



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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**Bowdoin College
Cumberland County
Brunswick, Maine
A-76-71-Z-R/A (SM)**

**Departmental
Findings of Fact and Order
Air Emission License
Renewal/Amendment**

FINDINGS OF FACT

After review of the air emission license renewal and amendment applications, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes Annotated (M.R.S.A.), §344 and §590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

Bowdoin College submitted a renewal Air Emission License application, as well as a subsequent amendment application, for the emission sources associated with their education facility. The renewal and amendment are both addressed in this license.

Bowdoin College has proposed the following changes from the facility's previous air emission license:

- Renaming of Boiler 4 in the Central Heating Plant to Boiler 1;
- Replacement of the currently listed Boiler 3 in the Central Heating Plant with a new 72.0 MMBtu/hr distillate and natural gas fired unit with an associated steam turbine electric generator, to be denoted as Boiler 2;
- Revision of the opacity on Boiler 1 to 10% opacity per Best Practical Treatment;
- Inclusion of a 206,000 MMBtu/yr limit for the Central Heating Plant boilers, along with the SO₂ tpy cap;
- Removal from the license of the two 4.2 MMBtu/hr Brunswick Apartment Boilers which have been replaced with boilers having capacities below the licensing threshold;
- Replacement of the Moulton Union Boiler with one of similar capacity;
- Addition of a small emergency generator at Rhodes Hall;
- Updates to the existing generator emission factors and hours per year limit (from 500 to 100 hours/year each); and
- Correction to the listed design capacity of the Farley Field House and MacMillan House Boilers to reflect the boiler plate readings.

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

B. Emission Equipment

The following equipment is addressed in this air emission license:

Central Heating Plant Boilers

Equipment	Maximum Design Input Capacity (MMBtu/hr)	Maximum Firing Rate (gal/hr)	Fuel Type	Date of Manuf.	Stack #
Boiler 1 <i>(previously identified as Boiler 4)</i>	72.0	514.3 gal/hr	distillate fuel	2010	1
	73.3	71,820 scf/hr	natural gas		
Boiler 2 <i>(new boiler)</i>	72.0	514.3 gal/hr	distillate fuel	2015	1
		71,820 scf/hr	natural gas		
Boiler 3 <i>(to be replaced)</i>	48.8	348.6 gal/hr	distillate fuel	1973	1
	51.3	50,294 scf/hr	natural gas		

Table Note:

- In the previous license, four main boilers were addressed. Boiler 4 was added during the last renewal/amendment process and it replaced the older Boilers 1 and 2. Boiler 3 remained as an existing unit, but it is now going to be replaced with a newer unit. Bowdoin has requested that the two newest boilers be renamed Boilers 1 and 2 as listed above.

Small Boilers and Hot Water Heaters

Equipment*	Maximum Design Input Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Date of Manuf.
Admissions Building Boiler	1.2	8.3 gal/hr	distillate fuel	2000
Chamberlain Hall Hot Water Heater	1.6	1569 scf/hr	natural gas	1999
Coffin Street Dorm West Hot Water Heater	1.0	980 scf/hr	natural gas	2003
Farley Field House Boiler**	6.4	6259 scf/hr	natural gas	2011
MacMillan House Boiler**	1.4	1262 scf/hr	natural gas	2000
Moulton Union Boiler***	1.6	1528 scf/hr	natural gas	2015

Equipment*	Maximum Design Input Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Date of Manuf.
Smith Union Boiler	2.4	26.0 gal/hr	propane	1994
Stowe Hall Boiler	1.0	980 scf/hr	natural gas	2004
Thorn Hall Boiler	3.2	3110 scf/hr	natural gas	2000
Watson Ice Arena Boiler 1	2.0	1960 scf/hr	natural gas	2008
Watson Ice Arena Boiler 2	2.0	1960 scf/hr	natural gas	2008
Watson Ice Arena Boiler 3	2.0	1960 scf/hr	natural gas	2008
Watson Ice Arena Heater	1.5	1471 scf/hr	natural gas	2008
Wellness Center Boiler	2.0	1961 scf/hr	natural gas	2008

Table Notes:

- * The two Brunswick Apartment Boilers (4.2 MMBtu/hr each) have been replaced with units that are each under the 1 MMBtu/hr insignificant activity threshold and therefore do not need to be included in the license.
- ** The Farley Field House and MacMillan House boilers have been updated with the correct input capacities. The Farley Field House Boiler was corrected from 6.5 to 6.4 MMBtu/hr and the MacMillan House Boiler was corrected from 1.3 to 1.4 MMBtu/hr.
- *** The previously licensed natural-gas fired Moulton Union Boiler (1.2 MMBtu/hr) has been replaced with one having a similar capacity (1.6 MMBtu/hr).

