strategy. Any emission controls installed to meet the requirements of this regulation will be subject to public review and comment through air permitting requirements of 7 **DE Admin. Code** 1102 and 1130.

Separate from this regulation the Department will propose regulations to address CO_2 emissions from these units, and regulations to satisfy direct fine particulate matter Reasonably Available Control Technology (RACT) and Best Available Retrofit Technology (BART) requirements. Together, these regulations will cover current and foreseeable requirements relative to the subject units.

12/11/2006

2.0 Applicability

This regulation applies to coal-fired and residual oil-fired electric generating units located in Delaware with a nameplate capacity rating of 25 MW or greater that commenced operation on or before the effective date of this regulation.

12/11/2006

3.0 Definitions

The following words and terms, when used in this regulation, shall have the following meanings:

"Administrator" means the Administrator of the United States Environmental Protection Agency or the Administrator's duly authorized representative.

"Coal" means any solid fuel classified as anthracite, bituminous, sub-bituminous, or lignite.

"Coal-fired" means combusting any amount of coal or coal-derived fuel, alone or in combination with any amount of other fuel, during any year.

"Department" means the State of Delaware Department of Natural Resources and Environmental Control as defined in 29 **Del.C.**, Ch 80, as amended.

"Designated representative" means the natural person who is authorized by the owners and operators of the source and all units at the source to legally bind each owner and operator in matters pertaining to this regulation. If the source subject to this regulation is also subject to the Federal Acid Rain Program, then this natural person shall be the same person as the designated representative under the Acid Rain Program.

"Emissions" means air pollutants exhausted from a unit or source into the atmosphere.

"Generator" means a device that produces electricity.

"Heat input" means the product (in MMBTU/time or TBTU/time) of the gross calorific value of the fuel (in MMBTU/lb or TBTU/lb) and the fuel feed rate (in lb of fuel/time) into a combustion device; or as calculated by any other method approved by the Department and the Administrator, and does not include the heat derived from pre-heated combustion air, recirculated flue gasses, or exhaust from other sources.

"Inlet mercury" means the average concentration of mercury in the flue gas at the inlet to any pollution control device or devices.

"Nameplate capacity" means, starting from the initial installation of a generator, the maximum electrical generating output (in MWe) that the generator is capable of producing on a steady state basis and during continuous operation (when not restricted by seasonal or other de-ratings) as specified by the manufacturer of the generator or, starting from the completion of any physical change in the generator resulting in an increase in the maximum electrical generating output (in MWe) that the generator is capable of producing on a steady state basis and during continuous operation (when not restricted by seasonal or other de-ratings), such increased maximum amount as specified by the person conducting the physical change.

"Operator" means any person who operates, controls, or supervises a unit or source subject to this regulation and shall include, but not be limited to, any holding company, utility system, or plant manager of such unit or source.

"Ounce" means 28.4 grams.

"Owner" means: A) any holder of any portion of the legal or equitable title in a unit; B) any purchaser of power from a unit under a life-of-the-unit, firm power contractual arrangement; provided that, unless expressly provided for in a leasehold agreement, owner shall not include a passive lessor, or a person who has an equitable interest through such lessor, whose rental payments are not based (either directly or indirectly) on the revenues or income from the unit.

"Residual oil" means No. 5 or No. 6 fuel oil.

"Ton" means 2000 pounds.

"Unit" means, for the purposes of this regulation, a stationary, fossil-fuel-fired boiler supplying all or part of its output to an electric generating device.

12/11/2006

4.0 NO_X Emissions Limitations

4.1 From May 1, 2009 through December 31, 2011, no unit subject to this regulation shall emit NO_X at a rate exceeding 0.15 lb/MMBTU.

4.1.1 Compliance with the requirements of 4.1 of this regulation shall be demonstrated on a rolling 24-hour average basis.

4.1.2 NO_x emissions from multiple units subject to this regulation at a common facility may be averaged on a heat input basis to demonstrate compliance with the requirements of 4.1 of this regulation.

4.2 On and after January 1, 2009, no unit subject to this regulation shall emit annual NO_x mass emissions that exceed the values shown in Table 4-1 of this regulation.

4.2.1 From January 1, 2009 through December 31, 2011, compliance with the requirements of 4.2 of this regulation may be achieved by demonstrating that the total number of tons of NO_X emitted from a common facility does not exceed the sum of the tonnage limitations for all of the units subject to this regulation at that facility.

4.2.2 Compliance with the requirements of 4.2 of this regulation shall not be achieved by using, tendering, or otherwise acquiring NO_x allowances under any state or federal emission trading program.

4.2.3 For the purpose of determining compliance with the requirements of 4.2. of this regulation, the total tons for a specified period shall be calculated as the sum of all recorded hourly emissions, with any remaining fraction of a ton equal to or greater than 0.50 ton deemed to equal one ton and any remaining fraction of a ton less than 0.50 ton deemed equal to zero tons.

4.3 On and after January 1, 2012, no unit subject to this regulation shall emit NO_x at a rate exceeding 0.125 lb/MMBTU, demonstrated on a rolling 24-hour average basis.

