**Dragon Products Company, LLC**
**Knox County**
**Thomaston, Maine**
**A-326-70-E-R/A**

**Departmental**
**Findings of Fact and Order**
**Part 70 Air Emission License**
**Renewal/Amendment**

## FINDINGS OF FACT

After review of the Part 70 License renewal and amendment applications, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes Annotated (M.R.S.A.), §344 and §590, the Maine Department of Environmental Protection (the Department) finds the following facts:

## I. REGISTRATION

### A. Introduction

| FACILITY | Dragon Products Company, LLC (Dragon) |
|---|---|
| LICENSE TYPE | Part 70 License Renewal, with incorporation of various NSR licenses |
| NAICS CODES | 32731 |
| NATURE OF BUSINESS | Cement Manufacturing |
| FACILITY LOCATION | US Route 1, Thomaston, Maine |

Dragon manufactures portland cement using a dry process consisting of quarrying and crushing; raw materials grinding and blending; clinker production; and finish grinding, packaging, and storage.

Dragon has the potential to emit more than 100 tons per year (TPY) each of sulfur dioxide ($SO_2$), nitrogen oxides ($NO_X$), and carbon monoxide (CO); more than 50 TPY of volatile organic compounds (VOC); and more than 100,000 TPY of carbon dioxide equivalent ($CO_2e$); therefore, the source is a major source for criteria pollutants. Dragon has the potential to emit 10 TPY or more of a single hazardous air pollutant (HAP) or 25 TPY or more of combined HAP; therefore, the source is a major source for HAP.

### B. Emission Equipment

The following emission units are addressed in this Part 70 License:

## Fuel Burning Equipment
(excluding internal combustion engines)

| Equipment | Nominal Capacity* (MMBtu/hr) | Nominal Firing Rate * | Fuel Type, % sulfur | Installation Date | Pollution Control Equipment | Stack # |
|---|---|---|---|---|---|---|
| Kiln (U804) [with alkali (preheater) bypass U866] | 440.0 | 14.35 tph | Coal, 1.3% | 2004 | Baghouse, SNCR | 1 |
| | | 14.35 tph | Petroleum Coke, 4.5% | | | |
| | | 30.0 gpm | Distillate Fuel, 0.5% | | | |
| | | 28.0 gpm | #4 Fuel oil, 0.5% | | | |
| | | 30.0 gpm | Specification and Non-Specification Waste Oil | | | |
| | | 20% of total fuel usage | Whole Tires or Chips | | | |
| | | variable | Polypropylene /polyester fiber material | | | |

Table Note:

* A listed capacity or firing rate for equipment within the Findings of Fact section is for identification purposes only. Capacities determined to be license limits are noted as such in the Order section of this license.

## Process Equipment

| Equipment Categories *(used for licensing and inventory reporting purposes)* | Description *(including, but not limited to, equipment listed)* | Pollution Control Equipment |
|---|---|---|
| Quarry Crushing Group | Raw Material Transfer Tower | Dust Collectors (fabric filters) |
| | Secondary Crusher | |
| | Raw Material Silo #1 | |
| | Raw Material Silo South | |
| | Iron Ore Bin | |
| | Fly Ash Bin | |
| Raw Mill Group | Raw Material Silo Weighfeeder | Dust Collectors (fabric filters) |
| | Raw Material on 455 Belt | |
| | Raw Material Reject | |

| **Equipment Categories** *(used for licensing and inventory reporting purposes)* | **Description** *(including, but not limited to, equipment listed)* | **Pollution Control Equipment** |
|---|---|---|
| Blending Group | Raw Cyclone Airslide | Dust Collectors (fabric filters) |
| | Homogenizing Silo | |
| Pyro Group (excluding kiln) | Coal Silo | Dust Collectors (fabric filters) |
| | Coal Mill Fine Coal | |
| | Fine Coal Bin | |
| | Thompson Silo #9 (upper fly ash) | |
| | Thompson Silo #9 (lower fly ash) | |
| | Dust Insulation Bin (Burner Floor) | |
| | Old Fly Ash Bin (Burner Floor) | |
| | Kiln Feed (Top of Preheater) | |
| | Bypass Dust Bin | |
| | Kiln Dust Bin | |
| | Hydrated Lime Bin | |
| Clinker Cooler (K053) | Clinker Cooler | Clinker Cooler Baghouse |
| Clinker Transport and Storage Group | Hot Clinker | Dust Collectors (fabric filters) |
| | Outside Clinker | |
| | Clinker Transfer | |
| | Clinker Storage | |
| Clinker Reclaim Group | Clinker Reclaim 1st Lift | Dust Collectors (fabric filters) |
| | Clinker Reclaim 2nd Lift | |
| | Clinker Reclaim Tunnel | |
| | Clinker Storage | |
| Finish Grind Group | Pregrinder Weighfeeder | Dust Collectors (fabric filters) |
| | Finish Mill #1 Weighfeeder | |
| | Finish Mill #1 Feed Belt | |
| | Finish Mill #1 Aux O-Sepa | |
| | Finish Mill #1 Discharge | |
| | Finish Mill #1 Fringe Bin | |
| | Finish Mill #2 Weighfeeder | |
| | Finish Mill #2 Auxiliary | |
| | Finish Mill #2 Discharge | |
| | Finish Mill #2 Fringe Bin | |
| | Lime Auxiliary | |
| | Thompson Silo #11 | |
| | Thompson Silo #12 | |
| | Hoch Silo | |
| | Silo #30 | |

| **Equipment Categories** *(used for licensing and inventory reporting purposes)* | **Description** *(including, but not limited to, equipment listed)* | **Pollution Control Equipment** |
|---|---|---|
| Pack and Ship Group | Packer #1 – Lime | Dust Collectors (fabric filters) |
| | Packer #2 – Light Masonry | |
| | Packer #3 - Portland | |
| | Packer #4 – Dark Masonry | |
| | Pug Mill (Lime Bulk Loading) | |
| | South Bulk Loading (Hoch Silos) | |
| | North Bulk Loading (Hoch Silos) | |
| | Silo #30 Rail Loading | |
| Alternative Fuels Material Handling Equipment | Shredder, feeder, and conveyors for polypropylene/polyester fiber material and feeder and conveyor for tires | --- |

**Engines**

The following engines were previously considered insignificant activities due to their size; however, they are now included in the license since the insignificant activity threshold for stationary internal combustion engines was eliminated.

| **Equipment** | **Maximum Heat Input Capacity (MMBtu/hr) *** | **Output (hp)** | **Fuel Type** | **Manufacture Date** | **Installation Date** |
|---|---|---|---|---|---|
| Emergency Generator | 3.7 | 534 | Distillate fuel | Pre-2007 (reconditioned 2007) | 2007 |
| Quarry #1 Pump [emergency use] | 1.7 | 240 | Distillate fuel | 1970 (reconditioned 1986) | 1970 |
| Kiln Drive Engine [kiln jacking engine – emergency & non-emergency use] | 1.0 | 140 | Distillate fuel | 1993 | 1994 |

Table Note: * MMBtu/hr capacities were estimated based on the hp output ratings and the assumption of 35% efficiency for each unit.

Dragon has additional insignificant activities which do not need to be listed in the emission equipment tables above. The list of insignificant activities can be found in the Part 70 license application and in Appendix B of *Part 70 Air Emission License Regulations*, 06-096 CMR 140 (as amended).

## C. Definitions

*Distillate Fuel* means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396; diesel fuel oil numbers 1 or 2, as defined in ASTM D975; kerosene, as defined in ASTM D3699; biodiesel as defined in ASTM D6751; or biodiesel blends as defined in ASTM D7467.

## D. Application Classification

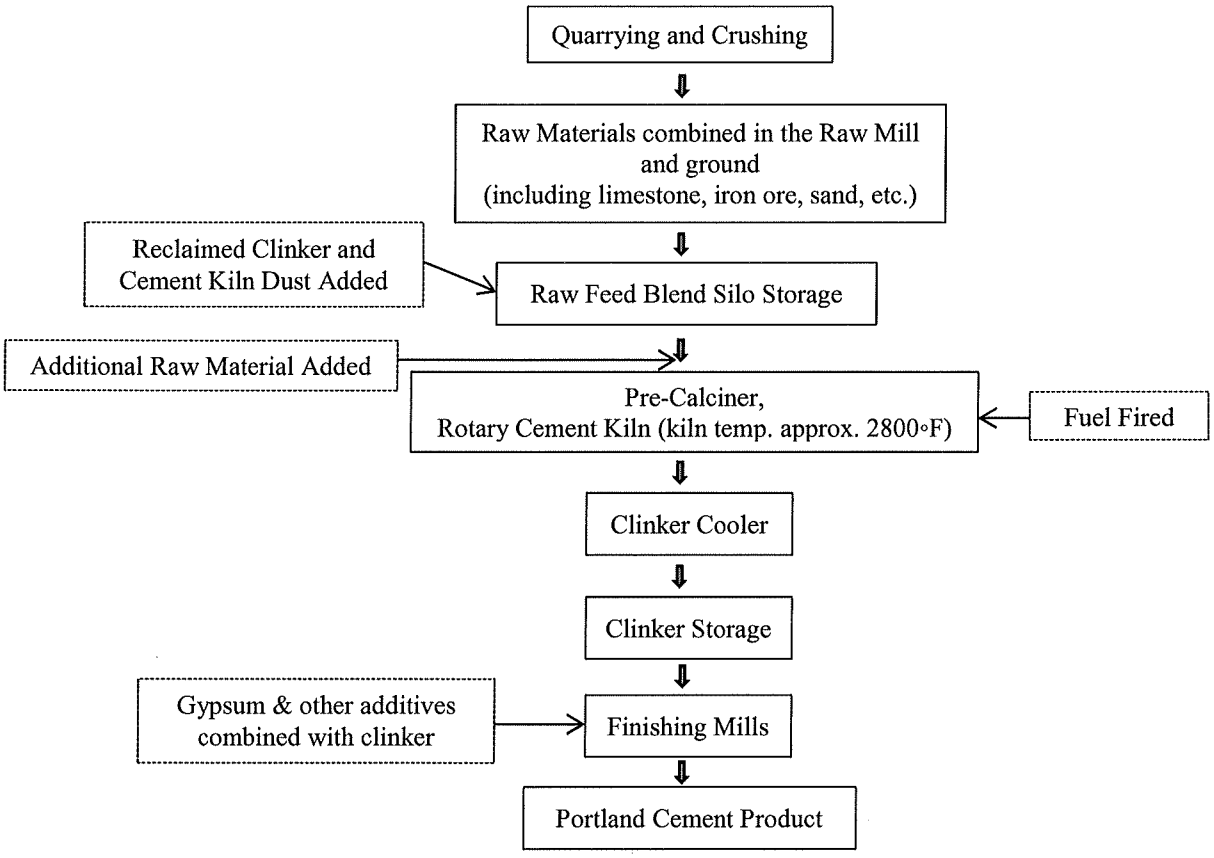
The application for Dragon is for the renewal of their existing Part 70 license, subsequent Part 70 amendments, and inclusion of appropriate updates and clarifications from the previous license. Pursuant to Section 2(A) of 06-096 Code of Maine Rules (CMR) 140, Dragon has also requested incorporation into the Part 70 license the relevant terms and conditions of the 06-096 CMR 115 New Source Review (NSR) licenses issued to Dragon, including A-326-77-4-A issued January 27, 2010; A-326-77-6-M issued May 30, 2013; A-326-77-7-M issued February 25, 2014; Board Order A-326-77-3-A issued July 17, 2014; and A-326-77-2-A issued December 23, 2015. Therefore, the license is considered to be a Part 70 license renewal with the incorporation of NSR requirements.

In addition, the federal regulation 40 CFR Part 63, Subpart LLL, *National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry*, was amended to include additional emission limits and requirements at portland cement plants. This license includes the recently promulgated federal emission limits and requirements.

## E. Facility Description

When originally constructed in 1971, the Dragon facility was a wet process cement kiln. The process was modernized in 2004 and converted to a dry process cement kiln.

The following is a simplified diagram and general description of the dry portland cement production process used at Dragon:




Limestone quarrying occurs at Dragon's onsite quarry located to the north of U.S. Route 1 in Thomaston, Maine. The primary and secondary crushing of limestone and the introduction of other raw materials occurs to the south of U.S. Route 1 in the quarry process area. The primary raw materials of limestone, silica, iron ore, and other additives either come from the quarry or are received from outside sources.

The raw material handling system consists of raw material stock piles, blending operations, conveying systems, and storage silos. The transfer of raw materials throughout the facility is typically accomplished using covered conveyor systems and transfer towers. From storage, the raw materials are proportionally fed to the raw mill to be processed into raw feed material.

The raw mill reduces the particle size of the raw feed through grinding to produce a raw feed material. Dragon's in-line raw mill is integrated with the kiln system such that kiln exhaust gases are utilized in the raw mill. The kiln exhaust gases are used to convey material through the mill and to remove any excess moisture. The kiln can operate without the raw mill operating (raw mill off), but the raw mill cannot process raw materials (operate) without the kiln gases. From the raw

mill, the ground raw feed is fed to the homogenizing silo and then to the preheater/precalciner tower.

The raw feed is introduced from the blending silo into a four-stage pre-heater tower before entering into the kiln. The raw feed enters the back-end of the kiln counter current to the flow of hot exhaust gases. The kiln exhaust gases assist with pre-heating and pre-calcining of the raw feed. As the raw feed moves toward the discharge end of the kiln, $CO_2$ evolves from the carbonate materials, causing the process of calcination.

This process produces the calcium oxide (CaO) essential for the subsequent high-temperature reactions. At this point, the predominant mineral species in the burning zone are dicalcium silicate (denoted by the nomenclature as $C_2S$) and tricalcium silicate (denoted as $C_3S$). CaO reacts with silica in the raw feed to form $C_2S$. Additionally, CaO reacts with the aluminum (Al) and iron (Fe) bearing constituents to form a liquid phase. At this point, clinker nodules begin formation. Volatile constituents such as sodium (Na), potassium (K), chlorides ($Cl^-$), and sulfates ($SO_4$) are evaporated off. Excess calcium oxide reacts with $C_2S$ through solution in the high-temperature liquid phase to form tricalcium silicate.

Product exiting the kiln is known as clinker. The clinker exits the kiln at approximately 2,200 °F and is quickly cooled to approximately 300 °F via the Clinker Cooler. Ambient air is supplied to the Clinker Cooler to cool the clinker via four (4) 125–250 horsepower (HP) fans designed to rapidly dissipate the heat from the clinker as it exits the kiln. The hot air generated from the Clinker Cooler system is redirected and used in four (4) separate kiln processes. The airstream commonly known as secondary air is ducted directly to the kiln and provides a heated (1,000 °F) oxygen source to aid in fuel combustion. The airstream commonly known as tertiary air is ducted through the Tertiary Air (TA) Duct and provides oxygen to the burning zone of the calciner. The airstream commonly known as coal mill air is ducted to the coal mill to dry the petcoke in the mill and transport it to the coal bin for storage. The remaining air, known as cooler vent air, is exhausted through the clinker cooler exhaust stack. The cooled clinker is transferred and stored in the clinker storage building. Clinker is conveyed from the clinker storage building to the finish mills.

Dragon has two finish mills on-site. From clinker storage, the clinker is mixed with calcium sulfate (gypsum), grinding aids, waste cement kiln dust, and/or limestone depending on the required cement properties, and fed into the finish mill system. The finish mills grind the clinker, gypsum, and other finish materials into an American Standards for Testing Materials (ASTM) certified product. Dragon typically produces a Type I/II portland cement, though the facility can produce a variety of masonry and blended cements. The finished product is then pneumatically conveyed to the cement storage silos and ultimately to the loadout

system, where it is packaged and palletized and/or bulk loaded into tanker trucks and/or rail cars for transport.

The primary solid fuel fired in the kiln, petroleum coke (petcoke) or a petcoke/coal blend, is conveyed from storage to the coal mill system, milled to the desired size, and then air swept into a bin. The petcoke or milled coal or petcoke/coal blend is then pneumatically transferred to the main kiln burner located at the clinker discharge end of the kiln. In addition, petcoke or a petcoke/coal blend is pneumatically transferred and fired in the calciner portion of the kiln system. In addition to petcoke and coal, the allowable kiln fuels include distillate fuel, #4 fuel oil, specification waste oil, non-specification waste oil, whole tires and tire chips, and polypropylene/polyester fiber material.

## F. General Facility Requirements

Dragon is subject to the following state and federal regulations listed below, in addition to the regulations listed for specific units as described further in this license.

| CITATION | REQUIREMENT TITLE |
|---|---|
| 06-096 CMR 101 | Visible Emissions Regulation |
| 06-096 CMR 102 | Open Burning |
| 06-096 CMR 103 | Fuel Burning Equipment Particulate Emission Standard |
| 06-096 CMR 105 | General Process Source Particulate Emission Standard |
| 06-096 CMR 106 | Low Sulfur Fuel Regulation |
| 06-096 CMR 109 | Emergency Episode Regulations |
| 06-096 CMR 110 | Ambient Air Quality Standards |
| 06-096 CMR 115 | Major and Minor Source Air Emission License Regulations |
| 06-096 CMR 116 | Prohibited Dispersion Techniques |
| 06-096 CMR 117 | Source Surveillance – Emissions Monitoring |
| 06-096 CMR 137 | Emission Statements |
| 06-096 CMR 140 | Part 70 Air Emission License Regulations |
| 06-096 CMR 143 | New Source Performance Standards (NSPS) |
| 06-096 CMR 144 | National Emission Standards for Hazardous Air Pollutants (NESHAP) |
| 40 CFR Part 60, Subpart F | Standards of Performance for Portland Cement Plants |
| 40 CFR Part 63, Subpart LLL | National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry |
| 40 CFR Part 63, Subpart ZZZZ | National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines |
| 40 CFR Part 64 | Compliance Assurance Monitoring |
| 40 CFR Part 70 | State Operating Permit Programs |
| 40 CFR Part 98 | Mandatory Greenhouse Gas Reporting |

Table Note: CMR = Code of Maine Regulations CFR = Code of Federal Regulations

### G. Units of Measurement

The following units of measurement are used in this license:

| | |
|---|---|
| °F | degrees Fahrenheit |
| gal/day | gallons per day |
| gpm | gallons per minute |
| hp | horsepower |
| lb/hr | pounds per hour |
| lb/MMBtu | pounds per million British Thermal Units |
| lb/ton | pounds per ton |
| MMBtu/hr | million British Thermal Units per hour |
| ng/dscm | nanograms per dry standard cubic meter |
| ppm | parts per million |
| ppmvd | parts per million by volume, dry |
| tph | tons per hour |
| tpy or tons/yr | tons per year |

## II. BEST PRACTICAL TREATMENT (BPT) AND EMISSION STANDARDS

### 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 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emission from the source being considered; and
- the economic feasibility for the type of establishment involved.

