STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

University of New England **York County** **Biddeford, Maine** **A-487-71-Q-A (SM)**	**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

The University of New England (UNE) was issued Air Emission License A-487-71-P-R/A on August 20, 2014, for the operation of emission sources associated with their university complex.

UNE is constructing a new building, the Danielle N. Ripich Commons, which is connected to the heating system supplied by Boilers #2, #6, and #7. To accommodate the potential additional heat load demand required by the new building, UNE has requested a fuel limit increase for propane from 650,000 gallons/year to 750,000 gallons/year. This project also includes the installation of a new emergency generator, Generator #11, at this new building.

The equipment addressed in this license amendment is located at 11 Beach Hill Road, Biddeford, Maine 04005.

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 (kW)	Fuel Type, % sulfur	Firing Rate (gal/hr)	Date of Manuf.	Date of Install.
Emergency Generator #11	7.26	800	Distillate fuel, 0.0015 %S	53.0	2017	2017

C. Definitions

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

- Fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials (ASTM) in ASTM D396;
- Diesel fuel oil numbers 1 or 2, as defined in ASTM D975;
- Kerosene, as defined in ASTM D3699;
- Biodiesel, as defined in ASTM D6751; or
- Biodiesel blends, as defined in ASTM D7467.

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	4.34	4.6	0.26	100
PM_{10}	4.34	4.6	0.26	100
SO_2	18.94	19.1	0.16	100
NO_x	18.64	20.5	1.86	100
CO	4.82	5.5	0.68	100
VOC	0.65	0.7	0.05	50
CO_2e	<100,000	<100,000	<100,000	100,000

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

With the annual fuel limit on the boilers and the operating hours restriction on the emergency generators, the facility is license below the major source thresholds for criteria air pollutants and is considered a synthetic minor. UNE is licensed below the major source thresholds for hazardous air pollutants (HAP) and is considered an area source of 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. Boilers

UNE operates Boilers #2, #6, and #7 for heating and hot water needs. The boilers are licensed to fire either propane or distillate fuel with a maximum sulfur content of 0.5% by weight. Upon completion of the Danielle N. Ripich Commons building, these boilers may be required to produce additional heat for the new building. Thus, UNE has requested a higher propane usage limit: UNE shall be limited to 750,000 gallons per year of propane in Boilers #2, #6, and #7 based on a calendar year total. This fuel use increase will not change the hourly emission limits found in air emission license A-487-71-P-R/A (8/20/14).

C. Emergency Generator #11

UNE presently operates a total of 10 emergency generators. Emergency Generator #11, a new unit, will be addressed in this amendment.

Emergency Generator #11 has a distillate firing rate of 53.0 gph (7.26 MMBtu/hr) with a rating of 800 kW. The emergency generator is a Cummings DQCC unit (engine model QSK23-G7 NR2) manufactured in 2017 and will be installed in early fall of 2017.

1. BACT Findings

The BACT emission limits for Emergency Generator #11 are based on the following:

PM/PM_{10}	- 0.12 lb/MMBtu from 06-096 C.M.R. ch. 115, BACT
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 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. 115, BACT

The BACT emission limits for Emergency Generator #11 are as follows:

Unit	Pollutant	lb/MMBtu
Generator #11	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)
Generator #11 (7.26 MMBtu/hr) distillate fuel	0.87	0.87	0.01	23.23	6.17	0.65

Visible emissions from Emergency Generator #11 shall not exceed 20% opacity on a six-minute block average basis.

2. 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. At this time, the Department has not taken delegation of this federal rule promulgated by EPA; however, UNE is still subject to the requirements.

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.

