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

DEPARTMENT ORDER

Bowdoin College **Cumberland County** **Brunswick, Maine** **A-76-71-AL-R/A**	**Departmental** **Findings of Fact and Order** **Air Emission License** **Renewal and Amendment**

FINDINGS OF FACT

After review of the air emission license renewal and 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

Bowdoin College (Bowdoin) has applied to renew their Air Emission License for the operation of emission sources associated with their educational facility. Bowdoin has also requested an amendment to their license to add a new 100 kW emergency generator to Bowdoin Observatory (94 Harpswell Road) and replace the existing generator at Kanbar Hall with a new 200 kW generator. Additionally, a reconsideration of NO_x emissions from Central Heating Plant Boilers #1 and #2 was addressed and the emission limits on the Smith Union Generator were adjusted based on current AP-42 emissions factors.

The equipment addressed in this license is located throughout the campus of Bowdoin College, with a mailing address of 3800 College Station, Brunswick, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boilers

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Date of Manuf.	Date of Install.	Stack #
Central Heating Plant Boiler #1	72	514.3 gal/hr	Distillate Fuel	2009	2010	1
	73.3	71,820 scf/hr	Natural Gas			
Central Heating Plant Boiler #2	72	514.3 gal/hr	Distillate Fuel	2016	2016	1
	73.3	71,820 scf/hr	Natural Gas			
Coffin Street Dorm Hot Water Heater	1.00	980.4 scf/hr	Natural Gas	2003	2003	N/A
Druckenmiller Boiler	3.35	3,282.4 scf/hr	Natural Gas	2019	2019	N/A
Farley Field House Boiler	6.38	6,258.8 scf/hr	Natural Gas	2011	2011	N/A

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Date of Manuf.	Date of Install.	Stack #
Moulton Union Boiler	1.56	1,528.4 scf/hr	Natural Gas	2015	2015	N/A
Stowe Hall Boiler	1.00	980.4 scf/hr	Natural Gas	2004	2004	N/A
Thorne Hall Boiler	1.01	990.2 scf/hr	Natural Gas	2019	2019	N/A
Watson Ice Arena Boiler #1	2.00	1,960.8 scf/hr	Natural Gas	2008	2008	N/A
Watson Ice Arena Boiler #2	2.00	1,960.8 scf/hr	Natural Gas	2008	2008	N/A
Watson Ice Arena Boiler #3	2.00	1,960.8 scf/hr	Natural Gas	2008	2008	N/A
Watson Ice Arena Heater	1.50	1,470.6 scf/hr	Natural Gas	2008	2008	N/A
Wellness Center Boiler	2.00	1,960.8 scf/hr	Natural Gas	2008	2008	N/A

Bowdoin also has several small boilers, water heaters, and unit heaters not listed in the table above. These are considered insignificant emissions units because they are each rated below 1.0 MMBtu/hr, the heat input capacity level at or above which would require their inclusion in the license; therefore, these small boilers, water heaters, and unit heaters are not addressed further in this license.

Stationary Engines

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity	Fuel Type	Firing Rate	Date of Manuf.	Date of Install.
240 Main Street Generator	0.89	48 kW	Natural Gas	875 scf/hr	2023	2023
Bowdoin Warehouse Generator	3.04	300 kW	Distillate Fuel	22.2 gal/hr	2019	2019
Buck Fitness (aka-Wellness Center) Generator	0.80	60 kW	Natural Gas	789 scf/hr	2009	2009
Central Heating Plant Generator	2.69	250 kW	Distillate Fuel	19.6 gal/hr	2016	2016
Chamberlain Hall Generator	2.06	200 kW	Distillate Fuel	15.0 gal/hr	1999	1999
Druckenmiller Hall Generator	1.55	150 kW	Distillate Fuel	11.3 gal/hr	1997	1997
Farley Field House Generator	0.62	40 kW	Natural Gas	610 scf/hr	2011	2011
Federal Street Generator	0.89	48 kW	Natural Gas	875 scf/hr	2024	2025
H&L Library Generator	0.80	60 kW	Natural Gas	789 scf/hr	2020	2020
Harpswell Apartments Generator	2.69	275 kW	Distillate Fuel	19.6 gal/hr	2019	2019
Kanbar Hall Generator *	2.10	200 kW	Distillate Fuel	15.3 gal/hr	2025	2025
Ladd House Generator	3.04	300 kW	Distillate Fuel	22.2 gal/hr	2023	2023
Memorial Hall Generator	1.81	175 kW	Distillate Fuel	13.2 gal/hr	1999	1999
Mills Hall Generator	5.47	550 kW	Distillate Fuel	39.9 gal/hr	2021	2022
Moulton Union Generator #1	1.77	150 kW	Natural Gas	1,740 scf/hr	2007	2007
Moulton Union Generator #2	2.62	230 kW	Distillate Fuel	19.1 gal/hr	2009	2009
Observatory Generator *	1.12	100 kW	Distillate Fuel	8.2 gal/hr	2025	2025
Park Row Generator	1.63	150 kW	Distillate Fuel	11.9 gal/hr	2019	2019
Rhodes Hall Generator	1.35	100 kW	Natural Gas	1,320.0 scf/hr	2015	2015
Roux Hall Generator	1.81	150 kW	Natural Gas	1,778 scf/hr	2017	2018
Sills Hall Generator	0.73	45 kW	Natural Gas	711.2 scf/hr	2023	2024
Smith Union Generator	3.49	300 kW	Natural Gas	3,426.0 scf/hr	2019	2019
Stowe Hall Generator	0.95	70 kW	Natural Gas	928.3 scf/hr	2005	2005

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity	Fuel Type	Firing Rate	Date of Manuf.	Date of Install.
Thorne Dining Generator	3.99	400 kW	Distillate Fuel	29.1 gal/hr	2000	2000
Walker Art Museum Generator	1.77	150 kW	Natural Gas	1,740 scf/hr	2007	2007
Watson Ice Arena Generator	1.56	125 kW	Distillate Fuel	11.4 gal/hr	2008	2008
Kanbar Hall Generator **	*0.59*	*42 kW*	*Natural Gas*	*576 scf/hr*	*2004*	*2004*

* New to the license
** Removed from the license

Bowdoin may operate small stationary engines smaller than 0.5 MMBtu/hr. These engines are considered insignificant activities and are not required to be included in this license. However, they are still subject to applicable State and Federal regulations. More information regarding requirements for small stationary engines is available on the Department's website at the link below.
http://www.maine.gov/dep/air/publications/docs/SmallRICEGuidance.pdf

Additionally, Bowdoin may operate portable engines used for maintenance or emergency-only purposes. These engines are considered insignificant activities and are not required to be included in this license. However, they may still be subject to applicable State and Federal regulations.

Insignificant Process Equipment

Bowdoin utilizes three paint booths/ventilation hoods at their facility. All three are exempt from licensing and are being included here for completeness purposes only. They are exempt for the following reasons:

Bowdoin has two paint booths/ventilation hoods located within their Art Department. These two booths are categorically exempt from licensing per 06-096 C.M.R. ch. 115, Appendix B, #104, *Kilns or Ventilating Hoods for Art or Ceramic Curricula at Colleges, Primary, or Secondary Schools.*

Bowdoin also has a third paint booth equipped with particulate filters that is located in the carpentry shop in Rhodes Hall. There they maintain wooden furniture and other miscellaneous items for their facility by applying low-VOC paints and urethane coatings. Since the painting done in this paint booth is for facility upkeep, the paint booth falls under the licensing exemption in 06-096 C.M.R. ch. 115, Appendix B, #12, *Plant upkeep including routine housekeeping, preparation for and painting of structures or equipment, retarring roofs, applying insulation to buildings in accordance with applicable environmental and health and safety requirements and paving or stripping of parking lots.*

C. Definitions

Distillate Fuel means the following:

- Fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials (ASTM) in ASTM D396;
- Diesel fuel oil numbers 1 or 2, as defined in ASTM D975;
- Kerosene, as defined in ASTM D3699;
- Biodiesel, as defined in ASTM D6751; or
- Biodiesel blends, as defined in ASTM D7467.

Portable or Non-Road Engine means an internal combustion engine which is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. This definition does NOT include engines which remain or will remain at a location (excluding storage locations) for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period.

An engine is not a non-road (portable) engine if it remains or will remain at a location for more than 12 consecutive months or for a shorter period of time if sited at a seasonal source. A seasonal source is a source that remains in a single location for two years or more and which operates for fewer than 12 months in a calendar year. If an engine operates at a seasonal source for one entire season, the engine does not meet the criteria of a non-road (portable) engine and is subject to applicable stationary engine requirements.

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.

Bowdoin has applied to renew currently licensed emission units as well as amend their license as addressed in Section I(A) above.

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	10.6	9.5	-1.1	100
PM_{10}	10.6	9.5	-1.1	100
$PM_{2.5}$	10.6	9.5	-1.1	100
SO_2	0.2	0.2	0	100
NO_x	32.8	26.7	-6.1	100
CO	12.9	12.5	-0.4	100
VOC	1.5	1.4	-0.1	50*

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

Therefore, this license is considered to be both a renewal and a minor modification and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 Code of Maine Rules C.M.R. ch. 115.

E. Facility Classification

With the annual fuel limit on the boilers and the operating hours restriction on the generators, the facility is licensed as follows:

- As a synthetic minor source of air emissions for criteria pollutants, because Bowdoin is subject to license restrictions that keep facility emissions below major source thresholds for NO_x; 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.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;

- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Central Heating Plant Boilers #1 and #2

Bowdoin operates Central Heating Plant Boilers #1 and #2 (Boilers #1 and #2) for steam generation for facility heating purposes. Boilers #1 and #2 are licensed to fire distillate fuel and natural gas. Some of the energy is recovered using steam turbine electric generators. The boilers are each rated at 72 MMBtu/hr when firing distillate fuel and 73.3 MMBtu/hr when firing natural gas. The boilers were installed in 2010 and 2016, respectively, and exhaust through a shared stack, Stack #1.

NO_x emission factors for Boilers #1 and #2 firing distillate fuel have been updated and are now based on AP-42 Table 1.3-1 (dated 5/10), firing distillate fuel with a 40% reduction based on the control technologies utilized of flue gas recirculation (FGR) and low NO_x burners utilized on these boilers.

With limited exceptions, no person shall import, distribute, or offer for sale any distillate fuel with a sulfur content greater than 0.0015% by weight (15 ppm) pursuant to 38 M.R.S. § 603-A(2)(A)(3). Therefore, the distillate fuel purchased or otherwise obtained for use in Boilers #1 and #2 shall not exceed 0.0015% by weight (15 ppm).