### B. $NO_X$ RACT (Reasonably Available Control Technology)

*Reasonably Available Control Technology for Facilities that Emit Nitrogen Oxides,* 06-096 CMR 138 (as amended) is applicable to sources that have the potential to emit quantities of $NO_X$ equal to or greater than 100 tons/year. Amendment A-326-72-N-A, issued to Dragon on June 5, 2006, addressed $NO_X$ RACT requirements for the wet kiln process. The modernization project for the facility to become a dry process kiln was licensed through A-326-71-U-A/R, issued on November 19, 2002. Since the facility underwent a Best Available

Control Technology review (BACT) for the conversion to a dry process kiln, the $NO_X$ RACT findings are no longer applicable.

**C. VOC RACT (Reasonably Available Control Technology)**

*Reasonably Available Control Technology for Facilities that Emit Volatile Organic Compounds,* 06-096 CMR 134 (as amended) is applicable to sources that have the potential to emit quantities of VOC equal to or greater than 40 tons/year. At the time of 06-096 CMR 134 promulgation, Dragon was licensed below 40 tons/year. With the modernization project licensed in 2002, the source underwent a BACT review, and therefore VOC RACT requirements are not applicable to Dragon.

**D. Mandatory Greenhouse Gas (GHG) Reporting**

Federal regulation 40 CFR Part 98, *Mandatory Greenhouse Gas Reporting*, which contains GHG reporting and related monitoring and recordkeeping requirements, is applicable to the owners/operators of any facility which falls into any one of the following three categories, per 40 CFR Part 98, Subpart A, *General Provision*, § 98.2, *Who must report?*

(a)(1) A facility that contains any source category that is listed in Table A–3 of this subpart in any calendar year starting in 2010.

(a)(2) A facility that contains any source category that is listed in Table A–4 of this subpart and that emits 25,000 metric tons $CO_2e$ or more per year in combined emissions from stationary fuel combustion units, miscellaneous uses of carbonate, and all applicable source categories that are listed in Table A–3 and Table A–4 of this subpart.

(a)(3) A facility that in any calendar year starting in 2010 meets all three of the conditions listed in this paragraph (a)(3). For these facilities, the annual GHG report must cover emissions from stationary fuel combustion sources only.

(i) The facility does not meet the requirements of either paragraph (a)(1) or (a)(2) of this section.

(ii) The aggregate maximum rated heat input capacity of the stationary fuel combustion units at the facility is 30 MMBtu/hour or greater.

(iii) The facility emits 25,000 metric tons $CO_2e$ or more per year in combined emissions from all stationary fuel combustion sources.

Dragon is in the source category of cement production, as found in Table A-3 of the subpart, and therefore, is subject to the rule under (a)(1) above. Dragon operates a $CO_2$ monitor to calculate greenhouse gas emissions for reporting purposes.

Dragon shall fulfill the recordkeeping and reporting requirements of 40 CFR Part 98.

## E. Best Available Retrofit Technology (BART)

Portland cement plants are included as one of the 26 Clean Air Act source categories used to determine BART eligibility as defined in 40 CFR Part 51, Subpart P, *Protection of Visibility*. Dragon began operation after August 7, 1962, and was in existence on August 7, 1977 (startup year of 1971). Dragon was issued air emission license A-326-77-1-A addressing BART on April 3, 2008. The BART determination stated that since the license modification issued for modernizing and converting the kiln system from a wet process to a dry process in 2004 included a Best Available Control Technology (BACT) analysis, the BACT findings are appropriate BART requirements for the kiln system at Dragon. Additionally, the 2004 modernization is considered a "reconstruction" of the kiln system. The reconstruction cost did not exceed 50% of the cost of a new system; therefore, Dragon is not BART-eligible. No additional implementation is required to meet BART.

## F. PSD/BACT Review

Dragon has held an air emission license since the 1970s. Dragon has adjusted/changed/modified equipment and processes, and has undergone the appropriate air licensing procedures to address these changes. Notable amendments include minor modification A-326-71-U-A/R issued on November 19, 2002, for the kiln modernization project and A-326-77-3-A issued on July 17, 2014, as a Board Order addressing mercury emissions from the facility.

## G. Compliance Assurance Monitoring (CAM)

Federal regulation 40 CFR Part 64, *Compliance Assurance Monitoring,* is applicable to units at major sources if the unit has emission limits, a control device to meet the limits, pre-control emissions greater than 100 tons/year for any pollutant, and are not except from CAM per §64.2(b). Exemption criteria from CAM include units subject to emission limits or standards proposed by the Administrator after November 15, 1990, pursuant to Sections 111 and 112 of the Clean Air Act, as well as emission limits or standards for which a permit specifies a continuous compliance determination method. Sections 111 and 112 of the CAA contain New Source Performance Standards and National Emission Standards of Hazardous Air Pollutants.

Dragon is subject to 40 CFR Part 63, Subpart LLL, *National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry*, including opacity standards and particulate matter emission limits for many of the emission units; thus, the applicable units with regulated limits and standards addressed in the rule are exempt from CAM. However, in addition to the Kiln

System and Clinker Cooler, the previous license for Dragon included process sources controlled with fabric filters (conveyors, bins, silos, etc.) subject to pollutant specific emission limits derived from both the Maine rules as well as 40 CFR Part 63, Subpart LLL requirements. This Part 70 license renewal streamlines many of these standards and limits to the more stringent, most recent 40 CFR Part 63, Subpart LLL standards and limits. Therefore, those streamlined sources are exempt from CAM since the applicable limits are based on the NESHAP and compliance will be determined through the NESHAP requirements.

The CAM proposal submitted by Dragon included monitoring requirements for the Kiln System's PM lb/hr emission limit, opacity limit, and $NO_X$ emission limits; the Clinker Cooler's PM lb/hr emission limit and opacity limit; as well as process sources with dust collectors for the control of PM and opacity which are not addressed in 40 CFR Part 63, Subpart LLL. However, 40 CFR Part 64 includes an exemption for emission limits and standards for which there is a part 70 permit requirement for a continuous compliance determination method. The Kiln System has license requirements for a Continuous Opacity Monitor System (COMS), a $NO_X$ Continuous Emissions Monitoring System (CEMS), and a Particulate Matter Continuous Parameter Monitoring System (PM CPMS). The Clinker Cooler has license requirements for a COMS and PM CPMS. Therefore, CAM is not applicable to the Kiln System or Clinker Cooler.

The CAM requirements for the process sources with dust collectors for the control of PM and opacity which are not subject to 40 CFR Part 63, Subpart LLL are incorporated in this renewal.

## H. Dry Process Portland Cement Kiln System

The dry process portland cement kiln system (Kiln System) includes the in-line raw mill, the preheater/precalciner tower, the preheater alkaline bypass vent, and the kiln. The Kiln System was brought on-line in 2004, replacing the existing wet process kiln system. After initial operations, a selective non-catalytic reduction (SNCR) system was added to control nitrogen oxide emissions from the Kiln System by utilizing aqueous ammonia injected into the upper calciner.

The kiln system burner has a nominal rating of 440 MMBtu/hour and is licensed to fire petroleum coke (petcoke), coal, distillate fuel, #4 fuel oil, specification waste oil, non-specification waste oil, whole tires and tire chips, polypropylene/polyester fiber material, and alternative fuels that comply with the provisions of Specific Condition 14(C) of this license. In the previous license, #2 fuel oil was not listed specifically (#2-#4 fuel oil blend was listed as an allowable fuel), but this license clarifies that distillate fuel (including #2 fuel oil) may be fired. Distillate fuel is defined in section I(C) of this license.

In addition to the basic raw materials used in the Kiln System (sources of calcium, iron, silica, and alumina), Dragon is also licensed to use one or a combination of the following raw materials: petroleum-contaminated soils, landfill leachate, petroleum-contaminated water, fly ash, Kraft pulp mill green liquor dregs, lime mud and lime wastes (i.e. PCC grit), slaker grit, foundry sand, and alternative raw materials that meet with the provisions of Specific Condition (14)(C) of this license. Dragon is limited in the beneficial use of off-site wastewater, including landfill leachate and petroleum contaminated waters, to 50,000 gallons per day.

The Kiln System can operate in different scenarios including raw mill on, raw mill off, and utilizing the preheater alkaline bypass vent. For approximately 80% of the kiln operating time, the in-line raw mill is operated. Overall operations are described as either with raw mill on or raw mill off. Under normal kiln operations, the preheater exhaust follows the process flow through the system, but there is a preheater alkaline bypass vent which rarely, if ever, gets utilized. The alkali bypass is equipped with a dedicated baghouse to control particulate emissions. The alkali bypass baghouse exhaust is routed to and exits through the main kiln stack.

Emissions from the Kiln System exit through Stack #1. Stack #1 has a diameter of 7 feet and a height of 318 feet above ground level (AGL).

1. New Source Performance Standards (NSPS)

   The Kiln System is subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart F, *Standards of Performance for Portland Cement Plants*. The regulation includes various particulate matter emission limits for kilns, based on whether the source commenced construction or reconstruction after June 26, 2008, or whether the source underwent a modification. Dragon did undergo a process modification in 2004; however, §60.62(d) states that if an affected source is subject to 'another regulation in title 40 of this chapter, you must comply with the most stringent emission limit or requirement and are not subject to the less stringent.' Dragon is subject to 40 CFR Part 63, Subpart LLL, which includes particulate matter emission limits for the kiln. Meeting the requirements of 40 CFR Part 63, Subpart LLL meets the requirements of 40 CFR Part 60, Subpart F.

2. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

   The Kiln System is subject to 40 CFR Part 63, Subpart LLL, *National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry*. Dragon shall meet all applicable requirements of 40 CFR Part 63, Subpart LLL.

3. Control Equipment

Dragon's Kiln System exhaust is controlled through the use of a fabric filter dust collector for particulate matter emissions and selective non-catalytic reduction (SNCR) for nitrogen oxide emissions.

Dry lime injection for the control of sulfur dioxide emissions is available at the facility, but the injection system hasn't been operated since the sulfur dioxide emission limit can be met without the use of dry lime.

4. Best Practical Treatment (BPT)

Dragon underwent a BACT analysis with the licensing of the kiln modernization project, issued in 2002. Per 06-096 CMR 140, Section 3(D)(3)(a), emissions from existing sources undergoing renewal of a Part 70 license shall be deemed to be receiving best practical treatment if those emissions are being controlled by pollution control apparatus which was installed less than 15 years prior to the date of license application approval. Based on timeframe since the BACT analysis, the control equipment and operating practices currently utilized at Dragon are determined to be meeting BPT requirements.

5. Emission Limits and Streamlining

For the Kiln System, including the in-line raw mill and preheater alkali bypass, a listing of potentially applicable emission standards, the origin and authority of the standards, notation if streamlining of the standards has been requested, and the applicable emission limits can be found below.

A number of averaging times are defined in the table notes due to the various applicable regulations and BACT determinations which have slightly different averaging time definitions. An explanation of some of the specific pollutant limits are presented after the table.

| Pollutant | Applicable Emission Standard(s) | Operating Scenario | Origin and Authority | Licensed Emission Limit(s) |
|---|---|---|---|---|
| PM | 38.23 lb/hr (based on process weight rate of 1,274,690 tons/year) | all | 06-096 CMR 105, Section (3) | 9.4 lb/hr[a] |
| | 9.4 lb/hr | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | |

| Pollutant | Applicable Emission Standard(s) | Operating Scenario | Origin and Authority | Licensed Emission Limit(s) |
|---|---|---|---|---|
| PM, continued | 0.07 lb/ton of clinker | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) | 0.07 lb/ton clinker[h] |
| | work practices | startup and shutdown[b] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) | work practices[h] |
| $PM_{10}$ | 9.4 lb/hr | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 9.4 lb/hr |
| $SO_2$ | 1.92 lb/MMBtu in any 24 hour period if desulfurization system is installed (calculates to 844.8 lb/hr for 24-hour period) | all | 06-096 CMR 106, Section (5) | streamlined to the lb/hr limits on 1-hr block and 90-day rolling average |
| | 1000 lb/hr (1-hour block average) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 1000 lb/hr (1-hour block average) |
| | 70 lb/hr (90-day rolling average[d]) | all | | 70 lb/hr (90-day rolling average[d]) |
| | 306.6 tons/yr (12-month rolling total, calculated at the end of each calendar month[d]) | all | | 306.6 tons/yr (12-month rolling total, calculated at the end of each calendar month[d]) |
| $NO_x$ | 1200 lb/hr (1-hour block average) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 1200 lb/hr (1-hour block average) |
| | 350.0 lb/hr (90-day rolling average[d]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 350.0 lb/hr (90-day rolling average[d]) |
| | 1533.0 tons/yr (12-month rolling total, calculated at the end of each calendar month[d]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 1533.0 tons/yr (12-month rolling total, calculated at the end of each calendar month[d]) |

| Pollutant | Applicable Emission Standard(s) | Operating Scenario | Origin and Authority | Licensed Emission Limit(s) |
|---|---|---|---|---|
| CO | 500 lb/hr (1-hour block average) | normal operations | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 500 lb/hr (1-hour block average) |
| | 192.5 lb/hr (90-day rolling average[d]) | normal operations | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 192.5 lb/hr (90-day rolling average [d]) |
| | 843.2 tons/yr (12-month rolling total, calculated at the end of each calendar month[d]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 843.2 tons/yr (12-month rolling total, calculated at the end of each calendar month[d]) |
| | 500.0 lb/hr (2-hour block average) | startup, shutdown, malfunction [b] | 06-096 CMR 115, BACT (A-326-77-2-A) & Facility Specific EPA Agreement | 500.0 lb/hr (2-hour block average) |
| | 2.6 lb/ton of clinker (30-operating day rolling average [e]) | normal operations, except during the curing period after 're-bricking occurs when no clinker is produced. | 06-096 CMR 115, BACT (A-326-77-2-A) & Facility Specific EPA Agreement | 2.6 lb/ton of clinker (30-operating day rolling average [e]) |
| | 3.2 lb/ton of clinker[c] (30-operating day rolling average [e]) | during usage of permitted alternative fuels, except during the curing period after 're-bricking occurs when no clinker is produced. | 06-096 CMR 115, BACT (A-326-77-2-A) & Facility Specific EPA Agreement | 3.2 lb/ton of clinker[c] (30-operating day rolling average [e]) |
| VOC | 13.13 lb/hr | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 13.13 lb/hr |
| | 57.5 tons/yr (12-month rolling total, calculated at the end of each calendar month[d]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 57.5 tons/yr (12-month rolling total, calculated at the end of each calendar month[d]) |

| Pollutant | Applicable Emission Standard(s) | Operating Scenario | Origin and Authority | Licensed Emission Limit(s) |
|---|---|---|---|---|
| Visible Emissions (Opacity) | 20% opacity on a 6-minute block average basis, except for not more than one six minute block average in a 1-hr period | all except for when the exhaust, as measured at the kiln ID fan is less than 250°F, monitored opacity greater than 20% as measured on a 6-minute block average basis is not considered an excess emission | 06-096 CMR 140, BPT (A-326-70-A-I, issued 12/31/2003) | 20% opacity on a 6-minute block average basis, except for not more than one six minute block average in a 1-hr period |
| Ammonia ($NH_3$) | 20 ppmdv corrected to 7% $O_2$ (1-hr block average) | raw mill on | A-326-70-B-A (issued7/24/2007) | 20 ppmdv corrected to 7% $O_2$ (1-hr block average) |
| | 6.3 lb/hr | | | 6.3 lb/hr |
| | 40 ppmdv corrected to 7% $O_2$ (1-hr block average) | raw mill off | A-326-70-B-A (issued7/24/2007) | 40 ppmdv corrected to 7% $O_2$ (1-hr block average) |
| | 12.3 lb/hr | | | 12.3 lb/hr |
| Dioxin/ Furans | 0.2 ng/dscm ($TEQ^g$) corrected to 7% $O_2$ | normal operation and if the avg. temp at the inlet to the first PM control device during the D/F performance test is >400°F | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) | 0.2 ng/dscm ($TEQ^g$) corrected to 7% $O_2$ |
| | 0.4 ng/dscm ($TEQ^g$) corrected to 7% $O_2$ | normal operation and if the average temperature at the inlet to the first PM control device during the D/F performance test is ≤400°F | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) | 0.4 ng/dscm ($TEQ^g$) corrected to 7% $O_2$ |
| | work practices[h] | startup and shutdown[b] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) | work practices[h] |

| Pollutant | Applicable Emission Standard(s) | Operating Scenario | Origin and Authority | Licensed Emission Limit(s) |
|---|---|---|---|---|
| Mercury | 55 lb/MM tons clinker[h] (rolling 30-day average[f]) | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) | 55 lb/MM tons clinker[h] (rolling 30-day average[f]) |
| | work practices[h] | startup and shutdown[b] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) | work practices[h] |
| | 42 lb/calendar year | all | 38 M.R.S.A. 585-B(5)(B) and A-326-77-3-A (7/17/2014) | 42 lb/calendar year |
| THC (measured as propane) | 24 ppmvd corrected to 7% $O_2$[h] **or** alternative limit of 12 ppmvd for total organic HAP corrected to 7% $O_2$[h] (both on a rolling 30-day average[f]) | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) | 24 ppmvd corrected to 7% $O_2$[h] **or** alternative limit of 12 ppmvd for total organic HAP corrected to 7% $O_2$[h] (both on a rolling 30-day average[f]) |
| | work practices[h] | startup and shutdown[b] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) | work practices[h] |
| HCl | 3 ppmvd corrected to 7% $O_2$[i] (rolling 30-day average[f]) | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) | 3 ppmvd corrected to 7% $O_2$[i] (rolling 30-day average[f]) |
| | work practices[h] | startup and shutdown[b] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) | work practices[h] |

Table Notes:

[a] Streamlined

[b] Startup/Shutdown Definitions:
*Startup* means the time from when a shutdown kiln first begins firing fuel until it begins producing clinker. Startup begins when a shutdown kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup ends when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first. Defined in 40 CFR Part 63, §63.1341.

*Shutdown* means the cessation of kiln operation. Shutdown begins when feed to the kiln is halted and ends when continuous kiln rotation ceases. Defined in 40 CFR Part 63, §63.1341.

[c] Emissions of CO shall not exceed Q, expressed as lb CO/ton clinker on a 30-operating day rolling average, when firing permitted alternative fuels:

$$Q = [L1 * C] + [L2 * PAF]$$

Where:

L1 = 2.6 lb CO/ton clinker

L2 = 3.2 lb CO/ton clinker

C = % (decimal or fraction less than 1) of BTUs input during the 30-day period from coal, pet coke and other fuels that are not considered to be permitted alternative fuels; C=1-PAF.

PAF = % (decimal or fraction less than 1) of BTUs input during the 30-day period from the combustion of permitted alternative fuels. Permitted alternative fuels and raw materials are only those which would be expected to increase CO emissions, such as tires, petroleum contaminated soils, and green liquor dregs and lime mud from paper mills. A permitted alternative fuel does not include coal, coke, waste oil, or any other fuel not likely to increase CO emissions.

