DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF AIR QUALITY
Air Quality Management Section

1142 Specific Emission Control Requirements

01/11/2017

1.0 Control of NO_x Emissions from Industrial Boilers

1.1 Purpose

New Castle County and Kent County are part of the Philadelphia-Wilmington-Trenton 1-hour ozone non-attainment area. All areas of Delaware impact this non-attainment area. On December 19, 1999, the EPA identified an emission reduction "shortfall" associated with this non-attainment area. Promulgation of Section 1.0 of this regulation is one measure that the Department is taking to mitigate this shortfall.

In determining the applicability of Section 1.0 of this regulation, the Department attempted to minimize the impact on facilities that recently installed NO_x controls under 7 **DE Admin. Code** 1112 (NO_x RACT) and 7 **DE Admin. Code** 1137/1139 (NO_x Budget Trading Program). The Department did this by regulating only large sources that, as of the effective date of Section 1.0 of this regulation, emitted NO_X at a rate greater than the rate identified in Table 3-1 of 7 **DE Admin. Code** 1112, were not equipped with NO_x emission control technology, and were not subject to the requirements of 7 **DE Admin. Code** 1139. In effect, Section 1.0 of this regulation regulates sources that remain high NO_x emitters after the application of RACT and post RACT requirements, and that have not committed substantial capital funds to reduce NO_x emissions.

1.2 Applicability

1.2.1 The provisions of Section 1.0 of this regulation apply to any person that owns or operates any combustion unit with a maximum heat input capacity of equal to or greater than 100 million btu per hour, except that Section 1.0 of this regulation shall not apply to any unit that, as of the effective date of Section 1.0 of this regulation:

1.2.1.1 Emits NO_x at a rate equal to or less than the rate identified in Table 3-1 of 7 **DE Admin. Code** 1112.

1.2.1.2 Is equipped with low NO_x burner, flue gas recirculation, selective catalytic reduction, or selective non-catalytic reduction technology.

1.2.1.3 Is subject to the requirements of 7 **DE Admin. Code** 1139.

1.2.2 The requirements of Section 1.0 of this regulation are in addition to all other state and federal requirements.

1.2.3 Affected persons shall comply with the requirements of subsection 1.3 of this regulation as soon as practicable, but no later than May 1, 2004.

1.3 Standards.

1.3.1 The NO_x emission rate from any unit subject to Section 1.0 of this regulation shall be equal to or less than the following:

1.3.1.1 Between May 1st through September 30th of each year, inclusive: 0.10 lb/mmBTU, 24-hour calendar day average.

1.3.1.2 During all times that gaseous fuel is being fired: 0.10 lb/mmBTU, 24-hour calendar day average.

1.3.1.3 During all times not covered by subsection 1.3.1.1 and subsection 1.3.1.2 of this regulation: 0.25 lb/mmBTU, 24-hour calendar day average.

1.3.2 As an alternative to compliance with the requirements of subsection 1.3.1 of this regulation, compliance may be achieved through the procurement and retirement of NO_x allowances authorized for use under 7 **DE Admin. Code** 1139, as follows:

1.3.2.1 The actual 24-hour calendar day average NO_x emission rate in pounds per million btu shall be determined for each day of unit operation, using CEMs operated in accordance with subsection 1.4 of this regulation.

1.3.2.2 The actual heat input to each unit in million btu shall be determined for each day of unit operation, using methods proposed by the person subject to Section 1.0 of this regulation and acceptable to the Department.

1.3.2.3 0.10 or 0.25, as applicable and consistent with subsection 1.3.1 of this regulation, shall be subtracted from the rate determined in subsection 1.3.2.1 of this regulation.

1.3.2.4 To obtain the number of pounds of NO_x emitted for a particular day, the emission rate determined in subsection 1.3.2.3 of this regulation shall be multiplied by the heat input to the unit for that day determined in subsection 1.3.2.2 of this regulation. If the emission rate determined in subsection 1.3.2.3 of this regulation is equal to or less than zero, then the number of pounds of NO_x emitted for that day shall be zero.

1.3.2.5 Not later than the 20th day of each month:

1.3.2.5.1 The number of pounds of NO_x emissions calculated pursuant to subsection 1.3.2.4 of this regulation shall be summed for each calendar month, the result shall be divided by 2000, and shall be rounded to the nearest whole ton.

