



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE  
GOVERNOR

PATRICIA W. AHO  
COMMISSIONER

**University of Maine System  
University of Maine at Fort Kent  
Aroostook County  
Fort Kent, Maine  
A-604-71-I-M**

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

**FINDINGS OF FACT**

After review of the air emissions 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 Annotated (M.R.S.A.), §344 and §590, the Maine Department of Environmental Protection (Department) finds the following facts:

**I. REGISTRATION**

**A. Introduction**

University of Maine at Fort Kent (UMFK) was issued Air Emission License A-604-71-G-R/A on April 10, 2012 permitting the operation of emission sources associated with their Fort Kent campus. The license was subsequently amended on December 16, 2013 (A-604-71-H-A).

UMFK has requested a minor revision to their license in order to include an emergency backup generator.

The equipment addressed in this license is located at 23 University Drive, Fort Kent, Maine.

**B. Emission Equipment**

The following equipment is addressed in this air emission license:

**Generators**

<b><u>Equipment</u></b>	<b><u>Output (kW)</u></b>	<b><u>Maximum Heat Input (MMBtu/hr)</u></b>	<b><u>Firing Rate (gal/hr)</u></b>	<b><u>Fuel Type, % sulfur</u></b>	<b><u>Date of Manuf.</u></b>
Generator #2	300	3.0	21.8	distillate fuel, 0.0015%	2014

AUGUSTA  
17 STATE HOUSE STATION  
AUGUSTA, MAINE 04333-0017  
(207) 287-7688 FAX: (207) 287-7826  
RAY BLDG., HOSPITAL ST.

BANGOR  
106 HOGAN ROAD, SUITE 6  
BANGOR, MAINE 04401  
(207) 941-4570 FAX: (207) 941-4584

PORTLAND  
312 CANCO ROAD  
PORTLAND, MAINE 04103  
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE  
1235 CENTRAL DRIVE, SKYWAY PARK  
PRESQUE ISLE, MAINE 04769  
(207) 764-0477 FAX: (207) 760-3143

C. Definitions

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

D. Application Classification

This amendment will increase emissions by less than 4 ton/year for each single pollutant and less than 8 ton/year for all pollutants combined. Therefore, this modification is determined to be a minor revision and has been processed as such.

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 CMR 100 (as amended). 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 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Generator #2

UMFK has installed one new emergency generator (Generator #2). Generator #2 is a generator set consisting of an engine and an electrical generator. The engine is rated at 3.0 MMBtu/hr and fires distillate fuel. Generator #2 was manufactured in 2014.

1. BACT Findings

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

PM/PM <sub>10</sub>	- 0.12 lb/MMBtu from 06-096 CMR 103
SO <sub>2</sub>	- combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
NO <sub>x</sub>	- 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
Opacity	- 06-096 CMR 101

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

Unit	Pollutant	lb/MMBtu
Generator #2	PM	0.12

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #2	0.36	0.36	neg	13.19	2.84	1.05

Visible emissions from Generator #2 shall not exceed 20% opacity on a 6-minute block average, except for no more than two (2) six (6) minute block averages in a 3-hour period.

2. 40 CFR Part 63, Subpart ZZZZ

The federal regulation 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines* is not applicable to Generator #2. This unit is considered an existing, emergency stationary reciprocating internal combustion engine at an area HAP source. However, it is considered exempt from the requirements of Subpart ZZZZ since it is categorized as an institutional emergency engine and it does not operate, or is not contractually obligated, to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §63.6640(f)(4)(ii).

Operation of Generator #2 such that it exceeds 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §63.6640(f)(4)(ii), would cause it to be subject to 40 CFR Part 63, Subpart ZZZZ, and require compliance with all applicable requirements.

3. 40 CFR Part 60, Subpart IIII

The federal regulation 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)* is applicable to Generator #2 since this unit was ordered after July 11, 2005 and manufactured after April 1, 2006.

a. Emergency Definition:

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

- (1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. There is no time limit on the use of emergency stationary ICE in emergency situations.
- (2) Paragraph (1) above notwithstanding, the emergency stationary ICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:
  - (i) 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 beyond 100 hours per calendar year.
  - (ii) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.
  - (iii) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- (3) Paragraphs (1) and (2) above notwithstanding, emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

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

- (i) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
- (ii) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
- (iii) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
- (iv) The power is provided only to the facility itself or to support the local transmission and distribution system.
- (v) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR §60.4211(f) and §60.4219]

b. 40 CFR Part 60, Subpart IIII Requirements:

(1) Manufacturer Certification Requirement

Generator #2 shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 CFR §60.4202. [40 CFR §60.4205(b)]

(2) Ultra-Low Sulfur Fuel Requirement

The fuel fired in Generator #2 shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR §60.4207(b)]

(3) Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on Generator #2. [40 CFR §60.4209(a)]

(4) Operation and Maintenance Requirements

Generator #2 shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by facility that are approved by the engine manufacturer. UMFK may only

change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]

(5) Annual Time Limit for Maintenance and Testing

Generator #2 shall be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). [40 CFR §60.4211(f)]

(6) Initial Notification Requirement

No initial notification is required for emergency engines. [40 CFR §60.4214(b)]

(7) Recordkeeping

UMFK shall keep records that include maintenance conducted on Generator #2 and the hours of operation of the engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If Generator #2 is operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), UMFK shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes. [40 CFR §60.4214(b)]

(8) Annual Reporting Requirements for Demand Response Availability Over 15 Hours Per Year (for engines greater than 100 brake hp)

If UMFK operates, or is contractually obligated to be available, for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), UMFK shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) ([www.epa.gov/cdx](http://www.epa.gov/cdx)). However, if the reporting form is

not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

Director, Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

[40 CFR §60.4214(d)]

C. Annual Emissions

1. Total Annual Emissions

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

- Firing 500,000 gal/year of distillate fuel with a sulfur content of 0.5% in the boilers.
- Firing 3,000 ton/year of wood pellets.
- Operating the generators for 100 hours per year each.