[d] '90-day rolling average' and '12-month rolling total' are calculated as consecutive days or months and include operating and non-operating days.

[e] '30-operating day rolling average' for the CO lb/ton of clinker limit is calculated by dividing the total emissions over the past 30 operating days by the total tonnage of clinker produced during that period. Operating day means any 24-hr period beginning at 12:00 midnight during which the kiln operates for any time. For calculating the 30-operating day rolling average emissions, kiln operating days do not include the hours of operation during startup or shutdown.

[f] 'rolling 30-day average' for mercury, THC, and HCl is defined in 40 CFR Part 63, Subpart LLL §63.1343(a) as "The 30-day period means 30 consecutive kiln operating days excluding periods of startup and shutdown." Operating day is defined in 40 CFR Part 63, Subpart LLL §63.1341 as "Operating day means any 24-hr period beginning at 12:00 midnight during which the kiln operates for any time. For calculating the rolling 30-day average emissions, kiln operating days do not include the hours of operation during startup or shutdown."

[g] TEQ means the international method of expressing toxicity equivalents for dioxins and furans as defined in U.S. EPA, Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and –dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989.

[h] In effect on the compliance date in 40 CFR Part 63, Subpart LLL (currently stated as September 9, 2015 in the rule) or until the source certifies compliance with the limits, whichever is earlier (§63.1343(a)).

[i] The compliance demonstration date for HCl is September 9, 2016 since Dragon received a 1 year extension due to availability issues with the HCl monitor calibration gas.

The following background information clarifies the reasons for updates to license emission limits from the previous Part 70 license.

PM: In the previous Part 70 license, the PM limit from 40 CFR Part 63, Subpart LLL was listed as 0.3 lb/ton dry kiln feed. This Part 70 license renewal revises the limit to the current Subpart LLL limit which is in lb/ton of clinker. This license does not include a $PM_{10}$ limit in lb/ton of clinker or lb/ton dry kiln feed, consistent with the rule.

$SO_2$: In the previous Part 70 license, a permit shield from 06-096 CMR 106, *Low Sulfur Fuel,* was listed in the Order section with a description that the kiln is an approved sulfur removal device. However, 06-096 CMR 106 does not allow for a full exemption. The rule does state, in part, 'a source that installs any approved flue gas desulfurization system or other prescribed sulfur removal device shall be permitted to use fuel with a sulfur content in excess of the limitations of Section 3 such that after control, total sulfur dioxide emissions do not exceed: 1.92 lbs. of sulfur dioxide per million BTU in any 24 hour period.' The Kiln System itself could be considered an $SO_2$ controlling device since due to the combustion conditions and chemistry in the kiln, the large majority of the fuel $SO_2$ is absorbed by clinker and kiln feed materials. In addition, Dragon does have a dry lime injection system for $SO_2$ control if needed. Therefore, this Part 70 license streamlines the 06-096 CMR 106 requirement to the previously established lb/hr $SO_2$ emission limits both on a one-hour and 90-day rolling average.

Visible Emissions (Opacity): The kiln opacity limit was originally licensed in A-326-71-U-A/R with the basis being 40 CFR Part 63, Subpart LLL. The current federal rule does not include an opacity limit for kilns. The licensed visible emissions (opacity) limit remains in effect based on 06-096 CMR 140, BPT and shall be noted as an Enforceable by State Only condition.

During periods of kiln preheat and startup, condensation in the kiln exhaust causes false positive readings by the opacity monitor. Therefore, the visible emission requirement does include the exemption that when the exhaust, as measured at the kiln ID fan is less than 250°F, has monitored opacity greater than 20% as measured on a six-minute block average basis, it is not considered an excess emission. This was established in the previous Part 70 License.

Mercury, THC, and HCl: Recently promulgated mercury, total hydrocarbon (THC), and hydrogen chloride (HCl) emission limits not included in the previous Part 70 license are incorporated into this license based on 40 CFR Part 63, Subpart LLL requirements. The lb/year mercury limit based on the statutory requirements of 38 M.R.S.A. 585-B (5) has also been incorporated into this license.

6. Emission Limit Compliance Methods

Compliance with the emission limits associated with the Kiln System shall be demonstrated in accordance with the methods and frequencies indicated in the table below or other methods or frequencies as approved by the Department.

| Pollutant | Applicable Emission Limit | Compliance Method | Frequency |
|---|---|---|---|
| PM | lb/hr and lb/ton of clinker | Stack Test: 40 CFR Part 60, App. A, Method 5 or 5I and shall consist of three 1-hr tests | Every 12 months |
| | lb/ton of clinker | Particulate Matter Continuous Parameter Monitoring System (PM CPMS) | Continuously |
| $PM_{10}$ | lb/hr | Stack Test: 40 CFR Part 60, App. A, Method 5 or EPA Test Method 201 or 201A and shall consist of three 1-hr tests | As requested |
| $SO_2$ | lb/hr | Calculated from CEMS data | Continuously (in accordance with 40 CFR Part 60, App. B) |
| $NO_X$ | lb/hr | Calculated from CEMS data | Continuously (in accordance with 40 CFR Part 60, App. B) |
| CO | lb/hr and lb/ton of clinker | Calculated from CEMS data | Continuously (in accordance with 40 CFR Part 60, App. B) |
| VOC | lb/hr | Stack Test: 40 CFR Part 60, App. A, Method 25 or 25A | As requested |
| Visible Emissions (Opacity) | % | COMS | Continuously (in accordance with 40 CFR Part 60, App. B) |
| $NH_3$ | ppmdv and lb/hr | Stack Test: Conditional Test Method 027 | Once every other year* |
| Dioxin/ Furans | ng/dscm | Stack Test: 40 CFR Part 60, App. A, Method 23 | Every 30 months |
| | | Kiln System baghouse inlet temperature | Continuously |

| Pollutant | Applicable Emission Limit | Compliance Method | Frequency |
|---|---|---|---|
| Hg | lb/MM tons clinker and lb/calendar year | Calculated from CEMS data ** | Continuously (in accordance with 40 CFR Part 60, App. B) |
| THC | ppmvd | CEMS | Continuously (in accordance with 40 CFR Part 60, App. B) |
| HCl | ppmvd | CEMS *** | Continuously (in accordance with 40 CFR Part 60, App. B) |

Table Notes:

* For ammonia ($NH_3$), stack testing is not required if a CEMS is utilized in the future to continuously monitor $NH_3$ emissions.

** For calendar year 2015, compliance with the lb/calendar year mercury limit shall be based on the average mercury emission factor calculated from the previous CEMS trial data (0.054 lb/hr) and the actual production hours from January until the date the permanent CEMS is certified (no later than September 9, 2015). This calculation shall be added to the actual CEMS data collected from the date of the CEMS certification through December 2015 to get the total mercury emissions for 2015.

*** Dragon requested and received a compliance demonstration extension for one year (until September 9, 2016) for HCl due to the delay in availability of NIST-traceable (National Institute for Standards and Technology) calibration gases required for HCl CEMS.

7. Operating Requirements for the Kiln System and Controls

a. Inlet Temperature to the Kiln System Baghouse

Dragon shall operate the kiln such that the temperature of the gas at the inlet to the Kiln System baghouse does not exceed the applicable temperature limit as described in §63.1346(a) and (b) and §63.1349(b)(3)(iv) and established through the performance testing for dioxin/furans. This includes not exceeding the established temperature limit, except during periods of startup and shutdown when the temperature limit may be exceeded by no more than 10%.

b. Aqueous Ammonia Injection Requirements

Aqueous ammonia shall not be injected into the kiln/calciner system until the gas temperature in the calciner is a minimum of 1600 °F as demonstrated by the mid-calciner thermocouple.

c. Beneficial Use of Off-Site Waste Water

The beneficial use of off-site waste water in the Kiln System, including landfill leachate and petroleum contaminated waters, shall be limited to 50,000 gallons per day.

d. Startup and Shutdown Operational Requirements [40 CFR Part 63, Subpart LLL, §63.1346(g)]

i. During startup until the kiln reaches 1200 °F, Dragon shall use any one or combination of clean fuels, including natural gas, synthetic natural gas, propane, distillate fuel, syntheses gas (syngas), and ultra-low sulfur diesel.
ii. Combustion of the primary fuel may commence once the kiln temperature reaches 1200 °F.
iii. All air pollution control devices must be turned on and operating prior to combusting any fuel.
iv. Records as specified in 40 CFR Part 63, Subpart LLL, §63.1355 must be maintained during periods of startup and shutdown.

8. Compliance Assurance Monitoring (CAM)

Dragon has control equipment on the Kiln System for PM and $NO_X$, without which emissions from each of these pollutants would be over 100 tons/year. For the Kiln System, Dragon originally proposed CAM to be applicable to the following: PM (lb/hr only), opacity, and $NO_X$. CAM is not applicable to those emission limits and standards established in 40 CFR Part 63, Subpart LLL (i.e. the PM lb/tons of clinker emission limit). However, CAM is also not applicable if a Part 70 permit specifies a continuous compliance determination method. The Kiln System has requirements for a Continuous Opacity Monitor System (COMS), a Particulate Matter Continuous Parameter Monitoring System (PM CPMS), and a $NO_X$ Continuous Emissions Monitor System (CEMS). Therefore, CAM is not applicable to the Kiln System.

9. Periodic Monitoring

Dragon shall monitor and record the listed parameters for the Kiln System and its associated air pollution control equipment as indicated in the following table whenever the equipment is operating.

| Parameter | Unit of Measure | Monitoring Tool/Method | Frequency |
|---|---|---|---|
| Petroleum Coke use | tons | fuel metering | daily, monthly, and 12-month rolling total |
| Coal use | tons | fuel metering | daily, monthly, and 12-month rolling total |
| Distillate fuel use | gallons | fuel flow meter | daily, monthly, and 12-month rolling total |
| #4 fuel oil use | gallons | fuel flow meter | daily, monthly, and 12-month rolling total |
| Waste oil use | gallons | estimated amount collected and burned | daily, monthly, and 12-month rolling total |
| Whole tire or tire chips use | tons | fuel metering | daily, monthly, and 12-month rolling total |
| Polypropylene/ polyester fiber material fired | lbs or tons | fuel metering | daily monthly, and 12-month rolling total |
| Beneficial use of off-site waste water, including landfill leachate and petroleum contaminated waters | gal/day | metering | daily |
| Raw Mill Operations | on or off | operations records | as operated |
| Mid-calciner temperature for $NH_3$ injection | °F | Thermocouple | continuously |
| Kiln System feed rate | tons feed rate/hr | weight scale system | hourly and daily |
| Clinker production rate | tons of clinker/hr **or** tons feed rate/hr (with calculated input/output ratio) | weight scale system | hourly and daily |
| Clinker kiln dust (CKD) removed from the Kiln System | tons | records of CKD disposed of as solid waste or otherwise recycled for a beneficial use outside of the Kiln System | annually |

10. Parameter Monitors

Parameter monitoring, including monitoring and recording, for the Kiln System shall consist of the following whenever the equipment is operating:

| Parameter | Unit of Measure | Monitoring Tool/Method | Frequency |
|---|---|---|---|
| Kiln System baghouse inlet temperature | °F | continuous monitoring system with thermocouple | continuously |
| PM | milliamp output and PM concentration | PM Continuous Parameter Monitoring System (PM CPMS) | continuously |
| Stack Exhaust Gas Flow Rate | flow rate (appropriate measurement to determine pollutant mass emissions rate in lb/ton of clinker) | continuous flow rate monitoring system | continuously |

Dragon previously was licensed with a parameter monitor uptime requirement based on state requirements. However, 40 CFR Part 63, Subpart LLL, §63.1354(b)(10) includes an uptime/downtime requirement to submit an excess emissions and continuous monitoring system performance report if the total continuous monitoring system downtime for any CEM or any continuous monitoring system for the reporting period is 10% or greater of the total operating time for the reporting period. This license incorporates the 40 CFR Part 63, Subpart LLL uptime requirements applicable to the parameter monitoring systems, superseding the previous state findings.

Fan speed was listed as a parameter monitor in the previous Part 70 license, monitored and recorded with the same frequency as monitoring and recording occurred for $SO_2$ and $NO_X$ ppmvd data, with the caveat that in the event that Dragon installs an exhaust gas flow meter on the kiln stack, the fan speed monitoring would not be required. Dragon does operate an exhaust gas flow meter on the stack; therefore, the fan speed monitoring requirement has been removed.

11. CEMS and COMS

For the Kiln System, the table below lists the required continuous emission monitoring systems (CEMS) and the continuous opacity monitoring systems (COMS).

| Pollutant and Continuous Monitor | Unit of Measure | Origin and Authority |
|---|---|---|
| $NO_X$ CEMS | concentration | 06-096 CMR 117 |
| $SO_2$ CEMS | concentration | 06-096 CMR 117 and 06-096 CMR 115, BACT |
| CO CEMS | concentration | 06-096 CMR 117 and 06-096 CMR 115, BACT |
| $O_2$ CEMS | % | 06-096 CMR 117 |
| Opacity COMS | % | 06-096 CMR 117 |
| Mercury CEMS | concentration | 40 CFR Part 63, Subpart LLL, §63.1350(k) |
| THC CEMS | concentration | 40 CFR Part 63, Subpart LLL,§63.1350(i) |
| HCl CEMS | concentration | 40 CFR Part 63, Subpart LLL,§63.1350(l) |

Dragon has installed CEMS equipment that utilizes FTIR (Fourier Transform Infrared Spectroscopy) technology. With this technology, one CEMS may be operated to obtain data for more than one pollutant, as appropriate.

12. $NO_X$ EPA Consent Agreement and Final Order

Dragon was issued Air Emission License A-326-77-7-M on February 25, 2014 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 $NO_X$ monitoring, data collection, and reporting, resulting in a final outcome of a $NO_X$ lb/ton of clinker emission limit proposal.

The requirements of the EPA Consent Agreement and Final Order (CAFO), as well as A-326-77-7-M, shall be incorporated by reference. Requirements included in the CAFO consist of installing an inlet $NO_X$ monitor and collecting baseline data, submitting a Baseline Data Report, operating during a demonstration period when the SNCR shall be operated to maintain a molar ratio of 1.0 (with a ratio adjustment allowed if needed to meet ammonia slip limits), submitting a Demonstration Report at the end of the demonstration period with a proposed 30 day rolling average emission limit of lb $NO_X$/ton of clinker, and applying for a license amendment. As per the CAFO requirements, Dragon has already installed the inlet $NO_X$ monitor, collected baseline data, and submitted the Baseline Data Report.

## I. Clinker Cooler

The hot clinker from the kiln is discharged directly into the Clinker Cooler. Moving grates convey the hot clinker through the Clinker Cooler, while ambient air is blown through the grates to cool the clinker. A portion of the Clinker Cooler exhaust gases pass through a heat exchanger, which pre-heats the kiln combustion air. The cooled clinker is transferred to the clinker storage building. The clinker cooler baghouse exhausts through a 7-foot diameter, 72-foot tall stack.

1. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

   The Clinker Cooler is subject to 40 CFR Part 63, Subpart LLL, *National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry*. Dragon shall meet all applicable requirements of 40 CFR Part 63, Subpart LLL.

2. Control Equipment

   The Clinker Cooler exhaust is controlled by a baghouse.

3. Emission Limits and Streamlining

   For the Clinker Cooler, a listing of potentially applicable emission standards, the origin and authority of the standards, notation if streamlining of the standards has been requested, and the applicable emission limits are below.

| Pollutant | Applicable Emission Standard(s) | Operating Scenario | Origin and Authority | Licensed Emission Limit(s) |
|---|---|---|---|---|
| PM | 9.15 lb/hr | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, issued 11/19/2002) | 9.15 lb/hr |
| | 0.07 lb/ton clinker | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) | 0.07 lb/ton clinker[b] |
| | work practices | startup and shutdown[a] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1348(b)(9) | work practices[b] |
| Visible Emissions | 10% opacity on a six-minute block average basis | all | 06-096 CMR 140, BPT | 10% opacity on a 6-minute block average basis |

Table Notes:

[a] Startup/Shutdown Definitions:
*Startup* means the time from when a shutdown kiln first begins firing fuel until it begins producing clinker. Startup begins when a shutdown kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup ends when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first.
*Shutdown* means the cessation of kiln operation. Shutdown begins when feed to the kiln is halted and ends when continuous kiln rotation ceases.

[b] In effect on the compliance date in 40 CFR Part 63, Subpart LLL (currently stated as September 9, 2015 in the rule) or until the source certifies compliance with the limits, whichever is earlier (§63.1343(a)).

4. Emission Limit Compliance Methods

Compliance with the emission limits associated with the Clinker Cooler shall be demonstrated in accordance with the methods and frequencies indicated in the table below or other methods or frequencies as approved by the Department.

| Pollutant | Applicable Emission Limit | Compliance Method | Frequency |
|---|---|---|---|
| PM | lb/hr and lb/ton of clinker | Stack Test: 40 CFR Part 60, App. A, Method 5 or 5I and shall consist of three 1-hr tests | every 12 months |
| | lb/ton of clinker | Particulate Matter Continuous Parameter Monitoring System (PM CPMS) | continuously |
| Visible Emissions | % | COMS | continuously (in accordance with 40 CFR Part 60, App. B) |

5. Compliance Assurance Monitoring

Dragon has control equipment on the Clinker Cooler for PM, without which emissions would be over 100 tons/year. For the Clinker Cooler, Dragon originally proposed CAM to be applicable to the following: PM (lb/hr only) and opacity. CAM is not applicable to those emission limits and standards established in 40 CFR Part 63, Subpart LLL (i.e. the PM lb/tons of clinker emission limit). However, CAM is also not applicable if a Part 70 permit specifies a continuous compliance determination method. The Clinker Cooler has requirements for a Continuous Opacity Monitor System (COMS) and a

Particulate Matter Continuous Parameter Monitoring System (PM CPMS)). Therefore, CAM is not applicable to the Clinker Cooler.

6. Periodic Monitoring

There are no periodic monitoring requirements associated with the Clinker Cooler. Clinker production is addressed under the Kiln System.

7. Parameter Monitor

| Parameter | Units of Measure | Monitoring Tool/Method | Frequency |
|---|---|---|---|
| PM | milliamp output and PM concentration | PM Continuous Parameter Monitoring System (PM CPMS) | continuously |

Dragon was previously licensed with a parameter monitor uptime requirement based on state findings. However, 40 CFR Part 63, Subpart LLL, §63.1354(b)(10) includes an uptime/downtime requirement to submit an excess emissions and continuous monitoring system performance report if the total continuous monitoring system downtime for any CEM or any continuous monitoring system for the reporting period is 10% or greater of the total operating time for the reporting period. This license incorporates the 40 CFR Part 63, Subpart LLL uptime requirements applicable to the parameter monitoring systems, superseding the previous state findings.

