



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

DEPARTMENT ORDER

The University of Maine System  
Penobscot County  
Orono, Maine  
A-204-77-16-A

Departmental  
Findings of Fact and Order  
New Source Review  
NSR #16

FINDINGS OF FACT

After review of the air emission license 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 (the Department) finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	The University of Maine System
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	611310
NATURE OF BUSINESS	Educational Facility
FACILITY LOCATION	5765 Service Building and throughout the Orono Campus

B. NSR License Description

The University of Maine System (UMaine, the University) has requested a New Source Review (NSR) license to install a new natural gas-fired emergency generator at the University's Witter Farm facility.

C. Emission Equipment

The following equipment is addressed in this NSR license:

**Generator**

Equipment	Max. Heat Input Capacity (MMBtu/hr)	Max. Firing Rate (scf/hr)	Output	Fuel Type	Mfr. Date	Install. Date
Witter Farm Generator	1.28	1,255	100 kW	Natural gas	2024	2025

D. Definitions

Records or Logs mean either hardcopy or electronic records.

E. 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 application for installation of a new emergency generator does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing, or recordkeeping requirements.

The modification of a major source is considered a major or minor modification based on whether or not expected emissions increases exceed the “Significant Emission Increase” levels as given in *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. For a major stationary source, the expected emissions increase from each new, modified, or affected unit may be calculated as equal to the difference between the post-modification projected actual emissions and the baseline actual emissions for each NSR regulated pollutant.

1. Baseline Actual Emissions

Baseline actual emissions (BAE) for existing affected emission units are equal to the average annual emissions from any consecutive 24-month period within the ten years prior to submittal of a complete license application. The selected 24-month baseline period can differ on a pollutant-by-pollutant basis. However, there are no existing emission units which are considered “affected” by this project.

The only equipment addressed by this license are new emission units. Baseline actual emissions for new equipment are considered to be zero for all pollutants; therefore, the selection of a baseline year is unnecessary.

2. Projected Actual Emissions

New emission units must use potential to emit (PTE) emissions for projected actual emissions (PAE). Those emissions are presented in the following table.

**Projected Actual Emissions**

Equipment	PM (tpy)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)	SO <sub>2</sub> (tpy)	NO <sub>x</sub> (tpy)	CO (tpy)	VOC (tpy)
Witter Farm Generator	--	--	--	--	0.15	0.24	--
<b>Total</b>	--	--	--	--	<b>0.15</b>	<b>0.24</b>	--

### 3. Emissions Increases

Emissions increases are calculated by subtracting BAE from the PAE. The emission increase is then compared to the significant emissions increase levels.

Pollutant	Baseline Actual Emissions (ton/year)	Projected Actual Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	0	--	0	25
PM <sub>10</sub>	0	--	0	15
PM <sub>2.5</sub>	0	--	0	10
SO <sub>2</sub>	0	--	0	40
NO <sub>x</sub>	0	0.15	0.15	40
CO	0	0.24	0.24	100
VOC	0	--	0	40

### 4. Classification

Since emissions increases do not exceed significant emissions increase levels, this NSR license is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations*, 06-096 C.M.R. ch. 115.

This NSR license is not licensing a new major stationary source of an NSR pollutant that is not greenhouse gases (GHG) nor is it authorizing a major modification for an NSR pollutant to an existing major stationary source. Therefore, greenhouse gases are not considered subject to regulation in this license pursuant to 40 C.F.R. §§ 51.166(b)(48)(iii - iv).

UMaine has submitted an application to incorporate the requirements of this NSR license into the facility's Part 70 air emission license.

## 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 as well as for those sources located in designated non-attainment areas.

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. Witter Farm Generator

UMaine has proposed the installation of a new emergency generator. The emergency generator is a generator set consisting of an engine and an electrical generator. The emergency generator has an engine rated at 1.28 MMBtu/hr which fires natural gas. The emergency generator was manufactured in 2024.

