



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

**City of Portland – Merrill Auditorium
Cumberland County
Portland, Maine
A-987-71-E-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

City of Portland – Merrill Auditorium (Merrill) was issued Air Emission License A-987-71-D-R on July 6, 2023, for the operation of emission sources associated with their public assembly building.

Merrill has requested an amendment to their license in order to replace two older boilers (Boiler #1 and #2) with three new natural gas-fired boilers (Boilers #1, #2, and #3).

This license completes the processing of the application with the following submission number as assigned by the Department: 603601 (accepted 06/15/2026).

The equipment addressed in this license amendment is located at 20 Myrtle Street, Portland, Maine.

B. Emission Equipment

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

Boilers

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Date of Manuf.	Date of Install.	Stack #
Boiler #1	3.35	3,282 scf/hr	Natural Gas	2026	2026	1
Boiler #2	3.35	3,282 scf/hr	Natural Gas	2026	2026	1
Boiler #3	3.35	3,282 scf/hr	Natural Gas	2026	2026	1
Boiler #1*	5.68	--	Natural Gas and Distillate Fuel	1978	1978	1
Boiler #2*	5.68	--	Natural Gas and Distillate Fuel	1996	1996	1

*Being removed from license

C. Definitions

Records or Logs mean either hardcopy or electronic records.

D. 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 Emissions" 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 Emissions Levels
PM	4.0	2.2	-1.8	100
PM ₁₀	4.0	2.2	-1.8	100
PM _{2.5}	4.0	2.2	-1.8	100
SO ₂	0	0	0	100
NO _x	7.6	4.7	-2.9	100
CO	4.1	3.7	-0.4	100
VOC	0.2	0.2	0	50*

* Merrill is located in an area of the state included in the Ozone Transport Region. Therefore, the significant emissions level for VOC is 50 tpy.

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

E. Facility Classification

With the annual operating hours restriction on Generator #1, the facility is licensed as follows:

- As a natural minor source of criteria pollutants, because no license restrictions are necessary to 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 *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 #1, #2, and #3

Merrill has proposed to operate Boilers #1, #2, and #3 for heating and hot water needs. The boilers are each rated at 3.35 MMBtu/hr and fire natural gas and will all be installed in 2026. The boilers will exhaust through a shared stack, Stack #1.

1. BACT Findings

Following is a BACT analysis for control of emissions from Boilers #1, #2, and #3.

a. Sulfur Dioxide (SO₂)

Merrill has proposed to fire only natural gas, which has negligible sulfur content. The use of natural gas results in minimal emissions of SO₂, and additional add-on pollution controls are not economically feasible.

BACT for SO₂ emissions from Boilers #1, #2, and #3 is the use of natural gas and the emission limits listed in the tables below.

b. Nitrogen Oxides (NO_x)

Control strategies for the control of NO_x include Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (SNCR), flue gas recirculation (FGR), and low-NO_x burners.

SNCR requires furnace space and residence time unavailable with the proposed boilers and therefore is not technically feasible. Capital costs of adding an SCR to these boilers with pre-control potential annual emissions less than five tons would make it economically infeasible.

FGR can attain NO_x reduction efficiencies through lowering burner flame temperature and thereby reducing thermal NO_x formation. Potential challenges with FGR include additional electricity requirements and expense of modifying the boilers.

Merrill has proposed to fire only natural gas. The boilers are also equipped with high efficiency burners, which will further reduce the amount of NO_x emissions.

BACT for NO_x emissions from Boilers #1, #2, and #3 is the use of natural gas, high efficiency burners, and the emission limits listed in the tables below.

c. Particulate Matter (PM), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC)

Merrill has proposed proper combustion and maintenance practices as recommended by the manufacturer for the control of PM/PM₁₀/PM_{2.5}, CO and VOC.

