



DEPARTMENT ORDER

State of Maine, Bureau of
General Services
Kennebec County
Augusta, Maine
A-23-71-S-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 (Department) finds the following facts:

I. REGISTRATION

A. Introduction

State of Maine, Bureau of General Services (BGS) 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. The license was subsequently amended on October 3, 2019 (A-23-71-Q-A).

BGS has requested a minor revision to their license in order to add an additional emergency generator, and to clarify the operational requirements of Incinerator #1.

The equipment addressed in this license amendment is located at 47 Independence Drive (Greenlaw Building), Augusta, Maine.

B. Emission Equipment

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

Stationary Engine

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity	Fuel Type, % sulfur	Firing Rate (gal/hr)	Date of Manuf.	Date of Install.
GL Generator #2	5.0	600 kW	distillate fuel, 0.0015%	35.4	2021	2022

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

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.

Records or Logs mean either hardcopy or electronic records.

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:

Pollutant	Current License (tpy)	Future License (tpy)	Net Change (tpy)	Significant Emission Levels
PM	8.8	8.9	0.1	100
PM ₁₀	8.8	8.9	0.1	100
SO ₂	1.1	1.1	0.0	100
NO _x	11.0	11.8	0.8	100
CO	3.6	3.9	0.3	100
VOC	0.8	0.9	0.1	100

E. Facility Classification

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

- As a synthetic minor source of air emissions for NO_x because BGS 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.

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 emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. GL Generator #2

BGS operates GL Generator #2 as an emergency generator. GL Generator #2 is a generator set consisting of an engine and an electrical generator. GL Generator #2 has an engine rated at 5.0 MMBtu/hr, which fires distillate fuel and was manufactured in 2021.

1. BACT Findings

The BACT emission limits for GL Generator #2 are based on the following:

- PM/PM₁₀ - 0.12 lb/MMBtu from 06-096 C.M.R. ch. 103
- SO₂ - 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 dated 10/96
- CO - 0.85 lb/MMBtu from AP-42 dated 10/96
- VOC - 0.09 lb/MMBtu from AP-42 dated 10/96
- Opacity - 06-096 C.M.R. ch. 115, BACT

The BACT emission limits for GL Generator #2 are the following:

Unit	Pollutant	lb/MMBtu
GL Generator #2	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 #2	0.60	0.60	0.01	16.00	4.25	0.45

Visible emissions from GL Generator #2 shall not exceed 20% opacity on a six-minute block average basis.

BACT for GL Generator #2 includes recordkeeping of all maintenance conducted on the engine.

2. Chapter 169

Stationary Generators, 06-096 C.M.R. ch. 169 (Chapter 169), is applicable to GL Generator #2. It is an emergency generator powered by an engine with a rated output of less than 1,000 brake horsepower (747 kW). Chapter 169 identifies emission standards for generator engines subject to this chapter and stack height requirements for certain generator engines subject to this chapter.

For GL Generator #2, BGS shall comply with the emission standards for emergency generators by complying with the applicable standards contained in 40 C.F.R. Part 60, Subpart IIII. [06-096 C.M.R. ch. 169, § 4(B)(1)]

As GL Generator #2 is below the 1,000 brake horsepower threshold denoted in 06-096 C.M.R. ch. 169, there are no additional stack height requirements applicable to this generator. [06-096 C.M.R. ch. 169(6)]

3. New Source Performance Standards

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;
- 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.

[40 C.F.R. §§ 60.4211(f) and 60.4219]

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. BGS 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 IIII for emergency engines. [40 C.F.R. § 60.4214(b)]

(7) Recordkeeping

BGS shall keep records that include 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)]

C. Incinerator #1

Incinerator #1 was added to this facility's air emission license in Air Emission License Amendment A-23-71-Q-A (October 3, 2019). Incinerator #1 is not equipped with a safety interlock system that shuts off the flow of fuel to the unit when the loading door is opened. Specific Condition (18)H of the 2019 amendment does not allow the loading of remains into the primary chamber of the incinerator until the secondary chamber has reached 1,600 °F. Under this operating scenario, when the door is opened to load the remains into the primary chamber, the operator has the potential to be exposed to high temperatures.

BGS has requested that the language of the specific condition be adjusted to allow the primary chamber to be loaded with remains before the ignition of any combustion takes place in the incinerator, but that no fuel shall be fired in the primary chamber before the secondary chamber reaches 1,600 °F.