1. BPT Findings

The BPT emission limits for Boilers #1 and #2 were based on the following:

Distillate Fuel

$PM/PM_{10}/PM_{2.5}$	–	0.08 lb/MMBtu, 06-096 C.M.R. ch. 115, BPT
SO_2	–	based on firing distillate fuel with a maximum sulfur content of 0.0015% by weight
NO_x	–	0.086 lb/MMBtu based on AP-42 Table 1.3-1 dated 5/10, with a 40% reduction based on FGR and low NO_x burners
CO	–	5 lb/1,000 gal based on AP-42 Table 1.3-1 dated 5/10
VOC	–	0.20 lb/1,000 gal based on AP-42 Table 1.3-3 dated 5/10
Visible Emissions	–	06-096 C.M.R. ch. 101

Natural Gas

$PM/PM_{10}/PM_{2.5}$	–	0.05 lb/MMBtu, 06-096 C.M.R. ch. 115, BPT
SO_2	–	0.6 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
NO_x	–	100 lb/MMscf based on AP-42 Table 1.4-1 dated 7/98
CO	–	84 lb/MMscf based on AP-42 Table 1.4-1 dated 7/98
VOC	–	5.5 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
Visible Emissions	–	06-096 C.M.R. ch. 101

The BPT emission limits for Boilers #1 and #2 are the following:

Unit	Fuel	Pollutant	lb/MMBtu
Boiler #1	Distillate Fuel	PM	0.08
	Natural Gas	PM	0.05
Boiler #2	Distillate Fuel	PM	0.08
	Natural Gas	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 *Distillate Fuel*	5.76	5.76	5.76	0.11	6.17	2.57	0.10
Boiler #1 *Natural Gas*	3.67	3.67	3.67	0.04	7.19	6.04	0.40
Boiler #2 *Distillate Fuel*	5.76	5.76	5.76	0.11	6.17	2.57	0.10
Boiler #2 *Natural Gas*	3.67	3.67	3.67	0.04	7.19	6.04	0.40

The Central Heating Plant Boilers (Boilers #1 and #2) shall be limited to a combined total heat input of 206,000 MMBtu/yr.

2. Visible Emissions

When distillate fuel is being fired in either Boiler #1 or #2, visible emissions from Stack #1 shall not exceed 20% opacity on a six-minute block average basis.

When only natural gas is being fired in Boilers #1 and #2, visible emissions from Stack #1 shall not exceed 10% opacity on a six-minute block average basis.

3. Periodic Monitoring

Periodic monitoring for Boilers #1 and #2 shall include recordkeeping to document fuel use both on a monthly and 12-month rolling total basis. Documentation shall include the type of fuel used and sulfur content of the fuel, if applicable.

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

Due to the size and year of manufacture, Central Heating Plant Boilers #1 and #2 are subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R. Part 60, Subpart Dc (Subpart Dc) for units greater than 10 MMBtu/hr manufactured after June 9, 1989. [40 C.F.R. § 60.40c]

Bowdoin shall comply with all requirements of Subpart Dc applicable to Central Heating Plant Boilers #1 and #2 including, but not limited to, the following:

a. Standards

(1) Sulfur Dioxide (SO_2)
The fuel fired in Boilers #1 and #2 shall not exceed 0.5% sulfur by weight. [40 C.F.R. § 60.42c(d)] This fuel sulfur content limit shall be streamlined to the lower limit required by State statute.

(2) Opacity
Boilers #1 and #2 are subject to an applicable visible emission standard pursuant to 40 C.F.R. §§ 60.43c(c) and (d). However, the Department has determined that the BPT visible emission limit is more stringent than the applicable limit in 40 C.F.R. Part 60, Subpart Dc. Therefore, the visible emission limit for Boilers #1 and #2 has been streamlined to the more stringent BPT limit, and only this more stringent limit shall be included in the air emission license.

b. Monitoring Requirements

(1) Except as provided in paragraph (3) below, Bowdoin shall conduct performance tests on Boilers #1 and #2 for opacity using 40 C.F.R. Part 60, Appendix A, Method 9 according to the following schedule: [40 C.F.R. § 60.47c(a)]

(i) If no visible emissions were observed in the most recent Method 9 performance test, the next performance test shall be completed within 12 calendar months or within 45 days of firing oil in the boiler, whichever is later.
(ii) If visible emissions were observed in the most recent Method 9 performance test, and the maximum 6-minute block average was less than or equal to 5% opacity, the next performance test shall be completed within 6 calendar months or within 45 days of firing oil in the boiler, whichever is later.
(iii) If visible emissions were observed in the most recent Method 9 performance test, and the maximum 6-minute block average was greater than 5% but less than or equal to 10% opacity, the next performance test shall be completed within 3 calendar months or within 45 days of firing oil in the boiler, whichever is later.
(iv) If visible emissions were observed in the most recent Method 9 performance test, and the maximum 6-minute block average was greater than 10% opacity, the next performance test shall be completed within 45 days.

(2) The observation period for the Method 9 performance test may be reduced from 3 hours to 60 minutes if all 6-minute block averages are less than 10% opacity and all individual 15-second observations are less than or equal to 20% opacity during the initial 60 minutes of observation.

(3) If the visible emissions observed in the most recent Method 9 performance test were less than 10% opacity, Bowdoin may elect to perform subsequent performance tests using 40 C.F.R. Part 60, Appendix A, Method 22 as follows:

(i) Bowdoin shall conduct 10-minute observations each operating day Boiler #1 and/or #2 fire oil using Method 22.
(ii) If no visible emissions are observed for 10 operating days, Bowdoin may reduce observations to once every 7 operating days. If any visible emissions are observed, daily observations shall be resumed.
(iii) If the sum of the occurrence of any visible emissions is greater than 30 seconds per 10-minute observation, Bowdoin shall immediately conduct a 30-minute observation.
(iv) If the sum of the occurrence of any visible emissions is greater than 90 seconds per 30-minute observation, Bowdoin shall either document the adjustments made to Boilers #1 and/or #2 and demonstrate within 24 hours that the sum of the occurrence of any visible emissions is not greater than 90 seconds per 30-minute observation or conduct a Method 9 performance test within 45 days.

c. Reporting and Recordkeeping

(1) Bowdoin shall maintain records of the amounts of each fuel combusted during each day or, if applicable, monthly records with fuel certifications. [40 C.F.R. § 60.48c(g)]

(2) For each opacity performance test performed, Bowdoin shall maintain records of the following:

(i) Dates and time intervals of all opacity or visible emissions observation periods;
(ii) Name and affiliation for each visible emission observer participating in the performance test. For Method 9 performance tests, include a copy of the current visible emission reading certification for each visible emission observer.
(iii) Copies of all visible emission observer opacity field data sheets; and
(iv) Documentation of any adjustments made and the time the adjustments were completed to demonstrate compliance with the applicable monitoring requirements (Method 22 observations only).

(3) Bowdoin shall submit semi-annual reports to EPA and to the Department. [40 C.F.R. § 60.48c(d)] These reports shall include the following:

(i) Calendar dates covered in the reporting period; [40 C.F.R. § 60.48c(e)(1)]
(ii) Records of fuel supplier certifications; [40 C.F.R. § 60.48c(e)(11)] and

(iii) Any instances of excess emissions (including opacity) from Boilers #1 and #2**.** [40 C.F.R. § 60.48c(c)]

(4) The semi-annual reports are due within 30 days of the end of each six-month period. [40 C.F.R. § 60.48c(j)]

(5) The following address for EPA shall be used for any reports or notifications required to be copied to them:

U.S. Environmental Protection Agency, Region I
5 Post Office Square, Suite 100 (OES04-2)
Boston, MA 02109-3912
Attn: Air Compliance Clerk

(6) Bowdoin shall maintain records required by Subpart Dc for a period of two years following the date of the record. [40 C.F.R. § 60.48c(i)] Note: Standard Condition (8) of this license requires all records be retained for six years; therefore, the two-year record retention requirement of Subpart Dc is satisfied by compliance with the more stringent six-year requirement.

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

Boilers #1 and #2 are 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. Boiler #1 is considered an existing oil boiler, and Boiler #2 is considered a new oil boiler.

Applicable federal 40 C.F.R. Part 63, Subpart JJJJJJ requirements include the following. Additional rule information can be found on the following website: https://www.epa.gov/stationary-sources-air-pollution/compliance-industrial-commercial-and-institutional-area-source.

a. Work Practice Requirements

(1) Boiler Tune-Up Program

(i) A boiler tune-up program shall be implemented. [40 C.F.R. § 63.11223]

(ii) Tune-ups shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. See chart below:

Boiler Category	Tune-Up Frequency
Boiler with oxygen trim system which maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune up	Every 5 years

[40 C.F.R. § 63.11223(a) and Table 2]

(iii) The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:

1. 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 for up to 72 months from the previous inspection for boilers with oxygen trim systems. [40 C.F.R. § 63.11223(b)(1)]
2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 C.F.R. § 63.11223(b)(2)]
3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted for up to 72 months from the previous inspection for boilers with oxygen trim systems. [40 C.F.R. § 63.11223(b)(3)]
4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 C.F.R. § 63.11223(b)(4)]
5. Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [40 C.F.R. § 63.11223(b)(5)]
6. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up. [40 C.F.R. § 63.11223(b)(7)]

(iv) Tune-Up Report: A tune-up report shall be maintained onsite and submitted to the Department and/or EPA upon request. The report shall contain the following information:

1. The concentration of CO in the effluent stream (ppmv) and oxygen (volume percent) measured at high fire or typical operating load both **before** and **after** the boiler tune-up;

2. A description of any corrective actions taken as part of the tune-up of the boiler; and

3. The types and amounts of fuels used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit. [40 C.F.R. § 63.11223(b)(6)]

(2) Compliance Report

For every five-year compliance period, Bowdoin shall prepare a compliance report by March 1st of the following year to document the information below for the five-year period. The report shall be maintained by the source and submitted to the Department and/or to the EPA upon request.

The report must include the items contained in §§ 63.11225(b)(1) and (2), including the following: [40 C.F.R. § 63.11225(b)]

(i) Company name and address;

(ii) A statement of whether the source has complied with all the relevant requirements of this Subpart;

(iii) A statement certifying truth, accuracy, and completeness of the notification and signed by a responsible official and containing the official's name, title, phone number, email address, and signature;

(iv) The following certifications, as applicable:

1. "This facility complies with the requirements in 40 C.F.R. § 63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."
2. "No secondary materials that are solid waste were combusted in any affected unit."
3. "This facility complies with the requirement in §§ 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available."

Boiler #2, as a new oil boiler, is subject to a PM emission limit; however, 40 C.F.R. Part 63, Subpart JJJJJJ, § 63.11210(e) states that new oil-fired boilers that combust only oil that contains no more than 0.5% sulfur by weight and do not use a post-combustion technology (except a wet scrubber) to reduce PM emissions are not subject to the PM emission limit in Table 1 provided the type of fuel combusted is monitored and recorded.

b. Recordkeeping

(1) Records shall be maintained consistent with the requirements of 40 C.F.R. Part 63, Subpart JJJJJJ including the following [40 C.F.R. § 63.11225(c)]:
(i) Copies of notifications and reports with supporting compliance documentation;
(ii) 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;
(iii) Records of the occurrence and duration of each malfunction of each applicable boiler; and
(iv) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler.

(2) Records shall be in a form suitable and readily available for expeditious review. Each record must be kept for 5 years following the date of each recorded action. Each record must be kept on-site or be accessible from a central location by computer or other means that instantly provides access at the site for at least 2 years after the date of each recorded action. The records may be maintained off-site for the remaining 3 years. [40 C.F.R. § 63.11225(d)] Note: Standard Condition (8) of this license requires all records be retained for six years; therefore, the five-year record retention requirement of Subpart JJJJJJ is satisfied by compliance with the more stringent six-year requirement.