Generators

Equipment	Power Output (KW)	Maximum Design Input Capacity (MMBtu/hr)	Firing Rate	Fuel Type	Date of Manuf.
Central Heating Plant Gen.	200	2.0	14.5 gal/hr	distillate fuel	2003
Chamberlain Hall Gen.	200	2.1	15.0 gal/hr	distillate fuel	1999
Druckenmiller Hall Gen.	150	1.5	11.3 gal/hr	distillate fuel	1997
Farley Field House Gen.	40	0.6	610 scf/hr	natural gas	2011
Hubbard Hall Gen.	125	1.3	9.5 gal/hr	distillate fuel	2011
Kanbar Hall Gen.	42	0.6	576 scf/hr	natural gas	2004
Memorial Hall Gen.	175	1.8	13.2 gal/hr	distillate fuel	2004
Moulton Union 1 Gen.	150	1.8	1740 scf/hr	natural gas	2007
Moulton Union 2 (outside) Gen.	230	2.6	19.1 gal/hr	distillate fuel	2009
Portable 1 Gen.	100	1.0	7.5 gal/hr	distillate fuel	2000
Portable 2 Gen.	300	3.1	22.3 gal/hr	distillate fuel	2005
Rhodes Hall 1 Gen.	75	1.1	11.84 gal/hr	propane	1995

<u>Equipment</u>	<u>Power Output (KW)</u>	<u>Maximum Design Input Capacity (MMBtu/hr)</u>	<u>Firing Rate</u>	<u>Fuel Type</u>	<u>Date of Manuf.</u>
Rhodes Hall 2 Gen.	100	1.42	1389 scf/hr	natural gas	2015
Smith Union Gen.	45	0.7	7.84 gal/hr	propane	1994
Stowe Hall Gen.	75	0.9	898 scf/hr	natural gas	2005
Thorn Dining Gen.	400	4.0	29.1 gal/hr	distillate fuel	2000
Walker Art Museum Gen.	150	1.8	1740 scf/hr	natural gas	2007
Watson Ice Arena Gen.	125	1.6	11.4 gal/hr	distillate fuel	2008
Wellness Center Gen.	60	0.8	789 scf/hr	natural gas	2009

C. Definitions

Distillate Fuel means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials 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.

D. Application Classification

The application for Bowdoin College includes the licensing of existing equipment in addition to equipment replacement and the addition of new equipment. Therefore, the license is considered to be a renewal of currently licensed emission units with the incorporation of an amendment to address the additional equipment and license changes. There are no increases in overall facility tons per year licensed emissions; therefore the amendment is considered a minor modification. The renewal/amendment has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 Code of Maine Rules (CMR) 115 (as amended). With the fuel limits on the boilers and the restrictions on the operating hours of the emergency generators, the facility is licensed below the major source thresholds for criteria pollutants and is considered a synthetic minor. With the boiler fuel limits and emergency generators' operational hour restriction, the facility is also licensed below the major source thresholds for hazardous air pollutants (HAP) and is considered an area source of 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 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment.

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.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Central Heating Plant Boilers

Bowdoin College currently operates two primary boilers at the Central Heating Plant, identified in the previous license as Boilers 3 and 4. Boiler 4 was licensed as a replacement to the then existing Boilers 1 and 2, which were removed from the site. Boiler 4 is to be renamed Boiler 1. The existing Boiler 3 is to be replaced with a proposed boiler to be identified as Boiler 2.

For the purposes of this air emission license, Boiler 1 is the boiler installed in 2010. Boiler 2 is the proposed boiler, and Boiler 3 is the existing boiler to be replaced.

The Central Heating Plant Boilers shall be limited to 206,000 MMBtu/yr, with the stipulation that SO₂ emissions from the Central Heating Plant Boilers shall not exceed 37.3 tons/year.

Boilers 1 and 2 are subject to New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989.

Boilers 1, 2, and 3 are subject to 40 CFR Part 63, Subpart JJJJJ *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*.

1. Boilers 1 and 3

Boilers 1 and 3 are the two existing boilers at the Central Heating Plant. Boiler 1 has a maximum input capacity of 72 MMBtu/hr, with a firing rate of 514.3 gal/hr distillate fuel or 71,820 scf/hr natural gas. Boiler 1 is a high pressure boiler with an associated steam turbine electric generator. The steam driven electric generator

produces power by converting the high pressure steam to a lower pressure steam, but does not increase air emissions nor is it used to power any process equipment. Boiler 1 and the steam turbine electric generator system were manufactured and installed in 2010. Boiler 1 is subject to 40 CFR Part 60, Subpart Dc.

Boiler 3 has a maximum input capacity of 48.8 MMBtu/hr with a firing rate of 348.6 gal/hr distillate fuel. The unit was licensed for dual fuel capability in the previous renewal. The maximum input capacity when firing natural gas is 51.3 MMBtu/hr (firing rate of 50,294 scf/hr). Boiler 3 was manufactured and installed in 1973.

