



DEPARTMENT ORDER

The President and Trustees of  
Colby College  
Kennebec County  
Waterville, Maine  
A-107-71-Z-A

Departmental  
Findings of Fact and Order  
Air Emission License  
Amendment #3

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 President and Trustees of Colby College (Colby) was issued Air Emission License A-107-71-W-R/M on April 15, 2016, for the operation of emission sources associated with their educational facility. The license was subsequently amended on October 29, 2019 (A-107-71-X-A) and on February 18, 2021 (A-107-71-Y-A).

Colby has requested an amendment to their license in order to add four new natural gas-fired boilers.

The equipment addressed in this license amendment is located on the Colby campus at 5000 Mayflower Hill Drive, Waterville, 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, % sulfur	Date of Manuf.	Date of Install.	Stack #
Boiler #1	6.0	6,000 scf/hr	natural gas, neg.	2023	2023	11
Boiler #2	6.0	6,000 scf/hr	natural gas, neg.	2023	2023	12
Boiler #3	6.0	6,000 scf/hr	natural gas, neg.	2023	2023	13
Boiler #4	6.0	6,000 scf/hr	natural gas, neg.	2023	2023	14

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 *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	11.6	12.4	0.8	100
PM <sub>10</sub>	11.6	12.4	0.8	100
SO <sub>2</sub>	4.6	4.8	0.2	100
NO <sub>x</sub>	68.7	71.2	2.5	100
CO	37.3	38.2	0.9	100
VOC	5.7	6.1	0.4	100

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 10A, 10B, and 10C, and the operating hours restriction on the emergency generators, the facility is licensed as follows:

- As a synthetic minor source of air emissions for NO<sub>x</sub>, because Colby 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 *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, #3, and #4

Boilers #1, #2, #3, and #4 will be operated for heat to locally supplement the heat provided by the campus central heating plant. The boilers are each rated at 6.0 MMBtu/hr and fire natural gas. Each unit is a Cleaver Brooks model CFCE-700-6000 condensing boiler. The boilers will be installed in 2023, and each will exhaust through its own stack. The fuel fired in Boilers #1, #2, #3, and #4 will not be included in the annual heat input limit for Boilers 10A, 10B, and 10C.

1. BACT Findings

Colby submitted a BACT analysis for control of emissions from Boilers #1, #2, #3, and #4.

Emission Limits

The BACT emission limits for Boilers #1, #2, #3, and #4 were based on the following:

Natural Gas

- PM/PM<sub>10</sub> – 0.006 lb/MMBtu based on manufacturer’s guarantee
- SO<sub>2</sub> – 0.001 lb/MMBtu based on manufacturer’s guarantee
- NO<sub>x</sub> – 0.022 lb/MMBtu based on manufacturer’s guarantee
- CO – 0.007 lb/MMBtu based on manufacturer’s guarantee
- VOC – 0.002 lb/MMBtu based on manufacturer’s guarantee
- Visible Emissions – 06-096 C.M.R. ch. 101

The BACT emission limits for Boilers #1, #2, #3, and #4 are the following:

Unit	Pollutant	lb/MMBtu
Boiler #1	PM	0.006
Boiler #2	PM	0.006
Boiler #3	PM	0.006
Boiler #4	PM	0.006

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 #1	0.04	0.04	0.01	0.14	0.05	0.02
Boiler #2	0.04	0.04	0.01	0.14	0.05	0.02
Boiler #3	0.04	0.04	0.01	0.14	0.05	0.02
Boiler #4	0.04	0.04	0.01	0.14	0.05	0.02

2. Visible Emissions

Visible emissions from each boiler 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 size, Boilers #1, #2, #3, and #4 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 JJJJJ

Boilers #1, #2, #3, and #4 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 JJJJJ as the units are considered gas-fired boilers. [40 C.F.R. § 63.11195]

C. Emission Statements

Colby is subject to emissions inventory requirements contained in *Emission Statements*, 06-096 C.M.R. ch. 137. Colby shall maintain the following records in order to comply with this rule:

1. The amount of natural gas fired in Boilers 10A, 10B, 10C, #1, #2, #3, and #4, and SICE #4, #5, #6, #8, and #9 (each) on a monthly basis;
2. The amount of propane fired in Boilers 10A, 10B, and 10C (each) on a monthly basis;
3. The amount of wood fired (at 45% moisture) in Boilers BIO1 and BIO2 on a monthly basis;
4. The sulfur content of the distillate fuel fired in SICE #1-#3, and #7; and
5. Hours each emission unit was operating on a monthly basis.