4.4 Compliance with the requirements of 4.1 through 4.3 of this regulation shall be demonstrated with a continuous emissions monitoring system that is installed, calibrated, operated, and certified in accordance with 40 CFR Part 75 (May 18, 2005 amendment) or other method approved by the Department and the Administrator, and meeting the requirements of 40 CFR Part 96, subpart HH (April 28, 2006 amendment).

12/11/2006

5.0 SO_2 Emissions Limitations

5.1 From May 1, 2009 though December 31, 2011, no coal fired unit subject to this regulation shall emit SO_2 at a rate exceeding 0.37 lb/MMBTU heat input.

5.1.1 Compliance with the requirements of 5.1 of this regulation shall be demonstrated on a 24-hour rolling average basis.

5.1.2 SO_2 emissions from multiple units subject to this regulation at a common facility may be averaged on a heat input basis to demonstrate compliance with the requirements of 5.1 of this regulation.

5.2 On and after January 1, 2012, no coal-fired unit subject to this regulation shall emit SO_2 at a rate exceeding 0.26 lb/MMBTU heat input, demonstrated on a rolling 24-hour average basis.

5.3 On and after January 1, 2009, no unit subject to this regulation shall emit annual SO_2 mass emissions that exceed the values shown in Table 5-1 of this regulation.

5.3.1 From January 1, 2009 through December 31, 2011, compliance with the requirements of 5.3 of this regulation may be achieved by demonstrating that the total number of tons of SO_2 emitted from a common facility does not exceed the sum of the tonnage limitations for all of the units subject to this regulation at that facility.

5.3.2 Compliance with the requirements of 5.3 of this regulation shall not be achieved by using, tendering, or otherwise acquiring SO_2 allowances under any state or federal emission trading program.

5.3.3 For the purpose of determining compliance with the requirements of 5.3 of this regulation, the total tons for a specified period shall be calculated as the sum of all recorded hourly emissions, with any remaining fraction of a ton equal to or greater than 0.50 ton deemed to equal one ton and any remaining fraction of a ton less than 0.50 ton deemed equal to zero tons.

5.4 Compliance with the requirements of 5.1 through 5.3 of this regulation shall be demonstrated with a continuous emissions monitoring system that is installed, calibrated, operated and certified in accordance with 40 CFR Part 75 (May 18, 2005 amendment) or other method approved by the Department and the Administrator, and meeting the monitoring and reporting requirements of 40 CFR Part 96, subpart HHH (April 28, 2006 amendment).

5.5 On and after January 1, 2009, no residual oil with a sulfur content in excess of 0.5%, by weight, shall be received for any residual oil-fired unit subject to this regulation.

5.5.1 Compliance with the requirements of 5.5 of this regulation shall be demonstrated by fuel oil sampling and analysis. Samples shall be collected:

5.5.1.1 From the transport vessel for each shipment of residual fuel oil received at the facility for combustion in the subject residual oil-fired unit, or

5.5.1.2 From the supply pipeline each day residual oil is delivered to the facility via pipeline for combustion in a residual oil-fired unit subject to this regulation, after sufficient fuel oil has been drained from the sampling line to remove any fuel oil that may have been standing in the sampling line, or

5.5.1.3 From the supply pipeline at the inlet to the residual oil-fired unit subject to this regulation each day the unit fires any quantity of oil fuel, after sufficient fuel oil has been drained from the sampling line to remove any fuel oil that may have been standing in the sampling line.

5.5.2 Fuel oil samples shall be analyzed in accordance with ASTM D 129-00, ASTM D 1552-03, ASTM D 2622-05, or ASTM D 4294-03.

12/11/2006

6.0 Mercury Emissions Limitations

6.1 From January 1, 2009 through December 31, 2012, any coal-fired unit subject to this regulation shall, on a quarterly average basis:

6.1.1 Emit mercury at a rate that does not exceed 1.0 lb/TBTU heat input, or

6.1.2 Capture and control a minimum 80% of baseline inlet mercury emissions.

6.2 On or after January 1, 2013, any coal-fired unit subject to this regulation shall, on a quarterly average basis:

6.2.1 Emit mercury at a rate that does not exceed 0.6 lb/TBTU heat input, or

6.2.2 Capture and control a minimum 90% of baseline inlet mercury emissions.

6.3 Annual mercury mass emissions from the coal-fired units subject to this regulation shall not exceed the values shown in Table 6-1 of this regulation.

6.3.1 Compliance with the requirements of 6.3 of this regulation shall be demonstrated on an annual basis.

6.3.2 Compliance with the requirements of 6.3 of this regulation shall not be achieved by using, tendering, or otherwise acquiring mercury allowances under any state or federal emissions trading program.

6.4 Compliance with the requirements of 6.1 through 6.3 of this regulation shall be demonstrated as follows:

6.4.1 Compliance with the requirements of 6.1.1, 6.2.1 and 6.3 of this regulation shall be demonstrated with a continuous emissions monitoring system that is installed, calibrated, operated, and certified in accordance with 40 CFR Part 75 (May 18, 2005 amendment) and meeting the monitoring and reporting requirements of 40 CFR Part 60 (June 9, 2006 amendment).