Once the replacement Boiler 2 is installed and operating in a reliable manner, Boiler 3 shall not be operated and shall be rendered inoperable and/or removed from the site.

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

Distillate Fuel

- PM/PM₁₀ – 0.08 lb/MMBtu based on 06-096 CMR 103 and 06-096 CMR 115, BACT
- SO₂ – based on firing distillate fuel with a maximum sulfur content of 0.5% sulfur by weight
- NO_x – 0.20 lb/MMBtu for Boiler 1 and 0.30 lb/MMBtu for Boiler 3 based on 06-096 CMR 115, BACT
- CO – 5 lb/1000 gal based on AP-42, Table 1.3-1, dated 5/10
- VOC – 0.20 lb/1000 gal based on AP-42, Table 1.3-3, dated 5/10 for industrial boilers
- Opacity – BPT for Boiler 1 and 06-096 CMR 101 for Boiler 3

Natural Gas

- PM/PM₁₀ – 0.08 lb/MMBtu based on 06-096 CMR 115, BACT
- SO₂ – 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
- Opacity – BPT for Boiler 1 and 06-096 CMR 101 for Boiler 3

The BPT emission limits for the boilers are the following:

<u>Unit</u>	<u>Fuel</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
Boiler 1	distillate fuel or natural gas	PM	0.08
	distillate fuel	NO _x	0.20
	natural gas		0.10

Unit	Fuel	Pollutant	lb/MMBtu
Boiler 3	distillate fuel or natural gas	PM	0.08
	distillate fuel	NO _x	0.30
	natural gas		0.10

Unit	Fuel	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler 1	distillate fuel	5.76	5.76	36.26	14.40	2.57	0.10
	natural gas	5.92	5.92	0.04	7.18	6.03	0.40
Boiler 3	distillate fuel	3.90	3.90	24.58	14.64	1.74	0.07
	natural gas	4.14	4.14	0.03	5.03	4.22	0.28

Visible emissions from Boiler 1 shall not exceed 10% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period of not more than 27% opacity. This is a revision from the previous license, which was based solely on the 40 CFR Part 60, Subpart Dc requirement, but did not take into account the 06-096 CMR 101 natural gas firing requirement. The opacity limit listed above has been determined to be BPT for this unit.

Visible emissions from Boiler 3 when firing distillate fuel shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3-hour period.

Visible emissions from Boiler 3 when firing natural gas shall not exceed 10% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3-hour period.

2. Boiler 2

Boiler 2 is the proposed replacement for Boiler 3. Proposed Boiler 2 is to be a 72.0 MMBtu/hr unit with a firing rate of 514.3 gal/hr firing distillate fuel and 71,820 scf/hr firing natural gas. The high efficiency condensing boiler also includes a steam turbine electric generator. The steam driven electric generator will produce power by converting high pressure steam to a lower pressure steam, but will not increase air emissions beyond the boiler emissions. Boiler 2 is subject to 40 CFR Part 60, Subpart Dc.

A BACT analysis was submitted by Bowdoin College. The following is a summary of the BACT findings:

PM/PM₁₀ – Particulate matter emissions for boilers of this size and fuel type are minimized by good combustion practices. Bowdoin shall meet the 0.08 lb/MMBtu particulate matter limit found in *Fuel Burning Equipment Particulate*

Emission Standard 06-096 CMR 103 (last amended January 24, 1983) for fuel oil and natural gas.

Boiler 2 is subject to 40 CFR Part 63 Subpart JJJJJ which includes a particulate limit for new oil fired boilers with a heat input capacity of 10 MMBtu/hr or greater (Table 1); however, 40 CFR Part 63, Subpart JJJJJ, §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. Flue gas Recirculation (FGR) will be utilized on Boiler 2 and FGR is considered combustion controls, not post-combustion technology. Bowdoin College is therefore not subject to the PM emission limit in 40 CFR Part 63, Subpart JJJJJ since the fuel requirements will be met.

BACT for PM/PM₁₀ emissions from Boiler 2 is good combustion practices and the following emission limits:

Pollutant	Fuel	Emission Limits	
		lb/MMBtu	lb/hr
PM	distillate fuel or natural gas	0.08	5.76
PM ₁₀	distillate fuel or natural gas	-	5.76

SO₂ – SO₂ emissions correlate to the amount of sulfur in the fuel, due to oxidation during combustion. This license allows for up to 0.5% sulfur distillate fuel as long as the 37.31 tons/year SO₂ limit is met from the Central Heating Plant. Actual emissions from firing distillate fuel are expected to be lower, since the sulfur content of the fuel normally fired at Bowdoin College is 0.35%.

The sulfur content of natural gas is minimal. Natural gas SO₂ emissions were based on AP-42 section 1.4, dated 7/98: 0.6 lb/MMscf. This is less than the 0.06 lb/MMBtu gaseous fuels limit in 40 CFR Part 60, Subpart Dc, section 60.47c(c) to operate without a continuous opacity monitor.