C. Non-Central Heating Plant Boilers and Water Heaters

Bowdoin operates small boilers and water heaters, other than those in the Central Heating Plant, used to provide heat and hot water during the summer months and in buildings not supported by the steam plant. These Non-Central Heating Plant units have a facility-wide heat input limit of 50,000 MMBtu/yr. These units all fire natural gas and include the following:

Equipment	Max. Capacity (MMBtu/hr)	Date of Manuf.	Date of Install.
Coffin Street Dorm Hot Water Heater	1.00	2003	2003
Druckenmiller Boiler	3.35	2019	2019
Farley Field House Boiler	6.38	2011	2011
Moulton Union Boiler	1.56	2015	2015
Stowe Hall Boiler	1.00	2004	2004
Thorne Hall Boiler	1.01	2019	2019
Watson Ice Arena Boiler #1	2.00	2008	2008
Watson Ice Arena Boiler #2	2.00	2008	2008
Watson Ice Arena Boiler #3	2.00	2008	2008
Watson Ice Arena Heater	1.50	2008	2008
Wellness Center Boiler	2.00	2008	2008

1. BPT Findings

The BPT emission limits for the Non-Central Heating Plant Boilers and Water Heaters were based on the following:

Natural Gas

$PM/PM_{10}/PM_{2.5}$	–	0.05 lb/MMBtu, 06-096 C.M.R. ch. 115, BPT
SO_2	–	0.6 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
NO_x	–	100 lb/MMscf based on AP-42 Table 1.4-1 dated 7/98
CO	–	84 lb/MMscf based on AP-42 Table 1.4-1 dated 7/98
VOC	–	5.5 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
Visible Emissions	–	06-096 C.M.R. ch. 101

The BPT emission limits for the Non-Central Heating Plant Boilers and Water Heaters are the following:

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)
Coffin Street Dorm Hot Water Heater	0.05	0.05	0.05	-	0.10	0.08	0.02
Druckenmiller Boiler	0.17	0.17	0.17	-	0.33	0.28	0.02
Farley Field House Boiler	0.32	0.32	0.32	-	0.63	0.53	0.03
Moulton Union Boiler	0.08	0.08	0.08	-	0.15	0.13	0.01
Stowe Hall Boiler	0.05	0.05	0.05	-	0.10	0.08	0.01
Thorne Hall Boiler	0.05	0.05	0.05	-	0.10	0.08	0.01
Watson Ice Arena Boiler #1	0.10	0.10	0.10	-	0.20	0.16	0.01
Watson Ice Arena Boiler #2	0.10	0.10	0.10	-	0.20	0.16	0.01
Watson Ice Arena Boiler #3	0.10	0.10	0.10	-	0.20	0.16	0.01
Watson Ice Arena Heater	0.08	0.08	0.08	-	0.15	0.12	0.01
Wellness Center Boiler	0.10	0.10	0.10	-	0.20	0.16	0.01

The Non-Central Heating Plant Boilers and Water Heaters shall be limited to a combined total heat input of 50,000 MMBtu/yr.

2. Visible Emissions

Visible emissions from any of the Non-Central Heating Plant Boilers and Water Heaters shall not exceed 10% opacity on a six-minute block average basis.

3. Periodic Monitoring

Periodic monitoring for the Non-Central Heating Plant Boilers and Water Heaters shall include recordkeeping to document fuel use both on a monthly and 12-month rolling total basis.

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

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

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

   The Non-Central Heating Plant Boilers and Water Heaters 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)]

D. Natural Gas Fired Emergency Generators

Bowdoin operates 11 emergency generators which fire natural gas. The emergency generators are generator sets with each set consisting of an engine and an electrical generator.

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity	Date of Manuf.	Date of Install.
240 Main Street Generator	0.89	48 kW	2023	2023
Buck Fitness Generator	0.80	60 kW	2009	2009
Farley Field House Generator	0.62	40 kW	2011	2011
Federal Street Generator	0.89	48 kW	2024	2025
H&L Library Generator	0.80	60 kW	2020	2020
Moulton Union Generator #1	1.77	150 kW	2007	2007
Rhodes Hall Generator	1.35	100 kW	2015	2015
Roux Hall Generator	1.81	150 kW	2017	2018
Sills Hall Generator	0.73	45 kW	2023	2024
Stowe Hall Generator	0.95	70 kW	2005	2005
Walker Art Museum Generator	1.77	150 kW	2007	2007

1. BPT Findings

The BPT emission limits for the natural gas-fired emergency generators are based on the following:

$PM/PM_{10}/PM_{2.5}$	–	0.05 lb/MMBtu, 06-096 C.M.R. ch. 115, BPT
SO_2	–	0.000588 lb/MMBtu from AP-42 Table 3.2-2 dated 10/24
NO_x	–	4.08 lb/MMBtu from AP-42 Table 3.2-2 dated 10/24
CO	–	0.317 lb/MMBtu from AP-42 Table 3.2-2 dated 10/24
VOC	–	0.118 lb/MMBtu from AP-42 Table 3.2-2 dated 10/24
Visible Emissions	–	06-096 C.M.R. ch. 101

The BPT emission limits for the natural gas-fired emergency generators are the following:

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)
240 Main Street Generator	0.04	0.04	0.04	-	3.63	0.28	0.11
Buck Fitness Generator	0.04	0.04	0.04	-	3.26	0.25	0.09
Farley Field House Generator	0.03	0.03	0.03	-	2.53	0.20	0.07
Federal Street Generator	0.04	0.04	0.04	-	3.63	0.28	0.11
H&L Library Generator	0.04	0.04	0.04	-	3.26	0.25	0.09
Moulton Union Generator #1	0.09	0.09	0.09	-	7.22	0.56	0.21
Rhodes Hall Generator	0.07	0.07	0.07	-	5.51	0.43	0.16
Roux Hall Generator	0.09	0.09	0.09	-	7.38	0.57	0.21
Sills Hall Generator	0.04	0.04	0.04	-	2.98	0.23	0.09
Stowe Hall Generator	0.05	0.05	0.05	-	3.88	0.30	0.11
Walker Art Museum Generator	0.09	0.09	0.09	-	7.22	0.56	0.21

Visible emissions from each of the natural gas-fired emergency generators shall not exceed 20% opacity on a six-minute block average basis.

Each of the emergency generators shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. There is no limit on emergency operation. Each emergency generator shall be equipped with a non-resettable hour-meter to record operating time. To demonstrate compliance with the operating hours limit, Bowdoin shall keep records of the total hours of operation and the hours of emergency operation for each unit.

Emergency generators are only to be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Emergency generators are not to be used for prime power when reliable offsite power is available; nor to operate or to be contractually obligated to be available in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity.

2. Chapter 169

The Buck Fitness Generator, Farley Field House Generator, H&L Library Generator, Moulton Union Generator #1, Rhodes Hall Generator, Roux Hall Generator, Stowe Hall Generator, and Walker Art Museum Generator were installed prior to the effective date of *Stationary Generators*, 06-096 C.M.R. ch. 169 and are therefore exempt from this rule pursuant to section 1.

Stationary Generators, 06-096 C.M.R. ch. 169 (Chapter 169), is applicable to the 240 Main Street Generator, Federal Street Generator, and Sills Hall Generator. They are emergency generators each powered by an engine with a rated output of less than 1,000 brake horsepower (747 kW). Chapter 169 identifies emission standards and stack height requirements for certain generator engines subject to this chapter.

a. Chapter 169 Emission Standards Requirements

For the 240 Main Street, Federal Street, and Sills Hall emergency generators, Bowdoin shall comply with the emission standards for emergency generators by complying with the applicable standards contained in 40 C.F.R. Part 60, Subpart JJJJ. [06-096 C.M.R. ch. 169, § 4(B)(1)]

b. Chapter 169 Stack Height Requirements

Chapter 169 identifies stack height requirements for any stack used to exhaust a generator engine or combination of generator engines with a combined rated output equal to or greater than 1,000 brake horsepower (747 kW). Individual generator engines with a maximum power capacity of less than 300 kW are not included in the assessment of the combined generator power capacity exhausted through a common stack. [06-096 C.M.R. ch. 169, § 6]

There are no stack height requirements in Chapter 169 applicable to the 240 Main Street Generator, Federal Street Generator, or Sills Hall Generator because they exhaust through their own stacks and their rated outputs are each less than 1,000 brake horsepower (747 kilowatts). [06-096 C.M.R. ch. 169, § 6]

3. New Source Performance Standards (NSPS)

Standards of Performance for Spark Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart JJJJ is applicable to the 240 Main Street Generator, Buck Fitness Generator, Farley Field House Generator, Federal Street Generator, H&L Library Generator, Rhodes Hall Generator, Roux Hall Generator, and Sills Hall Generator since the units were ordered after June 12, 2006, and manufactured after January 1, 2009. [40 C.F.R. § 60.4230] By meeting the requirements of 40 C.F.R. Part 60, Subpart JJJJ, the units also meet the requirements found in the *National Emission Standards for*

Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

A summary of the currently applicable federal 40 C.F.R. Part 60, Subpart JJJJ requirements is listed below.

a. Emergency Engine Designation and Operating Criteria

Under 40 C.F.R. Part 60, Subpart JJJJ, a stationary reciprocating internal combustion engine (ICE) is considered an emergency stationary ICE (emergency engine) as long as the engine is operated in accordance with the following criteria. Operation of an engine outside of the criteria specified below may cause the engine to no longer be considered an emergency engine under 40 C.F.R. Part 60, Subpart JJJJ, resulting in the engine being subject to requirements applicable to non-emergency engines.

(1) Emergency Situation Operation (On-Site)

There is no operating time limit on the use of an emergency engine to provide electrical power or mechanical work during an emergency situation. Examples of use of an emergency engine during emergency situations include the following:

- Use of an engine to produce power for critical networks or equipment (including power supplied to portions of a facility) because of failure or interruption of electric power from the local utility (or the normal power source, if the facility runs on its own power production);
- Use of an engine to mitigate an on-site disaster;
- Use of an engine to pump water in the case of fire, flood, natural disaster, or severe weather conditions; and
- Similar instances.

(2) Non-Emergency Situation Operation

An emergency engine may be operated up to a maximum of 100 hours per calendar year for maintenance checks, readiness testing, and other non-emergency situations as described below.

(i) An emergency engine may be operated for a maximum of 100 hours per calendar year for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government; the manufacturer; the vendor; the regional transmission organization or equivalent balancing authority and transmission operator; or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if

the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE more than 100 hours per calendar year.

(ii) An emergency engine may be operated for up to 50 hours per calendar year for other non-emergency situations. **However, these operating hours are counted as part of the 100 hours per calendar year operating limit described in paragraph (2) and (2) (i) above.**

The 50 hours per calendar year operating limit for other non-emergency situations cannot be used for peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 C.F.R. §§ 60.4243(d) and 60.4248]

b. 40 C.F.R. Part 60, Subpart JJJJ Requirements

(1) Manufacturer Certification Requirement
The engines shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1. [40 C.F.R. § 60.4233]

(2) Non-Resettable Hour Meter Requirement
A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 60.4237]

(3) Operation and Maintenance Requirement
The engines shall be operated and maintained according to the manufacturer's written instructions or procedures developed by Bowdoin that are approved by the engine manufacturer. Bowdoin may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

Bowdoin shall have available for review by the Department a copy of the manufacturer's written instructions or procedures developed by Bowdoin that are approved by the engine manufacturer for engine operation and maintenance. [06-096 C.M.R. ch. 115, BPT]

(4) Annual Time Limit for Maintenance and Testing
As emergency engines, the units shall each be limited to 100 hours/year for maintenance and testing. The emergency engines may operate up to 50 hours per year in non-emergency situations, but those 50 hours are included in the 100 hours total allowed for maintenance and testing. The 50 hours for non-emergency use cannot be used for peak shaving or to generate income for

a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 C.F.R. § 60.4243(d)]

(5) Recordkeeping
Bowdoin shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time. [40 C.F.R. § 60.4245(b)]

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

National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 C.F.R. Part 63, Subpart ZZZZ is not applicable to the emergency engines at Bowdoin. Some of the units are considered existing, emergency stationary reciprocating internal combustion engines at an area HAP source. However, they are considered exempt from the requirements of 40 C.F.R. Part 63, Subpart ZZZZ since they are categorized as institutional emergency engines and they do not operate or are not contractually obligated to be available in a demand response program, during a period of deviation from standard voltage or frequency, or for supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in 40 C.F.R. § 63.6640(f)(4)(ii).

