



STATE OF MAINE

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE  
GOVERNOR

PATRICIA W. AHO  
COMMISSIONER

**The University of Maine System  
Aroostook County  
Presque Isle, Maine  
A-605-71-I-A (SM)**

**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**

University of Maine at Presque Isle has requested an amendment to their air emission license to replace two existing oil fired boilers with a new wood pellet boiler and a new oil boiler.

The University of Maine at Presque Isle was issued the current Air Emission License renewal A-605-71-H-R/A on February 16, 2007, permitting the operation of emission sources associated with their educational facility. This amendment also corrects the tons/year SO<sub>2</sub> and VOC numbers from #2 fuel oil listed in the renewal.

The equipment in this license is located at 181 Main Street in Presque Isle, Maine.

**B. Emission Equipment**

The following equipment is addressed in this air emission license:

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

**Boilers**

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate</u>	<u>Fuel Type</u>	<u>Manufacture Date</u>	<u>Stack #</u>
Boiler FOL1 <i>New</i>	2.2	19.50 gal/hr	#2 oil	2011	Fm1
Boiler FOL2 <i>New</i>	1.0	125.0 lb/hr (8% moisture)	Wood pellets	2011	Fm2

Boilers to be removed:

Existing Boiler FOL1: 1.6 MMBtu/hr, oil fired, 1968 mfg. date.

Existing Boiler FOL2: 1.6 MMBtu/hr, oil fired, 1968 mfg. date.

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>Sig. Level</u>
PM	4.0	4.5	+0.5	100
PM <sub>10</sub>	4.0	4.5	+0.5	100
SO <sub>2</sub>	11.4	16.1	+4.7*	100
NO <sub>x</sub>	11.3	12.1	+0.8	100
CO	1.5	2.4	+0.9	100
VOC	0.5	0.3	-0.2*	50

\* SO<sub>2</sub> and VOC net change includes calculation corrections from the previous license.

Based on the table above, this modification is determined to be a minor modification and the application has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended).

## 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. Boiler FOL1

Boiler FOL1 is a high efficiency #2 oil fired boiler, rated at 2.2 MMBtu/hr (19.5 gal/hr) and manufactured in 2011. It will be located in Folsom-Pullen Halls and will replace the older oil fired Boiler FOL1, rated at 1.6 MMBtu/hr. The boiler will exhaust through its own stack.

Due to the size of the unit, Boiler FOL1 is 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*, which applies to units greater than 10 MMBtu/hr manufactured after June 9, 1989.

The firing of #2 fuel oil meeting ASTM D396 standards and the use of an efficient combustion unit represents BACT for this size and type of boiler.

#### BACT Findings

The BACT emission limits for Boiler FOL1 were based on the following:

PM/PM<sub>10</sub> – 0.12 lb/MMBtu based on BACT; 0.27 lb/hr  
SO<sub>2</sub> – based on firing ASTM D396 #2 fuel oil (0.5% sulfur); 0.5  
lb/MMBtu; 1.12 lb/hr

NO<sub>x</sub> – 0.3 lb/MMBtu based on similar units; 0.67 lb/hr

CO – 5 lb/1000 gal, AP-42, Table 1.3-1, dated 5/10; 0.08 lb/hr

VOC – 0.34 lb/1000 gal, AP-42, Table 1.3-3, dated 5/10; 0.01 lb/hr

Opacity – Visible emissions from the boiler shall not exceed 10% opacity on a 6 minute block average, except for no more than two (2) six (6) minute block averages in a 3 hour period, based on BACT.

The fuel used in FOL1 shall be included in the facility's existing 450,000 gal/year #2 fuel oil limit.

Until December 31, 2015, the fuel oil fired in Boiler FOL1 shall be ASTM D396 compliant #2 fuel oil (maximum sulfur content of 0.5% by weight). Per 38 MRSA §603-A(2)(A)(3), beginning January 1, 2016, the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.005% by weight (50 ppm), and beginning January 1, 2018, the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm).

#### *Periodic Monitoring*

Periodic monitoring for the boiler is included in the existing total facility fuel use recordkeeping requirement to document compliance with the #2 fuel oil limit and the use of ASTM D396 fuel.

