



DEPARTMENT ORDER

**Northern Maine Community College
Aroostook County
Presque Isle, Maine
A-444-71-J-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

Northern Maine Community College (NMCC) was issued Air Emission License A-444-71-I-R on April 25, 2016, for the operation of emission sources associated with their educational facility.

NMCC has requested an amendment to their license in order to install an emergency engine to provide backup power to the NMCC's data center located in the Christie Building.

In addition, the SO₂ annual emission totals will be updated to incorporate the reduced sulfur content provisions that went into effect in July 2018.

The equipment addressed in this license amendment is located at 33 Edgemont Drive, Presque Isle, Maine.

B. Emission Equipment

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

Emergency Stationary Engine

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity (kWe)	Fuel Type, % sulfur	Firing Rate (gal/hr)	Date of Manuf.	Date of Install.	Stack #
Data Center Emergency Generator	0.74	60	Distillate, 0.0015%	5.4	2018	Spring 2019	21

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 issued date of this license.

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	5.4	5.4	0	100
PM ₁₀	5.4	5.4	0	100
SO ₂	9.2	0.4	-8.8	100
NO _x	10.2	10.4	0.2	100
CO	10.1	10.1	0	100
VOC	0.4	0.4	0	50
CO ₂ e	<100,000	<100,000	<100,000	100,000

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

E. Facility Classification

The facility is licensed as follows:

- As a natural minor source of air emissions, because facility emissions cannot exceed 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. Data Center Emergency Generator

NMCC operates an emergency generator. The emergency generator is a generator set consisting of an engine and an electrical generator. The emergency generator has a distillate fuel fired engine rated at 0.74 MMBtu/hr. The emergency generator was manufactured in 2018.

1. BACT Findings

The BACT emission limits for the generator are based on the following:

PM/PM ₁₀	- 0.12 lb/MMBtu from 06-096 C.M.R. ch. 115
SO ₂	- combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
NO _x	- 4.41 lb/MMBtu from AP-42 dated 10/96
CO	- 0.95 lb/MMBtu from AP-42 dated 10/96
VOC	- 0.35 lb/MMBtu from AP-42 dated 10/96
Visible Emissions	- 06-096 C.M.R. 115, BACT

The BACT emission limits for the generator are the following:

<u>Unit</u>	<u>PM</u> <u>(lb/hr)</u>	<u>PM₁₀</u> <u>(lb/hr)</u>	<u>SO₂</u> <u>(lb/hr)</u>	<u>NO_x</u> <u>(lb/hr)</u>	<u>CO</u> <u>(lb/hr)</u>	<u>VOC</u> <u>(lb/hr)</u>
Data Center Emergency Generator (0.74 MMBtu/hr), distillate fuel	0.09	0.09	0.01	3.26	0.70	0.26

Visible emissions from the Data Center Emergency Generator shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which times NMCC shall comply with the following work practice standards.

- a. NMCC 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. NMCC 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.

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 the generator has been streamlined to the more stringent BACT limit, and only this more stringent limit shall be included in the air emission license.

2. 40 C.F.R. Part 60, Subpart III

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart III 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 III, 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 III requirements is listed below.

a. Emergency Engine Designation and Operating Criteria

Under 40 C.F.R. Part 60, Subpart III, 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 III, 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.

[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)]

The certification was included as part of this air license amendment application and can be found in NMCC's air licensing file.

(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. NMCC 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

NMCC 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 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)]

C. Annual Emissions

Total Annual Emissions

NMCC shall be restricted to the following annual emissions, based on firing 250,000 gallons of distillate fuel per calendar year, maximum operation of 8760 hours per year for the wood pellet boiler, and 100 hours of operation of the Data Center Generator:

Total Licensed Annual Emissions for the Facility

Tons/year

(used to calculate the annual license fee)

Equipment	PM	PM ₁₀	*SO ₂	NO _x	CO	VOC
Distillate Fired Boilers	1.4	1.4	0.03	2.5	0.6	0.1
Wood Pellet Fired Boiler	4.0	4.0	0.4	7.7	9.5	0.3
Data Center Emergency Generator	0.01	0.01	0.01	0.16	0.04	0.01
Total TPY	5.4	5.4	0.4	10.4	10.1	0.4

* Sulfur content updated

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.

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-444-71-J-A subject to the conditions found in Air Emission License A-444-71-I-R 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 is a new condition in Air Emission License A-444-71-I-R.

(23) **Data Center Emergency Generator**

A. The Data Center Emergency Generator shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations.
[06-096 C.M.R. ch. 115, BACT]

B. 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)
Data Center Emergency Generator	0.09	0.09	0.01	3.26	0.70	0.26

C. **Visible Emissions**

Visible emissions from the Data Center Emergency Generator shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which times NMCC shall comply with the following work practice standards.
[06-096 C.M.R. ch. 115, BACT]

1. NMCC 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. NMCC 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.

D. The Data Center Emergency Generator 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, BACT]

1. Ultra-Low Sulfur Fuel

The fuel fired in the engine shall not exceed 15 ppm sulfur (0.0015% sulfur). Compliance with the fuel sulfur content limit shall be based on fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [40 C.F.R. § 60.4207(b) and 06-096 C.M.R. ch. 115]

2. Non-Resettable Hour Meter

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

3. Annual Time Limit for Maintenance and Testing

a. 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). 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]

b. NMCC 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)]

4. Operation and Maintenance

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

DONE AND DATED IN AUGUSTA, MAINE THIS 12 DAY OF March, 2019.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Mark Allen Robert Cone for
GERALD D. REID, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-444-71-I-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: January 7, 2019

Date of application acceptance: January 18, 2019

Date filed with the Board of Environmental Protection:

This Order prepared by Lisa P. Higgins, Bureau of Air Quality.