BACT for PM, CO, and VOC emissions from Boilers #1, #2, and #3 is the firing of low-ash fuel (natural gas), and the emission limits listed in the tables below.

d. Emission Limits

The BACT emission limits for Boilers #1, #2, and #3 were based on the following:

PM/PM ₁₀ /PM _{2.5}	– 0.05 lb/MMBtu, 06-096 C.M.R. ch. 115, BACT
SO ₂	– 0.6 lb/MMscf based on AP-42 Table 1.4-2 dated 4/26
NO _x	– 100 lb/MMscf based on AP-42 Table 1.4-1 dated 4/26
CO	– 84 lb/MMscf based on AP-42 Table 1.4-1 dated 4/26

VOC – 5.5 lb/MMscf based on AP-42 Table 1.4-2 dated 4/26
Visible Emissions – 06-096 C.M.R. ch. 101

The BACT emission limits for Boilers #1, #2, and #3 are the following:

Unit	Pollutant	lb/MMBtu
Boiler #1	PM	0.05
Boiler #2	PM	0.05
Boiler #3	PM	0.05

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	PM _{2.5} (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	0.17	0.17	0.17	--	0.33	0.27	0.02
Boiler #2	0.17	0.17	0.17	--	0.33	0.27	0.02
Boiler #3	0.17	0.17	0.17	--	0.33	0.27	0.02

2. Visible Emissions

Visible emissions from Stack #1 (Boilers #1, #2, and #3) shall not exceed 10% opacity on a six-minute block average basis.

3. New Source Performance Standards (NSPS): 40 C.F.R. Part 60, Subpart Dc

Due to their sizes, the boilers are not subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R. Part 60, Subpart Dc for units greater than 10 MMBtu/hr manufactured after June 9, 1989. [40 C.F.R. § 60.40c]

4. National Emission Standards for Hazardous Air Pollutants (NESHAP): 40 C.F.R. Part 63, Subpart JJJJJJ

Boilers #1, #2, and #3 are not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 C.F.R. Part 63, Subpart JJJJJJ. Natural gas-fired units are exempt from the requirements of this regulation. [40 C.F.R. §§ 63.11195(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 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:

- Operating Generator #1 for 100 hrs/yr of non-emergency operation; and
- Operating Boilers #1, #2, and #3 for 8,760 hr/yr each.

This information does not 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	PM _{2.5}	SO ₂	NO _x	CO	VOC
Generator #1	--	--	--	--	0.4	0.1	--
Boilers #1, #2, and #3	2.2	2.2	2.2	--	4.3	3.6	0.2
Total TPY	2.2	2.2	2.2	--	4.7	3.7	0.2

Pollutant	Tons/year
Single HAP	7.9
Total HAP	19.9

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
PM _{2.5}	15
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.

This determination is based on information provided by the applicant regarding the expected construction and operation of the proposed emission units. If the Department determines that any parameter (e.g., stack size, configuration, flow rate, emission rates, nearby structures, etc.) deviates from what was included in the application, the Department may require Merrill to submit additional information and may require an ambient air quality impact analysis at that time.

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-987-71-E-A, subject to the conditions found in Air Emission License A-987-71-D-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 shall replace Condition (17) of Air Emission License A-987-71-D-R:

(17) Boilers #1, #2, and #3

- A. Boilers #1, #2, and #3 are licensed to fire natural gas.
[06-096 C.M.R. ch. 115, BACT]

B. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1	PM	0.05	06-096 C.M.R. ch. 115, BACT
Boiler #2	PM	0.05	06-096 C.M.R. ch. 115, BACT
Boiler #3	PM	0.05	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)	PM _{2.5} (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	0.17	0.17	0.17	--	0.33	0.27	0.02
Boiler #2	0.17	0.17	0.17	--	0.33	0.27	0.02
Boiler #3	0.17	0.17	0.17	--	0.33	0.27	0.02

D. Visible emissions from Stack #1 (Boilers #1, #2, and #3) shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 4(D)(1)]

Done and Dated in Augusta, Maine this 21st day of SEPTEMBER, 2026.

Department of Environmental Protection

BY:


for Melanie Loyzim, Commissioner

The term of this license amendment shall be ten (10) years from the issuance of Air Emission License A-987-71-D-R (issued 07/06/2023).

[Note: If a renewal application, determined as complete by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 M.R.S. § 10002, all terms and conditions of the license shall remain in effect until the Department takes final action on the license renewal application.]

Please note attached sheet for guidance on appeal procedures.

Date of initial receipt of application: 6/12/2026

Date of application acceptance: 6/15/2026

This Order prepared by Jack Doran, Bureau of Air Quality.