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

DEPARTMENT ORDER

University of Maine System **Cumberland County** **Gorham, Maine** **A-462-71-R-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

The University of Maine System including the University of Southern Maine, Gorham Campus (USM) was issued Air Emission License A-462-71-Q-R on 12/29/14, for the operation of emission sources associated with their educational facility.

USM has requested an amendment to their license in order to add a natural gas-fired generator.

The equipment addressed in this license amendment is located at 37 College Avenue, Gorham Maine.

B. Emission Equipment

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

Stationary Engines

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity (kW)	Fuel Type, % sulfur	Firing Rate (scf/hr)	Date of Manuf.	Date of Install.
Generator #7	3.53	300	natural gas, Neg.	3,462	2019	2020

C. 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	7.3	7.4	0.1	100
PM_{10}	7.3	7.4	0.1	100
SO_2	24.5	24.5	0.0	100
NO_x	13.6	13.8	0.2	100
CO	7.9	8.3	0.4	100
VOC	1.3	1.5	0.2	50

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

D. Facility Classification

With the annual fuel limit on Boilers #5-#10, and the operating hours restriction on the generators, the facility is licensed as follows:

- As a synthetic minor source of air emissions, because USM 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 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. Generator #7

USM will operate Generator #7 for demand response and load shedding. Generator #7 is a generator set consisting of an engine and an electrical generator. Generator #7 has an engine rated at 3.53 MMBtu/hr which fires natural gas and was manufactured in 2019.

1. BACT Findings

USM submitted a BACT analysis for control of emissions from Generator #7.

a. Nitrogen Oxides (NO_x)
USM considered several control strategies for the control of NO_x including Selective Non-Catalytic Reduction (SNCR), using an engine certified under 40 C.F.R. Part 60, Subpart JJJJ, and limiting the engine's usage to 300 hours per year.

SNCR is not economically feasible for use on an engine of this size and limited use.

The Department finds that BACT for NO_x emissions from Generator #7 is to use an EPA-certified engine, a yearly limit of 300 hours of operation, and the emission limits listed in the table below.

b. Sulfur Dioxide (SO_2)
USM has proposed to fire only natural gas fuel which has a negligible sulfur content. The use of natural gas results in minimal emissions of SO_2, and additional add-on pollution controls are not economically feasible.

BACT for SO_2 emissions from Generator #7 is the use of natural gas and the emission limits listed in the tables below.

c. Carbon Monoxide (CO), Volatile Organic Compounds (VOC), and PM/PM_{10}
USM has proposed to burn only low-ash content fuels (natural gas) in Generator #7, the use of an engine certified under 40 C.F.R. Part 60, Subpart JJJJ, and proper operation and maintenance of the engine. The use of add-on controls for any of these pollutants is not economically justifiable given the relatively small size of the unit and the limited hours of use per year.

The Department finds that BACT for CO, VOC, and PM/PM_{10} emissions from Generator #7 is through the exclusive use of natural gas as a fuel, proper operation and maintenance, and the use of a certified engine.

2. BACT emission limits

The BACT emission limits for Generator #7 are based on the following:

PM/PM_{10}	- 0.05 lb/MMBtu based on 06-096 C.M.R. ch. 115, BACT
SO_2	- 5.88 x 10^{-4} lb/MMBtu based on AP-42, Section 3.2
NO_x	- 1.0 g/HP-hr from 40 C.F.R. Part 60, Subpart JJJJ, Table 1
CO	- 2.0 g/HP-hr from 40 C.F.R. Part 60, Subpart JJJJ, Table 1
VOC	- 0.7 g/HP-hr from 40 C.F.R. Part 60, Subpart JJJJ, Table 1
Visible Emissions	- 06-096 C.M.R. ch. 115, BACT

The BACT emission limits for Generator #7 are the following:

Unit	Pollutant	lb/MMBtu
Generator #7	PM	0.05

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator # 7	0.18	0.18	-	1.17	2.34	0.82

Visible emissions from Generator #7 shall not exceed 10% 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 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.

3. Annual Operating Limit

Generator #7 shall not be operated for more than 300 hours per calendar year.

4. 40 C.F.R. Part 60, Subpart JJJJ

Standards of Performance for Spark Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart JJJJ is applicable to the engine listed above since the unit was ordered after June 12, 2006, and manufactured after January 1, 2009. [40 C.F.R. § 60.4230]

By meeting the requirements of 40 C.F.R. Part 60, Subpart JJJJ, 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 JJJJ requirements is listed below.

a. Alternative Fuel

USM may operate Generator #7 using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but shall keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, USM is required to conduct a performance test to demonstrate compliance with the emission standards of § 60.4233. [40 C.F.R. § 60.4243]

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

(1) Manufacturer Certification Requirement
The engine shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1. [40 C.F.R. § 60.4233]

The Engine shall meet the above standards for the life of the engine.
[40 C.F.R. § 60.4234]

(2) Operation and Maintenance Requirement
The engine shall be operated and maintained according to the manufacturer's written instructions or procedures developed by USM that are approved by the engine manufacturer. USM may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

(3) Recordkeeping
USM shall keep records of the following:

a. All maintenance conducted on the engine.

b. All notifications submitted to comply with subpart JJJJ and all documentation supporting any notification.

c. Documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 C.F.R. Parts 90, 1048, 1054, and 1060, as applicable.

