



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE  
GOVERNOR

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COMMISSIONER

**Dragon Products Company, LLC  
Knox County  
Thomaston, Maine  
A-326-77-7-M**

**Departmental  
Findings of Fact and Order  
New Source Review  
NSR #3**

**FINDINGS OF FACT**

After review of the air emissions license minor revision application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Maine Department of Environmental Protection (Department) finds the following facts:

**I. REGISTRATION**

A. Introduction

FACILITY	Dragon Products Company, LLC (Dragon)
LICENSE TYPE	06-096 CMR 115, Minor Revision
NAICS CODES	32731
NATURE OF BUSINESS	Cement Manufacturing
FACILITY LOCATION	U.S. Route 1, Thomaston, Maine

Dragon manufactures portland cement using a dry process consisting of equipment used for kiln feed preparation, clinker production, and finish cement operations. The facility is considered an existing Part 70 Major Source as defined in Definitions Regulations, 06-096 CMR 100 (as amended) and currently operates under the Part 70 license A-326-70-A-I (December 31, 2003) and associated amendments.

Dragon has submitted a minor revision application to incorporate the nitrogen oxide (NO<sub>x</sub>) requirements of a U.S. Environmental Protection Agency (EPA) Consent Agreement and Final Order into the air emission license.

B. Amendment Description

The minor revision application submitted by Dragon is to add the requirements of the EPA Consent Agreement and Final Order Docket No. CAA 01-2013-0053 to the air emission license as enforceable provisions. The Consent Agreement and Final Order, filed with the Regional Hearing Clerk on September 17, 2013, resolved an enforcement action between Dragon and EPA regarding provisions of

the Maine State Implementation Plan (SIP) and the Clean Air Act (CAA) New Source Review (NSR) program. Dragon denied violations of the SIP and CAA, however a settlement without litigation was reached between the two parties with requirements for NO<sub>x</sub> monitoring, data collection, a demonstration period for Selective Non-Catalytic Reduction (SNCR) operations, and reporting.

C. Emission Equipment

The existing, licensed cement kiln with a nominal capacity of 440.0 MMBtu/hr is addressed in this air emission license. The kiln is currently licensed to fire coal, petroleum coke, #2 and #4 fuel oil, specification and non-specification waste oil, polypropylene/polyester fiber material, and whole tires or tire chips.

D. Application Classification

The application submitted by Dragon does not violate any applicable federal or state requirements, does not reduce monitoring, reporting, testing or record keeping, and does not seek to modify a Best Available Control Technology (BACT) analysis. License allowed emissions are not increasing and no new equipment is being added. Therefore, the amendment is determined to be a minor revision under *Minor and Major Source Air Emission License Regulations* 06-096 CMR 115 (as amended). The procedures found in 06-096 CMR 115 (as amended) can be utilized to process this application since the requirements of the Consent Agreement and Final Order are not prohibited by the Part 70 air emission license. This minor revision shall be incorporated into the Part 70 air emission license renewal currently in process.

## II. MINOR REVISION DESCRIPTION

Dragon's minor revision request consists of incorporating the EPA Consent Agreement and Final Order Docket No. CAA 01-2013-0053 (September 17, 2013 filing date) into the air emission license. EPA alleged that for each of four grouped projects undertaken by Dragon, a net increase of NO<sub>x</sub> equal to or greater than 40 tons/year would have resulted, triggering the major modification threshold applicable to major sources. The four separate grouping of projects included the following:

- Spring, 1995: changes to the chain hanging pattern, the fuel injection method, and the clinker cooler;
- October 1995: an increase in the facility's licensed production limit from 1464 tons of clinker per day to 1850 tons of clinker per day;
- 1997: replacement of a draft induction fan in the cement kiln system; and
- 2004: conversion of the cement kiln system from a wet process to a dry process.

Dragon is considered a major source in the ozone transport region (OTR), which has a non-attainment classification. Non-attainment facilities are subject to lowest achievable emission rate (LAER) requirements and offset emission reductions.