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

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>
Oil Firing	4.2	4.2	17.6	5.0	1.3	0.1
Wood Pellet Firing	7.1	7.1	0.6	11.6	14.3	0.4
Generator KGEN1	–	–	–	0.2	–	–
Generator #2	–	–	–	0.7	0.1	0.1
<b>Total TPY</b>	<b>11.3</b>	<b>11.3</b>	<b>18.2</b>	<b>17.5</b>	<b>15.7</b>	<b>0.6</b>

2. Greenhouse Gases

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

The quantity of CO<sub>2</sub>e emissions from this facility is less than 100,000 tons per year, based on the following:

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

No additional licensing actions to address GHG emissions are required at this time.

### III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source shall be determined by the Department on a case-by case basis. In accordance with 06-096 CMR 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:

<u>Pollutant</u>	<u>Tons/Year</u>
PM <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	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 A-604-71-I-M subject to the conditions found in Air Emission License A-604-71-G-R/A, in amendment A-604-71-H-A, and the following conditions.

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

**The following shall replace Condition (18) of Air Emission License A-604-71-G-R/A:  
(This Condition is being revised for consistency purposes.)**

**(18) Generator KGEN1**

- A. Generator KGEN1 shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. [06-096 CMR 115, BPT]
- B. UMFK 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 hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. [06-096 CMR 115, BPT]
- C. If Generator KGEN1 is operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity, UMFK shall keep records of the notification of the emergency situation, and the date, start time, and end time of generator operation for these purposes. [06-096 CMR 115, BPT]
- D. The fuel sulfur content for Generator KGEN1 shall be limited to 0.0015% sulfur by weight. Compliance shall be demonstrated by fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06-096 CMR 115, BPT]
- E. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

<u>Unit</u>	<u>PM</u> <u>(lb/hr)</u>	<u>PM<sub>10</sub></u> <u>(lb/hr)</u>	<u>SO<sub>2</sub></u> <u>(lb/hr)</u>	<u>NO<sub>x</sub></u> <u>(lb/hr)</u>	<u>CO</u> <u>(lb/hr)</u>	<u>VOC</u> <u>(lb/hr)</u>
Generator KGEN1	0.10	0.10	neg	3.53	0.76	0.28

- F. Visible emissions from Generator KGEN1 shall not exceed 20% opacity on a 6 minute block average, except for no more than two (2) six (6) minute block averages in a 3 hour period. [06-096 CMR 101]
- G. Emergency generators are only to be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Emergency generators are not to be used for prime power when

reliable offsite power is available; nor to operate or to be contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity.

**The following are New Conditions:**

(20) **Generator #2**

A. Generator #2 shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. [06-096 CMR 115, BACT]

B. Emissions shall not exceed the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>Origin and Authority</u>
Generator #2	PM	0.12	06-096 CMR 103(2)(B)(1)(a)

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

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM<sub>10</sub> (lb/hr)</u>	<u>SO<sub>2</sub> (lb/hr)</u>	<u>NO<sub>x</sub> (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Generator #2	0.36	0.36	neg	13.19	2.84	1.05

D. Visible emissions from Generator #2 shall each not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 101]

E. Generator #2 shall meet the applicable requirements of 40 CFR Part 60, Subpart III, including the following:

1. **Manufacturer Certification**

Generator #2 shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in §60.4202. [40 CFR §60.4205(b)]

2. **Ultra-Low Sulfur Fuel**

The fuel fired in Generator #2 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 CFR §60.4207(b) and 06-096 CMR 115, BACT]

3. Non-Resettable Hour Meter  
A non-resettable hour meter shall be installed and operated on Generator #2.  
[40 CFR §60.4209(a)]
4. Annual Time Limit for Maintenance and Testing
  - a. Generator #2 shall be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). These limits are based on a calendar year. Compliance shall be demonstrated by a written log of all engine operating hours. [40 CFR §60.4211(f) and 06-096 CMR 115]
  - b. UMFK shall keep records that include maintenance conducted on Generator #2 and the hours of operation of the engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If Generator #2 is operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), UMFK shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.
5. Operation and Maintenance  
Generator #2 shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by UMFK that are approved by the engine manufacturer. UMFK may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]
6. Annual Reporting For Demand Response Availability Over 15 Hours Per Year (for engines greater than 100 brake hp)  
If UMFK operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted

University of Maine System  
University of Maine at Fort Kent  
Aroostook County  
Fort Kent, Maine  
A-604-71-I-M

12

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

electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) ([www.epa.gov/cdx](http://www.epa.gov/cdx)). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

Director, Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

[40 CFR §60.4214(d)]

DONE AND DATED IN AUGUSTA, MAINE THIS 29 DAY OF May, 2015.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Maureen Allen Robert Core for  
PATRICIA W. AHO, COMMISSIONER

**The term of this amendment shall be concurrent with the term of Air Emission License A-604-71-G-R/A.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 4/3/15

Date of application acceptance: 4/14/15

Date filed with the Board of Environmental Protection:

This Order prepared by Lynn Muzzey, Bureau of Air Quality.

