



DEPARTMENT ORDER

**Dragon Products Company, LLC
Knox County
Thomaston, Maine
A-326-77-13-A**

**Departmental
Findings of Fact and Order
New Source Review
NSR #12**

FINDINGS OF FACT

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

I. REGISTRATION

A. Introduction

FACILITY	Dragon Products Company, LLC
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	327731
NATURE OF BUSINESS	Cement Manufacturing
FACILITY LOCATION	U.S. Route 1, Thomaston, Maine

B. NSR License Description

Dragon Products Company, LLC (Dragon) has requested an amendment to New Source Review (NSR) license A-326-77-9-A (issued 5/10/2016) to reestablish the production limit for the Slag Dryer.

Air emission license A-326-77-9-A (NSR #9) addressed the installation of a slag dryer system to remove excess moisture from granulated blast furnace slag. The Slag Dryer Project consisted of installation of a slag dryer burner and conveying equipment. NSR #9 established a process limit of 75,000 tons per year. Dragon has requested amending NSR #9 to increase the production limit to 150,000 tons per year. Since this is a relaxation of the existing limit, this change will involve reassessing the application classification for the original Slag Dryer Project.

C. Emission Equipment

The following equipment is addressed in this NSR license:

Fuel Burning Equipment

Equipment	Max. Input Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type, % sulfur by weight	Dates of...		Stack #
				Manufacture	Installation	
F651: Slag Dryer Burner	75.6	75,600 ft ³ /hr	Natural gas, negligible	2015	2016	#1

Process Equipment

Equipment	Production Rate	Pollution Control Equipment	Stack #
F650: Slag Dryer	100 tons/hour of slag	Dust collector	#1
F652: Discharge Conveyor			

D. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

The application for Dragon does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing, or recordkeeping requirements.

Dragon has requested a relaxation of a limit established in NSR #9. As such, this NSR amendment must reassess the application classification of the Slag Dryer Project as if it were a new project.

The modification of a major source is considered a major or minor modification based on whether or not expected emissions increases exceed the “Significant Emission Increase” levels as given in *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. For a major stationary source, the expected emissions increase from each new, modified, or affected unit may be calculated as equal to the difference between the post-modification projected actual emissions and the baseline actual emissions for each NSR regulated pollutant.

1. Baseline Actual Emissions

Baseline actual emissions (BAE) for existing affected emission units are equal to the average annual emissions from any consecutive 24-month period within the ten years prior to submittal of a complete license application.

At the time of the Slag Dryer Project, the only existing equipment which was affected by the project, i.e., physically modified or which experienced an increase in feed or production, was the slag material handling equipment and grinding system. Although Dragon is entitled to establish BAE for this affected equipment, it has been conservatively assumed to be zero.

The Slag Dryer and its associated material handling equipment were new equipment at the time of issuance of NSR #9. Baseline actual emissions for new equipment are considered to be zero for all pollutants.

Since there are no emission units for which a BAE was calculated, the selection of a baseline year is unnecessary.

2. Projected Actual Emissions

New emission units must use potential to emit (PTE) emissions for projected actual emissions (PAE).

PTE can be established as either the emissions associated with unlimited use of an emissions unit, or PTE can be annual emissions which incorporate restrictions established by a federally-enforceable limit. Dragon has proposed a federally-enforceable limit of 150,000 tons per year of slag processed by the Slag Dryer and a fuel limit of 111.2 million scf per year of natural gas for the Slag Dryer Burner. Therefore, PTE is based on the maximum emissions possible within these limits. Those emissions are presented in the following table.

Projected Actual Emissions

Equipment	PM (tpy)	PM₁₀ (tpy)	PM_{2.5} (tpy)	SO₂ (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)
Slag Dryer & Slag Dryer Burner*	2.16	1.45	1.16	0.03	5.56	4.67	0.31
Grinding System	2.20	1.85	0.99	–	–	–	–
Total	4.36	3.30	2.15	0.03	5.56	4.67	0.31

*Includes fugitive emissions from material handling equipment

3. Emissions Increases

Emissions increases are calculated by subtracting BAE from the PAE. The emission increase is then compared to the significant emissions increase levels.

Pollutant	Baseline Actual Emissions (ton/year)	Projected Actual Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	0	4.36	+4.36	25
PM ₁₀	0	3.30	+3.30	15
PM _{2.5}	0	2.15	+2.15	10
SO ₂	0	0.03	+0.03	40
NO _x	0	5.56	+5.56	40
CO	0	4.67	+4.67	100
VOC	0	0.31	+0.31	40

4. Classification

Since emissions increases do not exceed significant emissions increase levels, this NSR license is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations*, 06-096 C.M.R. ch. 115. Dragon has submitted an application to incorporate the requirements of this NSR license into the facility's Part 70 air emission license.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in 06-096 C.M.R. ch. 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental, and energy impacts.

B. Slag Dryer

Dragon has proposed increasing the production limit on the Slag Dryer from 75,000 ton/year of slag to 150,000 ton/year of slag (12-month rolling total).

BACT for the Slag Dryer and its associated burner was established in NSR #9. The Department finds that there would be no change to the BACT determination either due to new technology or the proposed increase in production limit for the hourly emission limits and controls.

NSR #9 assumed a linear relationship between the fuel required for the Slag Dryer Burner and Slag Dryer output, meaning, it was assumed that to operate at 100% throughput requires the burner to fire at 100%, to operate at 75% throughput requires the burner to fire at 75%, etc. This methodology assumed that annual emissions of combustion pollutants were limited by placing a limit on slag production. However, it ignores periods when the burner may operate at higher rates than the corresponding throughput. Therefore, a fuel limit of 111.2 million scf/year (12-month rolling total) has been added to the BACT determination for the Slag Dryer.