Dragon was notified of EPA's alleged violation determination through a Notice of Violation dated June 30, 2009. Dragon has denied that it violated the SIP and CAA as alleged. Dragon maintains that the projects in the spring of 1995 were part of a NO<sub>x</sub> reduction plan approved by the Department. In addition, the Department issued air emission license amendments for the increase in licensed production limits and for the wet-to-dry kiln conversion process.

A settlement without litigation was reached between Dragon and EPA in the form of an EPA Consent Agreement and Final Order. Appendix A, Sections 4 through 8 of the EPA Consent Agreement and Final Order sets forth the specific requirements to be incorporated into Dragon's air emission license. These compliance requirements are detailed in the Order section of this air emission license minor revision amendment and include installation of an inlet NO<sub>x</sub> continuous emission monitor, a baseline data collection period of 9 months, a 'Baseline Data Report' to be submitted within 60 days of completion of the baseline data collection, a demonstration period operating the Selective Non-Catalytic Reduction (SNCR) system during all periods of kiln operation at a molar ratio of 1.0 for a minimum of 90 operating days, a 'Demonstration Report' to be submitted within 30 days of the end of the demonstration period, and an air emission license application submitted within 60 days of approval of the Demonstration Report by EPA and the Department which includes a proposed emission limit no less stringent than the approved 30-day rolling average emission limit.

This air emission license minor revision amendment incorporates the requirements of the EPA Consent Agreement and Final Order Docket No. CAA 01-2013-0053 (September 17, 2013), Appendix A, Sections 4 through 8. Dragon shall continue to meet all current licensed emission limits and license requirements.

For the purpose of this air emission license minor revision amendment, the following definitions shall apply:

"30-Day Rolling Average Emission Limit" shall mean the maximum allowable rate of emission of NO<sub>x</sub> from the kiln, expressed as pounds of NO<sub>x</sub> emitted per ton of Clinker produced, as calculated using the following formula:

$$X = \bar{u} + 1.645\sigma$$

where:

X = 30-Day Rolling Average Emission Limit (lbs NO<sub>x</sub>/ton clinker)

$\bar{u}$  = mean of all of the 30-day controlled NO<sub>x</sub> emission rate averages collected during the demonstration period

$\sigma$  = standard deviation of all of the 30-day NO<sub>x</sub> emission rate averages collected during the demonstration period

“Inlet NO<sub>x</sub> monitor” shall mean a NO<sub>x</sub> monitor to continuously measure baseline, uncontrolled NO<sub>x</sub> emissions from the kiln.

“Operating Day” shall mean any day which includes an Operating Hour.

“Operating Hour” shall mean any hour of a day when raw material is being fed into the kiln and fuel is being fired in the kiln.

“SNCR” shall mean the existing pollution control system that injects an ammonia-based reagent into the gas stream before it has exited the kiln stack for the purpose of reducing NO<sub>x</sub> emissions.

## ORDER

The Department hereby grants Air Emission License Minor Revision A-326-77-7-M pursuant to the preconstruction licensing requirements of 06-096 CMR 115 and subject to the specific conditions below.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

### SPECIFIC CONDITIONS

- (1) Dragon shall comply with the EPA Consent Agreement and Final Order Docket No. CAA 01-2013-0053 (September 17, 2013) Appendix A, Sections 4 through 8, as follows:

- A. NO<sub>x</sub> Monitor Installation and Data Collection Plan

- Within 90 days after the September 17, 2013 filing date of the EPA Consent Agreement and Final Order, Dragon shall install the inlet NO<sub>x</sub> monitor and commence operation of the inlet NO<sub>x</sub> monitor in accordance with 40 C.F.R. §60.13 and Part 60 Appendix B.