6.4.2 Compliance with the requirements of 6.1.2 and 6.2.2 of this regulation shall be demonstrated as follows:

6.4.2.1 During the period January 1, 2007 through March 31, 2008, the owner or operator shall conduct at least four quarterly stack tests to measure the mercury in the flue gas stream.

6.4.2.1.1 Except as provided for in 6.4.2.1.2 of this regulation, the test sampling location shall be located upstream of any pollution control device.

6.4.2.1.2 The sampling location may be located downstream of any SNCR injection points.

6.4.2.2 There shall be at least three valid stack tests per quarter and at least 45 days between stack tests performed for a given quarter and the stack tests performed for the preceding quarter, unless otherwise approved by the Department.

6.4.2.3 Each stack test shall be conducted in accordance with a testing protocol approved by the Department. Proposed test protocols shall be submitted to the Department no less than 90 days prior to conducting the mercury tests.

6.4.2.4 The baseline inlet mercury emission rate for the affected unit, in lb/TBTU, shall be determined as the arithmetic average of the quarterly stack tests conducted on that unit in accordance with 6.4.2.1 of this regulation.

6.4.2.5 No later than June 1, 2008, the owner or operator shall submit a petition to the Department requesting the establishment of a unit specific mercury emission rate limit. As a minimum, the report shall contain the following information:

6.4.2.5.1 Identification and brief description of the affected unit.

6.4.2.5.2 A list and brief description of all emissions control equipment installed on the affected unit at the time of the stack tests, including operating status at the time of the stack tests.

6.4.2.5.3 An accounting of all fuels and fuel quality being fired during the emissions tests.

6.4.2.5.4 Results of each quarterly mercury emissions tests.

6.4.2.5.5 Proposed mercury emission limits that are no greater than 20% of the baseline uncontrolled mercury emission rate determined in accordance with 6.4.2 of this regulation for the annual periods January 1, 2009 through December 31, 2012, and no greater than 10% of the baseline uncontrolled mercury emission rate determined in accordance with 6.4.2 of this regulation for the annual periods starting January 1, 2013 and beyond.

6.4.2.5.6 Summary description of the actions anticipated by the owner or operator of the affected unit to attain compliance with the proposed mercury emission limits.

6.4.2.6 The owner or operator of the affected unit shall submit to the Department any additional information requested by the Department necessary for review and approval of the petition.

6.4.2.7 The Department shall establish, for the affected unit, a unit specific mercury emission rate no greater than 20% of the unit's baseline uncontrolled mercury emissions rate for the period January 1, 2009 through December 31, 2012, and no greater than 10% of the unit's baseline uncontrolled mercury emission rate for the period January 2013 and beyond.

12/11/2006

7.0 Recordkeeping and Reporting

7.1 The owner or operator of a unit subject to this regulation shall comply with all applicable recordkeeping and reporting requirements of 40 CFR Part 75 (May 18, 2005) and this regulation.

7.2 The owner or operator of a unit subject to this regulation shall maintain, for a period of at least five years, copies of all measurements, tests, reports, and other information required by 40 CFR Part 75 (May 18, 2005 amendment) and this regulation. This information shall be provided to the Department upon request at any time.

7.3 After January 1, 2009, the owner or operator of a unit subject to this regulation shall submit to the Department semi-annual reports in conjunction with the reporting requirements of 7 **DE Admin. Code** 1130. The semi-annual reports shall contain, as a minimum, the following information:

7.3.1 Tabulation of emission monitoring results reduced to one-hour averages, on a clock basis, for the period in units consistent with the applicable emission standard.

7.3.2 In addition to the requirements of 8.3.1 of this regulation, the following calculations shall be made and reported in the semi-annual report:

7.3.2.1 For mass emission standards based on daily limits, the daily mass emission on a calendar day basis for each day in the period, in units consistent with the applicable emission standard.

7.3.2.2 For mass emissions based on an annual limit, the calendar year-to-date summation of mass emissions through the period being reported, in units consistent with the applicable emission standard.

7.3.2.3 For emission rate averaging, identification of the units being averaged, hourly heat input of the respective units, hourly emission rate of the respective units, and the hourly combined heat input weighted emission average for the affected units.

7.3.3 Identification of any period~~(s)~~ or periods of, and cause for, any invalid data averages.

7.3.4 Records of any repairs, adjustment, or maintenance to the monitoring system.

7.3.5 The results of all fuel oil sulfur analysis.

7.3.6 Identification of any exceedance of any emission standard provided by this regulation, cause of the exceedance, and corrective action taken in response to the exceedance.

7.3.7 Results from all tests, audits, and recalibrations performed during the period.

7.3.8 Any other relevant data requested by the Department.

7.3.9 A statement, "I am authorized to make this submission on behalf of the owners and operators of the affected facility or affected units for which this submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge true, accurate and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

7.3.10 Signature by the designated representative.

12/11/2006

8.0 Compliance Plan

8.1 The owner or operator of a unit subject to this regulation shall submit a compliance plan to the Department on or before July 1, 2007.