8. COMS

For the Clinker Cooler, the table below lists the required continuous opacity monitoring system (COMS).

| Pollutant and Continuous Monitor | Unit of Measure | Origin and Authority |
|---|---|---|
| Opacity COMS | % | 06-096 CMR 06-096 CMR 140, BPT |

## J. Additional Process Sources

Dragon has numerous process sources controlled with dust collectors (fabric filters), including sources in the Quarry Crushing Group, the Raw Mill Group, the Blending Group, the Pyro Group (excluding the kiln which is addressed separately), Clinker Transfer and Storage Group, Clinker Reclaim Group, Finish Grind Group, and Pack and Ship Group. Equipment included in these groups includes silos, conveyors, bins, belts, and packers.

This license also includes requirements for process sources not controlled with dust collectors, including but not limited to a shredder, feeder, and conveyors for polypropylene/polyester fiber material and a feeder and conveyors for tires.

1. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

   Each raw material, clinker, or finished product storage bin; conveying system transfer point; bagging system; bulk loading or unloading system; raw and finish mills; and each existing raw material dryer is subject to an opacity standard in 40 CFR Part 63, Subpart LLL, *National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry.* Dragon shall meet all applicable requirements of 40 CFR Part 63, Subpart LLL for these sources.

2. Control Equipment

   The majority of the process sources at Dragon are controlled by fabric filter dust collectors.

3. Emission Limits and Streamlining

   For the additional process sources, a listing of potentially applicable emission standards, the origin and authority of the standards, notation if streamlining of the standards has been requested, and the applicable emission limits can be found below.

| **Additional Process Sources Subject to 40 CFR Part 63, Subpart LLL** | | | | |
|---|---|---|---|---|
| **Pollutant** | **Applicable Emission Standard(s)** | **Origin and Authority** | **Equipment** | **Licensed Emission Limit(s)** |
| PM | Various PM emission rates | 06-096 CMR 105 | - each raw material, clinker, or finished product storage bin**<br>- each conveying system transfer point<br>- each bagging system<br>- each bulk loading or unloading system<br>- each raw and finish mill***<br>- each existing raw material dryer | 10% opacity * |
| Visible Emissions | 10% opacity | 40 CFR Part 63, Subpart LLL, §63.1345 | | |

Table notes:

* Streamlining. The emission rates in 06-096 CMR 105 are expected to be met utilizing the opacity requirement as the measurement of compliance. To meet the opacity standard, the process sources at Dragon exhaust through fabric filter dust collectors.

** The clinker storage building dust collection system was licensed in A-326-77-4-A (1/27/2010) with requirements of 10% opacity on a 6-minute block average basis, except for no more than one 6-minute average on a 1 hour period and a weekly visible inspection routine. 40 CFR Part 63, Subpart LLL requires that each clinker storage bin shall be limited to 10% opacity. The clinker storage building exhaust can be considered part of the 40 CFR Part 63, Subpart LLL clinker storage bin requirement. The more stringent 10% opacity requirement shall apply to the clinker storage building exhaust.

*** The definitions in 40 CFR Part 63, Subpart LLL denote a difference between the terms 'raw mill' and 'in-line kiln/raw mill'. Dragon currently operates a dry kiln system which is integrated with the raw mill ('in-line'), so the raw mill requirements do not apply to the facility.

| **Additional Process Sources <u>not</u> Subject to 40 CFR Part 63, Subpart LLL and with Fabric Filter Controls** | | | | |
|---|---|---|---|---|
| **Pollutant** | **Applicable Emission Standard(s)** | **Origin and Authority** | **Equipment** | **Licensed Emission Limit(s)** |
| PM | Various PM emission rates | 06-096 CMR 105 | fabric filter controlled process equipment that are not addressed in 40 CFR Part 63, Subpart LLL | 10% opacity on a 6-minute block average, except for no more than one six minute average in a 1-hr period. Corrective action shall be taken if 5% opacity is exceeded.* |
| Visible Emissions | 10% opacity on a 6-minute block average, except for no more than one six minute average in a 1-hr period. Corrective action shall be taken if 5% opacity is exceeded. | 06-096 CMR 101, Section (3)(c) | | |

Table note: * Streamlining. The emission rates in 06-096 CMR 105 are expected to be met utilizing the opacity requirement as the measurement of compliance. To meet the opacity standard, the process sources at Dragon exhaust through fabric filter dust collectors.

| Additional Process Sources not Subject to 40 CFR Part 63, Subpart LLL and without Fabric Filter Controls and not subject to any other MACT | | | | |
|---|---|---|---|---|
| **Pollutant** | **Applicable Emission Standard(s)** | **Origin and Authority** | **Equipment** | **Licensed Emission Limit(s)** |
| PM | Various PM emission rates | 06-096 CMR 105 | process equipment without fabric filters and not addressed in 40 CFR Part 63, Subpart LLL | 20% opacity on a 6-minute block average, except for no more than one six minute average in a 1-hr period.* |
| Visible Emissions | 20% opacity on a 6-minute block average, except for no more than one six minute average in a 1-hr period. | 06-096 CMR 101, Section (3)(d) | | |

Table note: * Streamlining. The emission rates in 06-096 CMR 105 are expected to be met utilizing the opacity requirement as the measurement of compliance.

4. Emission Limit Compliance Methods

Compliance with the emission limits associated with the process sources shall be demonstrated in accordance with the methods and frequencies indicated in the table below or other methods or frequencies as approved by the Department.

| Pollutant | Compliance Method | Frequency |
|---|---|---|
| Visible Emissions | 40 CFR Part 60, Appendix A, Method 9 | As required by 40 CFR Part 63, Subpart LLL or as requested by the Department |

5. Compliance Assurance Monitoring

For the additional process sources at Dragon, CAM is applicable to those sources not subject to 40 CFR Part 63, Subpart LLL and with pre-control emissions greater than 100 tons per year.

Dragon performed an extensive review of all of the process sources at the facility, noting which process sources would emit greater than 100 tons year without control and whether state requirements, 40 CFR Part 63, Subpart LLL requirements, or both the state and federal requirements were applicable. Streamlining of the 40 CFR Part 63, Subpart LLL opacity limit, the state opacity limits, and the 06-096 CMR 105 PM requirements has resulted in only

two additional process sources subject to CAM. The 40 CFR Part 63, Subpart LLL applicable process sources do not have additional requirements under CAM; however, the units are subject to the compliance monitoring and testing requirements of 40 CFR Part 63, Subpart LLL.

The CAM applicable process sources are the Secondary Crusher dust collector (Dragon equipment No. Q208) and the quarry Raw Material Transfer Tower dust collector (Dragon equipment No. Q213). The CAM monitoring requirements are included in the monitoring sections below.

6. Periodic Monitoring

Dragon shall monitor and record parameters for the additional process sources and the associated air pollution control equipment as indicated in the following table whenever the equipment is operating. Periodic monitoring requirements required for CAM are indicated as such.

| **Additional Process Sources** | | | | | |
|---|---|---|---|---|---|
| **CAM? (Y/N)** | **Equipment** | **Parameter** | **Unit of Measure** | **Monitoring Tool/Method** | **Frequency** |
| N | Process equipment addressed in 40 CFR Part 63, Subpart LLL | opacity | % | 40 CFR Part 60, Appendix A, Methods 22 and 9, as required | as required by 40 CFR Part 63, Subpart LLL * (with an additional requirement for the clinker storage building) |
| Y | Secondary Crusher Dust Collector and Quarry Raw Material Transfer Tower Dust Collector | opacity | % | 40 CFR Part 60, Appendix A, Method 22 | - monthly 1 minute visible emission test of each affected source;<br>- if no visible emissions are observed in six consecutive monthly tests, the frequency may decrease to semi-annually;<br>- if no visible emissions are observed during the semi-annual test, the frequency may decrease to annually;<br>- if visible emissions are observed, corrective action will take place within 1 hour, with a follow-up Method 22 observation within 24 hours. |
| N | Other process equipment not addressed in 40 CFR Part 63, Subpart LLL or specifically listed in this table | opacity | % | 40 CFR Part 60, Appendix A, Method 9 | As requested by the Department |

Table Notes:

* 40 CFR Part 63, Subpart LLL §63.1350(f) includes the requirement for an opacity monitoring plan and the following schedule for opacity monitoring, conducted when the units are operating:

For affected sources, excluding the Finish Mill:

- monthly 10 minute visible emission test of each affected source in accordance with 40 CFR Part 60, Appendix A, Method 22
- if no visible emissions are observed in six consecutive monthly tests, the frequency may decrease to semi-annually (resuming monthly if visible emissions are observed).
- if no visible emissions are observed during the semi-annual test, the frequency may decrease to annually (resuming monthly if visible emissions are observed).
- if visible emissions are observed, 30 minutes of opacity observations must occur, recorded at 15 second intervals in accordance with 40 CFR Part 60, Appendix A, Method 9, beginning within 1 hour of any observation of visible emissions.
- any totally enclosed conveying system transfer point is not required to conduct Method 22 visible emissions monitoring.
- if any partially enclosed or unenclosed conveying system transfer point is located in a building, a Method 22 must be performed using the schedule listed above for the transfer point(s) or the building itself. If monitoring the building, the visible emissions shall also be monitored from each side, roof and vent of the building for at least 10 minutes.

For the Finish Mill:

- daily visible emissions observations of the mill sweep and air separator PM control devices in accordance with 40 CFR Part 60, Appendix A, Method 22 for a duration of 6 minutes.
- if visible emissions are observed, a follow-up Method 22 performance test must be performed within 24 hours of the observed visible emissions.
- if visible emissions are observed during the follow-up Method 22 performance test, an opacity test shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 9 for a duration of 30 minutes.

If visible emissions are observed during any Method 22 test conducted for the affected sources (including the Finish Mill), within 1 hour Dragon must initiate corrective actions specified in the operation and maintenance plan.

In addition to the 40 CFR Part 63, Subpart LLL requirements, the clinker storage building dust collector system shall be inspected weekly as established in a New Source Review amendment as a state requirement. To document compliance on the system, Dragon shall keep operation and maintenance records of the weekly inspections, the date and location of all failures, as well as all routine maintenance. The operation and maintenance records shall include any change from the manufacturer recommended differential pressure startup/initial operation settings and reasons for the change.

7. Parameter Monitors

There are no parameter monitors required for the additional process sources.

8. CEMS and COMS

There are no continuous emission monitoring systems (CEMS) or continuous opacity monitoring systems (COMS) required for the additional process sources.

## K. Stockpile and Roadway Fugitive Emissions

Per 06-096 CMR 101, visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity, except for no more than five minutes in any one-hour period. Compliance shall be determined by an aggregate of the individual 15-second opacity observations which exceed 20% in any one hour.

## L. Facility-Wide 40 CFR Part 63, Subpart LLL Requirements

1. Operations and Maintenance Plan

Dragon shall prepare a written operations and maintenance plan per 40 CFR Part 63, Subpart LLL §63.1347 for review and approval. The plan shall include, but is not limited to, procedures for proper operation and maintenance of the affected source and air pollution control devices in order to meet the emissions limits and operating limits.

2. Monitoring Plan

Dragon shall develop a site-specific monitoring plan according to the detailed requirements in 40 CFR Part 63, Subpart LLL §63.1350(p)(1)-(4) for any applicable emissions limit for which compliance is demonstrated through performance stack testing or other emissions monitoring. In summary, the plan shall include, but is not limited to: the installation location of the sampling probe or interface; performance and equipment specifications for the sample interface, analyzer, and data collection and reduction systems; performance evaluation procedures and acceptance criteria (i.e. calibrations); ongoing operation and maintenance procedures; ongoing data quality assurance procedures; and ongoing recordkeeping and reporting procedures. A performance evaluation of each continuous monitoring system shall be conducted and the continuous monitoring systems must be operated and maintained in accordance with the site-specific monitoring plan.

3. General Duty to Minimize Emissions

Per 40 CFR Part 63, Subpart LLL §63.1348(d), at all times Dragon must operate and maintain any effected sources, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on available information, including, but not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

4. Pollution Control Device Operation During Startup and Shutdown

In order to demonstrate continuous compliance during startup and shutdown, all air pollution control devices required by 40 CFR Part 63, Subpart LLL must be operated per §63.1348(b)(9).

5. Initial Performance Testing

Initial performance testing shall be performed by Dragon as specified in 40 CFR Part 63, Subpart LLL §63.1348(a) and §63.1349 using the appropriate methods by the dates required. This includes stack testing, performance test methods and procedures, continuous parameter monitoring system performance evaluations, and continuous emissions monitoring system performance specifications acceptance criteria. For PM and dioxin/furans, the tests must be performed with the raw mill on and with the raw mill off. For mercury, THC, and HCl, initial compliance shall be determined from CEMS data from the first 30 operating days after the compliance date of 40 CFR Part 63, Subpart LLL.

6. Notification Requirements

Dragon shall provide notifications as specified in 40 CFR Part 63, Subpart LLL §63.1353. In summary, notification shall be submitted, as required, for performance tests, opacity and visible emission observations, continuous emission monitor performance evaluations, and compliance status. Within 48 hours of an exceedance that triggers retesting to establish compliance and new operating limits, notification shall be given to the permitting agency of the planned performance tests.

7. Reporting Requirements

Dragon shall comply with the reporting requirements as specified in 40 CFR Part 63, Subpart LLL §63.1354.

The following is a summary of the reporting requirements contained in 40 CFR Part 63, Subpart LLL §63.1354. Dragon shall:

a. Report results of performance and opacity tests and performance evaluations for the continuous monitoring and continuous opacity monitoring systems; and excess emissions when the continuous monitoring system data indicate that source is not in compliance with the applicable emission limitation or operation parameter limit.

b. Submit a summary report semiannually which includes:

   i. the information in 40 CFR Part 63, §63.10(e)(3)(vi): company name; address; monitored HAPS; reporting period dates; process unit descriptions; emission and operating parameter limitations; monitoring equipment identification; latest continuous monitoring system certification or audit; operating time during the reporting period; emission data summary; continuous monitoring system performance summary; changes in the continuous monitoring system, processes, or controls since the last reporting period; the responsible official; and the date of the report.

   ii. all exceedances of the maximum control device inlet gas temperature limits; all failures to calibrate thermocouples and other temperature sensors; results of any combustion system component inspections conducted within the reporting period; all failures to comply with any provision of the operation and maintenance plan; for each PM, HCl, Hg, and THC CEMS within 60 days after the reporting periods, the reports must be submitted to EPA's webFIRE database using the Compliance and Emissions Data Reporting Interface (CEDRI) and include the calculated 30-operaing day rolling averages; and information and response actions for violations of emission standards or operation parameter limits.

c. Submit an excess emissions and continuous monitoring system performance report with the semiannual summary report for any CEMs or continuous monitoring system if the system is down for 10% or greater of the total operating time for the reporting system.

d. Report a failure to meet a standard due to a malfunction, along with the appropriate information and submit it in the semiannual summary report.

8. Recordkeeping Requirements

Dragon shall comply with the recordkeeping requirements as specified in 40 CFR Part 63, Subpart LLL §63.1355.

The following is a summary of the recordkeeping requirements contained in 40 CFR Part 63, Subpart LLL §63.1355. Dragon shall:

a. Maintain records for each affected source as required by §63.10(b)(2) and (b)(3): the occurrence and duration of each startup or shutdown when the

startup or shutdown causes exceedances; the occurrence and duration of each malfunction; all required maintenance performed on the air pollution control and monitoring equipment; each period during which a continuous monitoring system is malfunctioning or inoperative; all required measurements needed to demonstrate compliance with a relevant standard; all results of performance tests, continuous monitoring system performance evaluations, and opacity and visible emission observations; all measurements that may be necessary to determine the conditions of performance test and performance evaluations; all continuous monitoring system calibration checks; and all adjustments and maintenance performed on continuous monitoring systems.

b. Maintain records of all documentation supporting initial notifications and notification of compliance status; all records of applicability determination; all records required by §63.10(c) for the continuous monitoring systems (all required continuous monitoring system measurements; dates and times during which the continuous monitoring system was out of control and during which it was inoperative, except for zero and high-level checks; identification of excess emissions and parameter monitoring exceedances during normal operation, as well as during startup, shutdown, and malfunction; nature and cause of any malfunction; the corrected action taken or preventative measures adopted; nature of repairs or adjustments made to the continuous monitoring system that was inoperative or out of control; the total process operating time during the reporting period; all procedures that are part of a quality control program developed and implemented for the continuous monitoring system); annual records of the amount of clinker kiln dust (CKD) removed from the Kiln System; daily records of clinker production rates and kiln feed rates; records of the date, time and duration when startup or shutdown standards apply and the quantity of feed and fuel used during the startup or shutdown period; records of the date, time and duration of each malfunction causing a failure to meet an applicable standard; actions taken to minimize emissions during a malfunction; and records of the date, time and duration of each exceedance from an emissions standard or established operating parameter limit.

9. Temporary, Conditioned Exemption from Particulate Matter and Opacity Standards

Under certain conditions specified in 40 CFR Part 63, Subpart LLL §63.1357, Dragon may be temporarily exempt from particulate matter and opacity standards when performing correlation tests (correlating the monitoring systems to manual stack test methods).

## M. Emergency and Non-Emergency Internal Combustion Engines

Dragon operates three diesel-fired internal combustion engines, all manufactured prior to 2004: an Emergency Generator, Kiln Drive Engine, and Quarry #1 Pump.

The Emergency Generator is a CAT model 340B engine. The emergency engine is rated at 534 hp (approximately 3.7 MMBtu/hr) and powers a 350 kw gen set for emergency power to the main office and various tower needs. The motor was reconditioned and installed in 2007.

The Quarry #1 Pump is a Cummins model 855 and is rated at 240 hp (approximately 1.7 MMBtu/hr). It was installed in 1970 and reconditioned in 1986. The Quarry #1 Pump is used as an emergency water pump to dewater Quarry #1 in the event the electric pumps fail or lose power. The Quarry #1 Pump can also be used to pump process water to the Kiln System in the event the electric process water pumps malfunction or fail.

The Kiln Drive Engine, also called the kiln jacking engine, is a CAT model 340B engine rated at 140 hp (approximately 1.0 MMBtu/hr) installed in 1994. The Kiln Drive Engine is used to keep the kiln rotating in a power emergency. In addition to power emergencies, the Kiln Drive Engine may be used in non-emergency situations. During kiln startups, shutdowns, or malfunctions, the Kiln Drive Engine is used to rotate the kiln at slow speeds when there is no kiln feed and the kiln is not producing clinker. The kiln rotation is needed during periods of startup, shutdown, and malfunction to avoid thermal damage to the outer shell or internal refractory.

Previously, according to 06-096 CMR 140, Appendix B(B), the engines were considered insignificant activities due to their sizes. However, since the issuance of the last Part 70 license, 06-096 CMR 140 has been amended, including the elimination of the 3 MMBtu/hr licensing size threshold for stationary internal combustion engines (i.e. generators, fire pumps); thereby making the engines required to be addressed in this license.

