



DEPARTMENT ORDER

**State of Maine, Bureau of
 General Services
 Kennebec County
 Augusta, Maine
 A-23-71-Q-A**

**Departmental
 Findings of Fact and Order
 Air Emission License
 Amendment #1**

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 (Department) finds the following facts:

I. REGISTRATION

A. Introduction

State of Maine, Bureau of General Services (SOM) was issued Air Emission License A-23-71-P-R/M on October 31, 2016, for the operation of emission sources associated with their state office complex.

SOM has requested an amendment to their license in order to:

- Replace Boilers #1 and #2, located in the Boiler House, with three new boilers, MB Boilers #1, #2, and #3, also to be located in the Boiler House;
- Add a new emergency generator at the Greenlaw Building, GL Generator #1; and
- Add a new Class IV-A (veterinary) incinerator to the Greenlaw Building, to dispose of animal remains.

The equipment addressed in this license amendment is located at 4 Blossom Lane (Boiler House) and 47 Independence Drive (Greenlaw Building), Augusta, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license amendment:

Boilers

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type, % sulfur	Date of Manuf.	Date of Install.	Stack #
MB Boiler #1	12.6	12,223 scf/hr	Natural gas, negl.	2019	2020	MB #2
		90 gal/hr	Distillate fuel, 0.0015%			
MB Boiler #2	12.6	12,223 scf/hr	Natural gas, negl.	2019	2020	MB #2
		90 gal/hr	Distillate fuel, 0.0015%			

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type, % sulfur	Date of Manuf.	Date of Install.	Stack #
MB Boiler #3	6.3	6,166.5 scf/hr	Natural gas, negl.	2019	2020	MB #2
		45 gal/hr	Distillate fuel, 0.0015%			
GL Boiler #1*	0.85	825.2 scf/hr	Natural gas, negl.	2019	2020	N/A
GL Boiler #2*	0.85	825.2 scf/hr	Natural gas, negl.	2019	2020	N/A
GL Boiler #3*	0.85	825.2 scf/hr	Natural gas, negl.	2019	2020	N/A
GL Boiler #4*	0.85	825.2 scf/hr	Natural gas, negl.	2019	2020	N/A
GL Boiler #5*	0.85	825.2 scf/hr	Natural gas, negl.	2019	2020	N/A
GL Boiler #6*	0.85	825.2 scf/hr	Natural gas, negl.	2019	2020	N/A
GL DHWH #1*	0.2	194.2 scf/hr	Natural gas, negl.	2019	2020	N/A
GL DHWH #2*	0.4	388.4 scf/hr	Natural gas, negl.	2019	2020	N/A

*These units are considered insignificant activities per Appendix B of 06-096 C.M.R. ch. 115. They have been included in this table for completeness purposes only and will not be addressed further in this license.

Boilers #1 and #2 and their associated requirements shall be removed from this air emission license upon decommissioning of the units, which shall occur no later than two weeks after MB Boilers #1-3 have all achieved full steam load.

Stationary Engine

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity (kW)	Fuel Type, % sulfur	Firing Rate (gal/hr)	Date of Manuf.	Date of Install.
GL Generator #1	18.6	1,500	Distillate fuel, 0.0015%	133	2019	2020

Incinerator

Equipment Name	Incinerator #1
Manufacturer	FireLake Manufacturing
Model	P16-SC30
Class Incinerator	IV-A
No. of Chambers	2
Type of Waste	Type 4
Max. Design Initial Charge	400 pounds
Auxiliary Fuel Input:	Natural gas
Primary Chamber (Btu/hr)	316,000
Secondary Chamber (Btu/hr)	1,000,000
Emission Control	Afterburner

The incinerator combustion gases vent to a 56-foot AGL (Above Ground Level) stack.

C. Definitions

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.

D. Application Classification

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

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the "Significant Emission" levels as defined in the Department's *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. The emission increases are determined by subtracting the current licensed annual emissions preceding the modification from the maximum future licensed annual emissions, as follows:

<u>Pollutant</u>	<u>Current License (TPY)</u>	<u>Future License (TPY)</u>	<u>Net Change (TPY)</u>	<u>Significant Emission Levels</u>
PM	5.1	8.8	+3.7	100
PM ₁₀	5.1	8.8	+3.7	100
SO ₂	21.3	1.1	-20.2	100
NO _x	21.8	11.0	-10.8	100
CO	3.7	3.6	-0.1	100
VOC	0.3	0.8	+0.5	50

This modification is determined to be a minor modification and has been processed as such.

E. Facility Classification

With the annual distillate fuel limit on MB Boilers #1-3 and the operating hours restriction on Generator #2 and GL Generator #1, the facility is licensed as follows:

- As a synthetic minor source of air emissions, because SOM is subject to license restrictions that keep facility emissions below 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 (BPT)

A. Introduction

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

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 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. Project Description

This amendment addresses two projects planned by SOM. The first is an upgrade to the East Campus Central Steam Plant, located at 4 Blossom Lane in Augusta. This project will consist of replacing the two existing 750 boiler horsepower (BHP) boilers currently at the steam plant with two new 300 BHP units and one new 150 HP unit. This project is slated to take place in mid-2020.

The second project is a renovation of the Greenlaw Building, located at 47 Independence Drive in Augusta. This renovation will update the existing building to a state-of-the-art Health and Environmental Testing Laboratory and will consist of the addition of a 1.32 MMBtu/hr veterinary incinerator for the disposal of Type 4 pathological waste and a 1,500-kW distillate fuel-fired emergency generator. This project is slated to take place beginning in late-2020.

C. MB Boilers #1, #2, and #3

SOM plans to operate MB Boilers #1, #2, and #3 for steam and heat. MB Boilers #1 and #2 are rated at 12.6 MMBtu/hr, and MB Boiler #3 is rated at 6.3 MMBtu/hr. All three units will be licensed to fire both natural gas and distillate fuel but will primarily fire natural gas except during periods of periodic testing on distillate fuel not to exceed 48 hours per calendar year per boiler, or periods of gas curtailment or supply interruption. MB Boilers #1, #2, and #3 were manufactured in 2019 and will likely be installed in the Boiler House in 2020. All three units will exhaust through a combined stack, Stack MB #2, which is 30 feet above ground level (AGL) with an inside diameter of 2.83 feet.

1. BACT Findings

a. Particulate Matter (PM and PM₁₀)

Particulate matter emissions from fuel combustion are formed from incomplete combustion of fuel and non-combustible material in the fuel. Emissions of particulate matter from new natural gas-fired boilers are generally very low. Given the size of the units and the minimal particulate matter emissions from the burning of natural gas, add-on emission control equipment for control of particulate matter from MB Boilers #1-3 when firing natural gas is not economically feasible.