8.2 The compliance plan shall contain, at a minimum, the following information:

8.2.1 Identification of the subject unit.

8.2.2 A description of any existing NO_X, SO_2, or mercury emissions control technologies installed on the unit, including identification of the initial installation date of the control technologies.

8.2.3 Identification of the requirements of this regulation applicable to the unit.

8.2.4 A description of the plan or methodology that will be utilized to demonstrate compliance with this regulation.

8.2.5 Identification of emission control technologies, or modifications to existing emission control technologies, that will be utilized to comply with the applicable emissions limitations of this regulation. This shall include:

8.2.5.1 A description of the control technology and its applicability to the subject unit.

8.2.5.2 The design control effectiveness or design emission rate following installation of the emission control technology on the subject unit.

8.2.5.3 Estimated dates for start of construction, start-up of the emissions control technology, and estimated project completion date.

8.2.6 A description of the emissions monitoring methodology to be utilized for demonstrating compliance with the emissions limitations of this regulation, including estimated installation dates, start-up dates, and testing dates.

8.2.7 Identification of any planned changes to administrative or operating procedures or practices intended to achieve compliance with applicable emissions limitations of this regulation.

8.2.8 Any other relevant information requested by the Department.

8.2.9 A statement, "I am authorized to make this submission on behalf of the owners and operators of the affected facility or affected units for which this submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge true, accurate and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

8.2.10 Signature by the designated representative.

8.3 A facility that has submitted a complete compliance plan for its impacted units in accordance with the requirements of 8.0 of this regulation may on one occasion for each unit request an extension of up to one year for any deadline set out in 5.1 and 5.3 of this regulation. The facility shall have the burden of demonstrating that good faith efforts have been made to comply with the original deadline; that the facility is unable to comply because of events or circumstances beyond the control of the facility, including any entity controlled by it; that the delay could not have been prevented by the facility's exercise of due diligence; and that the facility has taken all reasonable steps or measures to avoid or minimize the delay. The Secretary shall exercise his discretion to grant a request that satisfies all the criteria.

12/11/2006

9.0 Penalties

The Department may enforce all of the provisions of this regulation under 7 **Del.C.** Ch 60.

Table 4-1

Annual NO_X Mass Emissions Limits

Unit	Control Period NO_X Mass Emissions Limit (tons)
Edgemoor 3	773
Edgemoor 4	1339
Edgemoor 5	1348
Indian River 1	601
Indian River 2	628
Indian River 3	977
Indian River 4	2032
McKee Run	244

Table 5-1
Annual SO_2 Mass Emissions Limits

Unit	Control Period SO_2 Mass Emissions Limit (tons)
Edgemoor 3	1391
Edgemoor 4	2410
Edgemoor 5	4600
Indian River 1	1082
Indian River 2	1130
Indian River 3	1759
Indian River 4	3657
McKee Run	439

13 DE Reg. 499 (10/01/09)

Table 6-1
Annual Mercury Mass Emissions Limits

Unit	Mercury Mass Emissions 2009 - 2012 (ounces)	Mercury Mass Emissions 2013 and Beyond (ounces)
Edgemoor 3	266	106
Edgemoor 4	462	183
Indian River 1	207	82
Indian River 2	216	86
Indian River 3	337	134
Indian River 4	700	278

10 DE Reg. 1022 (12/01/06)
12 DE Reg. 347 (09/01/08)

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION
NEW JERSEY ADMINISTRATIVE CODE
TITLE 7
CHAPTER 27
SUBCHAPTER 19

Control and Prohibition of Air Pollution from Oxides of Nitrogen

TABLE OF CONTENTS

7:27-19.4 Boilers serving electric generating units

(a) The owner or operator of any boiler serving an electric generating unit shall cause it to emit NOx at a rate no greater than the applicable maximum allowable NOx emission rate specified in Tables 1, 2 and 3 below, as applicable, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f) or unless otherwise specified in an enforceable agreement with the Department. Table 1 is operative through December 14, 2012. Table 2 is operative starting December 15, 2012 through April 30, 2015, except that a coal-fired boiler serving an electric generating unit may be eligible for up to a one-year extension of the December 15, 2012 compliance date pursuant to (f) below. Table 3 is operative on and after May 1, 2015. A boiler serving an electric generating unit is also subject to the 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 CFR 52.21, incorporated herein by reference, as applicable.