1.3.2.5.2 For each ton of NO_x emissions calculated pursuant to subsection 1.3.2.5.1 of this regulation, records shall be maintained demonstrating that one NO_x allowance owned by the person subject to Section 1.0 of this regulation is identified and available, by serial number, for retirement.

1.3.2.6 Not later than February 1 of each calendar year, the NO_x allowances identified pursuant to subsection 1.3.2.5.2 of this regulation for the previous calendar year, shall be submitted to the Department for retirement. Such submission shall detail the calculations specified in subsection 1.3.2.1 through subsection 1.3.2.5 of this regulation, and shall indicate the serial number of each allowance to be retired.

1.4 Monitoring Requirements. Compliance with the NO_x emission standards specified in Section 1.0 of this regulation shall be determined based on CEM data collected in accordance with the requirements of subsection 3.1.2 of 7 **DE Admin. Code** 1117 (Performance Specification 2), and in compliance with the requirements of 40 CFR, Part 60, Appendix F.

1.5 Recordkeeping and Reporting Requirements.

1.5.1 Not later than 180 days after the effective date of Section 1.0 of this regulation, any person subject to Section 1.0 of this regulation shall develop, and submit to the Department for approval, a schedule for bringing the affected emission unit or units into compliance with the requirements of Section 1.0 of this regulation. Such schedule shall include, at a minimum, all of the following:

1.5.1.1 The method by which compliance will be achieved

1.5.1.2 The dates by which the affected person commits to completing the following major increments of progress, as applicable:

1.5.1.2.1 Completion of engineering;

1.5.1.2.2 Submission of permit applications;

1.5.1.2.3 Awarding of contracts for construction or installation;

1.5.1.2.4 Initiation of construction;

1.5.1.2.5 Completion of construction;

1.5.1.2.6 Commencement of trial operation;

1.5.1.2.7 Initial compliance testing;

1.5.1.2.8 Submission of compliance testing reports;

1.5.1.2.9 Commencement of normal operations (in full compliance).

1.5.2 Any person subject to Section 1.0 of this regulation shall submit to the Department an initial compliance certification not later than May 1, 2004. The initial compliance certification shall, at a minimum, include the following information:

1.5.2.1 The name and the location of the facility.

1.5.2.2 The address and telephone number of the person responsible for the facility.

1.5.2.3 Identification of the subject source or sources.

1.5.2.4 The applicable standard.

1.5.2.5 The method of compliance.

1.5.2.6 Certification that each subject source is in compliance with the applicable standard

1.5.2.7 All records necessary for determining compliance with the standards of Section 1.0 of this regulation shall be maintained at the facility for a period of five years.

1.5.3 Any person subject to Section 1.0 of this regulation shall, for each occurrence of excess emissions, within 30 calendar days of becoming aware of such occurrence, supply the Department with the following information:

1.5.3.1 The name and location of the facility.

1.5.3.2 The subject source or sources that caused the excess emissions.

1.5.3.3 The time and date of first observation of the excess emissions.

1.5.3.4 The cause and expected duration of the excess emissions.

1.5.3.5 The estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions.

1.5.3.6 The proposed corrective actions and schedule to correct the conditions causing the excess emissions.

1.5.4 Any person subject to Section 1.0 of this regulation shall maintain all information necessary to demonstrate compliance with the requirements of Section 1.0 of this regulation for a minimum period of five years. Such information shall be immediately made available to the Department upon verbal and written request.

20 DE Reg. 556 (01/01/17)

01/11/2017

2.0 Control of NO_x Emissions from Industrial Boilers and Process Heaters at Petroleum Refineries

2.1 Purpose

2.1.1 The purpose of Section 2.0 of this regulation is to reduce NOX emissions from Delaware's large industrial boilers and process heaters that are located at petroleum refineries.

2.1.2 Under the 8-hour ozone national ambient air quality standard (NAAQS), the state of Delaware is part of the Philadelphia-Wilmington-Atlantic City, PA-DE-MD-NJ moderate non-attainment area (NAA). The entire NAA, including Delaware, is required by the Clean Air Act (CAA) to attain the 8-hour ozone NAAQS by 2010. After attainment, the area must maintain compliance with the NAAQS. By implementing Section 2.0 of this regulation, NOx emission reductions from the affected boilers and heaters shall contribute to (1) attainment and maintenance of the 8-hour ozone standard, and (2) improvement of the ambient air quality, in both Delaware and the entire NAA.