### 1. BACT Findings

The BACT emission limits for the Witter Farm Generator are based on the following:

PM/PM <sub>10</sub> /PM <sub>2.5</sub>	–	1.94 x 10 <sup>-2</sup> lb/MMBtu based on AP-42 Table 3.2-3 dated 10/24
SO <sub>2</sub>	–	5.88 x 10 <sup>-4</sup> lb/MMBtu based on AP-42 Table 3.2-3 dated 10/24
NO <sub>x</sub>	–	2.27 lb/MMBtu based on AP-42 Table 3.2-3 dated 10/24
CO	–	3.72 lb/MMBtu based on AP-42 Table 3.2-3 dated 10/24
VOC	–	2.96 x 10 <sup>-2</sup> lb/MMBtu based on AP-42 Table 3.2-3 dated 10/24
Visible Emissions	–	06-096 C.M.R. ch. 115, BACT

The BACT emission limits for the Witter Farm Generator are the following:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Witter Farm Generator	0.02	0.02	0.02	--	2.91	4.76	0.04

Visible emissions from the Witter Farm Generator shall not exceed 10% opacity on a six-minute block average basis.

The Department has determined that the 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. Chapter 169

*Stationary Generators*, 06-096 C.M.R. ch. 169 (Chapter 169), is applicable to the Witter Farm Generator. 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.

a. Chapter 169 Emission Standards Requirements

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

b. Chapter 169 Stack Height Requirements

Chapter 169 identifies stack height requirements for any stack used to exhaust a generator engine or combination of generator engines with a combined rated output equal to or greater than 1,000 brake horsepower (747 kW). Individual generator engines with a maximum power capacity of less than 300 kW are not included in the assessment of the combined generator power capacity exhausted through a common stack. [06-096 C.M.R. ch. 169, § 6]

There are no stack height requirements in Chapter 169 applicable to the Witter Farm Generator because it exhausts through its own stack and its rated output is less than 1,000 brake horsepower (747 kilowatts). [06-096 C.M.R. ch. 169, § 6]

3. New Source Performance Standards

*Standards of Performance for Spark Ignition Internal Combustion Engines*, 40 C.F.R. Part 60, Subpart JJJJ is applicable to the emergency 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. Emergency Engine Designation and Operating Criteria

Under 40 C.F.R. Part 60, Subpart JJJJ, 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 JJJJ, resulting in the engine being subject to requirements applicable to non-emergency engines.

- (1) 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.

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]

(2) Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on the engine. [40 C.F.R. § 60.4237]

(3) Operation and Maintenance Requirement

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

UMaine shall have available for review by the Department a copy of the manufacturer's written instructions or procedures developed by UMaine that are approved by the engine manufacturer for engine operation and maintenance. [06-096 C.M.R. ch. 115, BPT]

(4) Annual Time Limit for Maintenance and Testing

As an emergency engine, the unit shall be limited to 100 hours/year for maintenance and testing. The emergency engine may operate up to 50 hours per year in non-emergency situations, but those 50 hours are included in the 100 hours total allowed for maintenance and testing. The 50 hours for non-emergency use cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 C.F.R. § 60.4243(d)]

(5) Recordkeeping

UMaine 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. § 60.4245(b)]

C. Incorporation Into the Part 70 Air Emission License

Pursuant to *Part 70 Air Emission License Regulations*, 06-096 C.M.R. ch. 140 § 1(C)(8), for a modification at the facility that has undergone NSR requirements or been processed through 06-096 C.M.R. ch. 115, the source must apply for an amendment to their Part 70

license within one year of commencing the proposed operations, as provided in 40 C.F.R. Part 70.5. An application to incorporate the requirements of this NSR license into the Part 70 air emission license has been submitted to the Department.

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:

- 8,760 hours/year of operation for each of the Global Science Boilers and Small Boilers;
- 100 hours/year of operation for each emergency generator;
- 500 hours/year for each non-emergency generator;
- an annual No. 6 fuel oil use limit of 3,500,000 gallons per year based on a 12-month rolling total; and
- the established BPT for the Printing Services Department.

This information does not represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license, previously issued NSR licenses, and the facility's Part 70 license and amendments to that license.

