06-096 DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF AIR QUALITY CONTROL

CHAPTER 145: NOx CONTROL PROGRAM

SUMMARY: This regulation establishes year-round control requirements for large stationary sources of nitrogen oxides (NOx) beginning on May 1, 2003.

1. Applicability.

This regulation applies to any owner or operator of a fossil fuel fired electric generating unit, or resource recovery unit or fossil fuel fired indirect heat exchanger or primary boiler with a heat input greater than 250 million British Thermal Units (Btu) per hour located in counties that have not received a waiver of NOx control requirements pursuant to section 182(f) of the 1990 Clean Air Act Amendments.

NOTE: York, Cumberland, Sagadahoc, Androscoggin, Kennebec, Lincoln and Knox counties have not received a waiver of NOx control requirements.

2. Definitions

A. Affected source. "Affected source" means a fossil fuel fired electric generating unit, resource recovery unit or fossil fuel fired boiler or indirect heat exchanger with a maximum heat input capacity of 250 mm Btu/hour or more constructed before 1995.

B. Electric generating unit. "Electric generating unit" means any fossil fuel fired combustion unit of 25 MW electric generating capacity, or greater, which provides electricity for sale or use.

C. Fossil fuel. "Fossil fuel" means natural gas, petroleum, coal or any form of solid, liquid or gaseous fuel derived wholly, or in part, from such material.

D. Fossil fuel fired. "Fossil fuel fired" means the combustion of fossil fuel or, if in combination with any other fuel, fossil fuel comprises 51% or greater of the annual (calendar year basis) heat input on a Btu basis.

E. Heat input. "Heat input" means heat derived from the combustion of fuel in an affected source and does not include the heat derived from preheated combustion air, recirculated flue gas, or exhaust from other sources.

F. Indirect Heat Exchanger. "Indirect heat exchanger" means combustion equipment in which the flame and/or products of combustion are separated from any contact with the principal material in the process by metallic or refractory walls, which includes, but is not limited to, steam boilers, vaporizers, melting pots, heat exchangers, column reboilers, fractioning column feed preheaters, reactor feed preheaters, fuel-fired reactors such as steam hydrocarbon reformer heaters and pyrolisis heaters.

G. Maximum heat input capacity. "Maximum heat input capacity" means the maximum heat value an affected source can combust on a steady state basis as determined by the physical and operational design and characteristics of the affected source. Maximum heat input capacity is expressed in millions of British Thermal Units (mmBtu) per unit of time. Maximum heat input capacity is the product of the gross caloric value (Higher Heating Value) of the fuel (expressed in Btu/pound) multiplied by the maximum fuel feed rate for the combustion device (expressed in mass of fuel/time).

H. Ninety-Day Rolling Average. "Ninety-day rolling average" or "90-day rolling average" means the total mass of emissions over a 90-day period divided by the total heat input over a 90-day period. Each day shall establish a new 90-day rolling average period.

I. Resource Recovery Unit. "Resource recovery unit" means any unit where municipal wastes are incinerated to produce usable energy.

J. Selective Non-Catalytic Reduction. "Selective non-catalytic reduction" or "SNCR" means a control technology utilizing ammonia or urea to reduce nitrogen oxides to elemental nitrogen (N_2) and oxygen (O_2) without the use of a catalyst. The control effectiveness of SNCR depends on boiler specific factors. U.S. EPA's "Compilation of Air Pollution Emission Factors," AP-42, reports that NOx reductions of 25 to 40 percent have been achieved using SNCR.

3. Standards.

A. Control Technology Requirements. No later than May 1, 2003, any owner or operator of an affected source shall install, operate and maintain NOx control technology on each unit. The affected source shall demonstrate that it sought NOx control technology that achieves the emission limitations in Subsection 3B(2) of this Chapter. The Commissioner shall approve the installation, operation and maintenance of selective non-catalytic reduction (SNCR) technology, or an alternative control technology determined by the Board to achieve NOx reductions and air quality benefits essentially equivalent to what would be achieved if SNCR were applied to each unit.

B. <u>Emission Limitations</u>.

(1) Interim Limits.