TABLE 1

(Operative through December 14, 2012)

Maximum Allowable NO_x Emission Rates for Boilers Serving Electric Generating Units

(pounds per million BTU)

	Firing Method		
Fuel/Boiler Type	**Tangential**	**Face**	**Cyclone**
Coal -Wet Bottom	1.0	1.0	0.60
Coal - Dry Bottom	0.38	0.45	0.55
Oil and/or Gas	0.20	0.28	0.43
Gas Only	0.20	0.20	0.43

TABLE 2

(Operative from December 15, 2012 through April 30, 2015)

Maximum Allowable NO_x Emission Rates for Boilers Serving Electric Generating Units

(pounds per megawatt hour)

	Firing Method		
Boiler Type	**Tangential**	**Face**	**Cyclone**
Coal	1.50	1.50	1.50
Oil and/or Gas	2.00	2.80	4.30
Gas only	2.00	2.00	4.30

TABLE 3

(Operative on and after May 1, 2015)

Maximum Allowable NO_x Emission Rates for Boilers Serving Electric Generating Units

(pounds per megawatt hour)

Fuel	
Coal	1.50
Heavier than No. 2 fuel oil	2.00
No. 2 and lighter fuel oil	1.00
Gas only	1.00

(b) The owner or operator of any boiler serving an electric generating unit shall install on the boiler a continuous emissions monitoring system satisfying the requirements of N.J.A.C. 7:27-19.18.

(c) The owner or operator of any boiler serving an electric generating unit shall adjust the boiler's combustion process before May 1st of each calendar year in accordance with N.J.A.C. 7:27-19.16, except the adjustment may occur within seven days of the first period of operation after May 1, if the boiler has not operated between January 1 and May 1 of that year.

(d) The owner or operator of a boiler serving an electric generating unit shall demonstrate compliance with its applicable maximum allowable NO_x emission rate in Table 2 or 3 as follows:

1. Using the methods at N.J.A.C. 7:27-19.15(a), any coal-fired boiler that is subject to an emission rate at Table 2 above shall demonstrate compliance with the maximum allowable NO_x emission rate in Table 2 either by June 15, 2013 or, if the boiler or control apparatus is altered to meet the Table 2 emission rate, by the date determined by N.J.A.C. 7:27-19.15(c), whichever date is earlier, and thereafter according to the schedule in the approved permit, except that a coal-fired boiler may be eligible for up to a one-year extension of the June 15, 2013 compliance demonstration date pursuant to (f) below; and

2. Using the methods at N.J.A.C. 7:27-19.15(a), any boiler that combusts any fuel other than coal and that is subject to an emission rate at Table 3 above shall demonstrate compliance with the applicable maximum allowable NO_x emission rate in Table 3 by November 1, 2015 or, if the boiler or control apparatus is altered to meet the applicable Table 3 emission rate, by the date determined by N.J.A.C. 7:27-19.15(c), whichever date is earlier, and thereafter according to the schedule in the approved permit.

(e) When calculating a 24-hour NO_x emission rate for an affected coal-fired unit, the owner or operator may exclude emissions from:

1. A unit that has ceased firing fossil fuel, the period of time, not to exceed eight hours, from initial firing of the unit until the unit is fired with coal and synchronized with a utility electric distribution system; and

2. A unit that is to be shut down, the period of time in which the unit is not longer synchronized with any utility electric distribution system and is no longer fired with coal.

(f) The owner or operator of a coal-fired boiler that is subject to Table 2 at (a) above may request up to a one-year extension past the December 15, 2012 Table 2 emission limit compliance deadline required at (a) and the June 15, 2013 compliance demonstration deadline required at (d)1 above by sending a written request to the address at N.J.A.C. 7:27-19.30(c)3. 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.

(g) Each owner or operator identified at N.J.A.C. 7:27-19.29(a) shall submit to the Department a 2009 HEDD Emission Reduction Compliance Demonstration Protocol and annual reports pursuant to N.J.A.C. 7:27-19.29.

(h) Each owner or operator of a boiler serving an electric generating unit that is a HEDD unit shall submit to the Department a 2015 HEDD Emission Limit Achievement Plan and annual progress updates, as applicable, pursuant to N.J.A.C. 7:27-19.30.

7:27-19.5 Stationary combustion turbines

(a) The owner or operator of a simple cycle combustion turbine shall comply with (a)1 through 3 below, as applicable.

1. Until March 7, 2007, the owner or operator of any stationary simple cycle combustion turbine that has a maximum gross heat input rate of at least 30 million BTUs per hour shall cause it to emit NO_x at a rate no greater than the applicable maximum allowable NO_x emission rate specified in Table 4 below, unless the owner or operator is complying with N.J.A.C. 7:27-19.3(f).

2. March 7, 2007 through May 19, 2009, the owner or operator of any simple cycle combustion turbine that has a maximum gross heat input rate of at least 25 million BTUs per hour and is a NO_x Budget source shall cause it to emit NO_x at a rate no greater than the applicable maximum allowable NO_x emission rate specified in

Technology optimization language from Maryland's latest NOx Regulation highlighted in yellow.

Title 26
DEPARTMENT OF THE ENVIRONMENT

Subtitle 11 AIR QUALITY

Chapter 38 Control of NO_x Emissions from Coal-Fired Electric Generating Units

Authority: Environment Article, §§1-404, 2-103, and 2-301—2-303, Annotated Code of Maryland

.01 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Affected electric generating unit" means any one of the following coal-fired electric generating units:

(a) Brandon Shores Units 1 and 2;

(b) C.P. Crane Units 1 and 2;

(c) Chalk Point Units 1 and 2;

(d) Dickerson Units 1, 2, and 3;

(e) H.A. Wagner Units 2 and 3;

(f) Morgantown Units 1 and 2; and

(g) Warrior Run.