B. Baseline Data Collection

1. Dragon shall commence the baseline data collection period as soon as normal operation of the NO<sub>x</sub> monitor begins, after any necessary testing, calibration and shakedown period (as provided by the manufacturer's specifications and recommendations) is complete. Data collection shall begin no later than 120 days from the September 17, 2013 effective date of the EPA Consent Agreement and Final Order. The baseline data collection period shall include all hours of kiln operation. Dragon shall conduct the baseline collection period for 9 months from the date of commencement.
2. During the baseline data collection period, Dragon shall operate the kiln in accordance with existing air emission license requirements, and as necessary to produce a quality cement clinker product. Dragon shall not adjust operating parameters to increase the rate of emission (expressed as lbs/ton of clinker produced) for uncontrolled NO<sub>x</sub> during the baseline data collection period. Dragon shall operate the kiln in a manner consistent with good air pollution control practice for achieving applicable emission limitations for pollutants other than NO<sub>x</sub>.
3. Within 60 days of completion of the baseline data collection period, Dragon shall submit to EPA and the Department a "Baseline Data Report" including the baseline data collected during the baseline data collection period. The baseline data shall include the following information either derived from available direct monitoring or as estimated from available monitored or measured data:
  - a. Kiln production rate in tons of clinker (daily total);
  - b. Raw material feed rate in tons (daily total);
  - c. The operating status of the raw mill, i.e., whether the raw mill is on or off;
  - d. Type and percentage of each raw material used and the total feed rate (daily);
  - e. NO<sub>x</sub> concentrations (dry basis) and mass rates for the kiln (daily average for concentrations and daily totals for mass rates) as measured at the inlet NO<sub>x</sub> monitor; NO<sub>x</sub> shall be reported in lb/hr, and lb/ton of clinker produced;
  - f. Ammonia concentrations (dry basis) as measured at the stack;
  - g. Available temperature data indicative of the burning zone (daily average);
  - h. Feed shelf temperature (daily average);
  - i. Kiln fuel feed rate and type of fuel by weight or heat input rate (calculated to a daily average);
  - j. Kiln oxygen, kiln back-end oxygen or feed shelf oxygen (daily average %);

- k. Documentation of any start-up, shut-down, or malfunction (“SSM”) events; and
  - l. An explanation of any gaps in the data or missing data.
4. Dragon shall submit the Baseline Data Report to EPA and the Department in an electronic format and shall explain the reasons for any data not collected for each of the parameters listed above in Condition (1)(B)(3). Dragon shall report all data in a format consistent with and able to be manipulated by Microsoft Excel.

**C. Demonstration Period**

1. Immediately following completion of the baseline data collection period, Dragon shall commence a demonstration period. During the demonstration period Dragon shall operate the SNCR during all periods of kiln operation at a molar ratio of 1.0, i.e., injecting one mole of ammonia (NH<sub>3</sub>) to every one mole of nitrogen oxide (NO<sub>x</sub>) indicated by the NO<sub>x</sub> concentrations measured by the inlet NO<sub>x</sub> monitor, and continuously monitor NO<sub>x</sub> concentrations at the inlet NO<sub>x</sub> monitor and at the outlet NO<sub>x</sub> monitor.
2. Dragon may adjust the molar ratio of the SNCR during the demonstration period if necessary to meet applicable ammonia slip limits under Dragon’s air emissions license.
3. Dragon shall conduct the demonstration period for a minimum of 90 Operating Days, and for no longer than one calendar year from the date of commencement of the demonstration period.