BACT for SO₂ emissions from Boiler 2 is the firing of low sulfur fuels and the following emission limits:

Pollutant	Fuel	Emission Limits (lb/hr)
SO ₂	distillate fuel	36.26
	natural gas	0.04

NO_x – Bowdoin College considered three main options for the control of NO_x emissions from the proposed boiler: low NO_x burner, low NO_x burner with flue

gas recirculation (FGR), and low NO_x burner with Selective Catalytic Reduction (SCR). Selective Non-Catalytic Reduction (SNCR) was not considered due to boiler size, frequent boiler modulation, and cost.

Low NO_x burners are used in boilers firing natural gas and/or distillate fuel to reduce peak flame temperature, thereby reducing the thermal oxidation of atmospheric nitrogen. The burners control and limit the introduction of combustion air into the flame zone. Low NO_x burners can be designed with FGR, which returns a portion of the boiler exhaust and mixes it with combustion air prior to introduction to the burner. SCR involves injecting ammonia reagents for NO_x control and testing the catalyst periodically for operational efficiency. SCR is typically used on larger boilers, but was included as an option for this boiler.

The BACT analysis compared the three options using manufacturer's data and Bowdoin's license limits. The results, as compared to a baseline of a low NO_x burner alone, showed a cost per ton of NO_x removed of \$231 per ton for a low NO_x burner and FGR, and \$9728 per ton for a low NO_x burner and SCR. These numbers take into account the capital cost alone (including the annual operating and maintenance costs of SCR would increase the \$/ton figure even further).

Based on the environmental risks of SCR ammonia use and the result of the cost analysis, Bowdoin has proposed the use of a dual fuel low NO_x burner and FGR to reduce NO_x emissions.

The NO_x emission limit when firing distillate fuel was based on 0.2 lb/MMBtu. The natural gas NO_x emission limit was based on AP-42 section 1.4, dated 7/98: 100.0 lb/MM scf.

BACT for NO_x emissions from Boiler 2 is the use of low NO_x burners with flue gas recirculation and the following emission limits:

Pollutant	Fuel	Emission Limits	
		lb/MMBtu	lb/hr
NO _x	distillate fuel	0.2	14.40
	natural gas	0.1	7.18

CO – Carbon monoxide emissions for boilers of this size and fuel type are minimized by good combustion practices. Distillate CO emissions were based on AP-42 section 1.3, dated 9/98: 5 lb/1000 gallons. Natural gas CO emissions were based on AP-42 section 1.4, dated 7/98: 84.0 lb/MM scf.

BACT for CO emissions from Boiler 2 is good combustion practices and the following emission limits:

Pollutant	Fuel	Emission Limits (lb/hr)
CO	distillate fuel	2.57
	natural gas	6.03

VOC – Volatile organic compound emissions for boilers of this size and fuel type are minimized by good combustion practices. Distillate fuel VOC emissions were based on AP-42 section 1.3, dated 9/98: 0.2 lb/1000 gallons. Natural gas VOC emissions were based on AP-42 section 1.4, dated 7/98: 5.5 lb/MM scf.

BACT for VOC emissions from Boiler 2 is good combustion practices and the following emission limits:

Pollutant	Fuel	Emission Limits (lb/hr)
VOC	distillate fuel	0.10
	natural gas	0.40

Opacity – Visible emissions shall be limited to no greater than 10% opacity on a six (6) minute average, except for one (1) six (6) minute period per hour of not more than 27% opacity. This opacity limit is determined to be BACT, taking into consideration 06-096 CMR 101, 40 CFR Part 60, Subpart Dc, section 60.43c(c), and operations of the unit.

3. Central Heating Plant Fuel Requirements

The Central Heating Plant Boilers shall be limited to a combined annual heat input of 206,000 MMBtu/yr. If fuel with a sulfur content higher than 0.35% is fired, then Bowdoin College is also restricted to 37.3 tons/year of SO₂ from the Central Heating Plant boilers.

In the previous license, the annual fuel heat content total was used to calculate the tons per year for fee purposes, but only the SO₂ tons/year was included as a condition in the Order. This license includes the 206,000 MMBtu/yr as a license restriction to cap emissions for fee and modeling purposes. The SO₂ tons/year limit is also included to allow flexibility in fuel oil sulfur content, while keeping the facility under the ambient air quality analysis modeling SO₂ thresholds. The SO₂ tons/year limit from the Central Heating Plant Boilers has been adjusted slightly from the previous limit (37.3 from 37.05 tons/year) to take into account the reduction in generator operating hours.