(2) "Emergency operations" means an event called when PJM Interconnection, LLC or a successor independent system operator, acts to invoke one or more of the Warning or Action procedures in accordance with PJM Manual 13, Revision 57, as amended, to avoid potential interruption in electric service and maintain electric system reliability.

(3) "Operating day" means a 24-hour period beginning midnight of one day and ending the following midnight, or an alternative 24-hour period approved by the Department, during which time an installation is operating, consuming fuel, or causing emissions.

(4) "Ozone season" means the period beginning May 1 of any given year and ending September 30 of the same year.

(5) System.

(a) "System" means all affected electric generating units within the State of Maryland subject to this chapter that are owned, operated, or controlled by the same person and are located:

(i) In the same ozone nonattainment area as specified in 40 CFR Part 81; or

(ii) Outside any designated ozone nonattainment area as specified in 40 CFR Part 81.

(b) "System" includes at least two affected electric generating units.

(6) "System operating day" means any day in which an electric generating unit in a system operates.

(7) "30-day rolling average emission rate" means a value in lbs/MMBtu calculated by:

(a) Summing the total pounds of pollutant emitted from the unit during the current operating day and the previous 29 operating days;

(b) Summing the total heat input to the unit in MMBtu during the current operating day and the previous 29 operating days; and

(c) Dividing the total number of pounds of pollutant emitted during the 30 operating days by the total heat input during the 30 operating days.

(8) "30-day systemwide rolling average emission rate" means a value in lbs/MMBtu calculated by:

(a) Summing the total pounds of pollutant emitted from the system during the current system operating day and the previous 29 system operating days;

(b) Summing the total heat input to the system in MMBtu during the current system operating day and the previous 29 system operating days; and

(c) Dividing the total number of pounds of pollutant emitted during the 30 system operating days by the total heat input during the 30 system operating days.

(9) "24-hour block average emission rate" means a value in lbs/MMBtu calculated by:

(a) Summing the total pounds of pollutant emitted from the unit during 24 hours between midnight of one day and ending the following midnight;

(b) Summing the total heat input to the unit in MMBtu during 24 hours between midnight of one day and ending the following midnight; and

(c) Dividing the total number of pounds of pollutant emitted during 24 hours between midnight of one day and ending the following midnight by the total heat input during 24 hours between midnight of one day and ending the following midnight.

(10) "24-hour systemwide block average emission rate" means a value in lbs/MMBtu calculated by:

(a) Summing the total pounds of pollutant emitted from the system during 24 hours between midnight of one day and ending the following midnight;

(b) Summing the total heat input to the system in MMBtu during 24 hours between midnight of one day and ending the following midnight; and

(c) Dividing the total number of pounds of pollutant emitted during 24 system hours between midnight of one day and ending the following midnight by the total heat input during 24 system hours between midnight of one day and ending the following midnight.

.02 Applicability.

The provisions of this chapter apply to an affected electric generating unit as that term is defined in Regulation .01B of this chapter.

.03 2015 NO_x Emission Control Requirements.

A. Daily NO_x Reduction Requirements During the Ozone Season.

(1) Not later than 45 days after the effective date of this regulation, the owner or operator of an affected electric generating unit (the unit) shall submit a plan to the Department and EPA for approval that demonstrates how each affected electric generating unit will operate installed pollution control technology and combustion controls to meet the requirements of §A(2) of this regulation. The plan shall summarize the data that will be collected to demonstrate compliance with §A(2) of this regulation. The plan shall cover all modes of operation, including but not limited to normal operations, start-up, shut-down, and low load operations.

(2) Beginning on May 1, 2015, for each operating day during the ozone season, the owner or operator of an affected electric generating unit shall minimize NO_x emissions by operating and optimizing the use of all installed pollution control technology and combustion controls consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 CFR §60.11(d)) for such equipment and the unit at all times the unit is in operation while burning any coal.

B. Ozone Season NO_x Reduction Requirements.

(1) Except as provided in §B(3) of this regulation, the owner or operator of an affected electric generating unit shall not exceed a NO_x 30-day systemwide rolling average emission rate of 0.15 lbs/MMBtu during the ozone season.

(2) The owner or operator of an affected electric generating unit subject to the provisions of this regulation shall continue to meet the ozone season NO_x reduction requirements in COMAR 26.11.27.

(3) Ownership of Single Electric Generating Facility.

(a) An affected electric generating unit is not subject to §B(1) of this regulation if the unit is located at an electric generating facility that is the only facility in Maryland directly or indirectly owned, operated, or controlled by the owner, operator, or controller of the facility.

(b) For the purposes of this subsection, the owner includes parent companies, affiliates, and subsidiaries of the owner.

C. Annual NO_x Reduction Requirements. The owner or operator of an affected electric generating unit subject to the provisions of this regulation shall continue to meet the annual NO_x reduction requirements in COMAR 26.11.27.