In reporting year 2023 and every third year thereafter, Colby shall report to the Department emissions of hazardous air pollutants as required by 06-096 C.M.R. ch. 137, § (3)(C). The Department will use these reports to calculate and invoice for the applicable annual air quality surcharge for the subsequent three billing periods. Colby shall pay the annual air quality surcharge, calculated by the Department based on these reported emissions of hazardous air pollutants, by the date required in Title 38 M.R.S. § 353-A(3). [38 M.R.S. § 353-A(1-A)]

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:

- A heat input limit of 246,840 MMBtu/year in Boilers 10A, 10B, and 10C;
- Operating Boilers BIO1 and BIO2 for 8,760 hours/year each;
- Operating generators SICE #1-#9 for 100 hrs/yr each;
- Operating Boilers #1-#4 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 <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Boilers 10A, 10B, and 10C	6.2	6.2	0.1	12.3	10.2	2.5
Boilers BIO1 and BIO2	5.3	5.3	4.4	54.8	26.3	3.0
SICE #1-9	0.1	0.1	0.1	1.6	0.8	0.2
Boilers #1-#4	0.8	0.8	0.2	2.5	0.9	0.4
<b>Total TPY</b>	<b>12.4</b>	<b>12.4</b>	<b>4.8</b>	<b>71.2</b>	<b>38.2</b>	<b>6.1</b>

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 <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

The total annual licensed emissions for Colby are above at least one of the emission levels contained in the table above. However, Colby has previously submitted an ambient air quality impact analysis for PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, and CO for air emission license A-107-71-Q-R/A (dated November 5, 2010) and one for NO<sub>2</sub> for air emission license amendment A-107-71-S-M (dated October 25, 2013). Results from those analyses demonstrated that emissions from the facility, in conjunction with all other sources, do not violate Ambient Air Quality Standards (AAQS). Due to the minimal increase in annual air emissions that will result from the execution of this project, no additional air quality impact analysis is required for 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-107-71-Z-A subject to the conditions found in Air Emission License A-107-71-W-R/M, in amendments A-107-71-X-A and A-107-71-Y-A, 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 Specific Condition (24)(B)(1) of Air Emission License A-107-71-Y-A.

(24) **Annual Emission Statements**

B. Colby shall keep the following records in order to comply with 06-096 C.M.R. ch. 137:

1. The amount of natural gas fired in Boilers 10A, 10B, 10C, #1, #2, #3, and #4 and SICE #4, #5, #6, #8, and #9 (each) on a monthly basis;

The following are new Specific Conditions of Air Emission License A-107-71-W-R/M.

(26) **Boilers #1, #2, #3, and #4**

- A. Boilers #1, #2, #3, and #4 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	0.006	06-096 C.M.R. ch. 115, BACT
Boiler #2	PM	0.006	06-096 C.M.R. ch. 115, BACT
Boiler #3	PM	0.006	06-096 C.M.R. ch. 115, BACT
Boiler #4	PM	0.006	06-096 C.M.R. ch. 115, BACT

C. Emissions shall not exceed the following [06-096 C.M.R. ch. 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 #1	0.04	0.04	0.01	0.14	0.05	0.02
Boiler #2	0.04	0.04	0.01	0.14	0.05	0.02
Boiler #3	0.04	0.04	0.01	0.14	0.05	0.02
Boiler #4	0.04	0.04	0.01	0.14	0.05	0.02

D. Visible emissions from each boiler shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(A)(3)]

- (27) If the Department determines that any parameter value pertaining to construction and operation of the proposed 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

The President and Trustees of  
Colby College  
Kennebec County  
Waterville, Maine  
A-107-71-Z-A

8

Departmental  
Findings of Fact and Order  
Air Emission License  
Amendment #3

license, Colby may be required to submit additional information. Upon written request from the Department, Colby 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)]

DONE AND DATED IN AUGUSTA, MAINE THIS 22<sup>nd</sup> DAY OF MARCH, 2023.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for  
MELANIE LOYZIM, COMMISSIONER

**The term of this amendment shall be concurrent with the term of Air Emission License A-107-71-W-R/M.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 2/28/23

Date of application acceptance: 3/1/23

Date filed with the Board of Environmental Protection:

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

