DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DIVISION OF AIR AND WASTE MANAGEMENT

Statutory Authority: 7 Delaware Code, Chapter 60 (7 **Del.C.,** Ch. 60)

PROPOSED

PUBLIC NOTICE

1. Title of the Regulations:

Delaware Regulation Governing the Control of Air Pollution No. 1142 Section 2: Control of NOx Emissions from Industrial Boilers and Process Heaters at Petroleum Refineries.

2. Brief Synopsis of the Subject, Substance and Issues:

The Clean Air Act Amendments of 1990 (CAA) requires Delaware, as part of the Philadelphia-Wilmington-Atlanta City non-attainment area, to attain the 8-hour ozone National Ambient Air Quality Standard (NAAQS) by 2010. Since oxides of nitrogen (NOx) is one of the two major precursors that form ozone in the lower atmosphere, Delaware must reduce NOx emissions in order to reduce ambient ozone concentrations, to attain the NAAQS. According to the requirements of US Environmental Protection Agency (EPA), NOx reductions must be achieved by May of 2009 to ensure attainment by 2010. Delaware's emission inventory data demonstrates that large industrial boilers and process heaters in petroleum refineries in Delaware are significant NOx emitting sources. Therefore, those large boilers and process heaters should be subject to appropriate NOx emission controls.

The proposed Regulation 1142 Section 2 will affect large refinery boilers and process heaters with heat input capacities equal to or greater than 200 million British thermal units per hour (mmBTU/hour). By setting up appropriate emission rate limits and control implementation schedules for those units, NOx emission reductions will be achieved in 2009 to help Delaware attain the ozone NAAQS, and additional reduction will be achieved in 2011-2012 period to help Delaware to maintain the ozone standard once it is attained.

The proposed regulation and the associated NOx emission reductions will be included in Delaware State Implementation Plan (SIP) revisions to demonstrate Delaware's capability to make reasonable progress towards attainment, to attain the ozone standard in 2010, and to maintain the ozone standard thereafter. Those SIP revisions are due to EPA by June 2007.

In addition to aiding the adequate progress toward, and ultimate attainment of the ozone NAAQS, the proposed regulation will aid Delaware in attaining the fine particulate matter (PM) NAAQS by 2010, help satisfy Delaware's compliance with the federal Clean Air Interstate Rule (CAIR) and the federal Nitrogen Oxides Transport State Implementation Plan (SIP) Call, help satisfy EPA's finding that Delaware failed to submit a Clean Air Act Section 110 SIP addressing upwind interstate transport for the ozone and fine particulate matter NAAQS, and improve visibility.

3. Possible Terms of the Agency Action:

None.

4. Statutory Basis or Legal Authority to Act:

7 **Del.C.**, Chapter 60, Environmental Control

5. Other Regulations That May Be Affected by the Proposal:

None

6. Notice of Public Comment:

A public hearing will be held on March 6, 2007, beginning at 6:00 pm, in DNREC Conference Room A, 391 Lukens Drive, New Castle, DE 19720.

7. Prepared By:

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1142 Specific Emission Control Requirements

xx/xx/200x

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 of this regulation is one measure that the Department is taking to mitigate this shortfall.

In determining the applicability of this Section the Department attempted to minimize the impact on facilities that recently installed NO_X controls under Regulation No. 12 (NO_X RACT) and Regulation No. 37/39 (NO_X Budget Trading Program). The Department did this by regulating only large sources that, as of the effective date of this Section, emitted NO_X at a rate greater than the rate identified in Table I of Regulation No. 12, were not equipped with NO_X emission control technology, and were not subject to the requirements of Regulation No. 39. In effect, this Section 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 This section applies 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 this section shall not apply to any unit that, as of the effective date of this Section:

1.2.1.1 Emits NO_X at a rate equal to or less than the rate identified in Table I of Regulation No. 12 of the State of Delaware "Regulations Governing the Control of Air Pollution."

1.2.1.2 Is equipped with low NO_X burner, flue gas recirculation, selective catalytic reduction, or selective noncatalytic reduction technology.

1.2.1.3 Is subject to the requirements of Regulation No. 39 of the State of Delaware "Regulations Governing the Control of Air Pollution."

1.2.2 The requirements of this section are in addition to all other state and federal requirements.

1.2.3 Affected persons shall comply with the requirements of paragraph 1.3 of this Section 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 this Section 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 Section 1.3.1.1 and 1.3.1.2: 0.25 lb/ mmBTU, 24-hour calendar day average.