This change in operating criteria for Incinerator #1 will not cause the increase of emissions of any regulated pollutant and will be safer for the operator of the equipment, as they will not need to open the loading door of the incinerator when it is at operating temperature.

Although identified in the initial application for Air Emission License A-23-71-Q-A (issued October 2, 2019) that there would be a stack height of 56 feet above ground level, Incinerator #1 was built with a stack height of 25 feet. The department finds that the lower stack height would likely not result in the violation of Ambient Air Quality Standards (AAQS) due to the limited operation of the unit and inherently low emission rates.

D. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility’s annual air license fee and establishing the facility’s potential to emit (PTE). Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included except when required by state or federal regulations. Maximum potential emissions were calculated based on the following assumptions:

- 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, GL Generators #1 and #2 for 100 hrs/yr (each); and
- Operating Incinerator #1 for 8,760 hrs/yr.

This information does not represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

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

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
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
GL Generator #2	0.1	0.1	--	0.8	0.3	0.1
Incinerator #1	1.5	1.5	0.7	1.7	1.4	0.1
Total TPY	8.9	8.9	1.1	11.8	3.9	0.9

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.

This determination is based on information provided by the applicant regarding the expected construction and operation of the proposed emission units. If the Department determines that any parameter (e.g., stack size, configuration, flow rate, emission rates, nearby structures, etc.) deviates from what was included in the application, the Department may require BGS to submit additional information and may require an ambient air quality impact analysis at that time.

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-S-A subject to the conditions found in Air Emission License A-23-71-P-R/M, in amendment A-23-71-Q-A, 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 Specific Condition (17) of Air Emission License Amendment A-23-71-Q-A.

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

- A. Generator #2, GL Generator #1, and GL Generator #2 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]
- B. BGS shall keep records of all maintenance conducted on the engines associated with Generator #2, GL Generator #1, and GL Generator #2. [06-096 C.M.R. ch. 115, BACT]
- C. 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, BPT
GL Generator #2	PM	0.12	06-096 C.M.R. ch. 103, § (2)(B)(1)(a)

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

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
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
GL Generator #2	0.60	0.60	0.01	16.00	4.25	0.45

- E. Visible Emissions

- 1. Visible emissions from Generator #2 and GL Generator #2 shall each not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT and BACT]

2. Visible emissions GL Generator #1 shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time BGS may comply with the following work practice standards in lieu of the numerical visible emissions standard. [06-096 C.M.R. ch. 115, BPT]
 - a. Maintain a log (written or electronic) of the date, time, and duration of all generator startups.
 - b. Operate the generator in accordance with the manufacturer's emission-related operating instructions.
 - c. 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. Operate the generator, including any associated air pollution control equipment, 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.
- F. Generator #2, GL Generator #1, and GL Generator #2 shall meet the applicable requirements of 40 C.F.R. Part 60, Subpart IIII, including the following: [incorporated under 06-096 C.M.R. ch. 115, BPT, BACT, and ch. 169]
 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. BGS shall keep records that include 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. BGS may only change those emission-related settings that are permitted by the manufacturer. [40 C.F.R. § 60.4211(a)]

The following shall replace Specific Condition (18)(H) of Air Emission License A-23-71-Q-A.

(18) Incinerator #1

- H. No fuel shall be fired in the primary chamber until the temperature in the secondary chamber has reached 1,600 °F. [06-096 C.M.R. ch. 115, BPT]

The following is a new Specific Condition of Air Emission License A-23-71-P-R/M.

- (26) If the Department determines that any parameter value pertaining to construction and operation of the proposed emissions units, including but not limited to stack size, configuration, flow rate, emission rates, nearby structures, etc., deviates from what was submitted in the application or ambient air quality impact analysis for this air emission license, BGS may be required to submit additional information. Upon written request from the Department, BGS shall provide information necessary to demonstrate AAQS will not be exceeded, potentially including submission of an ambient air quality impact analysis or an application to amend this air emission license to resolve any deficiencies and ensure compliance with AAQS. Submission of this information is due within 60 days of the Department's written request unless otherwise stated in the Department's letter.
[06-096 C.M.R. ch. 115, § 2(O)]

DONE AND DATED IN AUGUSTA, MAINE THIS 30th DAY OF NOVEMBER, 2022.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for
MELANIE LOYZIM, 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: 9/28/22

Date of application acceptance: 9/28/22

Date filed with the Board of Environmental Protection:

This Order prepared by Chris Ham, Bureau of Air Quality.