During periods of gas curtailment, supply interruption, or for periodic testing/maintenance, MB Boilers #1-3 will fire distillate fuel. Given the size of the units and the intermittent nature of distillate fuel firing in the unit, add-on emission control equipment for control of particulate matter from MB Boilers #1-3 when firing distillate fuel is not economically feasible.

The Department finds firing natural gas as the primary fuel, use of efficient burner combustion technology, and the following emission limits to constitute BACT for PM and PM₁₀ emissions from MB Boiler #3:

<u>Unit</u>	<u>Pollutant</u>	<u>Fuel</u>	<u>Limits</u>
MB Boilers #1 and #2 [each]	PM	Natural gas	0.05 lb/MMBtu and 0.63 lb/hr
		Distillate fuel	0.08 lb/MMBtu and 1.01 lb/hr
	PM ₁₀	Natural gas	0.63 lb/hr
		Distillate fuel	1.01 lb/hr
MB Boiler #3	PM	Natural gas	0.05 lb/MMBtu and 0.32 lb/hr
		Distillate fuel	0.08 lb/MMBtu and 0.50 lb/hr
	PM ₁₀	Natural gas	0.32 lb/hr
		Distillate fuel	0.50 lb/hr

b. Sulfur Dioxide (SO₂)

Sulfur dioxide is formed from the combustion of sulfur present in the fuel. Potential control options for sulfur dioxide emissions include the use of fuel with a low sulfur content, sorbent injection, and SO₂ scrubbing technologies such as flue gas desulfurization and packed-bed scrubbers.

Emissions of sulfur dioxide from new natural gas-fired boilers are very low due to the low sulfur content of natural gas. Given the low level of sulfur dioxide emissions from the firing of natural gas, add-on emission control equipment for control of sulfur dioxide from MB Boilers #1-3 when firing natural gas is not economically feasible.

During periods of gas curtailment, supply interruption, or for periodic testing/maintenance, MB Boilers #1-3 will fire distillate fuel. Given the intermittent nature of distillate fuel firing in the units and the size of the units, the use of add-on emission control equipment for the control of SO₂ emissions from MB Boilers #1-3 when firing distillate fuel is not economically feasible. The use of a low sulfur fuel such as ultra-low sulfur distillate fuel, which has a sulfur content no greater than 0.0015% by weight (15 ppm), is economically feasible.

The Department finds firing natural gas as the primary fuel, the use of distillate fuel with a maximum sulfur content not to exceed 0.0015% by weight (15 ppm) when natural gas is curtailed or supply is interrupted and for periodic maintenance/testing, and the following emission limits to constitute BACT for SO₂ emissions from MB Boilers #1-3:

Unit	Fuel	lb/hr
MB Boilers #1 and #2 [each]	Natural gas	0.02
	Distillate fuel	0.02
MB Boiler #3	Natural gas	0.01
	Distillate fuel	0.01

c. Nitrogen Oxides (NO_x)

Nitrogen oxides mainly consist of nitric oxide (NO) and nitrogen dioxide (NO₂). NO_x from fuel combustion are generated through one of three mechanisms: fuel NO_x, thermal NO_x, and prompt NO_x. Fuel NO_x is produced by the oxidation of nitrogen in the fuel source, with low nitrogen content fuels such as distillate fuel and natural gas producing less NO_x than fuels with higher levels of fuel-bound nitrogen. Thermal NO_x forms in the high temperature area of the combustor and increases exponentially with increases in flame temperature and linearly with increases in residence time. Prompt NO_x forms from the oxidation of hydrocarbon radicals near the combustion flame; this produces an insignificant amount of NO_x.

Control of NO_x emissions can be accomplished using one of three methods: the use of add-on controls, such as selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR), the use of combustion control techniques, such as low NO_x burners, flue gas recirculation (FGR), and good combustion practices, and the combustion of clean fuel, such as natural gas and distillate fuel.

Given the size of the units and the low potential annual NO_x emissions from the units, the use of add-on controls such as SCR and SNCR are not economically feasible when firing either natural gas or distillate fuel.

Combustion control methods available to control NO_x from small industrial and commercial boilers include low NO_x burners, FGR, and good combustion practices. 'Low NO_x burners' refers to burner components (burner register, atomizing nozzle, diffuser) that are designed to achieve lower NO_x by mixing the fuel and combustion air in a way that limits NO_x formation. This is generally done by mixing the combustion air and fuel in multiple stages and by utilizing a specially designed nozzle and/or diffuser to achieve a particular flame pattern. The use of low NO_x burners is technically and economically feasible for firing natural gas and distillate fuel in MB Boilers #1-3.

In FGR systems, a portion of the combustion gases are recirculated back into the combustion zone. This process lowers peak flame temperatures, and therefore thermal NO_x formation, by allowing the relatively cool flue gas to absorb heat released by the burner flame. Although considered technically feasible, the use of FGR is not economically feasible for small boilers such as MB Boilers #1-3 due to the moderately high capital costs due to the ductwork needed to span from the burner outlet to the combustion air duct, the operating costs associated with the energy requirements of recirculation fans, and marginal emission reduction benefit. Additionally, FGR systems can affect heat transfer and system pressures.

Good combustion practices include operating the system based on the design and recommendations provided by the manufacturer and by maintaining proper air-to-fuel ratios with periodic maintenance checks.

The Department finds the use of natural gas as the primary fuel, the use of distillate fuel when the natural gas supply is curtailed or interrupted or for periodic maintenance/testing, the use of low NO_x burners, the use of good combustion practices, and the following emission limits to constitute BACT for NO_x emissions from MB Boilers #1-3:

Unit	Fuel	lb/hr
MB Boilers #1 and #2 [each]	Natural gas	0.47
	Distillate fuel	1.27
MB Boiler #3	Natural gas	0.24
	Distillate fuel	0.63

d. Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)

Carbon monoxide and volatile organic compounds emissions are a result of incomplete combustion, caused by conditions such as insufficient residence time or limited oxygen availability. Potential control options for CO and VOC emissions include combustion controls and the use of a catalyst system.

Emissions of CO and VOC from new natural gas-fired boilers are generally low. Given the size of the units and the low potential CO and VOC emissions, the use of add-on emission control equipment for the control of CO and VOC emissions from MB Boilers #1-3 when firing natural gas are not considered economically feasible. Instead, SOM has proposed the use of efficient burner combustion technology.