The background of the establishment of the limits includes the following: 206,000 MMBtu/yr was initially proposed while processing the previous renewal to keep the facility under the 50 tons/year SO₂ modeling cutoff, based on firing 0.35% sulfur content distillate oil. However, in order to accommodate the potential firing of 0.5%

sulfur fuel to allow fuel sulfur content flexibility, Bowdoin College was restricted to an SO₂ tons/year limit.

The SO₂ tons/year limit is only relevant if fuel with a sulfur limit higher than 0.35% is used, otherwise the 206,000 MMBtu/yr limit applies. In actuality, Bowdoin College has been primarily firing natural gas or a reduced sulfur distillate oil. By having both the 206,000 MMBtu/yr limit and the SO₂ tons/year limit, it allows for fuel usage flexibility and the facility to remain below the SO₂ and NO_x modeling thresholds.

4. Central Heating Plant Periodic Monitoring

Periodic monitoring for the boilers at the Central Heating Plant (Boilers 1 and 3 until Boiler 2 is installed; Boilers 1 and 2 when installation is complete) 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 certification of the distillate fuel. The sulfur content of the fuel shall be documented on a 30 day rolling average, as allowed for in 40 CFR Part 60, Subpart Dc, §60.42c(g) or based on a certification from the fuel supplier, as allowed for in 40 CFR Part 60, Subpart Dc, §60.42c(h)(1).

Bowdoin College shall periodically monitor opacity emissions from Boilers 1 and 2 as required by 40 CFR Part 60, Subpart Dc.

5. New Source Performance Standards: 40 CFR Part 60, Subpart Dc for Boilers 1 and 2

Boilers 1 and 2 are subject to 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989. Bowdoin College has proposed to meet the PM and SO₂ requirements in 40 CFR Part 60, Subpart Dc by limiting the fuel oil sulfur content to less than 0.5% and firing gaseous fuel with a potential SO₂ emission rate of 0.060 lb/MMBtu or less. 40 CFR Part 60, §60.47c(e) allows for an exemption from operating a continuous opacity monitor for this size boiler if the fuel sulfur requirement is met.

40 CFR Part 60, §60.47c(c) states that “owners or operators of an affected facilities (*sic*) that burn only distillate oil that contains no more than 0.5 weight percent sulfur and/or liquid or gaseous fuels with potential sulfur dioxide emission rates of 26 ng/J (0.060 lb/MMBtu) heat input or less and that do not use a post-combustion technology to reduce SO₂ or PM emissions and that are subject to an opacity standard in §60.47c(c) are not required to operate a COMS if they follow the applicable procedures in §60.47c(f).” §60.47c(f) sets forth the requirements for fuel supplier certification. The boilers’ flue gas recirculation is not considered a post-combustion technology to reduce SO₂ or PM emissions: FGR is integrated as part of the combustion process and is installed primarily for reducing NO_x emissions.

Additional requirements of 40 CFR Part 60, Subpart Dc include, but are not limited to:

- Notification to EPA of the construction and actual startup of the new unit,
- Initial performance testing for opacity and subsequent opacity testing per §63.47c(a),
- Fuel certification documentation,
- Maintenance of records of the amount of each fuel combusted during each calendar month, and
- Fuel use reporting for each 6 month period.

6. 40 CFR Part 63, Subpart JJJJJ

Boilers 1, 2, and 3 are subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ). Although gas fired boilers are exempt from the rule, all three Central Heating Plant Boilers have the capability to fire distillate fuel as well as natural gas. Boilers 1 and 3 are considered to be existing oil boilers and Boiler 2 is considered to be a new oil boiler.

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

As noted in the BACT section above, Boiler 2 is not subject to the particulate matter emission limit in the rule based on the fuel sulfur content to be fired in the unit, per 40 CFR Part 63, Subpart JJJJJ, §63.11210(e).

a. Compliance Dates, Notifications, and Work Practice Requirements

i. Initial Notification of Compliance

An Initial Notification was submitted to EPA for the existing boilers. The Initial Notification for Boiler 2 shall be submitted within 120 days after the source becomes subject to the standard. [40 CFR Part 63.11225(a)(2)]

ii. Boiler Tune-Up Program

(a) A boiler tune-up program shall be implemented. [40 CFR Part 63.11223]

(b) 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
New or Existing Oil, Biomass and Coal fired boilers that are not designated as "Boilers with less frequent tune up requirements" listed below	Every 2 years
<i>New and Existing Oil, Biomass, and Coal fired Boilers with less frequent tune up requirements</i>	
Seasonal (see definition §63.11237)	Every 5 years
Limited use (see definition §63.11237)	Every 5 years
With a heat input capacity of <5MMBtu/hr	Every 5 years
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

All three boilers have an oxygen trim system and therefore tune-ups are required every 5 years.