D. NO_x Emission Requirements for Affected Electric Generating Units Equipped with Fluidized Bed Combustors.

(1) The owner or operator of an affected electric generating unit equipped with a fluidized bed combustor is not subject to the requirements of §§A, B(1) and (2), and C of this regulation.

(2) The owner or operator of an affected electric generating unit equipped with a fluidized bed combustor shall not exceed a NO_x 24-hour block average emission rate of 0.10 lbs/MMBtu.

.04 Additional NO_x Emission Control Requirements.

A. This regulation applies to C.P. Crane units 1 and 2, Chalk Point unit 2, Dickerson units 1, 2, and 3, and H.A. Wagner unit 2.

B. General Requirements. The owner or operator of the affected electric generating units subject to this regulation shall choose from the following:

(1) Not later than June 1, 2020:

(a) Install and operate a selective catalytic reduction (SCR) control system; and

(b) Meet a NO_x emission rate of 0.09 lbs/MMBtu, as determined on a 30-day rolling average during the ozone season;

(2) Not later than June 1, 2020, permanently retire the unit;

(3) Not later than June 1, 2020, permanently switch fuel from coal to natural gas for the unit;

(4) Not later than June 1, 2020, meet either a NO_x emission rate of 0.13 lbs/MMBtu as determined on a 24-hour systemwide block average or a systemwide NO_x tonnage cap of 21 tons per day during the ozone season.

C. When option §B(4)of this regulation is selected:

(1) Not later than May 1, 2016, the owner or operator of an affected electric generating unit shall not exceed a NO_x 30-day systemwide rolling average emission rate of 0.13 lbs/MMBtu during the ozone season.

(2) Not later than May 1, 2018, the owner or operator of an affected electric generating unit shall not exceed a NO_x 30-day systemwide rolling average emission rate of 0.11 lbs/MMBtu during the ozone season.

(3) Not later than May 1, 2020, the owner or operator of an affected electric generating unit shall not exceed a NO_x 30-day systemwide rolling average emission rate of 0.09 lbs/MMBtu during the ozone season.

D. In order to calculate the 24-hour systemwide block average emission rate and systemwide NO_x tonnage cap under §B(4) of this regulation and the systemwide rolling average emission rates under §C of this regulation:

(1) The owner or operator shall use all affected electric generating units within their system as those terms are defined in Regulation .01B of this chapter; and

(2) The unit or units NO_x emissions from all operations during the entire operating day shall be used where the unit or units burn coal at any time during that operating day.

E. Beginning June 1, 2020, if the unit or units included in a system, as that system existed on May 1, 2015, is no longer directly or indirectly owned, operated, or controlled by the owner, operator, or controller of the system:

(1) The remaining units within the system shall meet either:

(a) The requirements of §B(1)—(3) of this regulation; or

(b) A NO_x emission rate of 0.13 lbs/MMBtu as determined on a 24-hour systemwide block average and the requirements of §C(3) of this regulation.

(2) The unit or units no longer included in the system shall meet the requirements of §B(1)—(3) of this regulation.

F. For the purposes of this regulation, the owner includes parent companies, affiliates, and subsidiaries of the owner.

.05 Compliance Demonstration Requirements.

A. Procedures for Demonstrating Compliance with Regulation .03A of this Chapter.

(1) An affected electric generating unit shall demonstrate, to the Department's satisfaction, compliance with Regulation .03A(2) of this chapter, using the information collected and maintained in accordance with Regulation .03A(1) of this chapter and any additional documentation available to and maintained by the affected electric generating unit.

(2) An affected electric generating unit shall not be required to submit a unit-specific report consistent with §A(3) of this regulation when the unit emits at levels that are at or below the following rates:

Affected Unit	24-Hour Block Average NO_x Emissions in lbs/MMBtu
Brandon Shores	
Unit 1	0.08
Unit 2 ≥650 MWg	0.07 0.15
C.P. Crane	
Unit 1	0.30
Unit 2	0.28
Chalk Point	
Unit 1 only	0.07
Unit 2 only	0.33
Units 1 and 2 combined	0.20
Dickerson	
Unit 1 only	0.24
Unit 2 only	0.24
Unit 3 only	0.24
Two or more units combined	0.24
H.A. Wagner	
Unit 2	0.34
Unit 3	0.07
Morgantown	
Unit 1	0.07
Unit 2	0.07

(3) The owner or operator of an affected electric generating unit subject to Regulation .03A(2) of this chapter shall submit a unit-specific report for each day the unit exceeds its NO_x emission rate under §A(2) of this regulation, which shall include the following information for the entire operating day:

(a) Hours of operation for the unit;

(b) Hourly averages of operating temperature of installed pollution control technology;

(c) Hourly averages of heat input (MMBtu/hr);

(d) Hourly averages of output (MWh);

(e) Hourly averages of ammonia or urea flow rates;

(f) Hourly averages of NO_x emissions data (lbs/MMBtu and tons);

(g) Malfunction data;

(h) The technical and operational reason the rate was exceeded, such as:

(i) Operator error;

(ii) Technical events beyond the control of the owner or operator (e.g. acts of God, malfunctions); or

(iii) Dispatch requirements that mandate unplanned operation (e.g. start-ups and shut-downs, idling, and operation at low voltage or low load);

(i) A written narrative describing any actions taken to reduce emission rates; and

(j) Other information that the Department determines is necessary to evaluate the data or to ensure that compliance is achieved.