During periods of gas curtailment, supply interruption, or for periodic maintenance/testing, MB Boilers #1-3 will fire distillate fuel. Given the intermittent nature of distillate fuel firing in the units and the size of the units, the use of add-on emission control equipment for the control of CO and VOC emissions from MB Boilers #1-3 when firing distillate fuel is not economically feasible. Instead, SOM has proposed the use of efficient burner combustion technology.

The Department finds the use of natural gas as the primary fuel, the use of distillate fuel when the natural gas supply is curtailed or interrupted or for periodic maintenance/testing, the use of efficient burner combustion technology, and the following emission limits to constitute BACT for CO and VOC emissions from MB Boilers #1-3:

Unit	Pollutant	Fuel	lb/hr
MB Boilers #1 and #2 [each]	CO	Natural gas	0.09
		Distillate fuel	0.47
	VOC	Natural gas	0.05
		Distillate fuel	0.05
MB Boiler #3	CO	Natural gas	0.05
		Distillate fuel	0.24
	VOC	Natural gas	0.02
		Distillate fuel	0.02

e. Visible Emissions

When the only fuel being fired is natural gas, visible emissions from Stack MB #2 shall not exceed 10% opacity on a six-minute block average basis. When any of the units are firing distillate fuel, visible emissions from Stack MB #2 shall not exceed 20% opacity on a six-minute block average basis.

The Department has determined that the proposed BACT visible emission limit is more stringent than the applicable limit in 06-096 C.M.R. ch. 101. Therefore, the visible emission limit for Stack MB #2 has been streamlined to the more stringent BACT limit, and only this more stringent limit shall be included in the air emission license.

2. Emission Limits

The BACT lb/hr emission limits for MB Boilers #1, #2, and #3 when firing natural gas were based on the following:

- PM/PM₁₀ – 0.05 lb/MMBtu based on 06-096 C.M.R. ch. 115, BACT
- SO₂ – 0.0016 lb/MMBtu based on manufacturer’s guarantee
- NO_x – 0.0375 lb/MMBtu based on manufacturer’s guarantee
- CO – 0.0074 lb/MMBtu based on manufacturer’s guarantee
- VOC – 0.0036 lb/MMBtu based on manufacturer’s guarantee
- Visible Emissions – 06-096 C.M.R. ch. 115, BACT

The BACT lb/hr emission limits for MB Boilers #1, #2, and #3 when firing distillate fuel were based on the following:

- PM/PM₁₀ – 0.08 lb/MMBtu based on 06-096 C.M.R. ch. 115, BACT
- SO₂ – based on firing distillate fuel with a maximum sulfur content of 0.0015% by weight
- NO_x – 0.1 lb/1000 gal based on manufacturer’s guarantee
- CO – 0.0375 lb/1000 gal based on manufacturer’s guarantee
- VOC – 0.0036 lb/1000 gal based on manufacturer’s guarantee
- Visible Emissions – 06-096 C.M.R. ch. 115, BACT

The BACT emission limits for MB Boilers #1, #2, and #3 are the following:

Unit	Pollutant	Fuel	lb/MMBtu
MB Boilers #1, #2, and #3 [each]	PM	Natural gas	0.05
		Distillate fuel	0.08

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
MB Boilers #1 and #2 [each] Natural gas	0.63	0.63	0.02	0.47	0.09	0.05
MB Boilers #1 and #2 [each] Distillate fuel	1.01	1.01	0.02	1.27	0.47	0.05

Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
MB Boiler #3 Natural gas	0.32	0.32	0.01	0.24	0.05	0.02
MB Boiler #3 Distillate fuel	0.50	0.50	0.01	0.63	0.24	0.02

SOM shall be limited to 100,000 gallons of distillate fuel on a calendar year total basis for use in MB Boilers #1-3 (combined). There is no limit for natural gas firing in MB Boilers #1-3.

When the only fuel being fired is natural gas, visible emissions from Stack MB #2 shall not exceed 10% opacity on a six-minute block average basis. When any of the units are firing distillate fuel, visible emissions from Stack MB #2 shall not exceed 20% opacity on a six-minute block average basis.

3. Periodic Monitoring

Periodic monitoring for the boiler shall include recordkeeping to document distillate fuel use both on a monthly and calendar year total basis and distillate fuel sulfur content on an as purchased basis. Documentation shall include the amount of fuel purchased, the type of fuel purchased, and certification from the fuel supplier showing the sulfur content of the fuel.

4. New Source Performance Standards (NSPS): 40 C.F.R. Part 60, Subpart Dc

Due to its size, MB Boiler #3 is not subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R. Part 60, Subpart Dc for units greater than 10 MMBtu/hr manufactured after June 9, 1989. [40 C.F.R. § 60.40c(a)]

Due to their size and year of manufacture, MB Boilers #1 and #2 are subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R. Part 60, Subpart Dc for units greater than 10 MMBtu/hr manufactured after June 9, 1989. [40 C.F.R. § 60.40c(a)]

SOM shall comply with all requirements of 40 C.F.R. Part 60, Subpart Dc applicable to MB Boilers #1 and #2 including, but not limited to, the following:

a. Notifications

SOM shall submit notification to EPA and the Department of the date of construction, anticipated start-up, and actual start-up for MB Boilers #1 and #2.

This notification shall include the design heat input capacity of each boiler and the types of fuel to be combusted in the units. [40 C.F.R. § 60.48c(a)]

b. Sulfur Dioxide Standard

The fuel fired in MB Boilers #1 and #2 shall not exceed 0.5% sulfur by weight. [40 C.F.R. §§ 60.42c(d) and 60.42c(i)] This fuel sulfur content limit shall be streamlined to the lower limit required by State statute.

c. Initial Compliance Requirements

Within 30 days after achieving the maximum production rate at which the boiler will be operated but not later than 180 days after the initial start-up of each boiler, SOM shall submit to EPA and the Department copies of the fuel supplier certification of the sulfur content of the distillate fuel to be fired in MB Boilers #1 and #2. The fuel supplier certification must contain the name of the oil supplier, a statement from the oil supplier that the oil complies with ASTM specifications for distillate oil, and the maximum sulfur content of the oil. [40 C.F.R. §§ 60.44c(h) and 60.48c(b)]

d. Reporting and Recordkeeping

(1) SOM shall either maintain records of the amounts of each fuel combusted during each month or of the total amount of each fuel delivered to the facility each month, along with records of fuel supplier certifications for all distillate fuel delivered to the facility. [40 C.F.R. § 60.48c(g)(2) and (g)(3)]