Operation of any emergency engine in a demand response program, during a period of deviation from standard voltage or frequency, or for supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in 40 C.F.R. § 63.6640(f)(4)(ii), would cause the engine to be subject to 40 C.F.R. Part 63, Subpart ZZZZ and require compliance with all applicable requirements.

E. Distillate Fuel Fired Emergency Generators

Bowdoin operates 12 existing distillate fuel-fired emergency generators. The emergency generators are generator sets with each set consisting of an engine and an electrical generator.

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity	Date of Manuf.	Date of Install.
Bowdoin Warehouse Generator	3.04	300 kW	2019	2019
Central Heating Plant Generator	2.69	250 kW	2016	2016
Chamberlain Hall Generator	2.06	200 kW	1999	1999
Druckenmiller Hall Generator	1.55	150 kW	1997	1997
Harpswell Apartments Generator	2.69	275 kW	2019	2019

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity	Date of Manuf.	Date of Install.
Ladd House Generator	3.04	300 kW	2023	2023
Memorial Hall Generator	1.81	175 kW	1999	1999
Mills Hall Generator	5.47	550 kW	2021	2022
Moulton Union Generator #2	2.62	230 kW	2009	2009
Park Row Generator	1.63	150 kW	2019	2019
Thorne Dining Generator	3.99	400 kW	2000	2000
Watson Ice Arena Generator	1.56	125 kW	2008	2008

1. BPT Findings

The BPT emission limits for the generators with ratings between 3.0 MMBtu/hr and less than 4.2 MMBtu/hr are based on the following:

$PM/PM_{10}/PM_{2.5}$	–	0.12 lb/MMBtu from 06-096 C.M.R. ch. 103
SO_2	–	Combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
NO_x	–	4.41 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
CO	–	0.95 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
VOC	–	0.36 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
Visible Emissions	–	06-096 C.M.R. ch. 101

The BPT emission limits for generators with ratings greater than 4.2 MMBtu/hr are based on the following:

$PM/PM_{10}/PM_{2.5}$	–	0.12 lb/MMBtu from 06-096 C.M.R. ch. 103
SO_2	–	Combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
NO_x	–	3.20 lb/MMBtu from AP-42 Table 3.4-1 dated 4/25
CO	–	0.85 lb/MMBtu from AP-42 Table 3.4-1 dated 4/25
VOC	–	0.09 lb/MMBtu from AP-42 Table 3.4-1 dated 4/25
Visible Emissions	–	06-096 C.M.R. ch. 101

The BPT emission limits for the distillate fuel generators less than 3.0 MMBtu/hr are based on the following:

$PM/PM_{10}/PM_{2.5}$	–	0.31 lb/MMBtu from AP-42, Table 3.3-1 dated 4/25
SO_2	–	Combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
NO_x	–	4.41 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
CO	–	0.95 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
VOC	–	0.36 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
Visible Emissions	–	06-096 C.M.R. ch. 101

The BPT emission limits for the generators are the following:

Unit	Pollutant	lb/MMBtu
Bowdoin Warehouse	PM	0.12
Ladd House	PM	0.12
Mills Hall	PM	0.12
Thorne Dining	PM	0.12

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)
Bowdoin Warehouse Generator	0.36	0.36	0.36	-	13.41	2.89	1.09
Central Heating Plant Generator	0.83	0.83	0.83	-	11.86	2.56	0.97
Chamberlain Hall Generator	0.64	0.64	0.64	-	9.08	1.96	0.74
Druckenmiller Generator	0.48	0.48	0.48	-	6.84	1.47	0.56
Harpswell Apartments Generator	0.83	0.83	0.83	-	11.86	2.56	0.97
Ladd House Generator	0.36	0.36	0.36	-	13.41	2.89	1.09
Memorial Hall Generator	0.56	0.56	0.56	-	7.98	1.72	0.65
Mills Hall Generator	0.66	0.66	0.66	0.01	17.50	4.65	0.49
Moulton Union Generator #2	0.81	0.81	0.81	-	11.55	2.49	0.94
Park Row Generator	0.51	0.51	0.51	-	7.19	1.55	0.59
Thorne Dining Generator	0.48	0.48	0.48	0.01	17.60	3.79	1.44
Watson Ice Arena Generator	0.48	0.48	0.48	-	6.88	1.48	0.56

a. Visible Emissions

(1) Visible emissions from each of the emergency generators at Chamberlain Hall Generator, Druckenmiller Hall Generator, Memorial Hall Generator, and Thorne Dining Generator shall not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time Bowdoin shall either meet the normal operating visible emissions standard or the following work practice standards and alternative visible emissions standard.

(i) The duration of the startup shall not exceed 30 minutes per event;
(ii) Visible emissions shall not exceed 50% opacity on a six-minute block average basis; and
(iii) Bowdoin shall keep records of the date, time, and duration of each startup.

Use of the work practice standards and alternative visible emissions standard in lieu of the normal operating standard is limited to no more than once per day.

Note: This does not limit the engine to one startup per day. It only limits the use of the alternative emission standard to once per day.

(2) Visible emissions from each of the emergency generators at Bowdoin Warehouse Generator, Central Heating Plant Generator, Harpswell Apartments

Generator, Ladd House Generator, Mills Hall Generator, Moulton Union Generator #2, Park Row Generator, and Watson Ice Arena Generator shall not exceed 20% opacity on a six-minute block average basis.

Each of the emergency generators shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. There is no limit on emergency operation. Each emergency generator shall be equipped with a non-resettable hour-meter to record operating time. To demonstrate compliance with the operating hours limit, Bowdoin shall keep records of the total hours of operation and the hours of emergency operation for each unit.

Emergency generators are only to be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Emergency generators are not to be used for prime power when reliable offsite power is available; nor to operate or to be contractually obligated to be available in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity.

2. Chapter 169

The generators located at Bowdoin Warehouse Generator, Central Heating Plant Generator, Chamberlain Hall Generator, Druckenmiller Hall Generator, Harpswell Apartments Generator, Memorial Hall Generator, Mills Hall Generator, Moulton Union Generator #2, Park Row Generator, Throne Dining Generator, and Watson Ice Arena Generator were installed prior to the effective date of *Stationary Generators*, 06-096 C.M.R. ch. 169 and are therefore exempt from this rule pursuant to section 1.

Stationary Generators, 06-096 C.M.R. ch. 169 (Chapter 169) is applicable to the Ladd House Generator. It is an emergency generator powered by an engine with a rated output of less than 1,000 brake horsepower (747 kW). Chapter 169 identifies emission standards for generator engines subject to this chapter and stack height requirements for certain generator engines subject to this chapter.

a. Chapter 169 Emission Standards Requirements

For the Ladd House Generator, Bowdoin shall comply with the emission standards for emergency generators by complying with the applicable standards contained in 40 C.F.R. Part 60, Subpart IIII. [06-096 C.M.R. ch. 169, § 4(B)(1)]

b. Chapter 169 Stack Height Requirements

Chapter 169 identifies stack height requirements for any stack used to exhaust a generator engine or combination of generator engines with a combined rated output equal to or greater than 1,000 brake horsepower (747 kW). Individual generator engines with a maximum power capacity of less than 300 kW are not included in the assessment of the combined generator power capacity exhausted through a common stack. [06-096 C.M.R. ch. 169, § 6]

There are no stack height requirements in Chapter 169 applicable to the Ladd Hall Generator because it exhausts through its own stack and its rated output is less than 1,000 brake horsepower (747 kilowatts). [06-096 C.M.R. ch. 169, § 6]

3. New Source Performance Standards (NSPS)

Due to the dates of manufacture of Chamberlain Hall Generator, Druckenmiller Hall Generator, Memorial Hall Generator, and Thorne Dining Generator, the engines are not subject to the New Source Performance Standards (NSPS) *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE),* 40 C.F.R. Part 60, Subpart IIII since the units were manufactured prior to April 1, 2006. [40 C.F.R. § 60.4200]

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart IIII is applicable to Bowdoin Warehouse Generator, Central Heating Plant Generator, Harpswell Apartments Generator, Ladd House Generator, Mills Hall Generator, Moulton Union Generator #2, Park Row Generator, and Watson Ice Arena Generator since the units were ordered after July 11, 2005, and manufactured after April 1, 2006. [40 C.F.R. § 60.4200] By meeting the requirements of 40 C.F.R. Part 60, Subpart IIII, the units also meet the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

A summary of the currently applicable federal 40 C.F.R. Part 60, Subpart IIII requirements is listed below.

a. Emergency Engine Designation and Operating Criteria

Under 40 C.F.R. Part 60, Subpart IIII, a stationary reciprocating internal combustion engine (ICE) is considered an **emergency** stationary ICE (emergency engine) as long as the engine is operated in accordance with the following criteria. Operation of an engine outside of the criteria specified below may cause the engine to no longer be considered an emergency engine under 40 C.F.R. Part 60, Subpart IIII, resulting in the engine being subject to requirements applicable to **non-emergency** engines.

(1) Emergency Situation Operation (On-Site)

There is no operating time limit on the use of an emergency engine to provide electrical power or mechanical work during an emergency situation. Examples of use of an emergency engine during emergency situations include the following:

- Use of an engine to produce power for critical networks or equipment (including power supplied to portions of a facility) because of failure or interruption of electric power from the local utility (or the normal power source, if the facility runs on its own power production);
- Use of an engine to mitigate an on-site disaster;
- Use of an engine to pump water in the case of fire, flood, natural disaster, or severe weather conditions; and
- Similar instances.

(2) Non-Emergency Situation Operation

An emergency engine may be operated up to a maximum of 100 hours per calendar year for maintenance checks, readiness testing, and other non-emergency situations as described below.

(i) An emergency engine may be operated for a maximum of 100 hours per calendar year for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government; the manufacturer; the vendor; the regional transmission organization or equivalent balancing authority and transmission operator; or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE more than 100 hours per calendar year.