1.3.2 As an alternative to compliance with the requirements of paragraph 1.3.1 of this Section, compliance may be achieved through the procurement and retirement of NO_X allowances authorized for use under Regulation No. 39 of the State of Delaware "Regulations Governing the Control of Air Pollution," 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 paragraph 1.4 of this section.

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 this Section and acceptable to the Department.

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

1.3.2.4 To obtain the number of pounds of NO_X emitted for a particular day the emission rate determined in paragraph 1.3.2.3 of this section shall be multiplied by the heat input to the unit for that day determined in paragraph 1.3.2.2 of this section. If the emission rate determined in paragraph 1.3.2.3 of this section 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 paragraph 1.3.2.4 of this section 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 NOx emissions calculated pursuant to paragraph 1.3.2.5.1, records shall be maintained demonstrating that one NOx allowance owned by the person subject to this Section is identified and available, by serial number, for retirement.]

1.3.2.6 Not later than February 1 of each calendar year, the NOx allowances identified pursuant to paragraph 1.3.2.5.2 of this Section for the previous calendar year, shall be submitted to the Department for retirement. Such submission shall detail the calculations specified in 1.3.2.1 through 1.3.2.5 above, 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 this section shall be determined based on CEM data collected in accordance with the requirements of Regulation 17, Section 3.1.2 (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 this Section, any person subject to this Section shall develop, and submit to the Department for approval, a schedule for bringing the affected emission unit(s) into compliance with the requirements of this Section. 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 and/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 this Section 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(s).

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 this Section shall be maintained at the facility for a period of five years.

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

5 DE Reg. 1299 (12/1/01)

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

2.1 Purpose

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.

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.

Additionally, New Castle County of Delaware is a part of the Philadelphia-Wilmington-Camden, PA-DE-NJ NAA for the annual fine particulate matter (PM2.5) NAAQS, and is required by the CAA to attain the NAAQS by 2010. Since NOx is a significant precursor to PM2.5 formation, reducing NOx emissions will also assist in attainment and maintenance of the PM2.5 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) (except for any Fluid Catalytic Cracking Unit carbon monoxide (CO) boiler), which is operated or permitted to operate within a petroleum refinery facility on the effective date of this section. This comprises the following nine (9) 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)

2.2.2 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 (insert the effective date of this regulation): 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).

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 Section 2.2.1 of this regulation shall not allow NOx to be emitted at a rate that exceeds the following:

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

2.3.2 For the Steam Methane Reformer (SMR) Heater (Unit 37-H-1), 0.07 lb/mmBTU, on a 24-hour rolling average basis.

2.3.3 Boiler 3 (Unit 80-3) and Boiler 4 (Unit 80-4) shall not operate after May 1, 2011. On or before May 1, 2011 the owner or operator of Boiler 3 and Boiler 4 shall request that any operating permit issued by the Department be cancelled.

2.3.4 For any unit not covered by 2.3.1, 2.3.2, or 2.3.3, 0.04 lb/mmBTU, on a 24-hour rolling average basis,

2.4 Monitoring Requirements. Compliance with the NOx emission standards specified in 2.3.1, 2.3.2, and 2.3.4 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.

2.5 Recordkeeping and Reporting Requirements

2.5.1 Not later than 180 days after the effective date of Section 2.0 of this regulation, any person subject to Section 2.0 of this regulation shall develop, and submit to the Department, a schedule for bringing the affected emission unit(s) identified in Section 2.2.4. into compliance with the requirements of Section 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 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 Any person subject to Section 2.0 of this regulation shall submit to the Department an initial compliance certification by (insert 60 days after the effective date of this regulation) for units identified in Section 2.2.3 of this regulation and, for units identified in Section 2.2.4, by the compliance date specified in Section 2.2.4. The initial compliance certification shall include, at a minimum, all of the following information:

2.5.2.1 The name and the location of the facility.
2.5.2.2 The name, address and telephone number of the person responsible for the facility.
2.5.2.3 Identification of the subject source(s).
2.5.2.4 The applicable standard.
2.5.2.5 The method of compliance.
2.5.2.6 Certification that each subject source is in compliance with the applicable standard.

2.5.3 Any person subject to Section 2.0 of this regulation shall, for each occurrence of excess emissions above the standards of Section 2.3 of this regulation, within thirty (30) calendar days of becoming aware of such occurrence, supply the Department with the following information:

2.5.3.1 The name and location of the facility.
2.5.3.2 The subject source(s) that caused the excess emissions.
2.5.3.3 The time and date of first observation of the excess emissions.
2.5.3.4 The cause and expected duration of the excess emissions.
2.5.3.5 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.

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

2.5.4 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.

10 DE Reg. 1280 (02/01/07) (Prop.)