(2) SOM shall submit semi-annual reports to EPA and to the Department. [40 C.F.R. § 60.48c(d)] These reports shall include the following information:

- (i) Calendar dates covered in the reporting period; [40 C.F.R. § 60.48c(e)(1)]
- (ii) Records of fuel supplier certifications which include the name of the oil supplier, a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 C.F.R. § 60.41c, and the sulfur content or maximum sulfur content of the oil; [40 C.F.R. §§ 60.42c(h)(1), 60.45c(d), 60.48c(e)(11), and 60.48c(f)(1)] and
- (iii) Any instances of excess emissions from MB Boilers #1 and #2. [40 C.F.R. § 60.48c(c)]

The semi-annual reports are due within 30 days of the end of each six-month period. [40 C.F.R. § 60.48c(j)]

(3) The following address for EPA shall be used for any reports or notifications required to be copied to them:

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

5. National Emission Standards for Hazardous Air Pollutants (NESHAP):
40 C.F.R. Part 63, Subpart JJJJJ

MB Boilers #1, #2, and #3 are not subject to the *NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 C.F.R. Part 63, Subpart JJJJJ. MB Boilers #1 and #2 are considered new gas-fired boilers rated greater than 10 MMBtu/hr, and MB Boiler #3 is considered a new gas-fired boiler rated less than 10 MMBtu/hr. [40 C.F.R. §§ 63.11193 and 63.11195]

Gas-fired boilers are exempt from 40 C.F.R. Part 63, Subpart JJJJJ. However, boilers which fire fuel oil are not. A “gas-fired boiler” is defined as any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year. [40 C.F.R. § 63.11237]

SOM shall maintain records of the yearly operating hours each boiler fires distillate fuel. These records shall include the number of hours each unit operated on distillate fuel, the reason the unit operated on distillate fuel, and documentation regarding any periods of gas curtailment or gas supply interruption. If either of the boilers exceed 48 hours firing distillate fuel for periodic testing during a calendar year, that boiler will become subject to all applicable requirements for 40 C.F.R. Part 63, Subpart JJJJJ for existing oil-fired boilers, and SOM will be required to notify EPA and the Department of the change within 180 days of the effective date of the fuel switch. [40 C.F.R. § 63.11210(h) and 06-096 C.M.R. ch. 115, BPT]

D. GL Generator #1

SOM intends to operate GL Generator #1 as an emergency generator to support laboratories which will be located in the Greenlaw Building. GL Generator #1 is a generator set consisting of an engine and an electrical generator. GL Generator #1 has an engine rated at 18.6 MMBtu/hr which fires distillate fuel at a maximum rate of 133 gal/hr. GL Generator #1 was manufactured in 2019 and will likely be installed at the facility in 2020.

1. BACT Findings

a. Particulate Matter (PM and PM₁₀)

PM emissions from distillate fuel-fired engines are generally controlled through proper operation and maintenance. Additionally, this engine will be subject to 40 C.F.R. Part 60, Subpart IIII, which means it will be required to meet EPA emission standards for emergency stationary engines as discussed below. Given the operating hours restrictions included in 40 C.F.R. Part 60, Subpart IIII, the use of add-on controls for PM is not economically feasible. BACT for PM and PM₁₀ emissions from GL Generator #1 shall be proper operation and maintenance of the unit, installation of an EPA certified emergency stationary engine as required in 40 C.F.R. § 60.4205(b), and emission limits of 2.23 lb/hr each for PM and PM₁₀ and 0.12 lb/MMBtu for PM from GL Generator #1.

b. Sulfur Dioxide (SO₂)

For emergency engines that fire distillate fuel and operate for only short periods of time, the use of wet scrubbers or other additional SO₂ add-on control methods would not be economically feasible considering the minimal emissions due to the limited use of the engine. The most practical method for limiting SO₂ emissions from such an engine is the use of ultra-low sulfur fuel, such as distillate fuel with a sulfur content no greater than 0.0015% by weight. BACT for SO₂ emissions from GL Generator #1 shall be the use of distillate fuel with a sulfur content no greater than 0.0015% by weight, installation of an EPA certified emergency stationary engine as required in 40 C.F.R. § 60.4205(b), and an emission limit of 0.03 lb/hr for GL Generator #1.

c. Nitrogen Oxides (NO_x)

Potentially available control options for reducing emissions of NO_x from distillate fuel-fired generators include combustion controls, selective catalytic reduction (SCR), and non-selective catalytic reduction (NSCR). Combustion controls are typically implemented through design features such as electronic engine controls, injection systems, combustion chamber geometry, and turbocharging systems.

SCR and NSCR are both post-combustion NO_x reduction technologies. SCR uses ammonia to react with NO_x in the gas stream in the presence of a catalyst to form nitrogen and water. NSCR uses a catalyst to convert CO, NO_x, and hydrocarbons into carbon dioxide, nitrogen, and water without the use of an additional reagent, and requires strict air-to-fuel control to maintain high reduction effectiveness without increasing hydrocarbon emissions. For a unit of this usage (emergency back-up engine), neither SCR nor NSCR would be economically feasible considering the minimal emissions due to the limited use of the engine.

BACT for NO_x emissions from GL Generator #1 shall be the use of good combustion controls, proper operation and maintenance of the unit, installation of an EPA certified emergency stationary engine as required in 40 C.F.R. § 60.4205(b), and an emission limit of 59.52 lb/hr.

d. Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)

CO and VOC emissions are a result of incomplete combustion, caused by conditions such as insufficient residence time or limited oxygen availability. CO and VOC emissions from distillate fuel-fired generators are generally controlled through proper operation and maintenance of the unit. Oxidation catalysts have been used on large generators to reduce CO and VOC emission levels in the exhaust, but, like SCR and NSCR, use of an oxidation catalyst on an emergency engine with limited yearly use would not provide a significant environmental benefit and would not be economically feasible. BACT for CO and VOC emissions from GL Generator #1 shall be proper operation and maintenance of the unit, installation of an EPA certified emergency stationary engine as required in 40 C.F.R. § 60.4205(b), and emission limits of 15.81 lb/hr for CO and 1.67 lb/hr for VOC.

e. Visible Emissions

Visible emissions from GL Generator #1 shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time SOM may elect to comply with the following work practice standards in lieu of the numerical visible emission limit:

- (1) SOM shall maintain a log (written or electronic) of the date, time, and duration of all generator startups.
- (2) The generator shall be operated in accordance with the manufacturer's emission-related operating instructions.
- (3) SOM shall minimize the engine's time spent at idle during startup 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 shall apply.
- (4) The generator, including any associated air pollution control equipment, shall be operated at all times 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 information available to the Department that may include, but is not limited to,

monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the unit.