(ii) An emergency engine may be operated for up to 50 hours per calendar year for other non-emergency situations. **However, these operating hours are counted as part of the 100 hours per calendar year operating limit described in paragraph (2) and (2) (i) above.**

The 50 hours per calendar year operating limit for other non-emergency situations cannot be used for peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 C.F.R. §§ 60.4211(f) and 60.4219]

b. 40 C.F.R. Part 60, Subpart IIII Requirements

(1) Manufacturer Certification Requirement
The engines shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 C.F.R. § 60.4202. [40 C.F.R. § 60.4205(b)]

(2) Ultra-Low Sulfur Fuel Requirement
The fuel fired in the engines shall not exceed 15 ppm sulfur (0.0015% sulfur by weight). [40 C.F.R. § 60.4207(b)]

(3) Non-Resettable Hour Meter Requirement
A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 60.4209(a)]

(4) Operation and Maintenance Requirements
The engines shall be operated and maintained according to the manufacturer's emission-related written instructions. Bowdoin may only change those emission-related settings that are permitted by the manufacturer. [40 C.F.R. § 60.4211(a)]

Bowdoin shall have available for review by the Department a copy of the manufacturer's emission-related written instructions for engine operation and maintenance. [06-096 C.M.R. ch. 115, BPT]

(5) Annual Time Limit for Maintenance and Testing
As emergency engines, the units shall each be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). [40 C.F.R. § 60.4211(f)]

(6) Initial Notification Requirement
No initial notification is required under 40 C.F.R. Part 60, Subpart IIII for emergency engines. [40 C.F.R. § 60.4214(b)]

(7) Recordkeeping
Bowdoin shall keep records that include the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time. [40 C.F.R. § 60.4214(b)]

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

   National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 C.F.R. Part 63, Subpart ZZZZ is not applicable to any of the 12 distillate fuel-fired emergency engines listed above. The units not subject to 40 C.F.R. Part 60, Subpart IIII are considered existing, emergency stationary reciprocating internal combustion engines at an area HAP source. However, they are considered exempt from the requirements of 40 C.F.R. Part 63, Subpart ZZZZ since they are categorized as institutional emergency engines and they do not operate or are not contractually obligated to be available in a demand response program, during a period of deviation from standard voltage or frequency, or for supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in 40 C.F.R. § 63.6640(f)(4)(ii).

   Operation of any emergency engine in a demand response program, during a period of deviation from standard voltage or frequency, or for supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in 40 C.F.R. § 63.6640(f)(4)(ii), would cause the engine to be subject to 40 C.F.R. Part 63, Subpart ZZZZ and require compliance with all applicable requirements.

F. New Distillate Fuel-Fired Emergency Generators

Bowdoin plans to install two more distillate fuel-fired emergency generators in Kanbar Hall (Kanbar Hall Generator) and in the Observatory (Observatory Generator). The emergency generators are generator sets with each set consisting of an engine and an electrical generator. The emergency generators have engines rated at 2.10 MMBtu/hr and 1.12 MMBtu/hr, respectively, which both fire distillate fuel. The emergency generators were both manufactured in 2025**.**

1. BACT Findings

   Following is a BACT analysis for control of emissions from the Kanbar Hall and Observatory Generators.

   a. Particulate Matter (PM, PM_{10}, $PM_{2.5}$)
   Bowdoin has proposed to burn only low-ash content fuel, distillate fuel, in these engines. Additional add-on pollution controls are not economically feasible.

   BACT for $PM/PM_{10}/PM_{2.5}$ emissions from the Kanbar Hall and Observatory Generators is the use of ultra-low-sulfur distillate fuel and emission limits listed in the tables below.

b. Sulfur Dioxide (SO_2)
Bowdoin has proposed to fire only distillate fuel with a sulfur content not to exceed 0.0015% by weight. The use of this fuel results in minimal emissions of SO_2, and additional add-on pollution controls are not economically feasible.

BACT for SO_2 emissions from the Kanbar Hall and Observatory Generators is the use of ultra-low-sulfur distillate fuel and the emission limits listed in the tables below.

c. Nitrogen Oxides (NO_x)
Bowdoin considered several control strategies for the control of NO_x including Selective Catalytic Reduction (SCR), Selective Non-Catalytic Reduction (SNCR), and proper operation and maintenance of the engines.

Both SCR and SNCR are technically feasible control technologies for minimizing NO_x. Both methods include injection of a NO_x reducing agent, typically ammonia or urea, where the reagent reacts with NO_x to form nitrogen and water. Each technology is effective within a specific temperature range, 500 – 1,200 °F for SCR and 1,400 – 1,600 °F for SNCR. However, both SCR and SNCR have the 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 these emergency engines.

BACT for NO_x emissions from the Kanbar Hall and Observatory Generators is the proper operation and maintenance of the engines and the emission limits listed in the tables below.

d. Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)
Bowdoin 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 and duration of use of the engines in question. These controls were determined to be economically infeasible.

BACT for CO and VOC emissions from the Kanbar Hall and Observatory Generators is the emission limits listed in the tables below.

e. Emission Limits
The BACT emission limits for the Kanbar Hall and Observatory Generators were based on the following:

Distillate Fuel

$PM/PM_{10}/PM_{2.5}$	–	0.31 lb/MMBtu from AP-42, Table 3.3-1 dated 4/25
SO_2	–	Combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
NO_x	–	4.41 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
CO	–	0.95 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
VOC	–	0.36 lb/MMBtu from AP-42 Table 3.3-1 dated 4/25
Visible Emissions	–	06-096 C.M.R. ch. 101

The BACT emission limits for the Kanbar Hall and Observatory Generators are the following:

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)
Kanbar Hall Generator	0.65	0.65	0.65	-	9.26	2.00	0.76
Observatory Generator	0.35	0.35	0.35	-	4.94	1.06	0.40

2. Chapter 169

Stationary Generators, 06-096 C.M.R. ch. 169 (Chapter 169), is applicable to the Kanbar Hall and Observatory Generators. They are emergency generators, each powered by an engine with a rated output of less than 1,000 brake horsepower (747 kW). Chapter 169 identifies emission standards for generator engines subject to this chapter and stack height requirements for certain generator engines subject to this chapter.

a. Chapter 169 Emission Standards Requirements

For the Kanbar Hall and Observatory Generators, Bowdoin shall comply with the emission standards for emergency generators by complying with the applicable standards contained in 40 C.F.R. Part 60, Subpart IIII. [06-096 C.M.R. ch. 169, § 4(B)(1)]

b. Chapter 169 Stack Height Requirements

Chapter 169 identifies stack height requirements for any stack used to exhaust a generator engine or combination of generator engines with a combined rated output equal to or greater than 1,000 brake horsepower (747 kW). Individual generator engines with a maximum power capacity of less than 300 kW are not included in the assessment of the combined generator power capacity exhausted through a common stack. [06-096 C.M.R. ch. 169, § 6]

There are no stack height requirements in Chapter 169 applicable to the Kanbar Hall and Observatory Generators because they exhaust through their own stacks

and their rated output is less than 1,000 brake horsepower (747 kilowatts). [06-096 C.M.R. ch. 169, § 6]

3. New Source Performance Standards

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart IIII is applicable to the emergency engines listed above since the units were ordered after July 11, 2005, and manufactured after April 1, 2006. [40 C.F.R. § 60.4200] By meeting the requirements of 40 C.F.R. Part 60, Subpart IIII, the units also meet the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

A summary of the currently applicable federal 40 C.F.R. Part 60, Subpart IIII requirements is listed below.

a. Emergency Engine Designation and Operating Criteria

Under 40 C.F.R. Part 60, Subpart IIII, a stationary reciprocating internal combustion engine (ICE) is considered an **emergency** stationary ICE (emergency engine) as long as the engine is operated in accordance with the following criteria. Operation of an engine outside of the criteria specified below may cause the engine to no longer be considered an emergency engine under 40 C.F.R. Part 60, Subpart IIII, resulting in the engine being subject to requirements applicable to **non-emergency** engines.

(1) Emergency Situation Operation (On-Site)

There is no operating time limit on the use of an emergency engine to provide electrical power or mechanical work during an emergency situation. Examples of use of an emergency engine during emergency situations include the following:

- Use of an engine to produce power for critical networks or equipment (including power supplied to portions of a facility) because of failure or interruption of electric power from the local utility (or the normal power source, if the facility runs on its own power production);
- Use of an engine to mitigate an on-site disaster;
- Use of an engine to pump water in the case of fire, flood, natural disaster, or severe weather conditions; and
- Similar instances.

(2) Non-Emergency Situation Operation

An emergency engine may be operated up to a maximum of 100 hours per calendar year for maintenance checks, readiness testing, and other non-emergency situations as described below.

(i) An emergency engine may be operated for a maximum of 100 hours per calendar year for maintenance checks and readiness testing, provided that the tests are recommended by federal, state, or local government; the manufacturer; the vendor; the regional transmission organization or equivalent balancing authority and transmission operator; or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE more than 100 hours per calendar year.

(ii) An emergency engine may be operated for up to 50 hours per calendar year for other non-emergency situations. **However, these operating hours are counted as part of the 100 hours per calendar year operating limit described in paragraph (2) and (2) (i) above.**

The 50 hours per calendar year operating limit for other non-emergency situations cannot be used for peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

[40 C.F.R. §§ 60.4211(f) and 60.4219]

c. 40 C.F.R. Part 60, Subpart IIII Requirements

(1) Manufacturer Certification Requirement
The engines shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 C.F.R. § 60.4202. [40 C.F.R. § 60.4205(b)]

(2) Ultra-Low Sulfur Fuel Requirement
The fuel fired in the engines shall not exceed 15 ppm sulfur (0.0015% sulfur). [40 C.F.R. § 60.4207(b)]

(3) Non-Resettable Hour Meter Requirement
A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 60.4209(a)]

(4) Operation and Maintenance Requirements
The engines shall be operated and maintained according to the manufacturer's emission-related written instructions. Bowdoin may only change those emission-related settings that are permitted by the manufacturer. [40 C.F.R. § 60.4211(a)]

Bowdoin shall have available for review by the Department a copy of the manufacturer's emission-related written instructions for engine operation and maintenance. [06-096 C.M.R. ch. 115, BPT]

(5) Annual Time Limit for Maintenance and Testing
As emergency engines, the units shall each be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). [40 C.F.R. § 60.4211(f)]

(6) Initial Notification Requirement
No initial notification is required under 40 C.F.R. Part 60, Subpart IIII for emergency engines. [40 C.F.R. § 60.4214(b)]

(7) Recordkeeping
Bowdoin shall keep records that include the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time.
[40 C.F.R. § 60.4214(b)]

G. Smith Union Generator (Non-Emergency)

Bowdoin operates a non-emergency generator to reduce reliance on grid power for some of the campus buildings at select times. The engine is rated at 3.49 MMBtu/hr firing natural gas at a maximum rate of 3,426 scf/hr, providing 460 HP. The unit was manufactured in 2019 and installed in September 2019. The engine emission limits have been updated to AP-42 (dated 10/24) values from the Subpart JJJJ emission standards. Bowdoin had requested a 500-hour operating limit at time of installation.

1. BPT Findings

The BPT emission limits for the Smith Union Generator are based on the following:

$PM/PM_{10}/PM_{2.5}$	–	0.05 lb/MMBtu, 06-096 C.M.R. ch. 115, BPT
SO_2	–	Combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
NO_x	–	4.08 lb/MMBtu from AP-42 Table 3.2-2 dated 10/24
CO	–	0.317 lb/MMBtu from AP-42 Table 3.2-2 dated 10/24
VOC	–	0.118 lb/MMBtu from AP-42 Table 3.2-2 dated 10/24
Visible Emissions	–	06-096 C.M.R. ch. 101

The BPT emission limits for the Smith Union Generator are the following:

Unit	Pollutant	lb/MMBtu
Smith Union Generator	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)
Smith Union Generator	0.17	0.17	0.17	-	14.24	1.11	0.41

Visible emissions from the Smith Union Generator shall not exceed 10% opacity on a six-minute block average basis.