1. New Source Performance Standards (NSPS)

The federal regulation 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* (CI ICE) is not applicable to the engines since the units were ordered prior to July 11, 2005, and manufactured prior to April 1, 2006.

Although the reconditioning of the motor of the Emergency Generator occurred in 2007 (after the applicability date of the NSPS), the cost was less

than 50% of the fixed capital cost that would be required to construct a comparable new source; therefore, the unit is still considered existing and is not considered a 'reconstructed' new source as defined in 40 CFR Part 63, §63.2. As an existing source, the Emergency Generator is not subject to 40 CFR Part 60, Subpart IIII.

2. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

The federal regulation 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines* is applicable to the three engines. The Emergency Generator and the Quarry #1 Pump are considered existing, emergency stationary reciprocating internal combustion engines at a major HAP source. EPA's August 9, 2010 memo (*Guidance Regarding Definition of Residential, Commercial, and Institutional Emergency Stationary RICE in the NESHAP for Stationary RICE*) specifically does not exempt these units from the federal requirements. The Kiln Drive Engine is considered an existing, non-emergency stationary reciprocating internal combustion engine at a major HAP source due to its use during startup, shutdowns, and malfunctions. However, in the future, if Dragon restricts the use of the Kiln Drive Engine to emergency situations only, it will be subject only to the emergency engine requirements.

a. Emergency Engine Requirements

The Emergency Generator and Quarry #1 Pump shall be subject to the following emergency engine requirements. The Kiln Drive Engine may be subject to these requirements in the future if the facility restricts operation of the Kiln Drive Engine to emergency situations only; otherwise the non-emergency requirements of 40 CFR Part 63, Subpart ZZZZ apply to the Kiln Drive Engine.

i. Emergency Definition:

Emergency stationary RICE means any stationary reciprocating internal combustion engine that meets all of the following criteria:

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of

fire or flood, etc. There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) Paragraph (1) above notwithstanding, the emergency stationary RICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:

(a) Maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(b) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(c) Periods where there is a deviation of voltage or frequency of five percent or greater below standard voltage or frequency.

(3) Paragraphs (1) and (2) above notwithstanding, emergency stationary RICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

The engines shall be limited to the usage outlined in §63.6640(f) and therefore may be classified as existing emergency stationary RICE as

defined in 40 CFR Part 63, Subpart ZZZZ. Failure to comply with all of the requirements listed in §63.6640(f) may cause these engines to not be considered emergency engines and therefore subject to all the requirements for non-emergency engines.

ii. 40 CFR Part 63, Subpart ZZZZ Requirements:

(1) Operation and Maintenance Requirements

| | **Operating Limitations* (40 CFR §63.6602 and Table 2c)** |
|---|---|
| Compression ignition (diesel, fuel oil) units | - Change oil and filter every 500 hours of operation or annually, whichever comes first;<br>- Inspect the air cleaner every 1000 hours of operation or annually, whichever comes first, and replace as necessary; and<br>- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. |

The engines shall be operated and maintained according to the manufacturer's emission-related written instructions or facility shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §63.6625(e)]

(2) Optional Oil Analysis Program
Dragon has the option of utilizing an oil analysis program which complies with the requirements of §63.6625(i) in order to extend the specified oil change requirement. If this option is used, Dragon must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR§63.6625(i)]

(3) Non-Resettable Hour Meter Requirement
A non-resettable hour meter shall be installed and operated on each engine. [40 CFR §63.6625(f)]

(4) Startup Idle and Startup Time Minimization Requirements
During periods of startup Dragon must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to

exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2c]

(5) Annual Time Limit For Maintenance and Testing
The engines shall each be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). [40 CFR §63.6640(f)]

(6) Recordkeeping
Dragon shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If the engines are operated during a period of demand response or deviation from standard voltage or frequency, Dragon shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes. [40 CFR §63.6655(e) and (f)]

(7) Requirements for Demand Response Availability Over 15 Hours Per Year (and greater than 100 brake HP)
If Dragon operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency), the facility shall submit an annual report containing the information in §63.6650(h)(1)(i) through (ix). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

U.S. Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100 (OES04-2)
Boston, MA 02109-3912
Attn: Air Compliance Clerk

[40 CFR §63.6650(h)]

b. Non-Emergency Engine Requirements

The Kiln Drive Engine is currently subject to the non-emergency requirements of 40 CFR Part 63, Subpart ZZZZ since the unit is used during startup, shutdown, and malfunctions in addition to emergency situations. If, in the future, the Kiln Drive Engine is utilized only for emergency situations, then the requirements summarized in section II(O)(2)(a) of this license applies. Currently, the following requirements for non-emergency engines are applicable to the Kiln Drive Engine:

i. Emission Limitations
The concentration of CO in the engine exhaust shall be limited to 230 ppmvd or less at 15% $O_2$. [§63.6602 and 40 CFR Part 63, Subpart ZZZZ, Table 2c]

ii. Initial Performance Testing
An initial performance test must be conducted in accordance with §63.6602, §63.6620, and 40 CFR Part 63, Subpart ZZZZ, Tables 4 and 5.

iii. Non-Resettable Hour Meter Requirement
A non-resettable hour meter shall be installed and operated on the engine. [40 CFR §63.6625(f)]

iv. Startup Idle and Startup Time Minimization Requirements
During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2c]

v. Operation and Maintenance
At all times the engine and associated air pollution control equipment and monitoring equipment must be operated and maintained in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 CFR §63.6605]

vi. Reporting and Notifications
Dragon shall submit the notifications, reports and records as required in §63.6645. Dragon has submitted the Initial Notice of Applicability.

vii. Recordkeeping
Dragon shall keep records that include copies of notifications and reports submitted, records of performance tests, malfunctions that occur and the corrective actions taken, and maintenance conducted on the engine and any associated air pollution control and monitoring equipment. [40 CFR §63.6655(e) and (f)]

3. Control Equipment

Dragon may install a diesel oxidation catalyst for the Kiln Drive Engine to ensure compliance with the CO emission standards pursuant to 40 CFR Part 63, Subpart ZZZZ. There are no control equipment devices installed on the Emergency Generator or Quarry #1 Pump.

4. Emission Limits and Streamlining

For the internal combustion engines, a listing of potentially applicable emission standards, the origin and authority of the standards, notation if streamlining of the standards has been requested, and the applicable emission limits can be found below.

| Pollutant | Applicable Emission Standard(s) | Unit | Origin and Authority | Licensed Emission Limit(s) |
|---|---|---|---|---|
| PM | 0.12 lb/MMBtu | Emergency Generator | 06-096 CMR 103 | 0.12 lb/MMBtu |
| | 0.45 lb/hr | Emergency Generator | 06-096 CMR 140, BPT | 0.45 lb/hr |
| | 0.20 lb/hr | Quarry #1 Pump | | 0.20 lb/hr |
| | 0.13 lb/hr | Kiln Drive Engine | | 0.13 lb/hr |
| $PM_{10}$ | 0.12 lb/MMBtu | Emergency Generator | 06-096 CMR 140, BPT | 0.12 lb/MMBtu |
| | 0.45 lb/hr | Emergency Generator | | 0.45 lb/hr |
| | 0.20 lb/hr | Quarry #1 Pump | | 0.20 lb/hr |
| | 0.13 lb/hr | Kiln Drive Engine | | 0.13 lb/hr |
| $SO_2$ | 0.006 lb/hr | Emergency Generator | 06-096 CMR 140, BPT and 0.0015% S limit, by weight | 0.006 lb/hr |
| | 0.003 lb/hr | Quarry #1 Pump | | 0.003 lb/hr |
| | 0.002 lb/hr | Kiln Drive Engine | | 0.002 lb/hr |
| $NO_X$ | 16.51 lb/hr | Emergency Generator | 06-096 CMR 140, BPT and AP-42 Table 3.3-1 dated 10/96 (4.41 lb/MMBtu) | 16.51 lb/hr |
| | 7.42 lb/hr | Quarry #1 Pump | | 7.42 lb/hr |
| | 4.64 lb/hr | Kiln Drive Engine | | 4.64 lb/hr |

| Pollutant | Applicable Emission Standard(s) | Unit | Origin and Authority | Licensed Emission Limit(s) |
|---|---|---|---|---|
| CO | 3.56 lb/hr | Emergency Generator | 06-096 CMR 140, BPT and AP-42 Table 3.3-1 dated 10/96 (0.95 lb/MMBtu) | 3.56 lb/hr |
| | 1.60 lb/hr | Quarry #1 Pump | | 1.60 lb/hr |
| | 1.0 lb/hr | Kiln Drive Engine | | 1.0 lb/hr |
| VOC | 1.35 lb/hr | Emergency Generator | 06-096 CMR 140, BPT and AP-42 Table 3.3-1 dated 10/96 (0.36 lb/MMBtu) | 1.35 lb/hr |
| | 0.61 lb/hr | Quarry #1 Pump | | 0.61 lb/hr |
| | 0.38 lb/hr | Kiln Drive Engine | | 0.38 lb/hr |
| Visible Emissions | No greater than 20% opacity on a 6-min block avg, except for no more than two 6-min block avg in a 3-hr period | Emergency Generator | 06-096 CMR 101, Section 2(B)(1)(d) | No greater than 20% opacity on a 6-min block avg, except for no more than two 6-min block avg in a 3-hr period |
| | | Quarry #1 Pump | | |
| | | Kiln Drive Engine | | |

Table Note: % S = percent fuel sulfur, by weight

5. Emission Limit Compliance Methods

Compliance with the emission limits associated with the engines shall be demonstrated in accordance with the appropriate test methods upon request of the Department.

6. Compliance Assurance Monitoring

CAM is not applicable to the engines.

7. Periodic Monitoring

Dragon shall monitor and record parameters for each engine as indicated in the following table:

| Parameter | Units | Monitoring Tool/Method | Frequency |
|---|---|---|---|
| Distillate fuel sulfur content | percent, by weight | fuel purchase records from supplier | as fuel is purchased |
| Operating time | hours | hour meter | annually |
| Type of Operation (emergency, maintenance, etc.) | N/A | operating records | following each operational period |

8. Parameter Monitors

There are no parameter monitors required for the engines.

9. CEMS and COMS

There are no CEMS or COMS required for the engines.

## N. Facility Annual Emissions

1. Total Annual Emissions

Dragon is licensed for the following annual emissions, based on a 12-month rolling total. The tons per year limits were calculated based on 8760 hours/year operation for PM emissions from the Kiln System and Clinker Cooler; previous tpy limits for $SO_2$, $NO_X$, CO, and VOC from the Kiln System and Clinker Cooler (established in the licensing of the wet to dry process modification); and 100 hours/year operation for each generator:

**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 | 0.02 | 0.02 | 0.0003 | 0.83 | 0.18 | 0.07 | -- |
| Quarry #1 Pump | 0.01 | 0.01 | 0.0001 | 0.37 | 0.08 | 0.03 | -- |
| Kiln Emergency Drive Engine | 0.01 | 0.01 | 0.0001 | 0.23 | 0.05 | 0.02 | -- |
| **Total TPY** | **81.3** | **81.3** | **306.6** | **1,534.4** | **843.5** | **57.6** | **32.9** |

The potential for HAP emissions are greater than 10 tpy of any single HAP and 25 tpy of total HAPs.

2. Greenhouse Gases

Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans,* 40 CFR Part 52, Subpart A, §52.21, *Prevention of Significant Deterioration of Air Quality* rule. Greenhouse gases, as defined in 06-096 CMR 100 (as amended), are the aggregate group of the following gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes,

greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents ($CO_2e$).

The quantity of $CO_2e$ emissions from this facility is greater than 100,000 tons per year, based on the following:

- worst case emission factors from the following sources: U.S. EPA's AP-42, the Intergovernmental Panel on Climate Change (IPCC), and 40 CFR Part 98, *Mandatory Greenhouse Gas Reporting*; and
- global warming potentials contained in 40 CFR Part 98.

As defined in 06-096 CMR 100, any source emitting 100,000 tons/year or more of $CO_2e$ is a major source for GHG.

## 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 Part 70 License.

## ORDER

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

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

The Department hereby grants the Part 70 License A-326-70-E-R/A pursuant to 06-096 CMR 140 and the preconstruction permitting requirements of 06-096 CMR 115 and subject to the standard and specific conditions below.

All federally enforceable and State-only enforceable conditions in existing air licenses previously issued to Dragon pursuant to the Department's preconstruction permitting requirements in 06-096 CMR 108 or 115 have been incorporated into this Part 70 license, except for such conditions that the Department has determined are obsolete, extraneous, or otherwise environmentally insignificant, as explained in the findings of fact of this license. As such, the conditions in this license supersede all previously issued air license conditions.

Federally enforceable conditions in this Part 70 license must be changed pursuant to the applicable requirements in 06-096 CMR 115 for making such changes and pursuant to the applicable requirements in 06-096 CMR 140.

For each standard and specific condition which is state enforceable only, state-only enforceability is designated with the following statement: **Enforceable by State-only**.

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.

**STANDARD STATEMENTS**

(1) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both; [06-096 CMR 140]

(2) The Part 70 license does not convey any property rights of any sort, or any exclusive privilege; [06-096 CMR 140]

(3) All terms and conditions are enforceable by EPA and citizens under the CAA unless specifically designated as state enforceable. [06-096 CMR 140]

(4) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license; [06-096 CMR 140]

(5) Notwithstanding any other provision in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 140]

(6) Compliance with the conditions of this Part 70 license shall be deemed compliance with any Applicable requirement as of the date of license issuance and is deemed a permit shield, provided that:

A. Such Applicable and state requirements are included and are specifically identified in the Part 70 license, except where the Part 70 license term or condition is specifically identified as not having a permit shield; or

B. The Department, in acting on the Part 70 license application or revision, determines in writing that other requirements specifically identified are not

applicable to the source, and the Part 70 license includes the determination or a concise summary, thereof.

Nothing in this section or any Part 70 license shall alter or affect the provisions of Section 303 of the CAA (emergency orders), including the authority of EPA under Section 303; the liability of an owner or operator of a source for any violation of Applicable requirements prior to or at the time of permit issuance; or the ability of EPA to obtain information from a source pursuant to Section 114 of the CAA.

The following requirements have been specifically identified as not applicable based upon information submitted by the licensee.

| Source | Citation | Description | Basis for Determination |
|---|---|---|---|
| Cement Kiln | Chapter 106 | Low Sulfur Fuel Regulation | Kiln is an approved sulfur removal device |
| Cement Kiln | Chapter 104 | Incinerator Particulate Emission Standard | Kiln is not an incinerator |
| Cement Kiln | Chapter 138 | $NO_X$ RACT | Kiln is Subject to BACT |
| Cement Kiln | Chapter 134 | VOC RACT | Kiln is Subject to BACT |
| Coal Mill System - conveying system transfer points | 40 CFR Part 60, Subpart Y | Standards of Performance for Coal Preparation Plants | Conveying system transfer points are subject to 40 CFR Part 63, Subpart LLL, Portland Cement MACT, §63.1340(b)(7) [Note: Dragon currently fires petcoke, but Dragon may be subject to applicable requirements of 40 CFR Part 60, Subpart Y for coal preparation and processing if more than 200 tons of coal per day are processed.] |
| Cement Kiln | 40 CFR Part 60, Subpart HH | Standards of Performance for Lime Manufacturing Plants | Dragon does not manufacture lime. Cement Kiln subject to 40 CFR Part 63, Subpart LLL, Portland Cement MACT |
| Quarry Crushers | 40 CFR Part 60, Subpart LL | Standards of Performance for Metallic Mineral Processing Plants | Not a metallic mineral processor |
| Cement Kiln | 40 CFR Part 60, Subpart OOO | Standards of Performance for Nonmetallic Mineral Processing Plants | Subject to 40 CFR Part 63, Subpart LLL, Portland Cement MACT |

| Source | Citation | Description | Basis for Determination |
|---|---|---|---|
| Quarry Crushers | 40 CFR Part 60, Subpart OOO | Standards of Performance for Nonmetallic Mineral Processing Plants | Crushers in place prior to applicability date |
| Cement Kiln | 40 CFR Part 60, Subpart UUU | Standards of Performance for Calciners and Dryers in Mineral Industries | Not a calciner or dryer and cement kiln is Subject to 40 CFR Part 63, Subpart LLL, Portland Cement MACT |
| Cement Kiln | 40 CFR Part 60, Subpart Eb | Standard of Performance for Municipal Waste Combustors | Kiln is not a municipal waste combustor. |

[06-096 CMR 140]

(7) The Part 70 license shall be reopened for cause by the Department or EPA, prior to the expiration of the Part 70 license, if:

A. Additional Applicable requirements under the CAA become applicable to a Part 70 major source with a remaining Part 70 license term of 3 or more years. However, no opening is required if the effective date of the requirement is later than the date on which the Part 70 license is due to expire, unless the original Part 70 license or any of its terms and conditions has been extended pursuant to 06-096 CMR 140;

B. Additional requirements (including excess emissions requirements) become applicable to a Title IV source under the acid rain program. Upon approval by EPA, excess emissions offset plans shall be deemed to be incorporated into the Part 70 license;

C. The Department or EPA determines that the Part 70 license contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the Part 70 license; or

D. The Department or EPA determines that the Part 70 license must be revised or revoked to assure compliance with the Applicable requirements.

The licensee shall furnish to the Department within a reasonable time any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the Part 70 license or to determine compliance with the Part 70 license.

[06-096 CMR 140]

(8) No license revision or amendment shall be required, under any approved economic incentives, marketable licenses, emissions trading and other similar

programs or processes for changes that are provided for in the Part 70 license. [06-096 CMR 140]

**STANDARD CONDITIONS**

(1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions and this license (38 M.R.S.A. §347-C).

(2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 140. [06-096 CMR 140]

(3) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 140]
**Enforceable by State-only**

(4) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to 38 M.R.S.A. §353-A.

(5) The licensee shall maintain and operate all emission units and air pollution control systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 140]
**Enforceable by State-only**

(6) The licensee shall retain records of all required monitoring data and support information for a period of at least six (6) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the Part 70 license. The records shall be submitted to the Department upon written request or in accordance with other provisions of this license. [06-096 CMR 140]

(7) The licensee shall comply with all terms and conditions of the air emission license. The submission of notice of intent to reopen for cause by the Department, the filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the

licensee for the renewal of a Part 70 license or amendment shall not stay any condition of the Part 70 license. [06-096 CMR 140]

(8) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:

A. perform stack testing under circumstances representative of the facility's normal process and operating conditions:

1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions;

2. to demonstrate compliance with the applicable emission standards; or

3. pursuant to any other requirement of this license to perform stack testing.

B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and

C. submit a written report to the Department within thirty (30) days from date of test completion.

[06-096 CMR 140]

**Enforceable by State-only**

(9) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicates emissions in excess of the applicable standards, then:

A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and

B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that

there were intervening days during which no violation occurred or that the violation was not continuing in nature; and

C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.