2.1.3 Additionally, New Castle County of Delaware is a part of the Philadelphia-Wilmington-Camden, PA-DE-NJ NAA for the annual fine particulate matter ($PM_{2.5}$) NAAQS, and is required by the CAA to attain the NAAQS by 2010. Since NOx is a significant precursor to $PM_{2.5}$ formation, reducing NOx emissions will also assist in attainment and maintenance of the $PM_{2.5}$ standard.

2.2 Applicability and Compliance Dates

2.2.1 Section 2.0 of this regulation applies to any industrial boiler or process heater with a maximum heat input capacity of equal to or greater than 200 million BTUs per hour (mmBTU/Hour), which is operated or permitted to operate within a petroleum refinery facility on July 11, 2007. This comprises the following ten (10) units at the Delaware City refinery:

2.2.1.1 Crude Unit Vacuum Heater (Unit 21-H-2);

2.2.1.2 Crude Unit Atmospheric Heater (Unit 21-H-701);

2.2.1.3 Fluid Coking Unit Carbon Monoxide boiler (Unit 22-H-3);

2.2.1.4 Steam Methane Reformer Heater (Unit 37-H-1);

2.2.1.5 Continuous Catalyst Regenerator Reformer Heater (Unit 42-H-1,2,3);

2.2.1.6 Boiler 1 (Unit 80-1);

2.2.1.7 Boiler 2 (Unit 80-2);

2.2.1.8 Boiler 3 (Unit 80-3);

2.2.1.9 Boiler 4 (Unit 80-4).

2.2.1.10 Fluid Catalytic Cracking Unit Carbon Monoxide (CO) boiler (Unit 23-H-3).

2.2.2 The requirements of Section 2.0 of this regulation are in addition to all other state and federal requirements.

2.2.3 The following units shall be in compliance with the requirements of Section 2.0 of this regulation on and after July 11, 2007: Crude Unit Atmospheric Heater (Unit 21-H-701), Steam Methane Reformer Heater (Unit 37-H-1) and Boiler 2 (Unit 80-2).

2.2.4 The following units shall be in compliance with the requirements of Section 2.0 of this regulation as soon as practicable, but not later than:

2.2.4.1 December 31, 2008: Boiler 1 (Unit 80-1) and Crude Unit vacuum Heater (Unit 21-H-2), and Fluid Catalytic Cracking Unit CO boiler (Unit 42-H-1, 2, 3).

2.2.4.2 May 1, 2011: Boiler 3 (Unit 80-3) and Boiler 4 (Unit 80-4).

2.2.4.3 December 31, 2012: Continuous Catalyst Regenerator Reformer Heater (Unit 42-H-1, 2, 3).

2.3 Standards.

The owner or operator of any industrial boiler or process heater identified in subsection 2.2.1 of this regulation shall meet the applicable NO_X emission limitation identified in the following sections:

2.3.1 Except as provided for in subsection 2.3.2 of this regulation, the owner or operator of any industrial boiler or process heater identified in subsection 2.2.1 of this regulation shall not operate except in compliance with the applicable NO_X emission limitation identified in the following sections:

2.3.1.1 For the Fluid Coking Unit Carbon Monoxide boiler (Unit 22-H-3), Reserved.

2.3.1.2 For the Steam Methane Reformer (SMR) Heater (Unit 37-H-1), Reserved.

2.3.1.3 For Boiler 1 (Unit 80-1), Boiler 3 (Unit 80-3) and Boiler 4 (Unit 80-4), 0.015 lb/mmBTU, on a 24-hour rolling average basis.

2.3.1.4 For the Fluid Catalytic Cracking Unit CO boiler (Unit 23-H-3), 20 ppmvd @ 0% O2 on a 365 day rolling average basis, and 40 ppmvd @ 0 % O2 on a 7-day rolling average basis.

2.3.1.5 For any unit not covered by 2.3.1.1, 2.3.1.2, or 2.3.1.3, or 2.3.1.4 0.04 lb/mmBTU, on a 24-hour rolling average basis.