(a) The NOx emission rate for fossil fuel fired electric generating units with a maximum heat input capacity of less than 750 million Btu per hour shall not exceed 0.27 pounds per million Btu on a 90-day rolling average basis during the period from June 15, 2003 through December 30, 2004.

(b) The NOx emission rate for fossil fuel fired electric generating units with a maximum heat input capacity of 750 million Btu per hour or greater shall not exceed 0.19 pounds per million Btu on a 90-day rolling average basis during the period from June 15, 2003 through December 30, 2004.

(c) The NOx emission rate for fossil fuel fired indirect heat exchangers, primary boilers and resource recovery units with a maximum heat input capacity greater than 250 million Btu per hour shall not exceed 0.20 pounds per million Btu on a 90-day rolling average basis during the period from June 15, 2003 through December 30, 2004.

(2) Final Limits.

(a) Beginning January 1, 2005 the NOx emission rate for fossil fuel fired electric generating units with a maximum heat input capacity of less than 750 million Btu per hour shall not exceed 0.22 pounds per million Btu on a 90-day rolling average basis.

(b) Beginning January 1, 2005, the NOx emission rate for fossil fuel fired electric generating units with a maximum heat input capacity of 750 million Btu per hour or greater shall not exceed 0.15 pounds per million Btu on a 90-day rolling average basis.

(c) Beginning January 1, 2005, the NOx emission rate for fossil fuel fired indirect heat exchangers, primary boilers and resource recovery units with a maximum heat input capacity greater than 250 million Btu per hour shall not exceed 0.20 pounds per million

Btu on a 90-day rolling average basis.

C. Emission Averaging. For the purpose of demonstrating compliance with this Chapter, any owner or operator with more than one affected source with a maximum heat input capacity of 750 million Btu per hour or greater at a facility may average the emissions between such units to meet the emission limitations in Subsection 3B(1)(b) or 3B(2)(b) of this Chapter on a 90-day rolling average basis. Any owner or operator with more than one affected source with a maximum heat input capacity less than 750 million Btu per hour may average the emissions between such units to meet the emissions limitations in Subsection 3B(2)(a) of this Chapter. Averaging shall be done by dividing the sum of actual emissions from each unit over the 90-day period by the sum of the heat input from each unit over the 90-day period. Continuous emission monitoring systems that satisfy the requirements of Department Regulation Chapter 117 must be employed to allow the use of this provision.

D. Alternative Emission Limitations. If an affected source is not able to achieve the final emission limitations set forth in Subsection 3B(2) of this Chapter by January 1, 2005 with the NOx control technology approved by the Commissioner or Board pursuant to subsection 3(A) of this Chapter, the affected source may apply to the Board for the establishment of an alternative emission limitation based on the actual performance of the source's control technology. Such application must be filed before the compliance date set in subsection 3B(2) of this Chapter. The affected source shall have the burden of proof in making a demonstration that achieving the final emission limitations in Subsection 3B(2) of this Chapter is technically infeasible with the NOx control technology installed pursuant to Section 3(A) of this Chapter. An application for an alternative emission limitation pursuant to this Subsection shall be processed as a license amendment by the Board. Notwithstanding the requirements of Subsection 3B(2) of this Chapter, an affected source shall not be in violation of that Subsection while an application under this Subsection is pending before the Board.

E. Exemptions. Minor sources or units that can be limited to the minor source threshold as defined in Chapter 100 of the Department's regulations shall be exempt from the requirements of this Chapter.

4. Operating License Requirements.

The operating license for each facility which includes an affected source shall be amended to require compliance with all applicable requirements and provisions of this Chapter through the issuance of an initial operating license, minor modification, major modification or through an application for renewal, whichever applies, pursuant to Chapters 115 and 140 of the Department's regulations.

5. Emission Monitoring.

Any owner or operator of an affected source must comply with the following, as applicable:

A. NOx emissions from each affected source must be monitored in accordance with the requirements in 40 CFR Part 75, subpart B (revised July 1, 1998).

B. Any person who owns or operates an affected source must submit to the Department for review and approval, a monitoring plan as part of the emission control plan required in Section 4 of this Chapter. At a minimum, the monitoring plan must detail the monitoring method(s) that will be used at the affected source and meet the requirements established in this section.

C. Emission monitoring systems required by this Section must be installed, operational, and meet all certification testing requirements by April 30, 2003.