[06-096 CMR 140]

**Enforceable by State-only**

(10) The licensee shall maintain records of all deviations from license requirements. Such deviations shall include, but are not limited to malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emission unit itself that is not consistent with the terms and conditions of the air emission license.

A. The licensee shall notify the Commissioner within 48 hours of a violation of any emission standard and/or a malfunction or breakdown in any component part that causes a violation of any emission standard, and shall report the probable cause, corrective action, and any excess emissions in the units of the applicable emission limitation;

B. The licensee shall submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component part causes a violation of any emission standard, together with any exemption requests.

Pursuant to 38 M.R.S.A. § 349(9), the Commissioner may exempt from civil penalty an air emission in excess of license limitations if the emission occurs during start-up or shutdown or results exclusively from an unavoidable malfunction entirely beyond the control of the licensee and the licensee has taken all reasonable steps to minimize or prevent any emission and takes corrective action as soon as possible. There may be no exemption if the malfunction is caused, entirely or in part, by poor maintenance, careless operation, poor design or any other reasonably preventable condition or preventable equipment breakdown. The burden of proof is on the licensee seeking the exemption under this subsection.

C. All other deviations shall be reported to the Department in the facility's semiannual report.

[06-096 CMR 140]

(11) Upon the written request of the Department, the licensee shall establish and maintain such records, make such reports, install, use, and maintain such

monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 140]

(12) The licensee shall submit semiannual reports of any required periodic monitoring. All instances of deviations from Part 70 license requirements must be clearly identified in such reports. All required reports must be certified by a responsible official. [06-096 CMR 140]

(13) The licensee shall submit a compliance certification to the Department and EPA at least annually, or more frequently if specified in the applicable requirement or by the Department. The compliance certification shall include the following:

A. The identification of each term or condition of the Part 70 license that is the basis of the certification;
B. The compliance status;
C. Whether compliance was continuous or intermittent;
D. The method(s) used for determining the compliance status of the source, currently and over the reporting period; and
E. Such other facts as the Department may require to determine the compliance status of the source.

[06-096 CMR 140]

## SPECIFIC CONDITIONS

### (14) Dry Process Portland Cement Kiln System

The requirements of this condition apply to the Dry Process Portland Cement Kiln System (including the raw mill alkali bypass) emitted through the main kiln stack.

A. Dragon is licensed to fire one or a combination of the following as fuel in the Kiln System [A-326-71-U-A/R (Nov. 19, 2002) and 06-096 CMR 140]:
   1. coal;
   2. petroleum coke;
   3. #4 and distillate fuel oil blends;
   4. distillate fuel oil;
   5. specification waste oil and non-specification waste oil;
   6. whole tires and tire chips; and
   7. polypropylene/polyester fiber material.

B. In addition to the basic raw materials used in the Kiln System (sources of calcium, iron, silica, and alumina), Dragon may also use one or a

combination of the following raw materials [A-326-71-U-A/R (November 19, 2002)]:

1. petroleum-contaminated soils;
2. landfill leachate;
3. petroleum-contaminated water;
4. fly ash;
5. Kraft pulp mill green liquor dregs;
6. lime mud, and lime wastes (eg. PCC Grit);
7. slaker grit;
8. foundry sand; and
9. alternative raw materials that comply with the provisions in Specific Condition 14(C).

C. Use of Alternative Fuels and Raw Materials [A-326-71-U-A/R (November 19, 2002)]

1. Dragon is licensed to utilize alternate fuels and raw materials in the Kiln System to the extent the material or fuels comply with all of the provisions of this subsection.
   a. Proposed alternate fuels or raw materials shall not be RCRA hazardous waste according to 40 CFR Part 261 and applicable state law. This determination may be made by lab analyses or generator knowledge.
   b. Proposed alternate fuels or raw materials shall not be medical wastes according to 40 CFR Part 259 and/or applicable state law.
   c. Proposed alternate fuels or raw materials must be determined to be acceptable by Dragon's Alternate Fuels Management Program.
   d. The storage and handling of alternate fuels or raw materials shall be conducted such that fugitive emissions are minimized and are managed in accordance with applicable requirements.
   e. The use of alternative fuels or raw materials would not be expected to cause an exceedance of the applicable emission limits in this license.

2. After conducting trials using the alternative fuel and/or raw material in the kiln, if Dragon proposes an ongoing use of the alternative fuel and/or raw material, Dragon shall notify the Department in writing of its intention to use an alternate fuel or raw material that meets the criteria outlined above. The notification to the Department shall include:
   a. A characterization of the fuel or raw material (including results of testing that may have been performed in conjunction with trials);
   b. The intended use rate of the fuel or raw material; and
   c. A description of the method of introduction into the kiln system.

3. In the event that the Department has not adversely responded to the notification within seven (7) calendar days of receipt of the notification

provided by Dragon, then Dragon shall be allowed to implement the use of the fuels or raw materials for which notification was provided.

4. Dragon will maintain daily records of the amount of alternate fuel(s) and raw material(s) used in the process.

5. Notwithstanding this alternative fuels and raw material protocol, Dragon shall comply with applicable rules, including obtaining the appropriate pre-construction permits when applicable. Use of alternative fuels or raw materials shall not constitute a "modification" of the Kiln System provided the alternative fuel or raw materials can be accommodated by the Kiln System under its original design.

6. Within 30 days following notification of the Department by Dragon of using an alternative fuel or raw material, the Department will notify Dragon whether the use of said material would constitute a significant change of feed or fuel for purposes of performance testing requirement in 40 CFR Part 63, Subpart LLL, §63.1349(e).

D. Kiln System Control Equipment

1. Dragon shall operate a fabric filter dust collector to control particulate matter emissions from the main stack. [A-326-71-U-A/R (Nov. 19, 2002)]

2. Dragon shall operate a selective non-catalytic reduction (SNCR) system to meet the nitrogen oxide emissions limit from the main stack. [A-326-70-B-A (July 24, 2007)]

E. Kiln System Emission Limits and Standards

The Kiln System (including the raw mill alkali bypass) shall be limited to the following emission limits and standards:

| Pollutant | Licensed Emission Limits and Standards | Operating Scenario | Origin and Authority |
|---|---|---|---|
| PM | 9.4 lb/hr | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 0.07 lb/ton clinker[g] | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) |
| | work practices[g] | startup and shutdown[a] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) |
| $PM_{10}$ | 9.4 lb/hr | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |

| Pollutant | Licensed Emission Limits and Standards | Operating Scenario | Origin and Authority |
|---|---|---|---|
| $SO_2$ | 1000 lb/hr (1-hour block average) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 70 lb/hr (90-day rolling average[c]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 306.6 tons/yr (12-month rolling total, calculated at the end of each calendar month[c]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| $NO_x$ ($NO_X$ reported as $NO_2$) | 1200 lb/hr (1-hour block average) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 350.0 lb/hr (90-day rolling average[c]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 1533.0 tons/yr (12-month rolling total, calculated at the end of each calendar month[c]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| CO | 500 lb/hr (1-hour block average) | normal operations | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 192.5 lb/hr (90-day rolling average[c]) | normal operations | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 843.2 tons/yr (12-month rolling total, calculated at the end of each calendar month[c]) | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 500.0 lb/hr (2-hour block average) | startup, shutdown, malfunction[a] | 06-096 CMR 115, BACT (A-326-77-2-A) & Facility Specific EPA Requirement |
| | 2.6 lb/ton of clinker (30-operating day rolling average[d]) | normal operations, except during the curing period after 're-bricking occurs when no clinker is produced. | 06-096 CMR 115, BACT (A-326-77-2-A) & Facility Specific EPA Requirement |
| | 3.2 lb/ton of clinker[b] (30-operating day rolling average[d]) | during usage of permitted alternative fuels, except during the curing period after 're-bricking occurs when no clinker is produced. | 06-096 CMR 115, BACT (A-326-77-2-A) & Facility Specific EPA Requirement |
| VOC | 13.13 lb/hr | all | 06-096 CMR 115, BACT (A-326-71-U-A/R, Nov. 19, 2002) |
| | 57.5 tons/yr (12-month rolling total, calculated at the end of each calendar month[c]) | all | |

| Pollutant | Licensed Emission Limits and Standards | Operating Scenario | Origin and Authority |
|---|---|---|---|
| Visible Emissions (Opacity) | 20% opacity on a 6-minute block average basis, except for not more than one six minute block average in a 1-hr period<br><br>**Enforceable by State Only** | all except for when the exhaust, as measured at the kiln ID fan is less than 250°F, monitored opacity greater than 20% as measured on a 6 minute block average basis is not considered an excess emission | 06-096 CMR 140, BPT (A-326-70-A-I, Dec. 31, 2003) |
| Ammonia ($NH_3$) | 20 ppmdv corrected to 7% $O_2$ (1-hr block average) **Enforceable by State Only** | raw mill on | A-326-70-B-A (July 24, 2007) |
| | 6.3 lb/hr **Enforceable by State Only** | | |
| | 40 ppmdv corrected to 7% $O_2$ (1-hr block average) **Enforceable by State Only** | raw mill off | A-326-70-B-A (July 24, 2007) |
| | 12.3 lb/hr **Enforceable by State Only** | | |
| Dioxin/ Furans | 0.2 ng/dscm (TEQ[f]) corrected to 7% $O_2$ (rolling 30-day average[f]) | normal operation and if the average inlet temperature to the first PM control device during the D/F performance test is >400°F | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) |
| | 0.4 ng/dscm (TEQ[f]) corrected to 7% $O_2$ (rolling 30-day average[f]) | normal operation and if the average inlet temperature to the first PM control device during the D/F performance test is ≤400°F | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) |
| | work practices[g] | startup and shutdown[a] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) |

| Pollutant | Licensed Emission Limits and Standards | Operating Scenario | Origin and Authority |
|---|---|---|---|
| Mercury | 55 lb/MM tons clinker[g] (rolling 30-day average[e]) | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) |
| | work practices[g] | startup and shutdown[a] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) |
| | 42 lb/calendar year | all | 38 M.R.S.A. 585-B(5)(B) and A-326-77-3-A (7/17/2014) |
| THC (measured as propane) | 24 ppmvd corrected to 7% $O_2$[g] **or** alternative limit of 12 ppmvd for total organic HAP corrected to 7% $O_2$[g] (both on a rolling 30-day average[e]) | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) |
| | work practices[g] | startup and shutdown[a] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) |
| HCl | 3 ppmvd corrected to 7% $O_2$[h] (rolling 30-day average[e]) | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) |
| | work practices[g] | startup and shutdown[a] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1346(f) |

Table Notes:

[a] Startup/Shutdown Definitions:

*Startup* means the time from when a shutdown kiln first begins firing fuel until it begins producing clinker. Startup begins when a shutdown kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup ends when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first. Defined in 40 CFR Part 63, §63.1341.

*Shutdown* means the cessation of kiln operation. Shutdown begins when feed to the kiln is halted and ends when continuous kiln rotation ceases. Defined in 40 CFR Part 63, §63.1341.

[b] Emissions of CO shall not exceed Q, expressed as lb CO/ton clinker on a 30-operating day rolling average, when firing permitted alternative fuels:

$$Q = [L1 * C] + [L2 * PAF]$$

Where:

L1 = 2.6 lb CO/ton clinker

L2 = 3.2 lb CO/ton clinker

C = % (decimal or fraction less than 1) of BTUs input during the 30-day period from coal, pet coke and other fuels that are not considered to be permitted alternative fuels; C=1-PAF.

PAF = % (decimal or fraction less than 1) of BTUs input during the 30-day period from the combustion of permitted alternative fuels. Permitted alternative fuels and raw materials are only

those which would be expected to increase CO emissions, such as tires, petroleum contaminated soils, and green liquor dregs and lime mud from paper mills. A permitted alternative fuel does not include coal, coke, waste oil, or any other fuel not likely to increase CO emissions.

[c] '90-day rolling average' and '12-month rolling total' are calculated as consecutive days or months and include operating and non-operating days.

[d] '30-operating day rolling average' for the CO lb/ton of clinker limit is calculated by dividing the total emissions over the past 30 operating days by the total tonnage of clinker produced during that period. Operating day means any 24-hr period beginning at 12:00 midnight during which the kiln operates for any time. For calculating the 30-operating day rolling average emissions, kiln operating days do not include the hours of operation during startup or shutdown.

[e] 'rolling 30-day average' for mercury, THC, and HCl is defined in 40 CFR Part 63, Subpart LLL §63.1343(a) as "The 30-day period means 30 consecutive kiln operating days excluding periods of startup and shutdown." Operating day is defined in 40 CFR Part 63, Subpart LLL §63.1341 as "Operating day means any 24-hr period beginning at 12:00 midnight during which the kiln operates for any time. For calculating the rolling 30-day average emissions, kiln operating days do not include the hours of operation during startup or shutdown."

[f] TEQ means the international method of expressing toxicity equivalents for dioxins and furans as defined in U.S. EPA, Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and –dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989.

[g] In effect on the compliance date in 40 CFR Part 63, Subpart LLL (currently stated as September 9, 2015 in the rule) or until the source certifies compliance with the limits, whichever is earlier (§63.1343(a)).

[h] The compliance demonstration date for HCl is September 9, 2016 since Dragon received a 1 year extension due to availability issues with the HCl monitor calibration gas.

F. Emission Limit Compliance Methods

Compliance with the emission limits listed above shall be demonstrated in accordance with the following methods and frequencies, or other methods and frequencies as approved by the Department [06-096 CMR 140, BPT and 40 CFR Part 63, Subpart LLL]:

| Pollutant | Applicable Emission Limit | Compliance Method | Origin and Authority | Frequency |
|---|---|---|---|---|
| PM | lb/hr and lb/ton of clinker | Stack Test: 40 CFR Part 60, App. A, Method 5 or 5I and shall consist of three 1-hr tests | A-326-71-U-A/R, BACT (Nov. 19, 2002) and §63.1349(b)(1) | every 12 months |
| | lb/ton of clinker | Particulate Matter Continuous Parameter Monitoring System (PM CPMS) | 40 CFR Part 63, Subpart LLL, §63.1348(b)(2), §63.1349(b)(1), and §63.1350(b)(1) and (d) | continuously |
| $PM_{10}$ | lb/hr | Stack Test: 40 CFR Part 60, App. A, Method 5 or EPA Test Method 201 or 201A and shall consist of three 1-hr tests | A-326-71-U-A/R, BACT (Nov. 19, 2002) | as requested |
| $SO_2$ | lb/hr | Calculated from CEMS data | A-326-71-U-A/R, BACT (Nov. 19, 2002) | continuously (in accordance with 40 CFR Part 60, App. B) |
| $NO_X$ | lb/hr | Calculated from CEMS data | 06-096 CMR 117 | continuously (in accordance with 40 CFR Part 60, App. B) |
| CO | lb/hr and lb/ton of clinker | Calculated from CEMS data | 06-096 CMR 117 | continuously (in accordance with 40 CFR Part 60, App. B) |
| VOC | lb/hr | Stack Test: 40 CFR Part 60, App. A, Method 25 or 25A | A-326-71-U-A/R, BACT (Nov. 19, 2002) | as requested |
| Visible Emissions | % | COMS | 06-096 CMR 117 | continuously (in accordance with 40 CFR Part 60, App. B) |
| $NH_3$ | ppmdv and lb/hr | Stack Test: Conditional Test Method 027 | A-326-70-B-A (July 24, 2007) | once every other year* |
| Dioxin/ Furans | ng/dscm | Stack Test: 40 CFR Part 60, App. A, Method 23 | 40 CFR Part 63, Subpart LLL, §63.1348(b)(4), §63.1349(b)(3), and §63.1350(g) | every 30 months |
| | | Kiln System baghouse inlet temperature | | continuously |

| Pollutant | Applicable Emission Limit | Compliance Method | Origin and Authority | Frequency |
|---|---|---|---|---|
| Hg | lb/MM tons clinker and lb/calendar year | Calculated from CEMS data** | A-326-77-3-A (July 17, 2014) and 40 CFR Part 63, Subpart LLL, §63.1348(b)(7), §63.1349(b)(5), and §63.1350(k) | continuously (in accordance with 40 CFR Part 60, App. B) |
| THC | ppmvd | CEMS | 40 CFR Part 63, Subpart LLL, §63.1348(b)(4), §63.1349(b)(4), and §63.1350(i) | continuously (in accordance with 40 CFR Part 60, App. B) |
| HCl | ppmvd | CEMS *** | 40 CFR Part 63, Subpart LLL, §63.1348(b)(8), §63.1349(b)(6), and §63.1350(l) | continuously (in accordance with 40 CFR Part 60, App. B) |

Table Notes:

* For ammonia ($NH_3$), stack testing is not required if a CEMS is utilized in the future to continuously monitor $NH_3$ emissions.

** For calendar year 2015, compliance with the lb/calendar year mercury limit shall be based on the average mercury emission factor calculated from the previous CEMS trial data (0.054 lb/hr) and the actual production hours from January until the date the permanent CEMS is certified (no later than September 9, 2015). This calculation shall be added to the actual CEMS data collected from the date of the CEMS certification through December 2015 to get the total mercury emissions for 2015.

*** Dragon requested and received a compliance demonstration extension for 1 year (until September 9, 2016) for HCl due to the delay in availability of NIST-traceable (National Institute for Standards and Technology) calibration gases required for HCl CEMS.

G. Operating Requirements for the Kiln System and Controls

1. Inlet Temperature to the Kiln System Baghouse

Dragon shall operate the kiln such that the temperature of the gas at the inlet to the Kiln System baghouse does not exceed the applicable temperature limit as described in §63.1346(a) and (b) and §63.1349(b)(3)(iv) and established through the performance testing for dioxin/furans. The established temperature limit shall not be exceeded, except during periods of startup and shutdown when the temperature limit

may be exceeded by no more than 10%. [40 CFR Part 63, Subpart LLL, §63.1346(a)]

2. Aqueous Ammonia Injection Requirements

   Aqueous ammonia shall not be injected into the kiln/calciner system until the gas temperature in the calciner is a minimum of 1600°F as demonstrated by the mid-calciner thermocouple. [A-326-70-B-A (July 24, 2007)]

3. Beneficial Use of Off-site Waste Water

   The beneficial use of off-site waste water in the Kiln System, including landfill leachate and petroleum contaminated waters, shall be limited to 50,000 gallons per day. [A-326-71-U-A/R (Nov. 19, 2002)]

4. Startup and Shutdown Operational Requirements

   a. During startup until the kiln reaches 1200°F, Dragon shall use any one or combination of clean fuels, including natural gas, synthetic natural gas, propane, distillate fuel, syntheses gas (syngas), and ultra-low sulfur diesel.
   b. Combustion of the primary fuel may commence once the kiln temperature reaches 1200°F.
   c. All air pollution control devices must be turned on and operating prior to combusting any fuel.
   d. Records as specified in 40 CFR Part 63, Subpart LLL, §63.1355 must be maintained during periods of startup and shutdown.