#### C. Boiler FOL2

Boiler FOL2 is a high efficiency wood pellet fired boiler, rated at 1.0 MMBtu/hr and manufactured in 2011. It will be located in the Folsom-Pullen Halls and will replace the older oil fired Boiler FOL2, rated at 1.6 MMBtu/hr. The boiler will exhaust through its own stack.

Due to the size of the boiler, it is 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*, which applies to units greater than 10 MMBtu/hr manufactured after June 9, 1989.

The use of an efficient combustion unit represents BACT for this size and type of boiler. BACT shall also include biennial boiler tune-ups.

#### BACT Findings

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

- PM/PM<sub>10</sub> – 0.10 lb/MMBtu based on BACT derived from manufacturer's data; 0.10 lb/hr
- SO<sub>2</sub> – 0.025 lb/MMBtu, AP-42, Table 1.6, dated 9/03; 0.03 lb/hr
- NO<sub>x</sub> – 0.18 lb/MMBtu based on BACT derived from manufacturer's data; 0.18 lb/hr
- CO – 0.20 lb/MMBtu based on BACT derived from manufacturer's data; 0.20 lb/hr
- VOC – 0.01 lb/MMBtu based on BACT derived from manufacturer's data; 0.01 lb/hr

Opacity – Visible emissions from the boiler shall not exceed 20% opacity on a 6 minute block average, except for no more than two (2) six (6) minute block averages in a 3 hour period, based on BACT.

*Periodic Monitoring*

Periodic monitoring for the boiler shall include recordkeeping to document fuel use and type of fuel (i.e. dry wood pellets versus wood chips). Purchase records may be used to document compliance. Periodic monitoring shall also include documented biennial tune-ups (an initial tune-up and subsequent tune-ups every other year thereafter).

D. 40 CFR Part 63 Subpart JJJJJ

All 15 licensed boilers at the University of Maine at Presque Isle, including the two new units, are subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ).

For informational purposes, a summary of the current applicable federal 40 CFR Part 63 Subpart JJJJJ requirements is listed below. At this time, the Maine Department of Environmental Protection has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA, however the University of Maine at Presque Isle is still subject to the requirements. Notification forms and additional rule information can be found on the following website: <http://www.epa.gov/ttn/atw/boiler/boilerpg.html>.

1. Compliance Dates, Notifications, and Work Practice Requirements

a. Initial Notification of Compliance

An Initial Notification submittal to EPA was due on September 17, 2011 for the existing boilers and within 120 after the two new boilers become subject to the standard. [40 CFR Part 63.11225(a)(2)]

b. Boiler Tune-Up Program – Initial and Biennial

- i. A boiler tune-up program shall be implemented to include the tune-up of applicable boilers by March 21, 2012 [40 CFR Part 63.11196(a)(1)] and upon startup of the two new boilers. [40 CFR Part 63.11196(c)]
- ii. The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:
  - (a) As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted;

- however, the burner must be inspected at least once every 36 months. [40 CFR Part 63.11223(b)(1)]
- (b) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR Part 63.11223(b)(2)]
  - (c) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. [40 CFR Part 63.11223(b)(3)]
  - (d) Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 63.11223(b)(4)]
  - (e) Measure the concentration in the effluent stream of CO in parts per million (ppm), by volume, and oxygen in volume percent, before and after adjustments are made. [40 CFR Part 63.11223(b)(5)]
  - (f) If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of start-up. [40 CFR Part 63.11223(b)(7)]
- iii. A Notification of Compliance Status shall be submitted to EPA no later than 120 days after conducting the initial boiler tune-up. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)]
- iv. The facility shall implement a biennial boiler tune-up program after the initial tune-up and initial compliance report has been submitted.
- (a) Each biennial tune-up shall be conducted no more than 25 months after the previous tune-up. [40 CFR Part 63.11223(a)]
  - (b) The biennial report shall be maintained onsite and submitted to EPA, if requested. The report shall contain the concentration of CO in the effluent stream (ppmv) and oxygen in volume percent, measure before and after the boiler tune-up, a description of any corrective actions taken as part of the tune-up of the boiler, and the type and amount of fuel used over the 12 months prior to the biennial tune-up of the boiler. [40 CFR Part 63.11223(b)(6)] The biennial compliance report shall also include the company name and address; a compliance statement signed by a responsible official certifying truth, accuracy, and completeness; and a description of any deviations and corrective actions. [40 CFR Part 63.11225(b)]

