



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

City of Portland – Portland High School
Cumberland County
Portland, Maine
A-238-71-I-A

Departmental
Findings of Fact and Order
Air Emission License
Amendment #1

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 M.R.S.A., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

The City of Portland – Portland High School (City of Portland) was issued Air Emission License A-238-71-H-N/A on 08/20/2009 permitting the operation of emission sources associated with their educational facility.

The City of Portland has requested an amendment to their license in order to remove the two, existing, #2 oil fired boilers and replace them with four 3.0 MMBtu/hr, natural gas fired boilers.

The equipment addressed in this license is located at 284 Cumberland Avenue, Portland, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boilers

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (scf/hr)</u>	<u>Fuel Type, % sulfur</u>	<u>Install Date</u>	<u>Stack #</u>
Boiler #1	3.0	2,941	Nat. Gas	2012	1
Boiler #2	3.0	2,941	Nat. Gas	2012	1
Boiler #3	3.0	2,941	Nat. Gas	2012	1
Boiler #4	3.0	2,941	Nat. Gas	2012	1

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 04679-2094
(207) 764-0477 FAX: (207) 760-3143

C. Application Classification

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 regulations. The emission increases are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

<u>Pollutant</u>	<u>Current License (TPY)</u>	<u>Future License (TPY)</u>	<u>Net Change (TPY)</u>	<u>Significance Level (TPY)</u>
PM	1.7	1.3	-0.4	100
PM ₁₀	1.7	1.3	-0.4	100
SO ₂	5.3	0.1	-5.2	100
NO _x	2.0	2.5	+0.5	100
CO	0.5	2.1	+1.6	100
VOC	0.1	0.1	0.0	50
CO ₂ e	--	3,090	3,090	100,000

This modification is determined to be a minor modification 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 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 *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. Boilers #1, #2, #3 and #4

Boilers #1, #2, #3 and #4 are each rated at 3.0 MMBtu/hr, fire natural gas, and were installed in 2012. The boilers exhaust through common Stack #1.

Due to the size of the boilers, they are not subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989.

1. BACT Findings

The BACT emission limits for the boilers were based on the following:

- PM/PM₁₀ – 0.05 lb/MMBtu based on 06-096 CMR 115, BACT
- SO₂ – 0.6 lb/MMscf: AP-42, Table 1.4-2 (dated 7/98)
- NO_x – 100 lb/MMscf: AP-42, Table 1.4-1 (dated 7/98)
- CO – 84 lb/MMscf: AP-42, Table 1.4-1 (dated 7/98)
- VOC – 5.5 lb/MMscf: AP-42, Table 1.4-2 (dated 7/98)
- Opacity – Visible emissions from the common stack serving the boilers shall not exceed 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a three (3) hour period.

The BACT emission limits for the boilers are the following:

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Boiler #1	0.15	0.15	0.01	0.29	0.24	0.02
Boiler #2	0.15	0.15	0.01	0.29	0.24	0.02
Boiler #3	0.15	0.15	0.01	0.29	0.24	0.02
Boiler #4	0.15	0.15	0.01	0.29	0.24	0.02

The City of Portland shall be limited to a total of 50,000,000 standard cubic feet per year of natural gas, fired in Boilers #1, #2, #3 and #4.

Periodic Monitoring

Periodic monitoring for the boilers shall include recordkeeping to document fuel use both on a monthly and a calendar year basis.

2. 40 CFR Part 63 Subpart JJJJJ

Because Boilers #1, #2, #3 and #4 fire natural gas only, they are not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ).

C. Annual Emissions

1. The City of Portland shall be restricted to the following annual emissions, based on a calendar year. The tons per year limits were calculated based on an annual fuel limit of 50,000,000 standard cubic feet of natural gas.

Total Licensed Annual Emissions for the Facility
Tons per year
(Used to calculate the annual license fee)

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Boilers #1, #2, #3 & #4	1.3	1.3	0.1	2.5	2.1	0.1
Total TPY	1.3	1.3	0.1	2.5	2.1	0.1

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) means the aggregate group of the following gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Greenhouse gases (GHG) for purposes of licensing are calculated and reported as carbon dioxide equivalents (CO₂e).

Based on the facility’s fuel use limit, the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, the City of Portland is below the major source threshold of 100,000 tons of CO₂e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this 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,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-238-71-I-A subject to the conditions found in Air Emission License A-238-71-H-N/A and in 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 Specific Condition (16) in license A-238-71-H-N/A:

(16) Boilers #1, #2, #3 and #4

A. Fuel

1. Total fuel use for Boilers #1, #2, #3 and #4 inclusive shall not exceed 50,000,000 standard cubic feet per year of natural gas, based on a calendar year.
2. Compliance shall be demonstrated by fuel records from the supplier showing the quantity of fuel delivered. Records of fuel use shall be kept on a monthly and a calendar year basis. [06-096 CMR 115, BPT]

B. Emissions shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1	PM	0.05	06-096 CMR 115, BACT
Boiler #2	PM	0.05	06-096 CMR 115, BACT
Boiler #3	PM	0.05	06-096 CMR 115, BACT
Boiler #4	PM	0.05	06-096 CMR 115, BACT

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

<u>Unit</u>	<u>PM</u> <u>(lb/hr)</u>	<u>PM₁₀</u> <u>(lb/hr)</u>	<u>SO₂</u> <u>(lb/hr)</u>	<u>NO_x</u> <u>(lb/hr)</u>	<u>CO</u> <u>(lb/hr)</u>	<u>VOC</u> <u>(lb/hr)</u>
Boiler #1	0.15	0.15	0.01	0.29	0.24	0.02
Boiler #2	0.15	0.15	0.01	0.29	0.24	0.02
Boiler #3	0.15	0.15	0.01	0.29	0.24	0.02
Boiler #4	0.15	0.15	0.01	0.29	0.24	0.02

D. Visible Emissions

Visible emissions from the common stack serving Boilers #1, #2, #3 and #4, shall not exceed 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a three (3) hour period. [06-096 CMR 101]

DONE AND DATED IN AUGUSTA, MAINE THIS 2nd DAY OF July, 2012.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie L. Lefebvre
PATRICIA W. AHO, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-238-71-H-N/A.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 03/12/2012

Date of application acceptance: 03/12/2012

Date filed with the Board of Environmental Protection:

This Order prepared by N. Lynn Cornfield, Bureau of Air Quality.

