



DEPARTMENT ORDER

**Shaw Brothers Construction, Inc.
Cumberland County
Gorham, Maine
A-425-71-O-A**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #2**

FINDINGS OF FACT

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

I. REGISTRATION

A. Introduction

Shaw Brothers Construction, Inc. (Shaw Brothers) was issued Air Emission License A-425-71-L-R/M on June 17, 2014, for the operation of emission sources associated with their crushed stone and gravel facility. The license was subsequently amended on January 25, 2018 (A-425-71-N-A).

Shaw Brothers has requested an amendment to their license in order to install one new 2018 Metso Lokotrack LT220D Cone Crusher, powered by a diesel-fired generating set designated as Diesel #12.

The equipment addressed in this license amendment is located at 341 Mosher Road in Gorham, Maine.

B. Emission Equipment

The following equipment is addressed in this Air Emission License Amendment:

Rock Crusher

<u>Designation</u>	<u>Powered By</u>	<u>Process Rate (metric tons/hour)</u>	<u>Date of Manufacture</u>	<u>Control Device</u>
Metso LT220D	Diesel #12	250	2018	Spray Nozzles

Engine

<u>Unit ID</u>	<u>Max. Capacity (MMBtu/hr)</u>	<u>Max. Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur</u>	<u>Date of Manuf.</u>
Diesel #12	2.9	21.3	distillate fuel, 0.0015%	2018

Shaw Brothers may operate small stationary engines smaller than 0.5 MMBtu/hr. These engines are considered insignificant activities and are not required to be included in this license. However, they are still subject to applicable State and Federal regulations. More information regarding requirements for small stationary engines is available on the Department's website at the link below.

<http://www.maine.gov/dep/air/publications/docs/SmallRICEGuidance.pdf>

Additionally, Shaw Brothers may operate portable engines used for maintenance or emergency-only purposes. These engines are considered insignificant activities and are not required to be included in this license. However, they may still be subject to applicable State and Federal regulations.

C. Definitions

Distillate Fuel. For the purposes of this license, *distillate fuel* means the following:

- Fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials (ASTM) 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.

Nonmetallic mineral processing plant. For the purposes of this license, *nonmetallic mineral processing plant* means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, portland cement plants (not including concrete batch plants), or any other facility processing nonmetallic minerals.

Portable Engine. For the purposes of this license, *portable engine* means an internal combustion engine which is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. This definition does NOT include engines which remain or will remain at a location (excluding storage locations) for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period.

D. Application Classification

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

Shaw Brothers is limited by their existing air emission license to an annual fuel cap of 75,000 gallons of distillate fuel per calendar year that can be fired in their licensed equipment, which will remain in place after the changes covered by this amendment. This amendment will not cause or permit increases in the licensed emissions of any pollutant but will include the installation of new equipment. Therefore, this modification is determined to be a minor modification and has been processed as such.

E. Facility Classification

With the annual fuel limit on generator sets used to drive the rock crushers, the facility is licensed as follows:

- As a synthetic minor source of air emissions, because the licensed emissions are below the major source thresholds for criteria pollutants; and
- As an area source of hazardous air pollutants (HAP), because the licensed emissions are below the major source thresholds for HAP.

II. **BEST PRACTICAL TREATMENT**

A. Introduction

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

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

B. Nonmetallic Mineral Processing Plants

Shaw Brothers is purchasing a new Metso LT220D Cone Crusher (LT220D) for use at their facility. The LT220D is a portable unit which was manufactured in 2018, has a rated capacity of 250 metric tons/hr (275.6 short tons/hr) and is driven by Diesel #12.

This new rock crusher will not result in an increase in fuel consumption at Shaw Brothers, as the intent of the facility is to utilize the new equipment to shift some of the production capacity away from their older crushing equipment.

This nonmetallic mineral processing plant also consists of other equipment associated with it, such as screens and belt conveyors.

1. BACT Findings

The regulated pollutant from nonmetallic mineral processing plants is particulate matter (PM). To meet the requirements of BACT for control of particulate matter emissions from LT220D, Shaw Brothers shall operate the installed water sprays on the nonmetallic mineral processing plant to control visible emissions, and shall maintain them in good working condition.

2. New Source Performance Standards

The federal regulation *Standards of Performance for Nonmetallic Mineral Processing Plants*, 40 C.F.R. Part 60, Subpart OOO, applies to equipment at nonmetallic mineral processing plants with capacities greater than 25 ton/hr for fixed plants and 150 ton/hr for portable plants. The requirements of Subpart OOO apply to any crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, or enclosed truck or railcar loading station at a nonmetallic mineral processing plant greater than the sizes listed above which commenced construction, modification, or reconstruction after August 31, 1983.