[40 C.F.R. §§ 60.4211(f) and 60.4219]

b. 40 C.F.R. Part 60, Subpart IIII 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), except that any existing fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.
[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 or procedures developed by UNE that are approved by the engine manufacturer. UNE 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
UNE 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 each time.
[40 C.F.R. § 60.4214(b)]

D. Annual Emissions

1. Total Annual Emissions

UNE shall be restricted to the following annual emissions on a calendar year total basis, based on the following limits:

- Total fuel use for all boilers combined shall not exceed 340,000 gallons per year of ASTM compliant distillate fuel with a maximum sulfur content not to exceed 0.5% by weight,;
- Total fuel use in all boilers combined shall not exceed 90,000 gallons per year of #4 fuel oil with a maximum sulfur content not to exceed 1.0% by weight;
- Total fuel use for all boilers combined shall not exceed 750,000 gallons per year of propane;
- Each Emergency Generator, #1-#11 inclusive, shall be limited to 100 hours per year of non-emergency operation (as defined by Subpart ZZZZ and Subpart IIII).

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
Boilers, Distillate	1.90	1.90	11.99	7.14	0.85	0.06
Boilers, #4 Fuel Oil	0.79	0.79	6.95	1.97	0.23	0.02
Boilers, Propane	1.70	1.70	0.01	4.88	2.81	0.38
Emergency Gen. #1	0.04	0.04	0.01	0.98	0.26	0.03
Emergency Gen. #2	0.02	0.02	0.01	0.58	0.12	0.05
Emergency Gen. #3	0.01	0.01	0.01	0.34	0.07	0.03
Emergency Gen. #4	0.01	0.01	0.01	0.26	0.05	0.02
Emergency Gen. #5	0.01	0.01	0.01	0.28	0.06	0.02
Emergency Gen. #6	0.03	0.03	0.01	0.82	0.22	0.02
Emergency Gen. #7	0.03	0.03	0.01	0.75	0.20	0.02
Emergency Gen. #8	0.03	0.03	0.01	0.75	0.20	0.02
Emergency Gen. #9	0.01	0.01	0.01	0.24	0.05	0.02
Emergency Gen. #10	0.01	0.01	0.01	0.30	0.06	0.02
Emergency Gen. #11	0.04	0.04	0.01	1.16	0.31	0.03
Total TPY	4.6	4.6	19.1	20.5	5.5	0.7

* for consistency, the SO_2 limits for the emergency generators were rounded up to 0.01 tpy.

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 C.F.R. Part 52, Subpart A, § 52.21, *Prevention of Significant Deterioration of Air Quality* rule. Greenhouse gases, as defined in 06-096 C.M.R. ch. 100, 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_2e).

The quantity of CO_2e 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 *Mandatory Greenhouse Gas Reporting,* 40 C.F.R. Part 98; and
- global warming potentials contained in 40 C.F.R. 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 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-487-71-Q-A subject to the conditions found in Air Emission License A-487-71-P-R/A (8/20/14), 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

Replace (16) C.1. found in A-487-71-P-R/A (8/20/14) with the following Condition:

(16) **Boilers**

C. Propane (Boiler #2,#6, #7)

1. Total propane use for UNE shall not exceed 750,000 gal/yr, on a calendar year total basis. Compliance shall be demonstrated by fuel records from the supplier showing quantity of the fuel delivered. Records of annual fuel use shall be kept on a monthly and calendar year total basis.
[06-096 C.M.R. ch. 115, BPT]

This is a new condition added to A-487-71-P-R/A (8/20/14)

(19) **Generators #11**

A. Emergency Generator #11 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:

Unit	Pollutant	lb/MMBtu	Origin and Authority
Generator #11	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, BACT]:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #11 (7.26 MMBtu/hr) distillate fuel	0.87	0.87	0.01	23.23	6.17	0.65

D. Visible Emissions

Visible emissions from Emergency Generator #11 shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

E. Emergency Generator #11 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. Manufacturer Certification
   The engine 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 engine 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. 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]

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

4. 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. UNE 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 each time. [40 C.F.R. § 60.4214(b)]

5. Operation and Maintenance
The engine shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by UNE that are approved by the engine manufacturer. UNE 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 1 DAY OF September , 2017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PAUL MERCER, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-487-71-P-R/A (8/20/14).

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 7/25/17
Date of application acceptance: 7/27/17

Date filed with the Board of Environmental Protection:

Filed
SEP 01 2017
State of Maine
Board of Environmental Protection

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