The Department has determined that the proposed BACT visible emission limit is more stringent than the applicable limit currently in 06-096 C.M.R. ch. 101. Therefore, the visible emission limit for GL Generator #1 has been streamlined to the more stringent BACT limit, and only this more stringent limit shall be included in the air emission license.

2. Emission Limits

The BACT emission limits for GL Generator #1 are based on the following:

PM/PM ₁₀	- 0.12 lb/MMBtu from 06-096 C.M.R. ch. 103, § 2.B.(1)(a)
SO ₂	- combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
NO _x	- 3.2 lb/MMBtu from AP-42, Table 3.4-1, dated 10/96
CO	- 0.85 lb/MMBtu from AP-42, Table 3.4-1, dated 10/96
VOC	- 0.09 lb/MMBtu from AP-42, Table 3.4-1, dated 10/96
Visible Emissions	- 06-096 C.M.R. ch. 115, BACT

The BACT emission limits for GL Generator #1 are the following:

Unit	Pollutant	lb/MMBtu
GL Generator #1	PM	0.12

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
GL Generator #1	2.23	2.23	0.03	59.52	15.81	1.67

Visible emissions from GL Generator #1 shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time SOM may elect to comply with the following work practice standards in lieu of the numerical visible emission limit:

- a. SOM shall maintain a log (written or electronic) of the date, time, and duration of all generator startups.
- b. The generator shall be operated in accordance with the manufacturer's emission-related operating instructions.

- c. SOM shall minimize the engine's time spent at idle during startup 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 shall apply.
 - d. The generator, including any associated air pollution control equipment, shall be operated at all times 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 information available to the Department that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the unit.
3. 40 C.F.R. Part 60, Subpart IIII

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart IIII is applicable to the emergency engine listed above since the unit was ordered after July 11, 2005, and manufactured after April 1, 2006. [40 C.F.R. § 60.4200] By meeting the requirements of 40 C.F.R. Part 60, Subpart IIII, the unit also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

A summary of the currently applicable federal 40 C.F.R. Part 60, Subpart IIII requirements is listed below.

a. Emergency Engine Designation and Operating Criteria

Under 40 C.F.R. Part 60, Subpart IIII, a stationary reciprocating internal combustion engine (ICE) is considered an **emergency** stationary ICE (emergency engine) as long as the engine is operated in accordance with the following criteria. Operation of an engine outside of the criteria specified below may cause the engine to no longer be considered an emergency engine under 40 C.F.R. Part 60, Subpart IIII, resulting in the engine being subject to requirements applicable to **non-emergency** engines.

(1) Emergency Situation Operation (On-Site)

There is no operating time limit on the use of an emergency engine to provide electrical power or mechanical work during an emergency situation. Examples of use of an emergency engine during emergency situations include the following:

- Use of an engine to produce power for critical networks or equipment (including power supplied to portions of a facility) because of failure or interruption of electric power from the local utility (or the normal power source, if the facility runs on its own power production);
- Use of an engine to mitigate an on-site disaster or equipment failure;
- Use of an engine to pump water in the case of fire, flood, natural disaster, or severe weather conditions; and
- Similar instances.

(2) Non-Emergency Situation Operation

An emergency engine may be operated up to a maximum of 100 hours per calendar year for maintenance checks, readiness testing, and other non-emergency situations as described below.

- (i) An emergency engine may be operated for a maximum of 100 hours per calendar year for 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 ICE more than 100 hours per calendar year.
- (ii) An emergency engine may be operated for up to 50 hours per calendar year for other non-emergency situations. **However, these operating hours are counted as part of the 100 hours per calendar year operating limit described in paragraph (2) and (2) (i) above.**

The 50 hours per calendar year operating limit for other non-emergency situations cannot be used for peak shaving, 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.

b. 40 C.F.R. Part 60, Subpart III Requirements

(1) Manufacturer Certification Requirement

The engine shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 C.F.R. § 60.4202. [40 C.F.R. § 60.4205(b)]

(2) Ultra-Low Sulfur Fuel Requirement

The fuel fired in the engine shall not exceed 15 ppm sulfur (0.0015% sulfur). [40 C.F.R. § 60.4207(b)]

(3) Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on the engine. [40 C.F.R. § 60.4209(a)]

(4) Operation and Maintenance Requirements

The engine shall be operated and maintained according to the manufacturer's emission-related written instructions. SOM may only change those emission-related settings that are permitted by the manufacturer. [40 C.F.R. § 60.4211(a)]

(5) Annual Time Limit for Maintenance and Testing

As an emergency engine, the unit shall be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, 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 C.F.R. § 60.4211(f)]

(6) Initial Notification Requirement

No initial notification is required under 40 C.F.R. Part 60, Subpart III for emergency engines. [40 C.F.R. § 60.4214(b)]

(7) Recordkeeping

SOM shall keep records that include maintenance conducted on the engine and the hours of operation of the engine recorded through the non-resettable hour meter. Documentation shall include the number of hours the unit operated for

emergency purposes, the number of hours the unit operated for non-emergency purposes, and the reason the engine was in operation during each time. [40 C.F.R. § 60.4214(b)]

E. Incinerator #1

SOM intends to operate Incinerator #1 as a veterinary incinerator in support of the State's Health and Environmental Testing Laboratory. Incinerator #1 will be a FireLake Manufacturing model P16-SC30 veterinary incinerator with a maximum initial charge of 400 pounds. Incinerator #1 is licensed to fire natural gas in its auxiliary burners, which are rated at 0.32 MMBtu/hr for the primary chamber and 1.0 MMBtu/hr for the secondary chamber. Incinerator #1 is equipped with an afterburner for pollution control and a temperature recorder for tracking operation of the unit. The BACT requirements for Incinerator #1 are detailed below.