Portable rock crusher LT220D is part of a nonmetallic mineral processing plant with a maximum capacity of greater than 150 ton/hr and was manufactured after August 31, 1983. This crusher is therefore subject to 40 C.F.R. Part 60, Subpart OOO. [40 C.F.R. §§ 60.670(c) and (e)]

Requirements of 40 C.F.R. Part 60, Subpart OOO

a. Standards

Subpart OOO, Table 3 contains applicable visible emission requirements for rock crusher LT220D. This equipment is also subject to standards contained in the State rule *Visible Emissions Regulation*, 06-096 C.M.R. ch. 101. The State requirements are determined to be more stringent. Therefore, the visible emission limit for this equipment has been streamlined to the State regulation. Visible emissions from rock crusher LT220D shall be limited to no greater than 10% opacity on a six-minute block average basis.

Visible emissions from any nonmetallic mineral processing plant equipment, other than rock crushers, (including transfer points on belt conveyors, portable screens, etc.) which commenced construction, modification, or reconstruction, on or after April 22, 2008, shall not exceed 7% opacity on a six-minute block average basis. [40 C.F.R. Part 60, Subpart OOO, Table 3]

b. Monitoring Requirements

Shaw Brothers shall maintain records detailing the maintenance on particulate matter control equipment installed on LT220D, including spray nozzles. Shaw Brothers shall perform monthly inspections of any water sprays to ensure water is flowing to the correct locations and initiate corrective action within 24 hours if water is found to not be flowing properly. Records of the date of each inspection and any corrective action required shall be included in the maintenance records. The maintenance records shall be kept on-site where LT220D is located. [40 C.F.R. § 60.674(b)]

c. Testing Requirements

Subpart 000, § 60.675 requires that Shaw Brothers conduct an initial performance test for visible emissions from LT220D and from each piece of associated equipment subject to Subpart 000, potentially including any associated grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or railcar loading station. Testing shall be completed in accordance with the following:

- (1) An initial performance test must be completed within 60 days after achieving the maximum production rate at which the unit will be operated, but no later than 180 days after initial startup of the unit. If the initial performance test for a facility falls within a seasonal shutdown, then with approval from the Department, the initial performance test may be postponed until no later than 60 calendar days after resuming operation of the affected equipment. [40 C.F.R. § 60.672(b)]
- (2) The performance test shall be done using the methods set forth in 40 C.F.R. Part 60, Subpart 000, § 60.675. [40 C.F.R. § 60.675(c)]
- (3) Shaw Brothers shall submit a test notice to the Department at least thirty days prior to conducting the performance test on LT220D and its associated equipment. [40 C.F.R. § 60.675(g)]

d. Reporting and Recordkeeping Requirements

For LT220D and its ancillary equipment that is subject to 40 C.F.R. Part 60, Subparts A and 000, Shaw Brothers shall comply with the notification and recordkeeping requirements of 40 C.F.R. §§ 60.676 and 60.7, except for § 60.7(a)(2) per 40 C.F.R. Subpart 000, § 60.676(h). [40 C.F.R. §§ 60.676(b), (f), and (i)]

C. Diesel #12

Diesel #12 is a portable, non-road engine which is used to power Rock Crusher LT220D. Diesel #12 was manufactured in 2018, has a maximum heat input capacity of 2.9 MMBtu/hr and fires distillate fuel at a maximum rate of 21.3 gal/hr.

Shaw Brothers is currently licensed to fire a maximum of 75,000 gallons per year of distillate fuel on a calendar year basis. The air emission license also stipulates that the distillate fuel fired at their facility shall not contain more than 0.0015% sulfur, by weight. The fuel fired in Diesel #12 will be included in this sitewide fuel use limit and shall meet the existing sulfur content requirement.

1. BACT Findings for Diesel #12

a. Particulate Matter: PM / PM₁₀

Particulate matter emissions from distillate fuel-fired engines of this size are generally controlled through proper operation and maintenance.

Additionally, add-on controls such as filters and catalytic converters are available to further reduce particulate matter emissions. Even though Diesel #12 is not subject to the requirements of 40 C.F.R. Part 60, Subpart IIII or 40 C.F.R. Part 63, Subpart ZZZZ, it was manufactured and certified as an engine that meets the emissions levels of the EPA's Tier 4 standards.