**D. Demonstration Report**

1. Within 30 days of the end of the demonstration period, Dragon shall submit a “Demonstration Report” to EPA and the Department including the data collected during the demonstration period. The demonstration period data shall include the following information either derived from available direct monitoring or as estimated from monitored or measured data:
  - a. Kiln production rate in tons of clinker (daily total);
  - b. Raw material feed rate in tons (daily total);
  - c. The operating status of the raw mill, i.e., whether the raw mill is on or off;
  - d. Type and percentage of each raw material used and the total feed rate (daily);
  - e. NO<sub>x</sub> concentrations (dry basis) and mass emission rates for the kiln (daily average for concentrations and daily totals for mass emission

- rates) as measured at the inlet NO<sub>x</sub> monitor; NO<sub>x</sub> shall be reported in lb/hr, and lb/ton of clinker produced;
- f. Ammonia concentrations (dry basis) as measured at the stack;
  - g. Available temperature data indicative of the burning zone (daily average);
  - h. Feed shelf temperature (daily average);
  - i. Kiln fuel feed rate and type of fuel by weight or heat input rate (calculated to a daily average);
  - j. Kiln oxygen, kiln back-end oxygen or feed shelf oxygen (daily average %);
  - k. Documentation of any SSM events; and
  - l. An explanation of any gaps in the data or missing data.
2. The Demonstration Report shall propose a 30-Day Rolling Average Emission Limit based on the demonstration period data in accordance with the following formula:  $X = \bar{u} + 1.645\sigma$   
where:  
 $X$  = 30-Day Rolling Average Emission Limit (lbs NO<sub>x</sub> /ton clinker)  
 $\bar{u}$  = mean of all of the 30-day controlled NO<sub>x</sub> emission rate averages collected during the demonstration period  
 $\sigma$  = standard deviation of all of the 30-day NO<sub>x</sub> emission rate averages collected during the demonstration period
3. Dragon shall submit the Demonstration Report to EPA and the Department in an electronic format and shall explain the reasons for any data not collected for each of the parameters listed in Condition (1)(D)(1). Dragon shall report all data in a format consistent with and able to be manipulated by Microsoft Excel.
  4. EPA and the Department shall review and comment on the Demonstration Report. Dragon shall respond to any comments received within 45 days of their receipt of both EPA's and the Department's comments. EPA will subsequently approve or disapprove the Demonstration Report in writing.
  5. If EPA disapproves the Demonstration Report's proposed 30-Day Rolling Average Emission Limit, EPA will designate an approved 30-Day Rolling Average Emission Limit. In the event Dragon invokes Dispute Resolution with respect to EPA's disapproval of the proposed 30-Day Rolling Average Emission Limit, or EPA's designation of an approved 30-Day Rolling Average Emission Limit, it shall follow the procedures set forth in Attachment 2 of the Consent Agreement and Final Order (Dispute Resolution for Emission Limit). During the period of Dispute Resolution, the EPA-designated 30-Day Rolling Average Emission Limit shall not

apply, and Dragon shall demonstrate compliance and maintain compliance with the Demonstration Report's proposed 30-Day Rolling Average Emission Limit.

E. Application for License Amendment; Operation pending License Amendment

1. Within 60 days of approval of the Demonstration Report by EPA, Dragon shall apply to the Department for an amendment to Dragon's air emissions license to include an emission limit no less stringent than the approved 30-Day Rolling Average Emission Limit. Dragon may also apply for modification or elimination of the existing 90-day rolling average limit for NO<sub>x</sub> and other existing NO<sub>x</sub> limits, as appropriate.
2. From the date of approval of the 30-Day Rolling Average Emission Limit and until issuance of an amended air emissions license incorporating a NO<sub>x</sub> emission limit no less stringent than the approved 30-Day Rolling Average Emission Limit, Dragon shall operate so as to comply with the approved 30-Day Rolling Average Emission Limit. For each Operating Day, compliance with the approved 30-Day Rolling Average Emission Limit shall be determined by dividing the total number of pounds of NO<sub>x</sub> emitted by the kiln during the Operating Day and the previous 29 Operating Days by the total tons of clinker produced by the kiln during the same 30 Operating Days.

DONE AND DATED IN AUGUSTA, MAINE THIS 25 DAY OF February, 2014.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Marie Allen Robert Corne for*  
PATRICIA W. AHO, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: October 28, 2013

Date of application acceptance: November 1, 2013

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