2.3.2 As an alternative to complying with one or more of the unit specific emission limitations specified in subsection 2.3.1 of this regulation the owner or operator of any industrial boiler or process heater identified in subsection 2.2.1 of this regulation shall limit the NO_X emissions, from all NO_X emission sources at the facility, to equal to or less than the applicable emission cap specified in subsection 2.3.2.1 through subsection 2.3.2.3 of this regulation.

2.3.2.1 2,525 tons per year, evaluated over each twelve (12) consecutive month rolling period, for each twelve (12) month rolling period commencing with the rolling twelve (12) consecutive month period comprised by calendar year (CY) 2011 and ending with the twelve (12) consecutive month rolling period that ends on December 31, 2013.

2.3.2.2 2,225 tons per year, evaluated over each twelve (12) consecutive month rolling period, comprising calendar year 2014.

2.3.2.3 1,650 tons per year, evaluated over each twelve (12) consecutive month rolling period, commencing with the twelve (12) month rolling period beginning on January 1, 2015 and ending on December 31, 2015, and continuing thereafter.

2.3.3 Neither the provisions of subsection 2.3.2, nor this regulation more generally, shall limit in any way the Department's authority to establish a lower NO_X emission cap and more stringent NOx emission limitations for any source subject to this regulation.

2.4 Compliance Requirements.

2.4.1 Compliance with the NO_X emission standards specified in subsection 2.3.1 of this regulation shall be determined based on CEM data collected in accordance with the appropriate requirements set forth in 40 CFR, Part 60, Appendix B, Performance Specification 2, and the QA/QC requirements in 40 CFR Part 60, Appendix F.

2.4.2 Compliance with the facility-wide NO_X emission cap specified in subsection 2.3.2 of this regulation shall be determined not later than the last day of each month, as follows.

2.4.2.1 The mass of NO_X (tons) emitted during the prior month from each emission source at the facility subject to the NO_X cap shall be accurately determined using the methods specified in subsection 2.4.2.1.1 through subsection 2.4.2.1.3 of this regulation, as approved by the Department.

2.4.2.1.1 Continuous emission monitoring systems (CEMS) that meet the requirements of subsection 2.4.1 of this regulation.

2.4.2.1.2 A NO_X emission factor that is based upon the results of the most recent performance testing conducted in accordance with a protocol approved by the Department**.**

2.4.2.1.3 Published NO_X emission factors for such source or category of sources, or any other method approvable by the Department.

2.4.2.2 NO_X emissions from each NO_X emission source at the facility shall be determined for all periods of startup, shutdown or malfunction. To the extent that such emissions are not measured by CEMS during such periods of startup, shutdown or malfunction, and to the further extent that performance testing for such source did not establish emission factors for such equipment reflective of operations during periods of startup, shutdown or malfunction, then the owner or operator shall estimate such emission rates from such source during any periods of startup, shutdown or malfunction in accordance with best engineering judgment.

2.4.2.3 The emissions calculated in subsection 2.4.2.1 and subsection 2.4.2.2 of this regulation shall be summed and aggregated with the calculation results for the preceding months as provided for in subsection 2.4.2.3.1 through subsection 2.4.2.3.4 below.

2.4.2.3.1 For any month before January 2014, the preceding eleven (11) consecutive months shall be included. No emissions occurring before January 1, 2011 shall be included.

2.4.2.3.2 For any month in calendar year 2014, only months in calendar year 2014 shall be included.

2.4.2.3.3 For any month in calendar year 2015, only months in calendar year 2015 shall be included.

2.4.2.3.4 For any month after December 31, 2015, the preceding eleven (11) consecutive months shall be included.

2.4.2.4 Compliance shall be determined by comparing the results of the calculations in subsection 2.4.2.3 of this regulation with the appropriate NO_X emission cap specified in subsection 2.3.2 of this regulation. Following aggregation and summation of emission in accordance with subsection 2.4.2.3, fractions of tons shall be rounded up to the next higher number.