The Department has determined that BACT for PM /PM₁₀ emissions from Diesel #12 shall be the proper operation and maintenance of the engine and its integrated emissions reduction equipment.

b. Sulfur Dioxide: SO₂

The use of wet scrubbers or other SO₂ add-on control methods would not be economically feasible considering the small amount of emissions that are capable of being emitted from Diesel #12. The Department finds that BACT for limiting SO₂ emissions from this engine is the use of low sulfur fuel, such as distillate fuel having a sulfur content of no greater than 0.0015% by weight.

c. Nitrogen Oxides: NO_x

The use of good combustion practices to ensure the complete and efficient combustion of the fuel fired in portable engines is an effective method commonly used for limiting NO_x emissions.

Diesel #12 was manufactured with an integral emission control system to reduce its NO_x emissions to levels at or below the EPA's Tier 4 standards.

The Department finds that BACT for NO_x emissions from Diesel #12 shall be the proper operation and maintenance of the engine and its integrated emissions reduction equipment, in conjunction with good combustion controls and practices.

d. Carbon Monoxide and Volatile Organic Compounds: CO and VOC

CO and VOC emissions are the result of incomplete fuel combustion, which is typically caused by conditions such as insufficient residence time or limited oxygen availability. CO and VOC emissions from distillate fuel-fired engines are generally managed through good combustion controls and proper operation and maintenance of the engine.

Diesel #12 was purchased with advanced emissions control equipment incorporated into its design to further reduce the CO and VOC emission levels in its exhaust.

The Department finds that BACT for CO and VOC emissions from Diesel #12 shall be the proper operation and maintenance of the engine and its emissions reduction controls.

BACT Emission Limits for Diesel #12

Pollutant	Emission Limit Basis	Emission Factor lb/MMBtu	lb/hr
PM / PM ₁₀	AP-42, Table 3.3-1, dated 10/96	0.31	0.9
SO ₂	Mass balance calculation, based on firing distillate fuel with a maximum sulfur content of 0.0015% by weight	0.00151	0.01
NO _x	AP-42, Table 3.3-1, dated 10/96	4.41	13.0
CO	AP-42, Table 3.3-1, dated 10/96	0.95	2.8
VOC	AP-42, Table 3.3-1, dated 10/96	0.36	1.1

e. Visible Emissions

BACT for visible emissions from Diesel #12 shall be the limiting of its visible emissions to a maximum of 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

2. New Source Performance Standards

Diesel #12 is considered a portable, non-road engine, as opposed to a stationary engine, that is capable of being moved to various sites. Diesel #12 is not subject to 40 C.F.R. Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* because it is not a stationary engine. [40 C.F.R. § 60.4200(a)]

3. National Emission Standards for Hazardous Air Pollutants

Diesel #12 is not subject to the requirements of 40 C.F.R. Part 63, Subpart ZZZZ because this standard also only applies to stationary reciprocating internal combustion engines (RICE). [40 C.F.R. § 63.6585]

D. Annual Emissions

This amendment does not affect the facility's licensed annual emissions. Shaw Brothers is limited by their existing air emission license to an annual fuel cap of 75,000 gallons of distillate fuel per calendar year that can be fired in their licensed equipment, which will remain unchanged by this amendment.

ORDER

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

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

The Department hereby grants Air Emission License Amendment A-425-71-O-A, subject to the conditions found in Air Emission License A-425-71-L-R/M, in amendment A-425-71-N-A, and the following conditions.

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

SPECIFIC CONDITIONS

The following condition shall replace Condition (16)(A) of Air Emission License A-425-71-L-R/M dated June 17, 2014.

(16) Rock Crushers

- A. Shaw Brothers shall install and maintain spray nozzles for particulate matter control on all of the jaw and cone rock crusher units (Jaw Crushers L100, L105 #2, L125, L416, LT106 #1, LT106 #2 and 4448, and Cone Crushers L125, L416, LT300, FT200, T100#1, T100 #2 and LT220D) and operate them as necessary to limit visible emissions to no greater than 10% opacity on a six (6) minute block average basis for each rock crusher. [06-096 C.M.R. ch. 115, BACT/BPT and 06-096 C.M.R. ch. 101]

The following condition shall replace Condition (16)(I) of Air Emission License A-425-71-L-R/M dated June 17, 2014.