2. Chapter 169

The Smith Union Generator was installed prior to the effective date of *Stationary Generators*, 06-096 C.M.R. ch. 169 and is therefore exempt from this rule pursuant to section 1.

3. New Source Performance Standards

Standards of Performance for Spark Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart JJJJ (Subpart JJJJ) is applicable to the Smith Union Generator since the unit was ordered after June 12, 2006, and manufactured after January 1, 2009. [40 C.F.R. § 60.4230] By meeting the requirements of 40 C.F.R. Part 60, Subpart JJJJ, the unit also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

A summary of the currently applicable Subpart JJJJ requirements is listed below.

a. The engine for the Smith Union Generator shall comply with the emission standards in Table 1 to Subpart JJJJ, as follows:

Engine Type and Fuel	Maximum Engine Power	Manufacture Date	Emission Standards (g/HP-hr)		
			NO_x	CO	VOC
Non-Emergency Spark Ignition, Natural Gas	$100 \leq HP < 500$	After January 1, 2011	1.0	2.0	0.7

[40 C.F.R. § 60.4233(e)]

b. Bowdoin shall keep records of conducted maintenance to demonstrate compliance with the manufacturer's emission-related written instructions for the operation and maintenance of the Smith Union Generator. Any adjustments made to the engine settings by Bowdoin shall be in accordance with the manufacturer's instructions. [40 C.F.R. § 60.4243(a)(1)]

c. Bowdoin shall operate and maintain this engine to achieve the emission standards that are specified in Table 1 to Subpart JJJJ over the entire life of the engine. [40 C.F.R. § 60.4234]

Bowdoin shall demonstrate that the engine for the Smith Union Generator complies with the emission standards specified in Table 1 to Subpart JJJJ by purchasing an engine that is certified according to the procedures specified in Subpart JJJJ, for the same model year. [40 C.F.R. § 60.4243(b)(1)]

d. If the engine for the Smith Union Generator is supplied with an air-to-fuel ratio controller (AFR) that is used with the operation of three-way catalysts/non-selective catalytic reduction, the AFR must be maintained and operated appropriately to ensure proper operation of the engine and control device to minimize emissions at all times. [40 C.F.R. § 60.4243(g)]

e. Bowdoin shall keep records of the following information for the Smith Union Generator:

(1) All notifications submitted to comply with Subpart JJJJ, along with all documentation supporting any notification;
(2) Maintenance conducted on the engine; and
(3) Documentation from the manufacturer that the engine is certified to meet the emission standards for non-emergency engines.

[40 C.F.R. § 60.4245]

4. The Smith Union generator shall be equipped with a non-resettable hour meter to be used for tracking operating hours. [06-096 C.M.R. ch. 115, BPT]

5. Bowdoin shall demonstrate compliance with the annual operating limit of 500 hours per year by keeping records (either written log or electronic) of all engine operating hours, based on readings taken from the non-resettable hour meter. The records shall include the hour meter readings (beginning and ending) and the date(s) of operation for each occurrence. [06-096 C.M.R. ch. 115, BPT]

H. <u>General Process Emissions</u>

Visible emissions from any general process source shall not exceed 20% opacity on a six-minute block average basis.

I. Fugitive Emissions

Bowdoin shall not cause emissions of any fugitive dust during any period of construction, reconstruction, or operation without taking reasonable precautions. Such reasonable precautions shall be included in the facility's continuing program of best management practices for suppression of fugitive particulate matter. See 06-096 C.M.R. ch. 101, § 4(C) for a list of potential reasonable precautions.

Bowdoin shall not cause or allow visible emissions within 20 feet of ground level, measured as any level of opacity and not including water vapor, beyond the legal boundary of the property on which such emissions occur. Compliance with this standard shall be determined pursuant to 40 C.F.R. Part 60, Appendix A, Method 22.

J. Emission Statements

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

1. The amount of distillate fuel fired in Central Heating Plant Boilers #1 and #2 (each) on a monthly basis;
2. The sulfur content of the distillate fuel fired in Central Heating Plant Boilers #1 and #2;
3. The amount of natural gas fired in Central Heating Plant Boilers #1 and #2 (each) on a monthly basis;
4. The amount of natural gas purchased for the Non-Central Heating Plant Boilers and Water Heaters on a monthly basis and then prorated based on the size of units; and
5. The operating hours and fuel type for each of the emergency generators and the Smith Union Generator.

Every third year, or as requested by the Department, Bowdoin shall report to the Department emissions of hazardous air pollutants as required pursuant to 06-096 C.M.R. ch. 137, § (3)(C). The next report is due no later than May 15, 2027, for emissions occurring in calendar year 2026. The Department will use these reports to calculate and invoice for the applicable annual air quality surcharge for the subsequent three billing periods. Bowdoin 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)]

K. 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:

- Firing a combined total of 206,000 MMBtu/yr in the Central Heating Plant Boilers #1 and #2 boilers and the most conservative emission factor (for either natural gas or distillate fuel) for each pollutant;
- Firing the non-Central Heating Plant boilers/water heaters for a combined total of 50,000 MMBtu/yr;
- Operating the emergency generators for 100 hrs/yr of non-emergency operation; and
- Operating the Smith Union Generator for 500 hrs/yr.

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
Central Heating Plant Boilers #1 & #2	8.2	8.2	8.2	0.2	10.1	8.5	0.6
Non-Central Heating Plant Boilers	1.3	1.3	1.3	-	2.5	2.1	0.1
240 Main Street Generator	-	-	-	-	0.2	-	-
Bowdoin Warehouse Generator	-	-	-	-	0.7	0.1	0.1
Buck Fitness (aka Wellness Center)	-	-	-	-	0.2	-	-
Central Heat Plant Generator	-	-	-	-	0.6	0.1	0.1
Chamberlain Hall Generator	-	-	-	-	0.5	0.1	-
Druckenmiller Hall Generator	-	-	-	-	0.3	0.1	-
Farley Field House Generator	-	-	-	-	0.1	-	-
Federal Street Generator	-	-	-	-	0.2	-	-
H&L Library Generator	-	-	-	-	0.2	-	-
Harpswell Apartments Generator	-	-	-	-	0.6	0.1	0.1
Kanbar Hall Generator	-	-	-	-	0.5	0.1	-
Ladd House Generator	-	-	-	-	0.7	0.1	0.1
Memorial Hall Generator	-	-	-	-	0.4	0.1	-
Mills Hall Generator	-	-	-	-	0.9	0.2	-
Moulton Union Generator #1	-	-	-	-	0.4	-	-
Moulton Union Generator #2	-	-	-	-	0.6	0.1	0.1
Observatory Generator	-	-	-	-	0.3	0.1	-
Park Row Generator	-	-	-	-	0.4	0.1	-
Rhodes Hall Generator	-	-	-	-	0.3	-	-
Roux Hall Generator	-	-	-	-	0.4	-	-
Sills Hall Generator	-	-	-	-	0.2	-	-
Smith Union Generator	-	-	-	-	3.6	0.3	0.1

	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC
Stowe Hall Generator	-	-	-	-	0.2	-	-
Thorne Dining Generator	-	-	-	-	0.9	0.2	0.1
Walker Art Museum Generator	-	-	-	-	0.4	-	-
Watson Ice Arena Generator	-	-	-	-	0.3	0.1	-
Total TPY	**9.5**	**9.5**	**9.5**	**0.2**	**26.7**	**12.5**	**1.4**

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.

This determination is based on information provided by the applicant regarding licensed and 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 Bowdoin 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 A-76-71-AL-R/A subject to the following conditions.

Severability. The invalidity or unenforceability of any provision of this License or part thereof 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.

STANDARD CONDITIONS

(1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S. § 347-C).

(2) The licensee shall acquire a new or amended air emission license prior to beginning actual construction of a modification, unless specifically provided for in Chapter 115. [06-096 C.M.R. ch. 115]

(3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 C.M.R. ch. 115]

(4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 C.M.R. ch. 115]

(5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S. § 353-A. [06-096 C.M.R. ch. 115] Payment of the annual air emission license fee for Bowdoin is due by the end of August of each year. [38 M.R.S. § 353-A(3)]

(6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 C.M.R. ch. 115]

(7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 C.M.R. ch. 115]

(8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 C.M.R. ch. 115]

(9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license.
[06-096 C.M.R. ch. 115]

(10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license.
[06-096 C.M.R. ch. 115]

(11) In accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department, the licensee shall:

A. Perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
   1. Within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
   2. Pursuant to any other requirement of this license to perform stack testing.

B. Install or make provisions to install test ports that meet the criteria of 40 C.F.R. Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and

C. Submit a written report to the Department within thirty (30) days from date of test completion.

[06-096 C.M.R. ch. 115]

(12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:

A. Within thirty (30) days following receipt of the written test report by the Department, or another alternative timeframe approved by the Department, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department; and

B. The days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and

C. The licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.

[06-096 C.M.R. ch. 115]

(13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or license requirement. [06-096 C.M.R. ch. 115]

(14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emissions and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 C.M.R. ch. 115]

(15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 C.M.R. ch. 115]

(16) The licensee shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S. § 605). [06-096 C.M.R. ch. 115]

SPECIFIC CONDITIONS

(17) Central Heating Plant Boilers #1 and #2

A. Fuel

1. Total fuel use for Central Heating Plant Boilers #1 and #2 shall not exceed 206,000 MMBtu/yr, based on a calendar year total basis. Compliance shall be based on records of fuel use and a heating value of 0.14 MMBtu/gal for distillate fuel and 1,020 MMBtu per million scf of natural gas. [06-096 C.M.R. ch. 115, BPT]
2. Bowdoin 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]
3. Compliance shall be demonstrated by fuel records showing the quantity, type, and the percent sulfur of the fuel used. Records of annual fuel use shall be kept on a monthly and calendar year basis. Fuel sulfur content compliance shall be demonstrated by fuel delivery receipts from the supplier, a statement from the supplier that the fuel delivered meets Maine's fuel sulfur content standards, fuel supplier certification, certificate of analysis, or testing of fuel in the tank on-site. [06-096 C.M.R. ch. 115, BPT]

B. Emissions shall not exceed the following:

Emission Unit	Fuel Type	Pollutant	lb/MMBtu	Origin and Authority
Central Heating Plant Boiler #1	Distillate Fuel	PM	0.08	06-096 C.M.R. ch. 115, BPT
	Natural Gas	PM	0.05	
Central Heating Plant Boiler #2	Distillate Fuel	PM	0.08	
	Natural Gas	PM	0.05	

C. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Emission 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)
Central Heating Plant Boiler #1 *Distillate Fuel*	5.76	5.76	5.76	0.11	6.17	2.57	0.10
Central Heating Plant Boiler #1 *Natural Gas*	3.67	3.67	3.67	0.04	7.19	6.04	0.40
Central Heating Plant Boiler #2 *Distillate Fuel*	5.76	5.76	5.76	0.11	6.17	2.57	0.10
Central Heating Plant Boiler #2 *Natural Gas*	3.67	3.67	3.67	0.04	7.19	6.04	0.40

D. Visible Emissions [06-096 C.M.R. ch. 101, §§ 4(A)(2), 4(A)(3), and 4(D)(1)]

1. When distillate fuel is being fired in either Boiler #1 or Boiler #2, visible emissions from Stack #1 shall not exceed 20 % opacity on a six-minute block average basis.

2. When only natural gas is being fired in Boilers #1 and #2, visible emissions from Stack #1 shall not exceed 10% opacity on a six-minute block average basis.