1. Emission Limits

Emissions information is based on a licensed allowed particulate matter emission limit of 0.12 gr/dscf, corrected to 12% CO₂, the burning of natural gas as the auxiliary fuel, and the use of the following emission factors:

The BACT emissions from the natural gas burner portion of the total exhaust were based on the following:

PM/PM ₁₀	1.9 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
SO ₂	0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
NO _x	100 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
CO	84 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
VOC	5.5 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98

The BACT emissions from the biomedical portion of the total exhaust were based on the following:

PM	0.12 gr/dscf corrected to 12% CO ₂ , based on 06-096 C.M.R. ch. 115, BACT
SO ₂	2.17 lb/ton based on AP-42, Table 2.3-1, dated 7/93
NO _x	3.56 lb/ton based on AP-42, Table 2.3-1, dated 7/93
CO	2.95 lb/ton based on AP-42, Table 2.3-1, dated 7/93
VOC	0.299 lb/ton based on AP-42, Table 2.3-2, dated 7/93

The pound per hour BACT emissions for Incinerator #1 are as follows:

	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Auxiliary fuel	Negl.	Negl.	Negl.	0.13	0.11	0.01
Remains	0.35	0.35	0.16	0.27	0.22	0.02
Total Emission Limit	0.35	0.35	0.16	0.40	0.33	0.03

Visible emissions from the Incinerator #1 stack shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

2. Work Practice Standards

- a. Incinerator #1 shall be used for the disposal of type 4 (veterinary) waste and shall not be used for the disposal of plastics, cytotoxic (antineoplastic) drugs or any radioactive wastes and shall not be used to dispose of any medical waste classified as type 7 waste, as defined in 06-096 C.M.R. ch. 100. However, the incidental use of plastics used in wrapping animal carcasses for handling and storage purposes is allowed;
- b. The ash from Incinerator #1 shall be disposed of in accordance with the requirements of the Department's Bureau of Remediation and Waste Management; and
- c. Incinerator #1 shall not exceed the maximum design charging rate of 400 lbs. Auxiliary fuel input to the primary and secondary chamber shall be natural gas.

3. Operating Parameters

- a. Operating temperature in the secondary chamber shall be maintained at or above 1600°F for the duration of the burn cycle, with a stack gas retention time, at or above 1600°F, of at least 1.0 second;
- b. To ensure an efficient burn, and to prevent odors and visible emissions, the secondary chamber shall be preheated, as specified by the manufacturer, until the pyrometer temperature measures at least 1600°F;
- c. No remains shall be introduced into the primary chamber until the temperature in the secondary chamber has reached 1600°F;
- d. Once the burn cycle has commenced by introduction of primary chamber combustion, Incinerator #1 shall be operated in an efficient manner, and as specified by the manufacturer, for the period of time between preheat and reaching the set operational temperature to be a minimum of 1600°F in the secondary chamber;
- e. A pyrometer and 1/4 inch test port shall be installed and maintained at that location of the incinerator or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 1.0 second at a minimum of 1600°F;

- f. A log shall be maintained recording the weight of the remains, preheat time, preheat temperature, charging time, and the temperature of the secondary chamber every 60 minutes after start-up until, and including, final shutdown time. For facilities operating a chart recorder, the start time, date, and weight charged shall be logged on the chart. The operation log shall be kept on-site at the incinerator location;
- g. The owner/operator shall maintain a log detailing the maintenance of emission control equipment. Records of the date of each inspection and any corrective action required will be included in the maintenance log. The maintenance log shall be kept on-site at the incinerator location; and
- h. The incinerator operator(s) shall receive adequate training to operate Incinerator #1 in accordance with the manufacturer's specifications and shall be familiar with the terms of the Air Emission License as it pertains to the operation of this incinerator.

F. Annual Emissions

SOM shall be restricted to the following annual emissions, based on a calendar year total. The tons per year limits were calculated based on the following:

- Firing up to 100,000 gal/yr of distillate fuel in MB Boilers #1-3;
- Operating MB Boilers #1-3 for 8,760 hours per year;
- Operating Generator #2 and GL Generator #1 for 100 hrs/yr (each); and
- Operating Incinerator #1 for 8,760 hrs/yr.

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

	PM	PM₁₀	SO₂	NO_x	CO	VOC
MB Boilers #1-3 ¹	7.1	7.1	0.2	5.6	1.2	0.5
Generator #2	0.1	0.1	0.1	0.8	0.2	0.1
GL Generator #1	0.1	0.1	0.1	2.9	0.8	0.1
Incinerator #1	1.5	1.5	0.7	1.7	1.4	0.1
Total TPY	8.8	8.8	1.1	11.0	3.6	0.8

1. Emissions for these units are based on worst case scenarios for each pollutant: for PM, PM₁₀, NO_x and CO, this means firing 100,000 gal/year of distillate fuel and natural gas for the rest of the year; for SO₂ and VOC, this means firing natural gas for 8,760 hours/year.

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM ₁₀	25
SO ₂	50
NO _x	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license amendment.

ORDER

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

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

The Department hereby grants Air Emission License Amendment A-23-71-Q-A subject to the conditions found in Air Emission License A-23-71-P-R/M and the following conditions.

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

SPECIFIC CONDITIONS

The following shall replace Conditions (16), (17), and (18) of Air Emission License A-23-71-P-R/M (October 31, 2016):

(16) MB Boilers #1, #2, and #3

A. Fuel

1. MB Boilers #1, #2, and #3 are licensed to fire natural gas and distillate fuel. [06-096 C.M.R. ch. 115, BACT]
2. Total distillate fuel use for MB Boilers #1, #2, and #3 combined shall not exceed 100,000 gal/yr of distillate fuel, based on a calendar year total. Compliance with this limit shall be demonstrated by fuel records showing the quantity and type of fuel delivered. These records shall be kept on a monthly and calendar year total basis. There is no limit for natural gas use in MB Boilers #1, #2, and #3. [06-096 C.M.R. ch. 115, BACT]
3. SOM shall not purchase or otherwise obtain distillate fuel with a maximum sulfur content that exceeds 0.0015% by weight (15 ppm) for use in MB Boilers #1, #2, and #3. Compliance with this limit shall be demonstrated by fuel supplier certification on an as-purchased basis. [06-096 C.M.R. ch. 115, BACT]

B. Emissions shall not exceed the following:

Unit	Pollutant	Fuel	lb/MMBtu	Origin and Authority
MB Boilers #1, #2, and #3 [each]	PM	Natural gas	0.05	06-096 C.M.R. ch. 115, BACT
		Distillate fuel	0.08	

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

Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
MB Boilers #1 and #2 [each] Natural gas	0.63	0.63	0.02	0.47	0.09	0.05
MB Boilers #1 and #2 [each] Distillate fuel	1.01	1.01	0.02	1.27	0.47	0.05
MB Boiler #3 Natural gas	0.32	0.32	0.01	0.24	0.05	0.02
MB Boiler #3 Distillate fuel	0.50	0.50	0.01	0.63	0.24	0.02