- I. Shaw Brothers shall perform monthly inspections of the spray nozzles and water spray systems on T400 #1, T400 #2, 4448 and LT220D, to ensure that water is flowing to the correct locations. Shaw Brothers shall initiate corrective actions within 24 hours of any finding that water is flowing properly. [40 C.F.R. § 60.674(b)]

The following condition shall replace Condition (16)(J) of Air Emission License A-425-71-L-R/M dated June 17, 2014.

- J. Shaw Brothers shall maintain a log detailing the maintenance on particulate matter control equipment (including spray nozzles and water spray systems) for rock crushers T400 #1, T400 #2, 4448 and LT220D. Records of the date of each inspection and any corrective action required for each rock crusher shall be included in the maintenance log. The maintenance log shall be kept on-site at the rock crushing location, and Shaw Brothers shall make hard or electronic copies (whichever is requested) of the logbook available to the Administrator or the Department upon request. [40 C.F.R. § 60.676(b)]

The following condition shall replace Condition (16)(O) of Air Emission License A-425-71-L-R/M dated June 17, 2014.

- O. For the rock crushers T400 #1, T400 #2, 4448 and LT220D, and any ancillary equipment subject to 40 C.F.R. Part 60, Subparts A and OOO, Shaw Brothers shall comply with the notification and recordkeeping requirements of 40 C.F.R. §§ 60.676 and 60.7, except for §60.7(a)(2) per 40 C.F.R. Subpart OOO, § 60.676(h). [40 C.F.R. § 676(b), (f) and (i)]

The following new Conditions (16)(P) through (16)(R) shall be added to Air Emission License A-425-71-L-R/M dated June 17, 2014.

- P. An initial performance test shall be completed for rock crusher LT220D and its associated equipment subject to Subpart OOO, within 60 days after achieving the maximum production rate at which the unit will be operated, but no more than 180 days after initial startup of the unit. If the initial performance test for LT220D falls within a seasonal shutdown, then with approval from the Department, the initial performance test may be postponed until no later than 60 calendar days after resuming operation of the affected equipment. [40 C.F.R. § 60.672(b)]
- Q. The performance test for rock crusher LT220D shall be done using the methods set forth in 40 C.F.R. Part 60, Subpart OOO, § 60.675. [40 C.F.R. § 60.675(c)]
- R. Shaw Brothers shall submit a test notice to the Department at least seven days prior to conducting the performance test for LT220D. [40 C.F.R. § 60.67(g)]

The following condition shall replace Condition (17)(A)(1) of Air Emission License A-425-71-L-R/M dated June 17, 2014.

(17) **Portable Diesel Generators**

A. **Fuel Use**

1. Diesels #1, #3, #4, #6, #7, #8, #9, #10, #11 and #12 shall fire only distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur, by weight). [06-096 C.M.R. ch. 115, BACT]

The following condition shall replace Condition (17)(C) of Air Emission License A-425-71-L-R/M dated June 17, 2014.

C. Emissions shall not exceed the following: [06-096 C.M.R. ch. 115, BACT/BPT]

Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Diesel #1 – Cat 3306	0.3	0.3	0.01	9.7	2.1	0.8
Diesel #3 – Cat 3406	0.4	0.4	0.01	15.9	3.4	1.3
Diesel #4 – Cat 3406	0.4	0.4	0.01	15.9	3.4	1.3
Diesel #6 – Cat 3456	0.6	0.6	0.01	16.9	4.5	0.5
Diesel #7 – Cat C-12	0.4	0.4	0.01	15.9	3.4	1.3
Diesel #8 – Cat 3306	0.3	0.3	0.01	9.7	2.1	0.8
Diesel #9 – JD 6081	0.2	0.2	0.01	5.8	1.3	0.5
Diesel #10 – Cat 7.1	0.6	0.6	0.01	8.4	1.8	0.7
Diesel #11 – Cat 7.1	0.6	0.6	0.01	8.4	1.8	0.7
Diesel #12 – Cat C-13	0.9	0.9	0.01	13.0	2.8	1.1

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The following condition shall replace Condition (17)(E) of Air Emission License A-425-71-L-R/M dated June 17, 2014.

- E. Visible emissions from Diesels #10, #11 and #12 shall each not exceed 10% opacity on a six (6) minute block average basis. [06-096 C.M.R. 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 26 DAY OF October, 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cune for
PAUL MERCER, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-425-71-L-R/M.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: September 4, 2018
Date of application acceptance: September 4, 2018

Date filed with the Board of Environmental Protection:

This Order prepared by Patric J. Sherman, Bureau of Air Quality.