   [40 CFR Part 63, Subpart LLL, §63.1346(g)]

H. Periodic Monitoring

Dragon shall monitor and record parameters for the Kiln System and its associated air pollution control equipment as indicated in the following table whenever the equipment is operating.

| Parameter | Unit of Measure | Monitoring Tool/Method | Origin and Authority | Frequency |
|---|---|---|---|---|
| Petroleum Coke use | tons | fuel metering | 06-096 CMR 140, BPT | daily, monthly, and 12-month rolling total |
| Coal use | tons | fuel metering | | |
| Distillate fuel use | gallons | fuel flow meter | | |
| #4 fuel oil use | gallons | fuel flow meter | | |

| Parameter | Unit of Measure | Monitoring Tool/Method | Origin and Authority | Frequency |
|---|---|---|---|---|
| Waste oil use | gallons | estimated amount collected and burned | 06-096 CMR 140, BPT | daily, monthly, and 12-month rolling total |
| Whole tires or tire chips use | tons | fuel metering | 06-096 CMR 140, BPT | daily, monthly, and 12-month rolling total |
| Polypropylene/ polyester fiber material fired | lbs or tons | fuel metering | A-326-77-6 (May 30, 2013) | daily, monthly, and 12-month rolling total |
| Beneficial use of off-site waste water, including landfill leachate and petroleum contaminated waters | gal/day | metering | A-326-71-U-A/R (Nov. 19, 2002) | daily |
| Raw Mill Operations | on or off | operations records | 06-096 CMR 140, BPT | as operated |
| Mid-calciner temperature for $NH_3$ injection | °F | thermocouple | A-326-70-B-A (July 24, 2007) | continuously |
| Kiln System feed rate | tons feed rate/hr | weight scale system | 40 CFR Part 63, Subpart LLL, §63.1355(e) | hourly and daily |
| Clinker production rate | tons of clinker/hr **or** tons feed rate/hr (with calculated input/output ratio) | weight scale system | 40 CFR Part 63, Subpart LLL, §63.1350(d) and §63.1355(e) | hourly and daily |
| Clinker kiln dust (CKD) removed from the Kiln System | tons | records of CKD disposed of as solid waste or otherwise recycled for a beneficial use outside of the Kiln System | 40 CFR Part 63, Subpart LLL, §63.1355(d) | annually |

I. Parameter Monitors

Parameter monitoring, including monitoring and recording, for the Kiln System shall consist of the following whenever the equipment is operating:

| Parameter | Unit of Measure | Monitoring Tool/Method | Origin and Authority | Frequency |
|---|---|---|---|---|
| Kiln System baghouse inlet temperature | °F | continuous monitoring system with thermocouple | 40 CFR Part 63, Subpart LLL, §63.1350(g) | continuously |
| PM | milliamp output and PM concentration | PM Continuous Parameter Monitoring System (PM CPMS) | 40 CFR Part 63, Subpart LLL §63.1350(b) | continuously |
| Stack Exhaust Gas Flow Rate | flow rate (appropriate measurement to determine pollutant mass emissions rate in lb/ton of clinker) | continuous flow rate monitoring system | 40 CFR Part 63, Subpart LLL §63.1350(n) | continuously |

J. CEMS and COMS

1. Dragon shall operate and maintain the following continuous emission monitoring systems (CEMS) and the continuous opacity monitoring systems (COMS) for the Kiln System:

| Pollutant and Continuous Monitor | Unit of Measure | Origin and Authority |
|---|---|---|
| $NO_X$ CEMS | concentration | 06-096 CMR 117 and A-326-71-U-A/R (Nov. 19, 2002) |
| $SO_2$ CEMS | concentration | 06-096 CMR 117 and A-326-71-U-A/R (Nov. 19, 2002) |
| CO CEMS | concentration | 06-096 CMR 117 and A-326-71-U-A/R (Nov. 19, 2002) |
| $O_2$ CEMS | % | 06-096 CMR 117 |
| Opacity COMS | % | 06-096 CMR 117 |
| Mercury CEMS | concentration | 40 CFR Part 63, Subpart LLL, §63.1350(k) |
| THC CEMS | concentration | 40 CFR Part 63, Subpart LLL,§63.1350(i) |
| HCl CEMS | concentration | 40 CFR Part 63, Subpart LLL,§63.1350(l) |

2. With installed CEMS equipment utilizing FTIR (Fourier Transform Infrared Spectroscopy) technology, one CEMS may be operated to obtain data for more than one pollutant, as appropriate. [06-096 CMR 140]

K. $NO_X$ EPA Consent Agreement and Final Order

Dragon shall comply with the remaining requirements of the EPA Consent Agreement and Final Order (CAFO) (Docket No. CAA 01-2013-0053 filed with the Regional Hearing Clerk on September 17, 2013) and air emission license amendment A-326-77-7-M (Feb. 25, 2014), including, but not limited to: operating during a demonstration period when the SNCR shall be operated to maintain a molar ratio of 1.0 (with a ratio adjustment allowed if needed to meet ammonia slip limits), submitting a Demonstration Report at the end of the demonstration period with a proposed 30 day rolling average emission limit of lb $NO_X$/ton clinker, and applying for a license amendment.

(15) **Clinker Cooler**

A. Clinker Cooler Control Equipment

Dragon shall operate a fabric filter dust collector to control particulate matter emissions from the clinker cooler stack. [A-326-71-U-A/R (Nov. 19, 2002)]

B. Clinker Cooler Emission Limits and Standards

The Clinker Cooler stack shall be limited to the following emission limits and standards:

| Pollutant | Licensed Emission Limits and Standards | Operating Scenario | Origin and Authority |
|---|---|---|---|
| PM | 9.15 lb/hr | all | A-326-71-U-A/R, BACT (Nov. 19, 2002) |
| | 0.07 lb/ton clinker[b] | normal operation | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) |
| | work practices[b] | startup and shutdown[a] | 40 CFR Part 63, Subpart LLL, §63.1343(b)(1) and §63.1348(b)(9) |
| Visible Emissions (Opacity) | 10% opacity on a 6-minute block average basis **Enforceable by State Only** | all | 06-096 CMR 140, BPT |

Table Notes:

[a] Startup/Shutdown Definitions:

*Startup* means the time from when a shutdown kiln first begins firing fuel until it begins producing clinker. Startup begins when a shutdown kiln turns on the induced draft fan and begins firing fuel in the main burner. Startup ends when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 60 percent of the kiln design limitation rate, whichever occurs first.

*Shutdown* means the cessation of kiln operation. Shutdown begins when feed to the kiln is halted and ends when continuous kiln rotation ceases.

[b] In effect on the compliance date in 40 CFR Part 63, Subpart LLL (currently stated as September 9, 2015 in the rule) or until the source certifies compliance with the limits, whichever is earlier (§63.1343(a)).

C. Emission Limit Compliance Methods

Compliance with the emission limits listed above shall be demonstrated in accordance with the following methods and frequencies, or other methods and frequencies as approved by the Department:

| Pollutant | Applicable Emission Limit | Compliance Method | Origin and Authority | Frequency |
|---|---|---|---|---|
| PM | lb/hr and lb/ton of clinker | Stack Test: 40 CFR Part 60, App. A, Method 5 or 5I and shall consist of three 1-hr tests | A-326-71-U-A/R, BACT (Nov. 19, 2002) and 40 CFR Part 63, Subpart LLL, §63.1349(b)(2) | every 12 months |
| | lb/ton of clinker | Particulate Matter Continuous Parameter Monitoring System (PM CPMS) | 40 CFR Part 63, Subpart LLL, §63.1348(b)(2), §63.1349(b)(1), and §63.1350(b)(1) and (d) | continuously |
| Visible Emissions (Opacity) | % | COMS | A-326-71-U-A/R, BPT (Nov. 19, 2002) | continuously (in accordance with 40 CFR Part 60, App. B) |

D. Parameter Monitor

Parameter monitoring, including monitoring and recording, for the Clinker Cooler shall consist of the following whenever the equipment is operating:

| Parameter | Unit of Measure | Monitoring Tool/Method | Origin and Authority | Frequency |
|---|---|---|---|---|
| PM | milliamp output and PM concentration | PM Continuous Parameter Monitoring System (PM CPMS) | 40 CFR Part 63, Subpart LLL §63.1350(b) | continuously |

E. COMS

Dragon shall operate and maintain the following continuous opacity monitoring system (COMS) for the Clinker Cooler System:

| Pollutant and Continuous Monitor | Unit of Measure | Origin and Authority |
|---|---|---|
| Opacity COMS | % | 06-096 CMR 06-096 CMR 140, BPT |

(16) **Additional Process Sources**

A. Additional Process Sources Control Equipment

Dragon shall control the process sources at Dragon with fabric filter dust collectors, as appropriate, to meet the licensed visible emissions requirements. [06-096 CMR 140, BPT and 40 CFR Part 63, Subpart LLL, §63.1345]

B. Additional Process Sources Emission Limits and Standards

1. The additional process sources subject to 40 CFR Part 63, Subpart LLL shall be limited to the following emission limits and standards:

| Additional Process Sources Subject to 40 CFR Part 63, Subpart LLL | | | |
|---|---|---|---|
| **Pollutant** | **Licensed Emission Limits and Standards** | **Equipment** | **Origin and Authority** |
| Visible Emissions (Opacity) | 10% opacity | - each raw material, clinker, or finished product storage bin*<br>- each conveying system transfer point<br>- each bagging system<br>- each bulk loading or unloading system<br>- each raw and finish mill**<br>- each existing raw material dryer | 40 CFR Part 63, Subpart LLL, §63.1345 |

Table notes:

* The clinker storage building exhaust can be considered part of the 40 CFR Part 63, Subpart LLL clinker storage bin requirement.

** The definitions in 40 CFR Part 63, Subpart LLL denote a difference between the terms 'raw mill' and 'in-line kiln/raw mill'. Dragon currently operates a dry kiln system which is integrated with the raw mill ('in-line'), so the raw mill requirements do not apply to the facility.

2. The additional process sources not subject to 40 CFR Part 63, Subpart LLL and with fabric filter controls shall be limited to the following emission limits and standards:

| **Additional Process Sources not Subject to 40 CFR Part 63, Subpart LLL and with Fabric Filter Controls** | | | |
|---|---|---|---|
| **Pollutant** | **Licensed Emission Limits and Standards** | **Equipment** | **Origin and Authority** |
| Visible Emissions (Opacity) | 10% opacity on a 6-minute block average, except for no more than one six minute average in a 1-hr period. Corrective action shall be taken if 5% opacity is exceeded. | fabric filter controlled process equipment that are not addressed in 40 CFR Part 63, Subpart LLL | 06-096 CMR 101, Section (3)(c) |

3. The additional process sources not subject to 40 CFR Part 63, Subpart LLL and without fabric filter controls and not subject to any other MACT shall be limited to the following emission limits and standards:

| **Additional Process Sources not Subject to 40 CFR Part 63, Subpart LLL and without Fabric Filter Controls and not subject to any other MACT** | | | |
|---|---|---|---|
| **Pollutant** | **Licensed Emission Limits and Standards** | **Equipment** | **Origin and Authority** |
| Visible Emissions (Opacity) | 20% opacity on a 6-minute block average, except for no more than one six minute average in a 1-hr period. | process equipment without fabric filters and not addressed in 40 CFR Part 63, Subpart LLL | 06-096 CMR 101, Section (3)(d) |

C. Emission Limit Compliance Methods

Compliance with the emission limits listed above shall be demonstrated in accordance with the following methods and frequencies, or other methods and frequencies as approved by the Department:

| Pollutant | Compliance Method | Frequency |
|---|---|---|
| Visible Emissions (Opacity) | 40 CFR Part 60, Appendix A, Method 9 | As required by 40 CFR Part 63, Subpart LLL or as requested by the Department |

D. Periodic Monitoring

1. Dragon shall monitor and record parameters for the Additional Process Sources and associated air pollution control equipment as indicated in the following table whenever the equipment is operating, as appropriate.

| Additional Process Sources | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Parameter** | **Unit of Measure** | **Monitoring Tool/Method** | **Origin and Authority** | **Frequency** |
| Process equipment addressed in 40 CFR Part 63, Subpart LLL | opacity | % | 40 CFR Part 60, Appendix A, Methods 22 and 9, as required | 40 CFR Part 63, Subpart LLL §63.1350(f) and A-326-77-4-A (Jan. 27, 2010) | per condition (16)(D)(2) and (3) below |
| Secondary Crusher and Raw Material Transfer Tower | opacity | % | 40 CFR Part 60, Appendix A, Method 22 | 06-096 CMR 140, BPT and 40 CFR Part 64 | per condition (16)(D)(4) below |
| Other process equipment not addressed in 40 CFR Part 63, Subpart LLL or specifically listed in this table | opacity | % | 40 CFR Part 60, Appendix A, Method 9 | 06-096 CMR 140, BPT | as requested by the Department |

2. Dragon shall comply with the applicable requirements of 40 CFR Part 63, Subpart LLL §63.1350(f), including the requirement for an opacity monitoring plan and the following schedule for opacity monitoring, conducted when the units are operating:
   a. For affected sources, excluding the Finish Mill:
      i. Monthly 10 minute visible emission test of each affected source in accordance with 40 CFR Part 60, Appendix A, Method 22.
      ii. If no visible emissions are observed in six consecutive monthly tests, the frequency may decrease to semi-annually (resuming monthly if visible emissions are observed).

iii. If no visible emissions are observed during the semi-annual test, the frequency may decrease to annually (resuming monthly if visible emissions are observed).
iv. If visible emissions are observed, 30 minutes of opacity observations must occur, recorded at 15 second intervals in accordance with 40 CFR Part 60, Appendix A, Method 9, beginning within 1 hour of any observation of visible emissions.
v. Any totally enclosed conveying system transfer point is not required to conduct Method 22 visible emissions monitoring.
vi. If any partially enclosed or unenclosed conveying system transfer point is located in a building, a Method 22 must be performed using the schedule listed above for the transfer point(s) or the building itself. If monitoring the building, the visible emissions shall also be monitored from each side, roof and vent of the building for at least 10 minutes.

b. For the Finish Mill:
i. Daily visible emissions observations of the mill sweep and air separator PM control devices in accordance with 40 CFR Part 60, Appendix A, Method 22 for a duration of 6 minutes.
ii. If visible emissions are observed, a follow-up Method 22 performance test must be performed within 24 hours of the observed visible emissions.
iii. If visible emissions are observed during the follow-up Method 22 performance test, an opacity test shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 9 for a duration of 30 minutes.

c. If visible emissions are observed during any Method 22 test conducted for the affected sources (including the Finish Mill), within 1 hour Dragon must initiate corrective actions specified in the operation and maintenance plan.

3. In addition to the 40 CFR Part 63, Subpart LLL requirements above, the clinker storage building dust collector system shall be inspected weekly. Dragon shall keep operation and maintenance records of the weekly inspections, the date and location of all failures, as well as all routine maintenance. The operation and maintenance records shall also include any change from the manufacturer recommended differential pressure startup/initial operation settings and reasons for the change.
[A-326-77-4-A (January 27, 2010)] **Enforceable by State Only**

4. Secondary Crusher and Raw Material Transfer Tower
Dragon shall comply with the following schedule for opacity monitoring, conducted when the units are operating:
a. Monthly 1 minute visible emission test of each affected source.

b. If no visible emissions are observed in six consecutive monthly tests, the frequency may decrease to semi-annually.
c. If no visible emissions are observed during the semi-annual test, the frequency may decrease to annually.
d. If visible emissions are observed, corrective action will take place within 1 hour, with a follow-up Method 22 observation within 24 hours.

[06-096 CMR 140, BPT and 40 CFR Part 64]

(17) **Stockpiles and Roadway Fugitive Emissions**

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity, except for no more than five minutes in any one-hour period. Compliance shall be determined by an aggregate of the individual 15-second opacity observations which exceed 20% in any one hour. [06-096 CMR 101]

(18) **Facility-Wide 40 CFR Part 63, Subpart LLL Requirements**

Dragon shall meet all applicable requirements of 40 CFR Part 63, Subpart LLL, including, but not limited to, the following:

A. Operations and Maintenance Plan

1. Dragon shall prepare a written operations and maintenance plan per 40 CFR Part 63, Subpart LLL §63.1347 for review and approval.
2. The plan shall include, but is not limited to, procedures for proper operation and maintenance of the affected source and air pollution control devices in order to meet the emissions limits and operating limits.

[40 CFR Part 63, Subpart LLL §63.1347]

B. Monitoring Plan

1. Dragon shall develop a site-specific monitoring plan according to the detailed requirements in 40 CFR Part 63, Subpart LLL §63.1350(p)(1)-(4) for any applicable emissions limit for which compliance is demonstrated through performance stack testing or other emissions monitoring.
2. The plan shall include, but is not limited to: the installation location of the sampling probe or interface; performance and equipment specifications for the sample interface, analyzer, and data collection and reduction systems; performance evaluation procedures and acceptance criteria (i.e. calibrations); ongoing operation and maintenance procedures; ongoing data quality assurance procedures; and ongoing recordkeeping and reporting procedures.

3. A performance evaluation of each continuous monitoring system shall be conducted and the continuous monitoring systems must be operated and maintained in accordance with the site-specific monitoring plan.

[40 CFR Part 63, Subpart LLL §63.1350(p)(1)-(4)]

C. General Duty to Minimize Emissions

Dragon must operate and maintain any effected sources at all times, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions per 40 CFR Part 63, Subpart LLL §63.1348(d). Determination of whether such operation and maintenance procedures are being used will be based on available information, including, but not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR Part 63, Subpart LLL §63.1348(d)]

D. Pollution Control Device Operation During Startup and Shutdown

All air pollution control devices required by 40 CFR Part 63, Subpart LLL must be operated per 40 CFR Part 63, Subpart LLL §63.1348(b)(9) in order to demonstrate continuous compliance during startup and shutdown. [40 CFR Part 63, Subpart LLL §63.1348(b)(9)]

E. Initial Performance Testing

1. Initial performance testing shall be performed by Dragon as specified in 40 CFR Part 63, Subpart LLL §63.1348(a) and §63.1349 using the appropriate methods by the dates required.
2. The initial performance testing includes stack testing, performance test methods and procedures, continuous parameter monitoring system performance evaluations, and continuous emissions monitoring system performance specifications acceptance criteria.
3. For PM and dioxin/furans, the tests must be performed with the raw mill on and with the raw mill off.
4. For mercury, THC, and HCl, initial compliance shall be determined from CEMS data from the first 30 operating days after the compliance date of 40 CFR Part 63, Subpart LLL (or by the year extension given for HCl).

[40 CFR Part 63, Subpart LLL §63.1348(a) and §63.1349]

F. Notification Requirements

Dragon shall provide notifications as specified in 40 CFR Part 63, Subpart LLL §63.1353, including, but not limited to:

1. Notifications, as required, for performance tests, opacity and visible emission observations, continuous emission monitor performance evaluations, and compliance status.
2. Within 48 hours of an exceedance that triggers retesting to establish compliance and new operating limits, notification shall be given to the permitting agency of the planned performance tests.