D. Visible Emissions

1. When the only fuel being fired is natural gas, visible emissions from Stack MB #2 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]
2. When any of the units are firing distillate fuel, visible emissions from Stack MB #2 shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

E. SOM shall comply with all requirements of 40 C.F.R. Part 60, Subpart Dc applicable to MB Boilers #1 and #2 including, but not limited to, the following:

1. Notification

SOM shall submit notification to EPA and the Department of the date of construction, anticipated start-up, and actual start-up of MB Boilers #1 and #2. This notification shall include the design heat input capacity of each boiler and the types of fuel to be combusted in the units. [40 C.F.R. § 60.48c(a)]

2. Initial Compliance Requirements

Within 30 days after achieving the maximum production rate at which the boiler will be operated but not later than 180 days after the initial start-up of each boiler, SOM shall submit to EPA and the Department copies of the fuel supplier certification of the sulfur content of the distillate fuel to be fired in MB Boilers #1 and #2. The fuel supplier certification must contain the name of the oil supplier, a statement from the oil supplier that the oil complies with ASTM specifications for distillate oil, and the maximum sulfur content of the oil. [40 C.F.R. §§ 60.44c(h) and 60.48c(b)]

3. Reporting and Recordkeeping

- a. SOM shall either maintain records of the amounts of each fuel combusted during each month or of the total amount of each fuel delivered to the facility each month, along with records of fuel supplier certifications for all distillate fuel delivered to the facility. [40 C.F.R. § 60.48c(g)(2) and (g)(3)]
- b. SOM shall submit semi-annual reports to EPA and to the Department. [40 C.F.R. § 60.48c(d)] These reports shall include the following information:
 - (1) Calendar dates covered in the reporting period; [40 C.F.R. § 60.48c(e)(1)]
 - (2) Records of fuel supplier certifications which include the name of the oil supplier, a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 C.F.R. § 60.41c, and

the sulfur content or maximum sulfur content of the oil; [40 C.F.R. §§ 60.42c(h)(1), 60.45c(d), 60.48c(e)(11), and 60.48c(f)(1)] and

(3) Any instances of excess emissions from MB Boilers #1 and #2.

[40 C.F.R. § 60.48c(c)]

The semi-annual reports are due within 30 days of the end of each six-month period. [40 C.F.R. § 60.48c(j)]

- c. The following address for EPA shall be used for any reports or notifications required to be copied to them:

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

- F. SOM shall maintain records of the yearly operating hours each boiler fires distillate fuel. These records shall include the number of hours each unit operated on distillate fuel, the reason the unit operated on distillate fuel, and documentation regarding any periods of gas curtailment or gas supply interruption. If any of the boilers exceed 48 hours firing distillate fuel for periodic testing during a calendar year, that boiler will become subject to all applicable requirements for 40 C.F.R. Part 63, Subpart JJJJJ for existing oil-fired boilers, and SOM will be required to notify EPA and the Department of the change within 180 days of the effective date of the fuel switch. [40 C.F.R. § 63.11210(h) and 06-096 C.M.R. ch. 115, BPT]

(17) **Generator #2 and GL Generator #1**

- A. Generator #2 and GL Generator #1 shall each be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. [06-096 C.M.R. ch. 115, BPT (Generator #2) and 06-096 C.M.R. ch. 115, BACT (GL Generator #1)]

- B. Emissions shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
Generator #2	PM	0.12	06-096 C.M.R. ch. 103, § 2.B.(1)(a)
GL Generator #1	PM	0.12	06-096 C.M.R. ch. 115, BACT

- C. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT (Generator #2) and 06-096 C.M.R. ch. 115, BACT (GL Generator #1)]:

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Generator #2	0.58	0.58	0.01	15.42	4.10	0.43
GL Generator #1	2.23	2.23	0.03	59.52	15.81	1.67

D. Visible Emissions

1. Generator #2

Visible emissions from Generator #2 shall not exceed 20% opacity on a six-minute block average basis, except for no more than two six-minute block averages in a continuous three-hour period. [06-096 C.M.R. ch. 101, § 2.A.(4)]

2. GL Generator #1

Visible emissions from GL Generator #1 shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time SOM may elect to comply with the following work practice standards in lieu of the numerical visible emission limit [06-096 C.M.R. ch. 115, BACT]:

- a. SOM shall maintain a log (written or electronic) of the date, time, and duration of all generator startups.
- b. The generator shall be operated in accordance with the manufacturer's emission-related operating instructions.
- c. SOM shall minimize the engine's time spent at idle during startup 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 shall apply.
- d. The generator, including any associated air pollution control equipment, shall be operated at all times 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 information available to the Department that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the unit.

E. Generator #2 and GL Generator #1 shall both meet the applicable requirements of 40 C.F.R. Part 60, Subpart III, including the following [incorporated under 06-096 C.M.R. ch. 115, BACT]:

1. Manufacturer Certification

The engines shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in §60.4202. [40 C.F.R. § 60.4205(b)]

2. Ultra-Low Sulfur Fuel

The fuel fired in the engines shall not exceed 15 ppm sulfur (0.0015% sulfur). Compliance with the fuel sulfur content limit shall be demonstrated by fuel delivery receipts from the supplier, fuel supplier certification, certificate of analysis, or testing of the tank containing the fuel to be fired. [40 C.F.R. § 60.4207(b) and 06-096 C.M.R. ch. 115, BPT]

3. Non-Resettable Hour Meter

A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 60.4209(a)]

4. Annual Time Limit for Maintenance and Testing

a. As emergency engines, the units shall each be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, 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 records (electronic or written log) of all engine operating hours. [40 C.F.R. § 60.4211(f) and 06-096 C.M.R. ch. 115, BPT]

b. SOM shall keep records that include maintenance conducted on each engine and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time. [40 C.F.R. § 60.4214(b)]

5. Operation and Maintenance

The engines shall be operated and maintained according to the manufacturer's emission-related written instructions. SOM may only change those emission-related settings that are permitted by the manufacturer. [40 C.F.R. § 60.4211(a)]