Following is a summary of BACT for the Slag Dryer and its associated burner:

Dragon shall process a maximum of 150,000 tons per year (12-month rolling total) of slag in the Slag Dryer, based on the quantity of product exiting the Slag Dryer. Records shall be maintained documenting compliance with this limit on a monthly and 12-month rolling total basis.

Total fuel use for the Slag Dryer Burner shall not exceed 111.2 million scf/year (12-month rolling total) of natural gas. Dragon shall keep records of the amount of natural gas fired in the Slag Dryer on a monthly and 12-month rolling total basis.

Emissions from the Slag Dryer shall be controlled by a baghouse.

The BACT emission limits for the Slag Dryer firing natural gas are the following:

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	PM _{2.5} (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Slag Dryer	Negligible (based on the AP-42 emission factor for natural gas combustion and a baghouse control efficiency of $\geq 99.9\%$)			0.04	7.41	6.23	0.41

Note: Emission limits are based on heating value of 1,020 Btu/scf.

Visible emissions from the Slag Dryer baghouse shall not exceed 10% opacity on a six-minute block average basis. Dragon shall take corrective action if visible emissions from the baghouse exceed 5% opacity.

C. Incorporation Into the Part 70 Air Emission License

Per *Part 70 Air Emission License Regulations*, 06-096 C.M.R. ch. 140 § 1(C)(8), for a modification at the facility that has undergone NSR requirements or been processed through 06-096 C.M.R. ch. 115, the source must apply for an amendment to their Part 70 license within one year of commencing the proposed operations, as provided in 40 C.F.R. Part 70.5. An application to incorporate the requirements of this NSR license into the Part 70 air emission license has been submitted to the Department.

D. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility's annual air license fee. Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, **fugitive particulate matter emissions are not included**. Maximum potential emissions were calculated based on the following assumptions:

- Operating the Kiln System for 8,760 hrs/year (maximum for PM, PM₁₀);
- Annual limits for the Kiln System and Clinker Cooler (maximum for SO₂, NO_x, CO, and VOC);
- Processing 150,000 ton/year in the Slag Dryer;
- Firing 111.2 million scf/year in the Slag Dryer Burner;
- Operating each emergency generator for 100 hrs/year; and
- Operating the Auxiliary Kiln Drive Engine for 8,760 hr/year.

Please note, this information provides the basis for fee calculation only and should not be construed to represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

Total Licensed Annual Emissions for the Facility
Tons/year
(used to calculate the annual license fee)

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC	NH ₃
Kiln System	41.2	41.2	306.6	1,533.0	843.2	57.5	32.9
Clinker Cooler	40.1	40.1	–	–	–	–	–
Emergency Generator	–	–	–	0.8	0.2	0.1	–
Quarry #1 Pump	–	–	–	0.4	0.1	–	–
Auxiliary Kiln Drive Engine	0.5	0.5	–	19.3	4.2	1.5	–
Slag Dryer	–	–	–	5.6	4.7	0.3	–
Total TPY	81.8	81.8	306.6	1,559.1	852.4	59.4	32.9

III. AMBIENT AIR QUALITY ANALYSIS

Dragon previously submitted an ambient air quality analysis demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards (see license A-326-71-U-A/R, issued on November 19, 2002). An additional ambient air quality analysis is not required for this NSR License Amendment.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants New Source Review License Amendment A-326-77-13-A pursuant to the preconstruction licensing requirements of 06-096 C.M.R. ch. 115 and subject to the specific conditions below.

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

SPECIFIC CONDITIONS

The following shall Replace Condition (1) of NSR Air Emission License A-326-77-9-A:

(1) Slag Dryer

- A. Dragon shall process a maximum of 150,000 tons per year (12-month rolling total) of slag in the Slag Dryer, based on the quantity of product exiting the Slag Dryer. Records shall be maintained documenting compliance with this limit on a monthly and 12-month rolling total basis. [06-096 C.M.R. ch. 115, BACT]
- B. Total fuel use for the Slag Dryer Burner shall not exceed 111.2 million scf/year (12-month rolling total) of natural gas. Dragon shall keep records of the amount of natural gas fired in the Slag Dryer on a monthly and 12-month rolling total basis. [06-096 C.M.R. ch. 115, BACT]
- C. Emission shall not exceed the following: [06-096 C.M.R. ch. 115, BACT]

Unit	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Slag Dryer	0.04	7.41	6.23	0.41

Note: Emission limits are based on heating value of 1,020 Btu/scf.

- D. Visible emissions from the Slag Dryer baghouse shall not exceed 10% opacity on a six-minute block average basis. Dragon shall take corrective action if visible emissions from the baghouse exceed 5% opacity. [06-096 C.M.R. ch. 101, § 3(B)(3)]

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9

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- E. Dragon shall maintain and operate a baghouse to control emissions during operation of the Slag Dryer. Dragon shall maintain records of all routine and non-routine maintenance conducted on the baghouse. Such records shall contain the location, date, nature of maintenance or failure, and maintenance action taken or action taken to correct the failure. [06-096 C.M.R. ch. 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 22nd DAY OF OCTOBER, 2020.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ for
MELANIE LOYZIM, ACTING COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 5/5/2020

Date of application acceptance: 5/19/2020

Date filed with the Board of Environmental Protection:

This Order prepared by Lynn Muzzey, Bureau of Air Quality.