[40 CFR Part 63.11223(a) and Table 2]

(c) 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; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim systems, seasonal boilers, and limited use boilers. [40 CFR Part 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 CFR Part 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; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim systems, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(3)]
4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 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 CFR Part 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 CFR Part 63.11223(b)(7)]

(d) Tune-Up Report:

A tune-up report shall be maintained onsite and, if requested, submitted to EPA. 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 CFR §63.11223(b)(6)]

- (e) After conducting the initial boiler tune-ups, Bowdoin submitted a Notification of Compliance Status to EPA in July 2014. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)] Per EPA, new boilers that only have the requirement to conduct regular tune-ups (i.e. Boiler 2) do not need to submit a NOCS.

iii. Compliance Report:

A compliance report shall be prepared by March 1st every five years which covers the previous five calendar years. The report shall be maintained by the source and submitted to the Department and to the EPA upon request. The report must include the items contained in §63.11225(b)(1) and (2), including the following: [40 CFR §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 CFR §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 40 CFR §§63.11214(d) to conduct a tune-up of each applicable boiler according to 40 CFR §63.11223(b)."

iv. Energy Assessment

Bowdoin College conducted the one-time energy assessment required for existing Boilers 1 and 3. [40 CFR Part 63, Subpart JJJJJ, Table 2(16)]

b. Recordkeeping

Records shall be maintained consistent with the requirements of 40 CFR Part 63, Subpart JJJJJ including the following [40 CFR Part 63.11225(c)]:

- 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.

Records shall be in a form suitable and readily available for expeditious review. EPA requires submission of Notification of Compliance Status reports for tune-ups and energy assessments through their electronic reporting system. [63.1125(a)(4)(vi)]

C. Small Boilers and Hot Water Heaters

Bowdoin College operates non-Central Heating Plant small boilers and hot water heaters 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.

The changes to these units from the previous license include: the removal of the two Brunswick Apartment Boilers (4.2 MMBtu/hr each) since they have been replaced with

units that are each under the 1 MMBtu/hr licensing threshold; updates to the input capacities of the Farley Field House and MacMillan House boilers (6.5 to 6.4 MMBtu/hr for the Farley Field House Boiler and 1.3 to 1.4 MMBtu/hr for the MacMillan House Boiler); and replacement of the 1.2 MMBtu/hr Moulton Union Boiler with a similar natural gas-fired 1.6 MMBtu/hr unit.

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

The small boilers and hot water heaters are exempt from the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 CFR Part 63, Subpart JJJJJ. The gas-fired units (natural gas and propane) are exempt due to the fuel fired. The Admissions Building Boiler fires distillate fuel, but is classified as a hot water boiler. Hot water boilers (excluding steam units) less than 1.6 MMBtu/hr are part of the rule's hot water heater exemption. Therefore, due to its 1.2 MMBtu/hr size and hot water boiler classification, the Admissions Building Boiler is not subject to 40 CFR Part 63, Subpart JJJJJ.

1. BPT Findings

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

Distillate Fuel

PM/PM ₁₀	–	0.08 lb/MMBtu based on BACT
SO ₂	–	based on firing distillate fuel with a minimum sulfur content of 0.5% by weight; 0.5036 lb/MMBtu
NO _x	–	0.2 lb/MMBtu based on previous licenses
CO	–	5 lb/1000 gal based on AP-42, Table 1.3-1, dated 5/10
VOC	–	0.34 lb/1000 gal based on AP-42, Table 1.3-3, dated 5/10
Opacity	–	06-096 CMR 101

Natural Gas

PM/PM ₁₀	–	0.08 lb/MMBtu based on BACT for the older boilers, 0.05 lb/MMBtu based on BACT for the newer boilers (Farley Field House, MacMillan House, Moulton Union)
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, Farley Field House based on manufacturer's data of 0.11 lb/MMBtu
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

Opacity – 06-096 CMR 101

Propane

PM/PM₁₀ – 0.08 lb/MMBtu based on BACT
 SO₂ – negligible
 NO_x – 13 lb/1000 gal: AP-42, Table 1.5-1 (dated 7/08)
 CO – 7.5 lb/1000 gal: AP-42, Table 1.5-1 (dated 7/08)
 VOC – 1.0 lb/1000 gal: AP-42, Table 1.5-1 (dated 7/08)
 Opacity – 06-096 CMR 101

The BPT emission limits for the boilers are the following:

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Admissions Building Boiler (1.2 MMBtu/hr, distillate fuel)	0.10	0.10	0.6	0.24	0.04	negl.
Chamberlain Hall Hot Water Heater (1.6 MMBtu/hr, natural gas)	0.13	0.13	negl.	0.16	0.13	0.01
Coffin St. Dorm West Hot Water Heater (1.0 MMBtu/hr, natural gas)	0.08	0.08	negl.	0.10	0.08	0.01
Farley Field House Boiler (6.4 MMBtu/hr, natural gas)	0.32	0.32	negl.	0.70	0.52	0.03
MacMillan House Boiler (1.4 MMBtu/hr, natural gas)	0.07	0.07	negl.	0.14	0.11	0.01
Moulton Union Boiler (1.6 MMBtu/hr, natural gas)	0.08	0.08	negl.	0.16	0.13	0.01
Smith Union Boiler (2.4 MMBtu/hr, propane)	0.19	0.19	negl.	0.34	0.2	0.02
Stowe Hall Boiler (1.0 MMBtu/hr, natural gas)	0.08	0.08	negl.	0.1	0.08	0.01
Thorn Hall Boiler (3.2 MMBtu/hr, natural gas)	0.26	0.26	negl.	0.31	0.26	0.02
Watson Ice Arena Boiler 1 (2.0 MMBtu/hr, natural gas)	0.16	0.16	negl.	0.19	0.16	0.01
Watson Ice Arena Boiler 2 (2.0 MMBtu/hr, natural gas)	0.16	0.16	negl.	0.19	0.16	0.01
Watson Ice Arena Boiler 3 (2.0 MMBtu/hr, natural gas)	0.16	0.16	negl.	0.19	0.16	0.01
Watson Ice Arena Heater (1.5 MMBtu/hr, natural gas)	0.12	0.12	negl.	0.15	0.12	0.01
Wellness Center Boiler (2.0 MMBtu/hr, natural gas)	0.16	0.16	negl.	0.19	0.16	0.01

Visible emissions from each boiler firing distillate fuel shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period.

Visible emissions from each boiler firing natural gas or propane shall not exceed 10% opacity on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period.

2. Periodic Monitoring

Periodic monitoring for the small boilers and hot water heaters 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.

D. Facility Fuel and SO₂ tons/year Requirements

1. Central Heating Plant Boilers Restriction

The Central Heating Plant Boilers shall be limited to a combined annual heat input of 206,000 MMBtu/yr on a 12-month rolling total basis, unless distillate fuel with greater than 0.35% sulfur content is fired, then an SO₂ limit of 37.3 tons/year shall also apply.

Bowdoin College shall keep fuel records documenting the amount and type of fuel fired on a monthly and 12 month rolling total basis, with supporting calculations that demonstrate compliance with the relevant Central Heating Plant 206,000 MMBtu/yr or 37.31 tons/year SO₂ limit.

2. Small Boilers and Hot Water Heater Fuel Restriction

The non-central heating plant units shall have a facility-wide heat input limit of 50,000 MMBtu/yr. Fuel use records and supporting calculations shall be maintained to documents compliance with the 50,000 MMBtu/yr non-central heating plant heat input limit.

3. Distillate Fuel Sulfur Requirement

Prior to July 1, 2016, or by the date otherwise stated in 38 M.R.S.A. §603-A(2)(A)(3), the distillate fuel fired at the facility shall have a maximum sulfur content of 0.5% by weight. Per 38 M.R.S.A. §603-A(2)(A)(3), beginning July 1, 2016, or on the date specified in the statute, distillate fuel fired at the facility shall have a maximum sulfur content of 0.005% by weight (50 ppm), and beginning January 1, 2018, or on the date specified in the statute, distillate fuel fired at the facility shall have a maximum sulfur content of 0.0015% by weight (15 ppm). The specific dates

and requirements contained in this paragraph reflect the current dates and requirements in the statute as of the effective date of this license; however, if the statute is revised, the facility shall comply with the revised dates and requirements upon promulgation of the statute revision.

4. Waste Oil

Bowdoin College may combust up to a total of 500 gallons/year of specification waste oil generated on site, based on a 12 month rolling total. Bowdoin College shall maintain records of the amount of specification waste oil burned in the boilers and shall have, on site, a copy of the results of a representative test sample of the waste oil.

E. Generators

Bowdoin College operates a number of emergency generators. The emergency generators are generator sets with each gen set consisting of an engine and an electrical generator.

No changes are proposed for the existing emergency generators, but Bowdoin College has proposed a new emergency generator to be located at Rhodes Hall, in addition to the existing Rhodes Hall Generator. The 100 kw unit is natural gas fired, rated at a heat input capacity of 1.42 MMBtu/hr (1389 scf/hr). The Rhodes Hall 2 Generator consists of a stationary 4-stroke, lean burn engine.

In order to be consistent with federal regulations, the emergency generators shall each be limited to 100 hours per year of operation for licensing and fee calculation purposes, with no operating restrictions during emergency situations. This is an update from the previous license which limited each unit to 500 hours/year including emergency situations.

The emergency generators were previously limited to distillate fuel with 0.05% sulfur; however this license limits the distillate fuel used in the generators to 0.0015% sulfur consistent with BPT findings for emergency generators.