D. Affected sources which commence operation after May 1, 2003 must submit a monitoring plan, and install, operate and certify the required emission monitoring systems within the shorter of 45 unit operating days or 180 calendar days.

E. During a period when valid data is not being recorded by a monitoring system approved under this Chapter, the missing or invalid data must be replaced with default data in accordance with the provisions of 40 CFR Part 75 Subpart D (revised July 1, 1998).

6. Record Keeping.

The owner or operator of an affected source must keep all measurements, data, reports and other information required by this Chapter for five years, or any other period consistent with the source's operating license.

7. Reporting.

A. Quarterly Emissions and Operating Reports. Any person who owns or operates an affected source must submit to the Department all emissions and operating information for each calendar quarter of each year in accordance with the standards specified in 40 CFR Part 75 Subpart G (revised July 1, 1998), as applicable. The submission must be in an electronic format that meets the requirements of EPA's Electronic Data Reporting (EDR) conversion, or in any other suitable format as approved by the Department and EPA.

B. Any person who owns or operates an affected source subject to 40 CFR Part 75 (revised July 1, 1998) must submit this data to EPA as part of the quarterly reports submitted to EPA to comply with 40 CFR Part 75.

C. Any person who owns or operates an affected source not subject to 40 CFR Part 75 must submit the quarterly reports to the Department within 30 days after the end of each calendar quarter for which they must report under this Section.

D. Should an affected source be permanently or temporarily shutdown, the Department may grant an exemption from the requirements of Sections 5, 6, 7, and 8 of this Chapter upon written request demonstrating to the Department's satisfaction the shutdown is part of an approved emission control plan or approved under Chapter 115 or Chapter 140 of the Department's regulations. The request must identify the affected source being shutdown, and the date of the shutdown. Department approval of the request for shutdown exemption may contain conditions as deemed necessary by the Department.

8. <u>Compliance Certification</u>.

A. Any person who owns or operates an affected source shall submit to the Department a compliance certification in support of each quarterly report based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The certification shall state that the monitoring data submitted were recorded in accordance with the applicable requirements of this Chapter and 40 CFR Part 75 (revised July 1, 1998), including the quality assurance procedures and specifications.

B. The Department may verify compliance by whatever means necessary, including, but not limited to:

(1) Inspection of a unit's operating records;

(2) Testing emission monitoring devices; and

(3) Requiring the person who owns, leases, operates or controls an affected source to conduct emissions testing under the observation of the Department.

AUTHORITY: 38 M.R.S.A., Sections 585-A.

EFFECTIVE DATE: July 22, 2001

BASIS STATEMENT

The primary purpose of this regulation is to reduce annual and ozone season emissions of nitrogen oxides from large stationary sources. Nitrogen oxides are a family of compounds that contributes to both air and water pollution. One of the principal precursors of a tropospheric ozone, or smog, nitrogen oxides are also responsible for other environmental impacts. Nitrogen oxides react in the atmosphere to form nitric acid, a principal component of acid rain, and are a contributor to fine particulate pollution, eutrophication and regional haze.

This regulation requires affected sources to install selective non-catalytic reduction or a control technology determined by the Board to achieve essentially equivalent NOx reductions and air quality benefits on each unit by May 1, 2003. In addition to a control technology requirement, the regulation establishes interim emission limitations for the period from June 15, 2003 through December 30, 2004, and final emission limitations thereafter.

The final emission limitations, which become effective on January 1, 2005, require electric generating units with a maximum heat input capacity of less than 750 million Btu per hour to meet a 0.22 lb/mm Btu emission limit. Electric generating units with a maximum heat input capacity of 750 lb/mm Btu per hour of greater must meet a 0.15 lb/mm Btu emission limit. Finally, indirect heat exchangers, primary boilers and resource recovery units with a maximum heat input capacity greater than 250 million Btu per hour must continue to meet the 0.20 lb/mm Btu emission limit.

The regulations also allows for the establishment of an alternative emission limitation in the event a source cannot achieve the final emission limitations after installing and optimizing an approved control technology, and establishes monitoring, recordkeeping and reporting requirements.

In addition to the Basis Statement above, the Department has filed with the Secretary of State its response to comments received during the public comment period.