[40 CFR Part 63, Subpart LLL §63.1353]

G. Reporting Requirements

Dragon shall comply with the reporting requirements as specified in 40 CFR Part 63, Subpart LLL §63.1354, including, but not limited to, the following. Dragon shall:

1. Report results of performance and opacity tests and performance evaluations for the continuous monitoring and continuous opacity monitoring systems; and excess emissions when the continuous monitoring system data indicate that source is not in compliance with the applicable emission limitation or operation parameter limit.
2. Submit a summary report semiannually which includes:
   a. the information in 40 CFR Part 63, §63.10(e)(3)(vi): company name; address; monitored HAPS; reporting period dates; process unit descriptions; emission and operating parameter limitations; monitoring equipment identification; latest continuous monitoring system certification or audit; operating time during the reporting period; emission data summary; continuous monitoring system performance summary; changes in the continuous monitoring system, processes, or controls since the last reporting period; the responsible official; and the date of the report.
   b. all exceedances of the maximum control device inlet gas temperature limits; all failures to calibrate thermocouples and other temperature sensors; results of any combustion system component inspections conducted within the reporting period; all failures to comply with any provision of the operation and maintenance plan; for each PM, HCl, Hg, and THC CEMS within 60 days after the reporting periods, the reports must be submitted to EPA's webFIRE database using the Compliance and Emissions Data Reporting Interface (CEDRI) and include the calculated 30-operaing day rolling averages; and

information and response actions for violations of emission standards or operation parameter limits.

3. Submit an excess emissions and continuous monitoring system performance report with the semiannual summary report for any CEM or continuous monitoring system if the system is down for 10% or greater of the total operating time for the reporting system.
4. Report a failure to meet a standard due to a malfunction, along with the appropriate information and submit it in the semiannual summary report.

[40 CFR Part 63, Subpart LLL §63.1354]

H. Recordkeeping Requirements

Dragon shall comply with the recordkeeping requirements as specified in 40 CFR Part 63, Subpart LLL §63.1355, including, but not limited to, the following. Dragon shall:

1. Maintain records for each affected source as required by §63.10(b)(2) and (b)(3): the occurrence and duration of each startup or shutdown when the startup or shutdown causes exceedances; the occurrence and duration of each malfunction; all required maintenance performed on the air pollution control and monitoring equipment; each period during which a continuous monitoring system is malfunctioning or inoperative; all required measurements needed to demonstrate compliance with a relevant standard; all results of performance tests, continuous monitoring system performance evaluations, and opacity and visible emission observations; all measurements that may be necessary to determine the conditions of performance test and performance evaluations; all continuous monitoring system calibration checks; and all adjustments and maintenance performed on continuous monitoring systems.
2. Maintain records of all documentation supporting initial notifications and notification of compliance status; all records of applicability determination; all records required by §63.10(c) for the continuous monitoring systems (all required continuous monitoring system measurements; dates and times during which the continuous monitoring system was out of control and during which it was inoperative, except for zero and high-level checks; identification of excess emissions and parameter monitoring exceedances during normal operation, as well as during startup, shutdown, and malfunction; nature and cause of any malfunction; the corrected action taken or preventative measures adopted; nature of repairs or adjustments made to the continuous monitoring system that was inoperative or out of control; the total process operating time during the reporting period; all procedures that are part of a quality control program developed and implemented for the continuous

monitoring system); annual records of the amount of CKD removed from the Kiln System; daily records of clinker production rates and kiln feed rates; records of the date, time and duration when startup or shutdown standards apply and the quantity of feed and fuel used during the startup or shutdown period; records of the date, time and duration of each malfunction causing a failure to meet an applicable standard; actions taken to minimize emissions during a malfunction; and records of the date, time and duration of each exceedance from an emissions standard or established operating parameter limit.

[40 CFR Part 63, Subpart LLL §63.1355]

I. Temporary, Conditioned Exemption from Particulate Matter and Opacity Standards

Under certain conditions specified in 40 CFR Part 63, Subpart LLL §63.1357, Dragon may be temporarily exempt from particulate matter and opacity standards when performing correlation tests (correlating the monitoring systems to manual stack test methods). [40 CFR Part 63, Subpart LLL §63.1357]

(19) **Emergency Internal Combustion Generators**

A. Allowable Operation and Fuels
1. The Emergency Generator, Kiln Drive Engine, and Quarry #1 Pump are licensed to fire distillate fuel. [06-096 CMR 140, BPT]
2. The Emergency generator and Quarry #1 Pump are each limited to 100 hours per year total operation, based on a calendar year, excluding operating hours during emergency situations. [06-096 CMR 115]

B. Fuel Sulfur Content
1. The sulfur content of the fuel fired in the Emergency Generator, Kiln Drive Engine, and Quarry #1 Pump shall be limited to 0.0015% sulfur. [06-096 CMR 140, BPT]
2. Fuel sulfur content compliance shall be demonstrated by fuel delivery receipts from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06-096 CMR 140, BPT]

C. Emissions shall not exceed the following limits:

| Pollutant | Licensed Emission Limits and Standards | Unit | Origin and Authority |
|---|---|---|---|
| PM | 0.12 lb/MMBtu | Emergency Generator | 06-096 CMR 103 |
| | 0.45 lb/hr | Emergency Generator | 06-096 CMR 140, BPT |
| | 0.20 lb/hr | Quarry #1 Pump | |
| | 0.13 lb/hr | Kiln Drive Engine | |
| $PM_{10}$ | 0.12 lb/MMBtu | Emergency Generator | 06-096 CMR 140, BPT |
| | 0.45 lb/hr | Emergency Generator | |
| | 0.20 lb/hr | Quarry #1 Pump | |
| | 0.13 lb/hr | Kiln Drive Engine | |
| $SO_2$ | 0.006 lb/hr | Emergency Generator | 06-096 CMR 140, BPT |
| | 0.003 lb/hr | Quarry #1 Pump | |
| | 0.002 lb/hr | Kiln Drive Engine | |
| $NO_X$ | 16.51 lb/hr | Emergency Generator | 06-096 CMR 140, BPT |
| | 7.42 lb/hr | Quarry #1 Pump | |
| | 4.64 lb/hr | Kiln Drive Engine | |
| CO | 3.56 lb/hr | Emergency Generator | 06-096 CMR 140, BPT |
| | 1.60 lb/hr | Quarry #1 Pump | |
| | 1.0 lb/hr | Kiln Drive Engine | |
| VOC | 1.35 lb/hr | Emergency Generator | 06-096 CMR 140, BPT |
| | 0.61 lb/hr | Quarry #1 Pump | |
| | 0.38 lb/hr | Kiln Drive Engine | |

D. Visible Emissions

Visible emissions from each of the distillate fuel generators shall not exceed 20% opacity on a six-minute block average, except for no more than two six-minute block averages in a three-hour period. [06-096 CMR 101, Section 2(B)(1)(d)]

E. Compliance Methods

1. Compliance with the emission limits associated with the Emergency Generator, Kiln Drive Engine, and Quarry #1 Pump shall be demonstrated in accordance with the appropriate test methods upon request of the Department. [09-096 CMR 140]
2. Compliance with the visible emission limits associated with the Emergency Generator, Kiln Drive Engine, and Quarry #1 Pump shall be demonstrated in accordance with 40 CFR Part 60, Appendix A, Method 9 upon request of the Department. [09-096 CMR 140]

F. Periodic Monitoring

Dragon shall monitor and record parameters for the Emergency Generator, Kiln Drive Engine, and Quarry #1 Pump as indicated in the following table whenever the equipment is operating. [06-096 CMR 140, BPT]

| Parameter | Units | Monitoring Tool/Method | Frequency |
|---|---|---|---|
| Distillate fuel sulfur content | percent, by weight | fuel purchase records from supplier | as fuel is purchased |
| Operating time | hours | hour meter | annually |
| Type of Operation (emergency, maintenance, etc.) | N/A | operating records | following each operational period |

G. Federal Regulation – Emergency Engines

The Emergency Generator and Quarry #1 Pump shall meet the applicable requirements of 40 CFR Part 63, Subpart ZZZZ, including the following for emergency engines. The Kiln Drive Engine may be subject to these requirements in the future if the facility restricts operation of the Kiln Drive Engine to emergency situations only; otherwise the non-emergency requirements of 40 CFR Part 63, Subpart ZZZZ apply to the Kiln Drive Engine:

1. Dragon shall meet the following operational limitations for each of the compression ignition emergency engines:
   a. Change the oil and filter annually,
   b. Inspect the air cleaner annually, and
   c. Inspect the hoses and belts annually and replace as necessary.

   A log shall be maintained documenting compliance with the operational limitations.

   [40 CFR §63.6602 and Table 2(c); and 06-096 CMR 140, BPT]

2. Oil Analysis Program Option
   Dragon has the option of utilizing an oil analysis program which complies with the requirements of §63.6625(i) in order to extend the specified oil change requirement. If this option is used, Dragon must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR§63.6625(i)]

3. Non-Resettable Hour Meter
   A non-resettable hour meter shall be installed and operated on each engine. [40 CFR §63.6625(f)]

4. Maintenance, Testing, and Non-Emergency Operating Situations
   a. The engines shall each be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). These limits are based on a calendar year. Compliance shall be demonstrated by a written log of all engine operating hours. [40 CFR §63.6640(f) and 06-096 CMR 115]

   b. Dragon shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If the engines are operated during a period of demand response or deviation from standard voltage or frequency, Dragon must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes. [40 CFR §63.6655(e) and (f)]

5. Operation and Maintenance
   The engines shall be operated and maintained according to the manufacturer's emission-related written instructions, or Dragon shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §63.6625(e)]

6. Startup Idle and Startup Time Minimization
   During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2d]

7. Requirements for Demand Response Availability Over 15 Hours Per Year (and greater than 100 brake hp)
   If Dragon operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, the facility shall submit an annual report containing the information in §63.6650(h)(1)(i) through (ix). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

   U.S. Environmental Protection Agency, Region 1
   5 Post Office Square, Suite 100 (OES04-2)
   Boston, MA 02109-3912
   Attn: Air Compliance Clerk

   [40 CFR §63.6650(h)]

H. Federal Regulations – Non-Emergency Engine

The Kiln Drive Engine shall meet the non-emergency requirements of 40 CFR Part 63, Subpart ZZZZ, including those listed below. If, in the future, the Kiln Drive Engine is utilized only for emergency situations, then Condition (19)(G) shall apply.

1. Emission Limitations
   The concentration of CO in the engine exhaust shall be limited to 230 ppmvd or less at 15% O2. [§63.6602 and 40 CFR Part 63, Subpart ZZZZ, Table 2c]

2. Initial Performance Testing
   An initial performance test must be conducted in accordance with §63.6602, §63.6620, and 40 CFR Part 63, Subpart ZZZZ, Tables 4 and 5.

3. Non-Resettable Hour Meter Requirement
   A non-resettable hour meter shall be installed and operated on the engine. [40 CFR §63.6625(f)]

4. Startup Idle and Startup Time Minimization Requirements
   During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2c]

5. Operation and Maintenance
   At all times the engine and associated air pollution control equipment and monitoring equipment must be operated and maintained in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 CFR §63.6605]

6. Reporting and Notifications
   Dragon shall submit the notifications, reports and records as required in §63.6645.

7. Recordkeeping
   Dragon shall keep records that include copies of notifications and reports submitted, records of performance tests, malfunctions that occur and the corrective actions taken, and maintenance conducted on the engine and any associated air pollution control and monitoring equipment. [40 CFR §63.6655(e) and (f)]

(20) **Parameter Monitor General Requirements** [06-096 CMR 140 and 117]

A. Parameter monitors required by this license shall be installed, operated, maintained, and calibrated in accordance with manufacturer recommendations or as otherwise required by the Department. **Enforceable by State-only**

B. Parameter monitors required by this license shall continuously monitor data, at all times, from the associated emissions unit while the unit is in operation. "Continuously", with respect to the operation of parameter monitors required by this license, means providing equally spaced data points with at least one valid data point in each successive 15-minute period. A minimum of three valid 15-minute periods constitute a valid hour. **Enforceable by State-only**

C. Dragon shall meet the requirements in 40 CFR Part 63, Subpart LLL §63.1354(b)(10) to submit an excess emissions and continuous monitoring system performance report if the total continuous monitoring system downtime for any continuous monitoring system for the reporting period is 10% or greater of the total operating time for the reporting period.

(21) **CEMS Recordkeeping**

A. Dragon shall maintain records documenting that all CEMS and COMS are continuously accurate, reliable and operated in accordance with 06-096 CMR 117 (as amended), 40 CFR Part 51, Appendix P, and 40 CFR Part 60, Appendices B and F;
B. Dragon shall maintain records of all measurements, performance evaluations, calibration checks, and maintenance or adjustments for each CEMS and COMS as required by 40 CFR Part 51 Appendix P; and
C. Dragon shall maintain records of other data indicative of compliance with the applicable emission standards for those periods when the CEMS or COMS were not in operation or produced invalid data. In the event the Department does not concur with the licensee's compliance determination, the licensee shall, upon the Department's request, provide additional data, and shall have the burden of demonstrating that the data is indicative of compliance with the applicable standard.

[06-096 CMR 140] **Enforceable by State-only**

(22) **Compliance Assurance Monitoring (CAM) – General Requirements**

A. Dragon shall operate and monitor the Secondary Crusher and Raw Material Transfer Tower and their associated control equipment in accordance with the approved CAM Plan. [40 CFR Part 64]
B. Any excursion shall be reported in semiannual reports. If excursions occur, the licensee must also certify intermittent compliance with the emission limits for the control device monitored in the annual compliance certification. [40 CFR Part 64]
C. Upon detecting an excursion, the licensee shall restore normal operation of the control equipment as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. [40 CFR 64.7(d)]
D. Prior to making any changes to the approved CAM plan, the licensee shall notify the Department and, if necessary, submit a proposed license modification application to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. [40 CFR 64.7(e)]
E. Any change to monitoring parameters shall be submitted in a letter to the Department for written approval. [06-096 CMR 140, BPT]

(23) **Quarterly Reporting**

Dragon shall submit a Quarterly Report to the Bureau of Air Quality within 30 days after the end of each calendar quarter, detailing the following, for the control equipment, parameter monitors, Continuous Emission Monitoring Systems (CEMS), and Continuous Opacity Monitoring Systems (COMS) required by this license. [06-096 CMR 117]

A. All control equipment downtimes and malfunctions;
B. All CEMS or COMS downtimes and malfunctions;
C. All parameter monitor downtimes and malfunctions;
D. All excess events of emission and operational limitations set by this Order, Statute, state or federal regulations, as appropriate. The following information shall be reported for each excess event;
    1. Standard exceeded;
    2. Date, time, and duration of excess event;
    3. Amount of air contaminant emitted in excess of the applicable emission standard expressed in the units of the standard;
    4. A description of what caused the excess event;
    5. The strategy employed to minimize the excess event; and
    6. The strategy employed to prevent reoccurrence.
E. A report certifying there were no excess emissions, if that is the case.

(24) **Semiannual Reporting**

A. The licensee shall submit to the Bureau of Air Quality semiannual reports which are due on **January 31st** and **July 31st** of each year. The facility's designated responsible official must sign this report.
B. The semiannual report shall be considered on-time if the postmark of the submittal is before the due date or if the report is received by the DEP within seven calendar days of the due date.
C. Each semiannual report shall include a summary of the periodic and CAM monitoring required by this license.
D. All instances of deviations from license requirements and the corrective action taken must be clearly identified and provided to the Department in summary form for each six-month interval.

[06-096 CMR 140]

(25) **Annual Compliance Certification** [06-096 CMR 140]

Dragon shall submit an annual compliance certification to the Department and EPA in accordance with Standard Condition (13) of this license. The annual compliance certification is due **January 31st** of each year. The facility's designated responsible official must sign this report.

The annual compliance certification shall be considered on-time if the postmark of the submittal is before the due date or if the report is received by the Department within seven calendar days of the due date. Certification of compliance is to be based on the stack testing or monitoring data required by this license. Where the license does not require such data or the license requires such data upon request of the Department and the Department has not requested the testing or monitoring, compliance may be certified based upon other reasonably available information such as the design of the equipment or applicable emission factors.

(26) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), the licensee shall annually report to the Department, in a format prescribed by the Department, the information necessary to accurately update the State's emission inventory. The emission statement shall be submitted as specified by the date in 06-096 CMR 137.

(27) **General Applicable State Regulations**

The licensee is subject to the State regulations listed below.

| Origin and Authority | Requirement Summary |
|---|---|
| 06-096 CMR 102 | Open Burning |
| 06-096 CMR 109 | Emergency Episode Regulation |
| 06-096 CMR 110 | Ambient Air Quality Standard |
| 06-096 CMR 116 | Prohibited Dispersion Techniques |
| 38 M.R.S.A. §585-B, §§5 | Mercury Emission Limit **Enforceable by State-only** |

(28) **Units Containing Ozone Depleting Substances**

When repairing or disposing of units containing ozone depleting substances, the licensee shall comply with the standards for recycling and emission reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioning units in Subpart B. Examples of such units include refrigerators and any size air conditioners that contain CFCs.
[40 CFR, Part 82, Subpart F]

(29) **Asbestos Abatement**

When undertaking Asbestos abatement activities, Dragon shall comply with the Standard for Asbestos Demolition and Renovation 40 CFR Part 61, Subpart M.

(30) **Risk Management Plan**

The licensee is subject to all applicable requirements of 40 CFR Part 68.

(31) **Expiration of a Part 70 license**

A. Dragon shall submit a complete Part 70 renewal application at least six months but no more than 18 months prior to the expiration of this air license.

B. Pursuant to Title 5 MRSA §10002, and 06-096 CMR 140, the Part 70 license shall not expire and all terms and conditions shall remain in effect until the Department takes final action on the renewal application of the Part 70 license. An existing source submitting a complete renewal application under 06-096 CMR 140 prior to the expiration of the Part 70 license will not be in violation of operating without a Part 70 license. **Enforceable by State-only**

(32) **New Source Review**

Dragon is subject to all previous New Source Review (NSR) requirements summarized in this Part 70 air emission license and the NSR requirements remain in effect even if this 06-096 CMR 140 Air Emission License, A-326-70-E-R/A, expires.

DONE AND DATED IN AUGUSTA, MAINE THIS 3 DAY OF March , 2016.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PAUL MERCER, COMMISSIONER

**The term of this license shall be five (5) years from the signature date above.**

[Note: If a renewal application, determined as complete by the Department, is submitted at least six months but no more than 18 months prior to expiration, then pursuant to Title 5 MRSA §10002, all terms and conditions of the Part 70 license shall remain in effect until the Department takes final action on the Part 70 license renewal application.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: June 26, 2008
Date of application acceptance: June 30, 2008

Date filed with the Board of Environmental Protection:

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

Filed
MAR 0 3 2016
State of Maine
Board of Environmental Protection