2.5 Recordkeeping and Reporting Requirements

2.5.1 Not later than October 7, 2011, any person subject to Section 2.0 of this regulation shall develop, and submit to the Department, a schedule for bringing the facility into compliance with the requirements of subsection 2.3 of this regulation. Such schedule shall include, at a minimum, all of the following:

2.5.1.1 The method by which compliance will be achieved.

2.5.1.2 For persons subject to the requirements of subsection 2.3.1 of this regulation, the dates by which the affected person plans to complete the following major increments of progress, as applicable:

2.5.1.2.1 Completion of engineering;

2.5.1.2.2 Submission of permit applications;

2.5.1.2.3 Awarding of contracts for construction and/or installation;

2.5.1.2.4 Initiation of construction;

2.5.1.2.5 Completion of construction;

2.5.1.2.6 Commencement of trial operation;

2.5.1.2.7 Initial compliance testing;

2.5.1.2.8 Submission of compliance testing reports;

2.5.1.2.9 Commencement of normal operations (in full compliance).

2.5.2 For persons subject to the requirements of subsection 2.3.2 of this regulation, the owner or operator shall submit to the Department an initial notice that contains all of the information specified in subsection 2.5.2.1 and subsection 2.5.2.2 of this regulation.

2.5.2.1 The date that compliance with this regulation will begin pursuant to subsection 2.3.2 of this regulation. A permit application submitted pursuant to 7 **DE Admin. Code** 1102 or 1130 that contains this information may be used as a means to satisfy this requirement.

2.5.2.2 A list of the emission units at the facility that are required to be included in the facility-wide NO_X cap.

2.5.3 Any person subject to the requirements of subsection 2.3.1 of this regulation shall submit to the Department an initial compliance certification by the later of the following dates, or the date the unit first operates after the following date subject to the requirements of subsection 2.3.1: September 10, 2007 for units identified in subsection 2.2.3 of this regulation and, for units identified in subsection 2.2.4, by the compliance date specified in subsection 2.2.4. The initial compliance certification shall include, at a minimum, all of the following information:

2.5.3.1 The name and the location of the facility;

2.5.3.2 The name, address and telephone number of the person responsible for the facility;

2.5.3.3 Identification of the subject source(s);

2.5.3.4 The applicable standard;

2.5.3.5 The method of compliance;

2.5.3.6 Certification that each subject source is in compliance with the applicable standard.

2.5.4 Any person subject to the requirements of subsection 2.3.2 of this regulation shall submit to the Department a semi-annual report by January 31 and July 31 of each calendar year that contains all of the information specified in subsection 2.5.4.1 through subsection 2.5.4.5 of this regulation. At the request of the owner or operator, the Department may change the frequency of such reporting requirements, as may be necessary to harmonize them with reporting requirements of 7 **DE Admin. Code** 1130, Title V Operating Permits Program.

2.5.4.1 The identification of owner and operator of the facility.

2.5.4.2 A report of the monthly NOx emissions for each source, the basis for determination of the emissions pursuant to subsection 2.4.2.1, and comparison of the rolling total NOx emissions from the facility with the appropriate NOx emission cap that was made pursuant to subsection 2.4.2.4 of this regulation, for each month in the reporting period.

2.5.4.3 An updated list of the emission units at the facility that are required to be included in the facility-wide NO_X cap.

2.5.5 Any person subject to Section 2.0 of this regulation shall, for each occurrence of excess emissions above the standards of subsection 2.3 of this regulation, including periods when monitoring data was not collected in accordance with procedures approved pursuant to subsection 2.4.2.1 of this regulation, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department with the following information:

2.5.5.1 The name and location of the facility;

2.5.5.2 The subject source(s) that caused the excess emissions;

2.5.5.3 The time and date of first observation of the excess emissions;

2.5.5.4 The cause and expected duration of the excess emissions;

2.5.5.5 The estimated rate of emissions (expressed in the units of the applicable emission limitation) and the operating data and calculations used in determining the magnitude of the excess emissions;

2.5.5.6 The proposed corrective actions and schedule to correct the conditions causing the excess emissions.

2.5.6 Any person subject to Section 2.0 of this regulation shall maintain all information necessary to determine and demonstrate compliance with the requirements of this section for a minimum period of five (5) years. Such information shall be immediately made available to the Department upon verbal and written request.

5 DE Reg. 1299 (12/01/01)
11 DE Reg. 75 (07/01/07)
12 DE Reg. 347 (09/01/08)
13 DE Reg. 670 (11/01/09)
14 DE Reg. 1092 (04/01/11)
20 DE Reg. 556 (01/01/17)