[40 C.F.R. § 60.4245(a)]

(4) Reporting

a. Because Generator #7 is operated in a demand response program it is considered contractually obligated to be available for greater than 15 hours per year. As such, USM is required to submit an annual report which contains the following:

(1) Facility name and address where the engine is located.

(2) Date of the report and beginning and ending dates of the reporting period.

(3) Engine site rating and model year.

(4) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(5) Hours operated for the purposes specified in § 60.4243(d)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in § 60.4243(d)(2)(ii) and (iii).

(6) Number of hours the engine is contractually obligated to be available for the purposes specified in § 60.4243(d)(2)(ii) and (iii).

(7) Hours spent for operation for the purposes specified in § 60.4243(d)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in § 60.4243(d)(3)(i). The report shall also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

b. The annual report shall be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report shall be submitted to the Administrator at the appropriate address listed in § 60.4.

c. The report shall be submitted by March 31st of the year following the reporting year.

[40 C.F.R. § 60.4245(e)]

C. 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. Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included. Maximum potential emissions were calculated based on the following assumptions:

- Firing 65,000 gal/yr distillate fuel and 9,000,000 scf/yr of natural gas in Boilers #5, #6, and #7;
- Firing 600,000 gal/yr distillate fuel and 92,000,000 scf/yr of natural gas in Boilers #8, #9, and #10;
- Operating Boiler #11 for 8,760 hrs/yr
- Operating Generators #1-#6 for 100 hrs/yr each; and
- Operating Generator #7 for 300 hrs/yr

Please note, this information provides the basis for fee calculation only and should not be construed to 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**
Boilers #5, #6, #7						
Distillate Fuel	0.4	0.4	2.3	0.7	0.2	0.1
Natural Gas	0.2	0.2	0.1	0.5	0.4	0.1
Boilers #8, #9, #10						
Distillate Fuel	3.4	3.4	21.3	6.0	1.5	0.1
Natural Gas	2.3	2.3	0.1	4.6	3.9	0.3
Boiler #11	0.4	0.4	0.1	0.7	0.6	0.1
Generator #1	0.1	0.1	0.1	0.2	0.1	0.1
Generator #2	0.1	0.1	0.1	0.4	0.1	0.1
Generator #3	0.1	0.1	0.1	0.1	0.1	0.1
Generator #4	0.1	0.1	0.1	0.1	0.1	0.1
Generator #5	0.1	0.1	0.1	0.2	0.1	0.1
Generator #6	0.1	0.1	0.1	0.1	0.8	0.1
Generator #7	0.1	0.1	-	0.2	0.4	0.2
Total TPY	**7.4**	**7.4**	**24.5**	**13.8**	**8.3**	**1.5**

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-462-71-R-A subject to the conditions found in Air Emission License A-462-71-Q-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 of Air Emission License A-462-71-Q-R.

(21) **Generator #7**

A. Generator #7 shall be limited to 300 hours of operation per calendar year. [06-096 C.M.R. ch. 115, BACT]

B. Generator #7 shall be fitted with a non-resettable hour meter which records run time. USM shall maintain records from the hour meter to document compliance with the limit on hours of operation per year. [06-096 C.M.R. ch. 115, BACT]

C. Emissions shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
Generator #7	PM	0.05	06-096 C.M.R. ch. 115, BACT

D. 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 # 7	0.18	0.18	-	1.17	2.34	0.82

E. Visible Emissions

Visible emissions from Generator #7 shall not exceed 10% opacity on a six-minute block average. [06-096 C.M.R. ch. 115, BACT]

F. Generator #7 shall meet the applicable requirements of 40 C.F.R. Part 60, Subpart JJJJ, including the following: [incorporated under 06-096 C.M.R. ch. 115, BACT]

1. USM may operate Generator #7 using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but shall keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, USM is required to conduct a performance test to demonstrate compliance with the emission standards of § 60.4233. [40 C.F.R. § 60.4243]

2. Manufacturer Certification Requirement

a. The engine shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1. [40 C.F.R. § 60.4233]

b. The Engine shall meet the above standard for the life of the engine. [40 C.F.R. § 60.4234]

3. Operation and Maintenance Requirement

The engine shall be operated and maintained according to the manufacturer's written instructions or procedures developed by USM that are approved by the engine manufacturer. USM may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

4. Recordkeeping

USM shall keep records of the following:

a. All maintenance conducted on the engine.

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c. Documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 C.F.R. Parts 90, 1048, 1054, and 1060, as applicable.

[40 C.F.R. § 60.4245(a)]

5. Reporting

a. USM shall submit an annual report to the EPA which contains the following:

(1) Facility name and address where the engine is located.

(2) Date of the report and beginning and ending dates of the reporting period.

(3) Engine site rating and model year.

(4) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(5) Hours operated for the purposes specified in § 60.4243(d)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in § 60.4243(d)(2)(ii) and (iii).

(6) Number of hours the engine is contractually obligated to be available for the purposes specified in § 60.4243(d)(2)(ii) and (iii).

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b. The annual report shall be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report shall be submitted to the Administrator at the appropriate address listed in § 60.4.

c. The report shall be submitted by March 31st of the year following the reporting year.
[40 C.F.R. § 60.4245(e)]

DONE AND DATED IN AUGUSTA, MAINE THIS 10th DAY OF NOVEMBER, 2020.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ for _____
MELANIE LOYZIM, ACTING COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-462-71-Q-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 8/4/20
Date of application acceptance: 8/11/20

Date filed with the Board of Environmental Protection:

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

FILED

NOV 10, 2020

State of Maine
Board of Environmental Protection