(18) **Incinerator #1**

- A. Incinerator #1 shall be used for the disposal of type 4 (veterinary) waste and shall not be used for the disposal of plastics, cytotoxic (antineoplastic) drugs or any radioactive wastes and shall not be used to dispose of any medical waste classified as type 7 waste, as defined in 06-096 C.M.R. ch. 100. However, the incidental use of plastics used in wrapping animal carcasses for handling and storage purposes is allowed. [06-096 C.M.R. ch. 115, BACT]
- B. The ash from Incinerator #1 shall be disposed of in accordance with the requirements of the Department's Bureau of Remediation and Waste Management. [06-096 C.M.R. ch. 115, BACT]
- C. Incinerator #1 shall not exceed the maximum design charging rate of 400 lbs. Auxiliary fuel input to the primary and secondary chamber shall be natural gas. [06-096 C.M.R. ch. 115, BACT]
- D. SOM shall not exceed a particulate matter emission limit of 0.12 gr/dscf corrected to 12% CO₂. Therefore, based on the maximum design combustion rate and continuous operation of the Class IV-A incinerator, emissions shall be limited to the following:

Pollutant	gr/dscf	lb/hr
PM	0.12	0.35
PM₁₀	n/a	0.35
SO₂	n/a	0.16
NO_x	n/a	0.40
CO	n/a	0.33
VOC	n/a	0.03

Compliance shall be demonstrated through stack testing by request of the Department, in accordance with the appropriate method found in 40 C.F.R. Part 60, Appendix A.

[06-096 C.M.R. ch. 115, BACT]

- E. Visible emissions from Incinerator #1 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

- F. Operating temperature in the secondary chamber shall be maintained at or above 1600°F for the duration of the burn cycle, with a stack gas retention time, at or above 1600°F, of at least 1.0 second. [06-096 C.M.R. ch. 115, BACT]
- G. To ensure an efficient burn, and to prevent odors and visible emissions, the secondary chamber shall be preheated, as specified by the manufacturer, until the pyrometer temperature measures at least 1600°F. [06-096 C.M.R. ch. 115, BACT]
- H. No remains shall be introduced into the primary chamber until the temperature in the secondary chamber has reached 1600°F. [06-096 C.M.R. ch. 115, BACT]
- I. Once the burn cycle has commenced by introduction of primary chamber combustion, Incinerator #1 shall be operated in an efficient manner, and as specified by the manufacturer, for the period of time between preheat and reaching the set operational temperature to be a minimum of 1600°F in the secondary chamber. [06-096 C.M.R. ch. 115, BACT]
- J. A pyrometer and 1/4 inch test port shall be installed and maintained at that location of the incinerator or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 1.0 second at a minimum of 1600°F. [06-096 C.M.R. ch. 115, BACT]
- K. A log shall be maintained recording the weight of the remains, preheat time, preheat temperature, charging time, and the temperature of the secondary chamber every 60 minutes after start-up until, and including, final shutdown time. For facilities operating a chart recorder, the start time, date, and weight charged shall be logged on the chart. The operation log shall be kept on-site at the incinerator location. [06-096 C.M.R. ch. 115, BACT]
- L. The owner/operator shall maintain a log detailing the maintenance of emission control equipment. Records of the date of each inspection and any corrective action required will be included in the maintenance log. The maintenance log shall be kept on-site at the incinerator location. [06-096 C.M.R. ch. 115, BACT]
- M. The incinerator operator(s) shall receive adequate training to operate Incinerator #1 in accordance with the manufacturer's specifications and shall be familiar with the terms of the Air Emission License as it pertains to the operation of the incinerator. [06-096 C.M.R. ch. 115, BACT]

The following is a new Condition to Air Emission License A-23-71-P-R/M (October 31, 2016):

- (23) Boilers #1 and #2 shall be decommissioned and rendered inoperable within two weeks of MB Boilers #1-3 all reaching full operation. Full operation shall be the time at which MB Boilers #1-3 all have achieved maximum steam load. SOM shall notify the Department within seven days of the third boiler achieving maximum steam load. This notification shall include the date(s) the boilers achieved maximum steam load and the planned date of decommissioning for Boilers #1 and #2. [06-096 C.M.R. ch. 115, BPT]

The following Conditions shall apply until Condition (23), above, is fulfilled:

(24) **Boilers #1 and #2 Fuel Limit**

Boilers #1 and #2 shall be limited to a combined total heat input of 84,000 MMBtu/year on a calendar year basis. Records of the type of fuel used and the amounts fired shall be maintained on a monthly and calendar year total basis. Compliance with the 84,000 MMBtu/year limit shall be calculated from monthly and calendar year fuel use records using heating values of 0.14 MMBtu/gal for distillate fuel and 0.00102 MMBtu/scf for natural gas. [06-096 C.M.R. ch. 115, BPT]

(25) **Boilers #1 and #2**

A. Fuel

1. Boilers #1-2 are each licensed to fire distillate fuel and natural gas. [06-096 C.M.R. ch. 115, BPT]
2. SOM shall not purchase or otherwise obtain distillate fuel with a maximum sulfur content that exceeds 0.0015% by weight (15 ppm) for use in Boilers #1-2. [06-096 C.M.R. ch. 115, BPT]
3. Compliance shall be demonstrated by fuel records from the supplier showing the type and the percent sulfur of the fuel delivered (if applicable). [06-096 C.M.R. ch. 115, BPT]

B. Emissions shall not exceed the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>Origin and Authority</u>
Boilers #1-2 [each] Distillate fuel	PM	0.12	06-096 C.M.R. ch. 103
Boilers #1-2 [each] Natural gas	PM	0.05	06-096 C.M.R. ch. 115, BPT

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

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boilers #1-2 [each] Distillate fuel	3.29	3.29	13.80	13.70	0.98	0.04
Boilers #1-2 [each] Natural gas	1.37	1.37	0.02	2.69	2.26	0.15

D. Visible emissions from the combined stack that Boilers #1 and #2 share shall not exceed 20% opacity on a six-minute block average basis, except for no more than one six-minute block average in a three-hour period. [06-096 C.M.R. ch. 115, BPT]

E. SOM shall maintain records of the yearly operating hours each boiler fires distillate fuel. If either of the boilers exceed 48 hours firing distillate fuel for periodic testing during a calendar year, that boiler will become subject to all applicable requirements for 40 C.F.R. Part 63, Subpart JJJJJ for existing oil-fired boilers, and SOM will be required to notify EPA and the Department of the change within 180 days of the effective date of the fuel switch. [40 C.F.R. § 63.11210(h) and 06-096 C.M.R. ch. 115, BPT]

DONE AND DATED IN AUGUSTA, MAINE THIS 3rd DAY OF October, 2019.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:


GERALD D. REID, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-23-71-P-R/M.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: September 10, 2019
Date of application acceptance: September 12, 2019

Date filed with the Board of Environmental Protection:

This Order prepared by Jonathan E. Rice, Bureau of Air Quality.