**Total Licensed Annual Emissions for the Facility**

**Tons/year**

(used to calculate the annual license fee)

	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Steam Plant Boilers (#5, #6, #7, and #8)	26.3	26.3	136.5	144.4	157.5	26.3
Global Science Boiler #1	1.0	1.0	0.01	1.9	1.6	0.1
Global Science Boiler #2	1.0	1.0	0.01	1.9	1.6	0.1
Small Boilers (< 3.2 MMBtu/hr)	1.71	0.88	0.4	11.39	9.55	0.53
Portable Generator #2 (Model 3406C)	0.02	0.02	0.01	0.4	0.1	0.01
Hitchner Hall Generator	0.02	0.02	0.01	0.5	0.2	0.01
Aubert Hall Generator	0.02	0.02	0.01	0.5	0.1	0.01
Barrows Hall Generator	0.02	0.02	0.01	0.5	0.1	0.01
Alfond Arena Generator	0.01	0.01	0.01	0.1	0.03	0.01
Neville Hall Data Center Generator	0.01	0.01	0.01	0.9	0.1	0.01
Memorial Gym Generator	0.01	0.01	0.01	0.01	0.02	0.02
Wells Commons Generator	0.01	0.01	0.01	0.41	0.1	0.01
York Hall Generator	0.01	0.01	0.01	0.06	0.94	0.01



	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Estabrooke Hall Generator	0.01	0.01	0.01	0.01	0.71	0.01
Small Generators (<3 MMBtu/hr) firing natural gas/propane	0.01	0.01	0.01	1.12	1.73	0.01
Small Generators (<3 MMBtu/hr) firing distillate fuel	0.04	0.04	0.01	1.3	0.28	0.10
Recreation Center Generator	0.1	0.1	0.01	1.5	0.2	0.03
Hilltop Commons Generator	0.2	0.2	0.01	2.9	0.2	0.03
Collins Center Generator	0.1	0.1	0.01	1.3	0.4	0.02
Steam Plant Generator	0.001	0.001	0.0001	0.115	0.008	0.001
EEDC Generator	0.01	0.01	--	0.01	0.06	0.01
Printing Services	--	--	--	--	--	2.0
<b>Total TPY</b>	<b>30.6</b>	<b>29.8</b>	<b>137.1</b>	<b>171.2</b>	<b>175.5</b>	<b>29.3</b>

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

### **III. AMBIENT AIR QUALITY ANALYSIS**

UMaine previously submitted an ambient air quality impact analysis outlined in air emission license A-204-77-3-A (dated June 9, 2011) demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards (AAQS). An additional ambient air quality impact analysis is not required for this NSR 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,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants New Source Review License A-204-77-16-A pursuant to the preconstruction licensing requirements of 06-096 C.M.R. ch. 115 and subject to the specific conditions below.

Severability. The invalidity or unenforceability of any provision of this License or part thereof 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.

## **SPECIFIC CONDITIONS**

### **(1) Witter Farm Generator**

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

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Witter Farm Generator	0.02	0.02	0.02	--	2.91	4.76	0.04

### **B. Visible Emissions**

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

C. UMaine shall keep records of all maintenance conducted on the engine associated with the Witter Farm Generator. [06-096 C.M.R. ch. 115, BACT]

**The following Condition (2) addresses applicable requirements unrelated to NSR and shall expire upon incorporation of this NSR license into UMaine's Part 70 air emission license:**

### **(2) Witter Farm Generator 40 C.F.R. Part 60, Subpart JJJJ**

The Witter Farm Generator shall meet the applicable requirements of 40 C.F.R. Part 60, Subpart JJJJ, including the following:

#### **A. Manufacturer Certification**

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.

#### **B. Non-Resettable Hour Meter**

A non-resettable hour meter shall be installed and operated on the engine.  
[40 C.F.R. § 60.4237]

#### **C. Annual Time Limit for Maintenance and Testing**

1. 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).

The 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. § 60.4243(d)]

2. UMaine 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. § 60.4245(b)]

**D. Operation and Maintenance**

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

UMaine shall have available for review by the Department a copy of the manufacturer's emission-related written instructions for engine operation and maintenance.

- (3) If the Department determines that any parameter value pertaining to construction and operation of the 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, UMaine may be required to submit additional information. Upon written request from the Department, UMaine 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)]

- (4) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 C.M.R. ch. 115]

DONE AND DATED IN AUGUSTA, MAINE THIS 27<sup>th</sup> DAY OF FEBRUARY, 2025.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for  
MELANIE LOYZIM, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: November 7, 2024

Date of application acceptance: November 19, 2024

This Order prepared by Benjamin Goundie, Bureau of Air Quality.