



DEPARTMENT ORDER

**Regional School Unit #14 -
Raymond Campus
Cumberland County
Raymond, Maine
A-1052-71-D-M**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #2**

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

Regional School Unit #14 – Raymond Campus (Raymond) was issued Air Emission License A-1052-71-B-R on November 21, 2016, for the operation of emission sources associated with their educational facility. The license was subsequently amended on October 25, 2019 (A-1052-71-C-A).

Raymond has requested a minor revision to their license in order to include propane as an alternative fuel for Boiler #2.

The equipment addressed in this license amendment is located at the Raymond Elementary School at 434 Webbs Mills Road, Raymond, Maine.

B. Emission Equipment

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

Boilers

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate (gal/hr)	Fuel Type, % sulfur	Date of Manuf.	Date of Install.
Boiler #2	6.16	44.0	distillate fuel, 0.0015%	1999	1999
		68.1	propane, negligible		

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.

This amendment will increase licensed emissions by less than 4 ton/year for each single pollutant not including greenhouse gases (GHG) and less than 8 ton/year for all pollutants combined not including GHG. Therefore, this modification is determined to be a minor revision and has been processed as such.

E. Facility Classification

The facility is licensed as follows:

- As a natural minor source of air emissions, 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. Boiler #2

Raymond operates Boiler #2 for heat. The boiler is rated at 6.16 MMBtu/hr and presently fires distillate fuel. Raymond is adding propane as an alternative fuel in this amendment. The boiler was installed in 1999 and exhausts through its own stack.

1. BACT Findings

Following is a BACT analysis for control of emissions from Boiler #2 when burning propane.

a. Particulate Matter (PM, PM₁₀)

Raymond has proposed to add propane, which is a low-ash content fuel, as a licensed fuel in Boiler #2. Additional add-on pollution controls are not economically feasible.

BACT for PM/PM₁₀ emissions from Boiler #2 when firing propane are the emission limits listed in the tables below.

b. Sulfur Dioxide (SO₂)

The addition of propane as a licensed fuel in Boiler #2 will result in minimal emissions of SO₂, due to the inherently low amounts of sulfur contained in propane. Additional add-on pollution controls are not economically feasible.

BACT for SO₂ emissions from Boiler #2 when firing propane are the emission limits listed in the tables below.

c. Nitrogen Oxides (NO_x)

Raymond considered several control strategies for the control of NO_x including Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (SNCR), water/steam injection, flue gas recirculation (FGR), and use of oxygen trim systems.

Both SCR and SNCR are technically feasible control technologies for minimizing NO_x. However, they have a negative environmental impact of emissions of unreacted ammonia. In addition, due to the initial capital cost and the annual operating costs, these systems are typically only considered cost effective for units larger than Boiler #2.

The implementation of good combustion practices on Boiler #2 has been determined to be feasible and has been selected as part of the BACT strategy.

BACT for NO_x emissions from Boiler #2 is the use of good combustion practices and the emission limits listed in the tables below.

d. Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)

Raymond considered several control strategies for the control of CO and VOC including oxidation catalysts and thermal oxidizers.

Oxidation catalysts and thermal oxidizers both have high capital, maintenance, and operational costs considering the size of the boiler in question. These controls were determined not to be economically feasible.

BACT for CO and VOC emissions from Boiler #2 is the use of good combustion practices and the emission limits listed in the tables below.

e. Emission Limits

The BACT emission limits for Boiler #2 were based on the following:

Propane

- PM/PM₁₀ – 0.05 lb/MMBtu based on 06-096 C.M.R. ch. 115, BACT
- SO₂ – 0.054 lb/1000 gal based on AP-42 Table 1.5-1 dated 7/08
- NO_x – 13 lb/1000 gal based on AP-42, Table 1.5-1, dated 7/08
- CO – 7.5 lb/1000 gal based on AP-42, Table 1.5-1, dated 7/08
- VOC – 1 lb/1000 gal based on AP-42, Table 1.5-1, dated 7/08
- Visible Emissions – 06-096 C.M.R. ch. 115, BACT

The BACT emission limits for Boiler #2 are the following:

Unit	Pollutant	lb/MMBtu
Boiler #2 propane	PM	0.05

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #2 propane	0.31	0.31	0.01	0.88	0.51	0.07

2. Visible Emissions

Visible emissions from Boiler #2 shall not exceed 10% opacity on a six-minute block average basis when firing propane.

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

Due to its size, Boiler #2 is 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

Gas-fired boilers are exempt from 40 C.F.R. Part 63, Subpart JJJJJ. However, boilers which fire fuel oil are not. A “gas-fired boiler” is defined as any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year. [40 C.F.R. § 63.11237]

Boiler #2 will remain 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, and its requirements are already detailed in this license.

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 Generators #1 and #2 for 100 hrs/yr each;
- Operating Boilers #1A, #1B, and #2 for 8,760 hr/yr each and calculating emissions from worst case emission factors.

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	SO ₂	NO _x	CO	VOC
Boilers	3.30	3.30	0.06	11.53*	3.44	0.46
Generators	0.01	0.01	0.01	0.34	0.01	0.01
Total TPY	3.4	3.4	0.1	11.9	3.5	0.5

* This value corrects a miscalculation in the previous air emission license amendment.

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 ₁₀	25
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 Raymond 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-1052-71-D-M subject to the conditions found in Air Emission License A-1052-71-B-R and in amendment A-1052-71-C-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 Conditions (16)(A), (B), (C), and (D) of Air Emission License A-1052-71-C-A.

(16) Boilers #1A, #1B, and #2

A. Fuel

1. Boilers #1A and #1B are licensed to fire distillate fuel and propane.
[06-096 C.M.R. ch. 115, BPT]
2. Boiler #2 is licensed to fire distillate fuel and propane.
[06-096 C.M.R. ch. 115, BACT]
3. Raymond shall not purchase or otherwise obtain distillate fuel with a maximum sulfur content that exceeds 0.0015% by weight (15 ppm).
[06-096 C.M.R. ch. 115, BPT]
4. Compliance shall be demonstrated by fuel records from the supplier showing the type and the percent sulfur of the fuel delivered (if applicable).
[06-096 C.M.R. ch. 115, BPT]

B. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #2 distillate fuel	PM	0.08	06-096 C.M.R. ch. 115, BPT
Boiler #2 propane	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, BPT/BACT]:

Equipment	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1A distillate fuel	0.13	0.13	neg	0.24	0.06	neg
Boiler #1A propane	0.08	0.08	neg	0.24	0.14	0.02
Boiler #1B distillate fuel	0.13	0.13	neg	0.24	0.06	neg
Boiler #1B propane	0.08	0.08	neg	0.24	0.14	0.02
Boiler #2 distillate fuel	0.49	0.49	neg	2.16	0.22	0.01
Boiler #2 propane	0.31	0.31	0.01	0.88	0.51	0.07

D. Visible Emissions

1. Visible emissions from Boiler #2 shall not exceed 20% opacity on a six-minute block average basis when firing distillate fuel. [06-096 C.M.R. ch. 115, BPT]
2. Visible emissions from Boiler #2 shall not exceed 10% opacity on a six-minute block average basis when firing propane. [06-096 C.M.R. ch. 115, BACT]

The following is a new condition of Air Emission License A-1152-71-B-R.

- (19) 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 license, Raymond may be required to submit additional information. Upon written request from the Department, Raymond 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 9th DAY OF NOVEMBER, 2022.

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-1052-71-B-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 9/1/22

Date of application acceptance: 9/1/22

Date filed with the Board of Environmental Protection:

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