(4) An exceedance of the emissions rate under §A(2) of this regulation as a result of factors including but not limited to start-up, shut-down, days when the unit was directed by the electric grid operator to operate at low load or to operate pursuant to any emergency generation operations required by the electric grid operator, including necessary testing for such emergency operations, or which otherwise occurred during operations which are deemed consistent with the unit's technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions, shall not be considered a violation of Regulation .03A(2) of this chapter provided that the provisions of the approved plan as required in Regulation .03A(1) of this chapter are met.

B. Procedures for Demonstrating Compliance with NO_x Emission Rates under this Chapter.

(1) Compliance with the NO_x emission rate limitations in Regulations .03B(1) and D(2); .04B(1)(b) and B(4), C(1)—(3), and E(1)(b); and .05A(2) of this chapter shall be demonstrated with a continuous emission monitoring system that is installed, operated, and certified in accordance with 40 CFR Part 75.

(2) For Regulations .03B(1) and .04C(1)—(3) of this chapter, in order to calculate the 30-day systemwide rolling average emission rates, if 29 system operating days are not available from the current ozone season, system operating days from the previous ozone season shall be used.

(3) For Regulation .04B(1)(b) of this chapter, in order to calculate the 30-day rolling average emission rates, if 29 operating days are not available from the current ozone season, operating days from the previous ozone season shall be used.

.06 Reporting Requirements.

A. Reporting Schedule.

(1) Beginning 30 days after the first month of the ozone season following the effective date of this chapter, each affected electric generating unit subject to the requirements of this chapter shall submit a monthly report to the Department detailing the status of compliance with this chapter during the ozone season.

(2) Each subsequent monthly report shall be submitted to the Department not later than 30 days following the end of the calendar month during the ozone season.

B. Monthly Reports During Ozone Season. Monthly reports during the ozone season shall include:

(1) Daily pass or fail of the NO_x emission rates under Regulation .05A(2) of this chapter;

(2) The reporting information as required under Regulation .05A(3) of this chapter;

(3) The 30-day systemwide rolling average emission rate for each affected electric generating unit to demonstrate compliance with Regulation .03B(1), .04C(1)—(3) of this chapter, as applicable;

(4) For an affected electric generating unit which has selected the compliance option of Regulation .04B(1) of this chapter, beginning June 1, 2020, the 30-day rolling average emission rate calculated in lbs/MMBtu;

(5) For an affected electric generating unit which has selected the compliance option of Regulation .04B(4) of this chapter, beginning June 1, 2016, the 30-day rolling average emission rate and 30-day systemwide rolling average emission rate calculated in lbs/MMBtu;

(6) For an affected electric generating unit which has selected the compliance option of Regulation .04B(4) of this chapter, beginning June 1, 2020, data, information, and calculations which demonstrate the systemwide NO_x emission rate as determined on a 24-hour block average or the actual systemwide daily NO_x emissions in tons for each day during the month; and

(7) For an affected electric generating unit which has selected the compliance option of Regulation .04E(1)(b) of this chapter, beginning June 1, 2020, data, information, and calculations which demonstrate the systemwide NO_x emission rate as determined on a 24-hour block average for each day during the month.

.07 Electric System Reliability During Ozone Seasons.

A. In the event of emergency operations, a maximum of 12 hours of operations per system per ozone season may be removed from the calculation of the NO_x limitations in Regulation .04B(4) of this chapter from the unit or units responding to the emergency operations provided that:

(1) Within one business day following the emergency operation, the owner or operator of the affected electric generating unit or units notifies the Manager of the Air Quality Compliance Program of the emergency operations taken by PJM Interconnection; and

(2) Within five business days following the emergency operation, the owner or operator of the affected electric generating unit or units provides the Department with the following information:

(a) PJM documentation of the emergency event called and the unit or units requested to operate;

(b) Unit or units dispatched for the emergency operation;

(c) Number of hours that the unit or units responded to the emergency operation and the consecutive hours that will be used towards the calculation of the NO_x limitations in Regulation .04B(4) of this chapter; and

(d) Other information regarding efforts the owner or operator took to minimize NO_x emissions in accordance with Regulation .03A(1) of this chapter on the day that the emergency operation was called.

B. Any partial hour in which a unit operated in response to emergency operations under §A of this regulation shall constitute a full hour of operations.

Administrative History

Effective date:
Regulations .01—.05 adopted as an emergency provision effective May 1, 2015 (42:11 Md. R. 722); adopted permanently effective August 31, 2015 (42:17 Md. R. 1111)

_____

Chapter revised effective December 10, 2015 (42:24 Md. R. 1506)