## 2. Recordkeeping

Records shall be maintained consistent with the requirements of 40 CFR Part 63 Subpart JJJJJ including the following [40 CFR Part 63.11225(c)]: copies of notifications and reports with supporting compliance documentation; identification of each boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned; documentation of fuel type(s) used monthly by each boiler; the occurrence and duration of each malfunction of the boiler; and actions taken during

periods of malfunction to minimize emissions and actions taken to restore the malfunctioning boiler to its usual manner of operation. Records shall be in a form suitable and readily available for expeditious review.

E. Annual Emissions

University of Maine at Presque Isle shall be restricted to the following annual emissions, based on a 12 month rolling total:

**Total Licensed Annual Emissions for the Facility**  
**Tons/year**  
(used to calculate the annual license fee)

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>
Oil Boilers	3.8	3.8	15.8*	9.5	1.1	0.1*
Wood Pellet Boiler	0.5	0.5	0.1	0.8	0.9	0.04
Generator	0.2	0.2	0.2	1.8	0.4	0.2
<b>Total TPY</b>	<b>4.5</b>	<b>4.5</b>	<b>16.1</b>	<b>12.1</b>	<b>2.4</b>	<b>0.3</b>

\* Corrected from the previous license (values listed are based on 0.5% sulfur for SO<sub>2</sub> and the newer AP-42 factor for VOC).

**III. AMBIENT AIR QUALITY ANALYSIS**

According to 06-096 CMR 115, the level of air quality analyses required for a minor modification shall be determined on a case-by case basis. Based on the information available in the file and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source.

**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-605-71-I-A subject to the conditions found in Air Emission License A-605-71-H-R/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.

### SPECIFIC CONDITIONS

#### (20) Boiler FOL1

##### A. Fuel

1. Fuel use for Boiler FOL1 shall be included in the total facility fuel use limit in Air Emission License A-605-71-H-R/A, Condition (18). [06-096 CMR 115]
2. Until December 31, 2015, the #2 fuel oil fired in the boiler shall be ASTM D396 compliant (max. sulfur content of 0.5% by weight). [06-096 CMR 115, BACT]
3. Beginning January 1, 2016, the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.005% by weight (50 ppm). [38 MRSA §603-A(2)(A)(3)]
4. Beginning January 1, 2018, the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm). [38 MRSA §603-A(2)(A)(3)]
5. Compliance shall be demonstrated by fuel records from the supplier showing the quantity, type, and the percent sulfur of the fuel delivered (if applicable). Records of annual fuel use shall be kept on a monthly and 12-month rolling total basis. [06-096 CMR 115]

B. Emissions from Boiler FOL1 shall not exceed the following [06-096 CMR 115, BACT]:

Emission Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler FOL1 (2.2 MMBtu/hr)	0.27	0.27	1.12	0.67	0.08	0.01

C. Visible emissions from Boiler FOL1 shall not exceed 10% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 115, BACT]

(21) **Boiler FOL2**

A Fuel

Boiler FOL2 shall fire wood pellets. Records shall be maintained documenting fuel use and type of fuel. Purchase records may be used to document compliance. [06-096 CMR 115, BACT]

B. Emissions from Boiler FOL2 shall not exceed the following [06-096 CMR 115, BACT]:

Emission Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler FOL2 (1.0 MMBtu/hr)	0.10	0.10	0.03	0.18	0.20	0.01

C. An initial tune-up shall be performed on Boiler FOL2 and subsequent tune-ups shall be performed at least every other year thereafter. Records shall be maintained to document the tune-ups.

D. Visible emissions from Boiler FOL2 shall not exceed 20% opacity on a 6 minute block average, except for no more than two (2) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 11<sup>th</sup> DAY OF October, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie Z. Foster  
PATRICIA W. AHO, COMMISSIONER

**The term of this amendment shall be concurrent with the term of Air Emission License A-605-71-H-R/A**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: March 21, 2011

Date of application acceptance: June 14, 2011

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