E. Bowdoin shall comply with all requirements of 40 C.F.R. Part 60, Subpart Dc applicable to Central Heating Plant Boilers #1 and #2 including, but not limited to, the following:

1. Monitoring Requirements

a. Except as provided in paragraph (c) below, Bowdoin shall conduct performance tests on Central Heating Plant Boilers #1 and #2 for opacity using 40 C.F.R. Part 60, Appendix A, Method 9 according to the following schedule:
[40 C.F.R. § 60.47c(a)]

(1) If no visible emissions were observed in the most recent Method 9 performance test, the next performance test shall be completed within 12 calendar months or within 45 days of firing oil in the boiler, whichever is later.
(2) If visible emissions were observed in the most recent Method 9 performance test, and the maximum 6-minute block average was less than or equal to 5% opacity, the next performance test shall be completed within 6 calendar months or within 45 days of firing oil in the boiler, whichever is later.
(3) If visible emissions were observed in the most recent Method 9 performance test, and the maximum 6-minute block average was greater than 5% but less than or equal to 10% opacity, the next performance test shall be completed within 3 calendar months or within 45 days of firing oil in the boiler, whichever is later.
(4) If visible emissions were observed in the most recent Method 9 performance test, and the maximum 6-minute block average was greater than 10% opacity, the next performance test shall be completed within 45 days.

b. The observation period for the Method 9 performance test may be reduced from 3 hours to 60 minutes if all 6-minute block averages are less than 10% opacity and all individual 15-second observations are less than or equal to 20% opacity during the initial 60 minutes of observation.

c. If the visible emission observed in the most recent Method 9 performance test were less than 10% opacity, Bowdoin may elect to perform subsequent performance tests using 40 C.F.R. Part 60, Appendix A, Method 22 as follows:

(1) Bowdoin shall conduct 10-minute observations each operating day Central Heating Plant Boilers #1 and/or #2 fire oil using Method 22.
(2) If no visible emissions are observed for 10 operating days, Bowdoin may reduce observations to once every 7 operating days. If any visible emissions are observed, daily observations shall be resumed.
(3) If the sum of the occurrence of any visible emissions is greater than 30 seconds per 10-minute observation, Bowdoin shall immediately conduct a 30-minute observation.
(4) If the sum of the occurrence of any visible emissions is greater than 90 seconds per 30-minute observation, Bowdoin shall either document the adjustments made to Boiler # and demonstrate within 24 hours that the sum of the occurrence of any visible emissions is not greater than 90 seconds per 30-minute observation or conduct a Method 9 performance test within 45 days.

2. Reporting and Recordkeeping

a. Bowdoin shall maintain records of the amounts of each fuel combusted during each month, along with fuel certifications. [40 C.F.R. § 60.48c(g)(2)]

b. For each opacity performance test performed, Bowdoin shall maintain records of the following:

(1) Dates and time intervals of all opacity or visible emissions observation periods;
(2) Name and affiliation for each visible emission observer participating in the performance test. For Method 9 performance tests, include a copy of the current visible emission reading certification for each visible emission observer.
(3) Copies of all visible emission observer opacity field data sheets; and
(4) Documentation of any adjustments made and the time the adjustments were completed to demonstrate compliance with the applicable monitoring requirements (Method 22 observations only).

c. Bowdoin shall submit semi-annual reports to EPA and to the Department. [40 C.F.R. § 60.48c(d)] These reports shall include the following:

(1) Calendar dates covered in the reporting period; [40 C.F.R. § 60.48c(e)(1)]
(2) Records of fuel supplier certifications; [40 C.F.R. § 60.48c(e)(11)] and
(3) Any instances of excess emissions (including opacity) from Central Heating Plant Boilers #1 and #2**.**
[40 C.F.R. § 60.48c(c)]

d. The semi-annual reports are due within 30 days of the end of each six-month period. [40 C.F.R. § 60.48c(j)]

F. Bowdoin shall comply with all requirements of 40 C.F.R. Part 63, Subpart JJJJJJ applicable to Central Heating Plant Boilers #1 and #2 including, but not limited to, the following: [incorporated under 06-096 C.M.R. ch. 115, BPT]

1. The facility shall implement a boiler tune-up program. [40 C.F.R. § 63.11223]

a. Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. See chart below:

Boiler Category	**Tune-Up Frequency**
Boiler with oxygen trim system which maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune up	Every 5 years

[40 C.F.R. § 63.11223(a) and Table 2]

b. The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:
(1) 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 for up to 72 months from the previous inspection for oil fired boilers less than or equal to 5 MMBtu/hour, boilers with oxygen trim systems, seasonal boilers, and limited use boilers. [40 C.F.R. § 63.11223(b)(1)]
(2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 C.F..R § 63.11223(b)(2)]
(3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted for up to 72 months from the previous inspection for oil fired boilers less than or equal to 5 MMBtu/hour, boilers with oxygen trim systems, seasonal boilers, and limited use boilers. [40 C.F.R. § 63.11223(b)(3)]
(4) Optimize total emissions of CO, consistent with manufacturer's specifications. [40 C.F.R. § 63.11223(b)(4)]
(5) Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [40 C.F.R. § 63.11223(b)(5)]
(6) If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up. [40 C.F.R. § 63.11223(b)(7)]

c. Tune-Up Report: A tune-up report shall be maintained onsite and submitted to the Department and EPA upon request. The report shall contain the following information:
   (1) The concentration of CO in the effluent stream (ppmv) and oxygen (volume percent) measured at high fire or typical operating load both **before** and **after** the boiler tune-up;
   (2) A description of any corrective actions taken as part of the tune-up of the boiler; and
   (3) The types and amounts of fuels used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit. [40 C.F.R. § 63.11223(b)(6)]

2. Compliance Report

For every five-year compliance period, Bowdoin shall prepare a compliance report which shall be prepared by March 1st of the following year to document the information below for the five-year period. The report shall be maintained by the source and submitted to the Department and/or to the EPA upon request.

The report must include the items contained in §§ 63.11225(b)(1) and (2), including the following: [40 C.F.R. § 63.11225(b)]

a. Company name and address;
b. A statement of whether the source has complied with all the relevant requirements of this Subpart;
c. A statement certifying truth, accuracy, and completeness of the notification and signed by a responsible official and containing the official's name, title, phone number, email address, and signature;
d. The following certifications, as applicable:
   (1) "This facility complies with the requirements in 40 C.F.R. § 63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."
   (2) "No secondary materials that are solid waste were combusted in any affected unit."
   (3) "This facility complies with the requirement in §§ 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available."

3. Recordkeeping

a. Records shall be maintained consistent with the requirements of 40 C.F.R. Part 63, Subpart JJJJJJ including the following [40 C.F.R. § 63.11225(c)]:

(1) Copies of notifications and reports with supporting compliance documentation;
(2) 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;
(3) Records of the occurrence and duration of each malfunction of each applicable boiler; and
(4) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler.

b. Records shall be in a form suitable and readily available for expeditious review. Each record must be kept for 5 years following the date of each recorded action. Each record must be kept on-site or be accessible from a central location by computer or other means that instantly provides access at the site for at least 2 years after the date of each recorded action. The records may be maintained off-site for the remaining 3 years. [40 C.F.R. § 63.11225(d)] Note: Standard Condition (8) of this license requires all records be retained for six years; therefore, the five-year record retention requirement of Subpart JJJJJJ is satisfied by compliance with the more stringent six-year requirement.

(18) **Non-Central Heating Plant Boilers and Water Heaters**

A. Bowdoin shall be limited to a combined annual heat input of 50,000 MMBtu/yr for the Non-Central Heating Plant Boilers and Water Heaters on a 12-month rolling basis. [06-096 C.M.R. ch. 115, BPT]

B. Bowdoin shall keep fuel records documenting the amount of fuel fired on a monthly and 12-month rolling basis. Documents shall include supporting calculations to display compliance with the fuel limit above. [06-096 C.M.R. ch. 115, BPT]

C. Emissions for the Non-Central Heating Plant Boilers and Water Heaters shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Druckenmiller Boiler	PM	0.05	06-096 C.M.R. ch. 115, BPT
Farley Field House Boiler	PM	0.05	

D. Emissions for the Non-Central Heating Plant Boilers and Water Heaters shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Emission 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)
Coffin Street Dorm Hot Water Heater	0.05	0.05	0.05	-	0.10	0.08	0.01
Druckenmiller Boiler	0.17	0.17	0.17	-	0.33	0.28	0.02
Farley Field House Boiler	0.32	0.32	0.32	-	0.63	0.53	0.03
Moulton Union Boiler	0.08	0.08	0.08	-	0.15	0.13	0.01
Stowe Hall Boiler	0.05	0.05	0.05	-	0.10	0.08	0.01
Thorne Hall Boiler	0.05	0.05	0.05	-	0.10	0.08	0.01
Watson Ice Arena Boiler #1	0.10	0.10	0.10	-	0.20	0.16	0.01
Watson Ice Arena Boiler #2	0.10	0.10	0.10	-	0.20	0.16	0.01
Watson Ice Arena Boiler #3	0.10	0.10	0.10	-	0.20	0.16	0.01
Watson Ice Arena Heater	0.08	0.08	0.08	-	0.15	0.12	0.01
Wellness Center Boiler	0.10	0.10	0.10	-	0.20	0.16	0.01

E. Visible emissions from each of the Non-Central Heating Plant Boilers and Water Heaters shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 4(A)(3)]

(19) **Emergency Generators**

A. Each of the emergency generators shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. [06-096 C.M.R. ch. 115, BPT/BACT]

B. Bowdoin shall keep records that include maintenance conducted on the engines and the hours of operation of each of the engines, recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason the engine was in operation during each time. [06-096 C.M.R. ch. 115, BPT/BACT]

C. The fuel sulfur content for the Bowdoin Warehouse Generator, Central Heating Plant Generator, Chamberlain Hall Generator, Druckenmiller Hall Generator, Harpswell Apartments Generator, Kanbar Hall Generator, Ladd House Generator, Memorial Hall Generator, Mills Hall Generator, Moulton Union Generator #2, Observatory Generator, Park Row Generator, Thorne Dining Generator, and Watson Ice Arena Generator shall be limited to 0.0015% sulfur by weight. Compliance shall be demonstrated by fuel delivery receipts from the supplier, fuel supplier certification, certificate of analysis, or testing of the fuel in the tank on-site. [06-096 C.M.R. ch. 115, BPT/BACT]

D. Emissions shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
Bowdoin Warehouse Generator	PM	0.12	06-096 C.M.R. ch. 103, § (2)(B)(1)(a)
Ladd House Generator			
Mills Hall Generator			
Thorne Dining Generator			

E. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT/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)
240 Main Street Generator	0.04	0.04	0.04	-	3.63	0.28	0.11
Bowdoin Warehouse Generator	0.36	0.36	0.36	-	13.41	2.89	1.09
Buck Fitness Generator	0.04	0.04	0.04	-	3.26	0.25	0.09
Central Heating Plant Generator	0.83	0.83	0.83	-	11.86	2.56	0.97
Chamberlain Hall Generator	0.64	0.64	0.64	-	9.08	1.96	0.74
Druckenmiller Hall Generator	0.48	0.48	0.48	-	6.84	1.47	0.56
Farley Field House Generator	0.03	0.03	0.03	-	2.53	0.20	0.07
Federal Street Generator	0.04	0.04	0.04	-	3.63	0.28	0.11
H&L Library Generator	0.04	0.04	0.04	-	3.26	0.25	0.09
Harpswell Apartments Generator	0.83	0.83	0.83	-	11.86	2.56	0.97
Kanbar Hall Generator	0.65	0.65	0.65	-	9.26	2.00	0.76
Ladd House Generator	0.36	0.36	0.36	-	13.41	2.89	1.09
Memorial Hall Generator	0.56	0.56	0.56	-	7.98	1.72	0.65
Mills Hall Generator	0.66	0.66	0.66	0.01	17.50	4.65	0.49
Moulton Union Generator #1	0.09	0.09	0.09	-	7.22	0.56	0.21
Moulton Union Generator #2	0.81	0.81	0.81	-	11.55	2.49	0.94
Observatory Generator	0.35	0.35	0.35	-	4.94	1.06	0.40
Park Row Generator	0.51	0.51	0.51	-	7.19	1.55	0.59
Rhodes Hall Generator	0.07	0.07	0.07	-	5.51	0.43	0.16
Roux Hall Generator	0.09	0.09	0.09	-	7.38	0.57	0.21
Sills Hall Generator	0.04	0.04	0.04	-	2.98	0.23	0.09
Stowe Hall Generator	0.05	0.05	0.05	-	3.88	0.30	0.11
Thorne Dining Generator	0.48	0.48	0.48	0.01	17.60	3.79	1.44
Walker Art Museum Generator	0.09	0.09	0.09	-	7.22	0.56	0.21
Watson Ice Arena Generator	0.48	0.48	0.48	-	6.88	1.48	0.56

F. Visible Emissions

1. Visible emissions from the Chamberlain Hall Generator, Druckenmiller Hall Generator, Memorial Hall Generator, and Thorne Dining Generator shall each not exceed 20% opacity on a six-minute block average basis except for periods of startup during which time Bowdoin shall either meet the normal operating visible

emissions standard or the following work practice standards and alternative visible emissions standard.

a. The duration of the startup shall not exceed 30 minutes per event;
b. Visible emissions shall not exceed 50% opacity on a six-minute block average basis; and
c. Bowdoin shall keep records of the date, time, and duration of each startup.

Use of the work practice standards and alternative visible emissions standard in lieu of the normal operating standard is limited to no more than once per day.

Note: This does not limit the engine to one startup per day. It only limits the use of the alternative emission standard to once per day.

[06-096 C.M.R. ch. 101, § 4(A)(4)]

2. Visible emissions from the Bowdoin Warehouse Generator, Central Heating Plant Generator, Harpswell Apartments Generator, Kanbar Hall Generator, Ladd House Generator, Mills Hall Generator, Moulton Union Generator #2, Observatory Generator, Park Row Generator, and Watson Ice Arena Generator shall each not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 4(A)(4)]

3. Visible emissions from the 240 Main Street Generator, Buck Fitness Generator, Farley Field House Generator, Federal Street Generator, H&L Library Generator, Moulton Union Generator #1, Rhodes Hall Generator, Roux Hall Generator, Sills Hall Generator, Stowe Hall Generator, and Walker Art Museum Generator shall each not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

G. Emergency generators are only to be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Emergency generators and/or fire pumps are not to be used for prime power when reliable offsite power is available; nor to operate or to be contractually obligated to be available in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity. [06-096 C.M.R. ch. 115, BPT/BACT]

H. The Bowdoin Warehouse Generator, Central Heating Plant Generator, Harpswell Apartments Generator, Kanbar Hall Generator, Ladd House Generator, Mills Hall Generator, Moulton Union Generator #2, Observatory Generator, Park Row Generator, and Watson Ice Arena Generator shall meet the applicable requirements of 40 C.F.R. Part 60, Subpart IIII, including the following: [incorporated under 06-096 C.M.R. chs. 115 and 169, BPT/BACT]

1. Manufacturer Certification
   Each engine shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in § 60.4202. [40 C.F.R. § 60.4205(b)]

   Bowdoin shall provide a copy of a Certificate of Compliance to the Department for the Kanbar Hall Generator once one is provided from the manufacturer. [40 C.F.R. § 60.4205(b) and 06-096 C.M.R. ch. 115, BACT]

2. Ultra-Low Sulfur Fuel
   The fuel fired in the engines shall not exceed 15 ppm sulfur (0.0015% sulfur). Compliance with the fuel sulfur content limit shall be demonstrated by fuel delivery receipts from the supplier, fuel supplier certification, certificate of analysis, or testing of the fuel in the tank on-site. [40 C.F.R. § 60.4207(b) and 06-096 C.M.R. ch. 115, BPT]

3. Non-Resettable Hour Meter
   A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 60.4209(a)]

4. Annual Time Limit for Maintenance and Testing
   a. As emergency engines, the units shall each be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). These limits are based on a calendar year. Compliance shall be demonstrated by records (electronic or written log) of all engine operating hours. [40 C.F.R. § 60.4211(f) and 06-096 C.M.R. ch. 115, BPT]

   b. Bowdoin shall keep records that include the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time. [40 C.F.R. § 60.4214(b)]

5. Operation and Maintenance
   The engines shall be operated and maintained according to the manufacturer's emission-related written instructions. Bowdoin may only change those emission-related settings that are permitted by the manufacturer. [40 C.F.R. § 60.4211(a)]
   Bowdoin shall have available for review by the Department a copy of the manufacturer's emission-related written instructions for engine operation and maintenance. [06-096 C.M.R. ch. 115, BPT]

I. The 240 Main Street Generator, Buck Fitness Generator, Farley Field House Generator, Federal Street Generator, H&L Library Generator, Rhodes Hall Generator, Roux Hall Generator, and Sills Hall Generator shall meet the applicable requirements of 40 C.F.R. Part 60, Subpart JJJJ, including the following: [incorporated under 06-096 C.M.R. ch. 115, BPT]

1. Manufacturer Certification
   Each engine shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1.

2. Non-Resettable Hour Meter
   A non-resettable hour meter shall be installed and operated on each engine. [40 C.F.R. § 60.4237 and 06-096 C.M.R. ch. 115, BPT]

3. Annual Time Limit for Maintenance and Testing
   a. As emergency engines, each shall each be limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). The limits are based on a calendar year. Compliance shall be demonstrated by records (electronic or written log) of all engine operating hours. [40 C.F.R. § 60.4243(d) and 06-096 C.M.R. ch. 115, BPT]

   b. Bowdoin shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason each engine was in operation during each time. [40 C.F.R. § 60.4245(b)]

4. Operation and Maintenance
   Each engine shall be operated and maintained according to the manufacturer's written instructions or procedures developed by Bowdoin that are approved by the engine manufacturer. Bowdoin may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

   Bowdoin shall have available for review by the Department a copy of the manufacturer's emission-related written instructions for engine operation and maintenance. [06-096 C.M.R. ch. 115, BPT]

(20) **Smith Union Generator (Non-Emergency)**

A. The Smith Union Generator shall fire only natural gas. [06-096 C.M.R. ch. 115, BPT]

B. The Smith Union Generator shall have an annual operating limit of 500 hours per calendar year. [A-76-71-AC-A (8/30/19), BACT]

C. The Smith Union Generator shall have a non-resettable hour meter installed and operational. [06-096 C.M.R. ch. 115, BPT]

D. Bowdoin shall keep records that include maintenance conducted on the Smith Union Generator and the hours of operation, recorded through the non-resettable hour meter. Documentation shall include the number of hours operated for emergency purposes, the number of hours operated for non-emergency purposes, and the reason the engine was in operation during each time. [06-096 C.M.R. ch. 115, BPT]

E. Emissions shall not exceed the following:

Unit	Pollutant	lb/MMBtu	Origin and Authority
Smith Union Generator	PM	0.05	06-096 C.M.R. ch. 115, BPT

F. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

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)
Smith Union Generator	0.17	0.17	0.17	-	14.24	1.11	0.41

G. Visible Emissions

Visible emissions from the Smith Union Generator shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

H. The Smith Union Generator shall have an engine that is certified by the manufacturer to meet the required emission limits listed in Table 1 of 40 C.F.R. Part 60, Subpart JJJJ for non-emergency, natural gas-fired engines having a maximum engine power output of 100 HP or more, but less than 500 HP. [06-096 C.M.R. ch. 115, BPT]

I. The engine for the Smith Union Generator shall comply with the applicable emission standards for new, nonroad, spark ignition engines that are found in Table 1 of 40 C.F.R. Part 60, Subpart JJJJ. [40 C.F.R. § 60.4233(e)]

J. Bowdoin shall operate and maintain the generator and its emission controls in accordance with the manufacturer's emission-related written instructions. [06-096 C.M.R. ch. 115, BPT]

K. Bowdoin shall operate and maintain the engine for the Smith Union Generator to achieve the emission standards specified in Table 1 to 40 C.F.R. Part 60, Subpart JJJJ over the entire life of the engine. [40 C.F.R. § 60.4234]

(21) **General Process Sources**

Visible emissions from any general process source shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 4(B)(4)]

(22) **Fugitive Emissions** [06-096 C.M.R. ch. 101, § 4(C)]

A. Bowdoin shall not cause emissions of any fugitive dust during any period of construction, reconstruction, or operation without taking reasonable precautions. Such reasonable precautions shall be included in the facility's continuing program of best management practices for suppression of fugitive particulate matter. See 06-096 C.M.R. ch. 101, § 4(C) for a list of potential reasonable precautions.

B. Bowdoin shall not cause or allow visible emissions within 20 feet of ground level, measured as any level of opacity and not including water vapor, beyond the legal boundary of the property on which such emissions occur. Compliance with this standard shall be determined pursuant to 40 C.F.R. Part 60, Appendix A, Method 22.

(23) **Annual Emission Statements**

A. In accordance with *Emission Statements*, 06-096 C.M.R. ch. 137, Bowdoin shall annually report to the Department, in a format prescribed by the Department, the information necessary to accurately update the State's emission inventory. The emission statement shall be submitted as specified by the date in 06-096 C.M.R. ch. 137.

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

1. The amount of distillate fuel fired in Central Heating Plant Boilers #1 and #2 (each) on a monthly basis;
2. The sulfur content of the distillate fuel fired in Central Heating Plant Boilers #1 and #2;
3. The amount of natural gas fired in Central Heating Plant Boilers #1 and #2 (each) on a monthly basis;
4. The amount of natural gas purchased for the Non-Central Heating Plant Boilers and Water Heaters on a monthly basis and then prorated based on the size of units; and
5. The operating hours and fuel type for each of the emergency generators and the Smith Union Generator.

[06-096 C.M.R. ch. 137]

C. Every third year, or as requested by the Department, Bowdoin shall report to the Department emissions of hazardous air pollutants as required pursuant to 06-096 C.M.R. ch. 137, § (3)(C). The next report is due no later than May 15, 2027, for emissions occurring in calendar year 2026. Bowdoin 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)]

(24) If the Department determines that any parameter value pertaining to construction and operation of the 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, Bowdoin may be required to submit additional information. Upon written request from the Department, Bowdoin 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 10th DAY OF DECEMBER, 2025.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ for _____
MELANIE LOYZIM, COMMISSIONER

The term of this license shall be ten (10) years from the signature date above.

[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: August 4, 2025
Date of application acceptance: August 21, 2025

This Order prepared by Zac Hicks, Bureau of Air Quality.