1. BPT/BACT Findings

The BPT emission limits for the existing emergency generators and the BACT emission limits for the Rhodes Hall 2 Generator are based on the following:

Distillate Fuel

PM/PM₁₀ - 0.12 lb/MMBtu based on 06-096 CMR 103 for the Thorn Dining and Portable 2 units; 0.31 lb/MMBtu from AP-42 Table 3.3-1 (dated 10/96) for the other units;

- SO₂ - 0.0015 lb/MMBtu based on distillate fuel with 0.0015% sulfur by weight;
- NO_x - 4.41 lb/MMBtu from AP-42, Table 3.3-1 dated 10/96;
- CO - 0.95 lb/MMBtu from AP-42 Table 3.3-1 dated 10/96;
- VOC - 0.36 lb/MMBtu from AP-42 Table 3.3-1 dated 10/96;
- Opacity - 06-096 CMR 101

Natural Gas

- PM/PM₁₀ - 0.00991 lb/MMBtu from AP-42, Table 3.2-2 for 4-stroke lean-burn engines dated 7/00;
- SO₂ - 0.000588 lb/MMBtu from AP-42 Section 3.3-2 for 4-stroke lean-burn engines dated 7/00;
- NO_x - 4.08 lb/MMBtu from AP-42 Section 3.3-2 for 4-stroke lean-burn engines dated 7/00;
- CO - 0.317 lb/MMBtu from AP-42 Section 3.3-2 for 4-stroke lean-burn engines dated 7/00;
- VOC - 0.118 lb/MMBtu from AP-42 Section 3.3-2 for 4-stroke lean-burn engines dated 7/00
- Opacity - 06-096 CMR 101

Propane

(Utilized same emission factors as distillate except for SO₂, since there are no propane factors and the distillate factors would be worst-case)

- PM/PM₁₀ - 0.12 lb/MMBtu based on 06-096 CMR 103;
- SO₂ - 0.001 lb/MMBtu based on firing propane;
- NO_x - 4.41 lb/MMBtu from AP-42, Table 3.3-1 dated 10/96;
- CO - 0.95 lb/MMBtu from AP-42 Table 3.3-1 dated 10/96;
- VOC - 0.36 lb/MMBtu from AP-42 Table 3.3-1 dated 10/96;
- Opacity - 06-096 CMR 101

The BPT/BACT emission limits for the emergency generators are the following:

Unit	PM (lb/MMBtu)	Origin and Authority
Thorn Dining Gen.	0.12	06-096 CMR 103
Portable 2 Gen.	0.12	06-096 CMR 103

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Central Heating Plant Gen. (2.0 MMBtu/hr, distillate)	0.62	0.62	0.01	8.76	1.89	0.72
Chamberlain Hall Gen. (2.1 MMBtu/hr, distillate)	0.64	0.64	0.01	9.06	1.95	0.74
Druckenmiller Hall Gen. (1.5 MMBtu/hr, distillate)	0.48	0.48	0.01	6.83	1.47	0.56
Farley Field House Gen. (0.6 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	2.53	0.20	0.07
Hubbard Hall Gen. (1.3 MMBtu/hr, distillate)	0.40	0.40	0.01	5.74	1.24	0.47
Kanbar Hall Gen. (0.6 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	2.42	0.19	0.07
Memorial Hall Gen. (1.8 MMBtu/hr, distillate)	0.56	0.56	0.01	7.98	1.72	0.65
Moulton Union 1 Gen. (1.8 MMBtu/hr, nat'l gas)	0.02	0.02	negl.	7.31	0.57	0.21
Mouton Union 2 Gen. (outside) (2.6 MMBtu/hr, distillate)	0.81	0.81	0.01	11.54	2.49	0.94
Portable 1 Gen. (1.0 MMBtu/hr, distillate)	0.32	0.32	0.01	4.53	0.98	0.37
Portable 2 Gen. (3.1 MMBtu/hr, distillate)	0.37	0.37	0.01	13.47	2.90	1.10
Rhodes Hall 1 Gen. (1.1 MMBtu/hr, propane)	0.13	0.13	negl.	4.91	1.06	0.40
Rhodes Hall 2 Gen. (1.4 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	5.71	0.44	0.17
Smith Union Gen. (0.7 MMBtu/hr, propane)	0.09	0.09	negl.	3.25	0.70	0.27
Stowe Hall Gen. (0.9 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	3.77	0.29	0.11
Thorn Dining Gen. (4.0 MMBtu/hr, distillate)	0.48	0.48	0.01	17.58	3.79	1.44
Walker Art Museum Gen. (1.8 MMBtu/hr) nat'l gas	0.02	0.02	negl.	7.31	0.57	0.21
Watson Ice Arena Gen. (1.6 MMBtu/hr, distillate)	0.48	0.48	0.01	6.89	1.48	0.56
Wellness Center Gen. (0.8 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	3.32	0.26	0.10

Visible emissions from each of the distillate fuel-fired emergency generators shall not exceed 20% opacity on a 6-minute block average, except for no more than two (2) six (6) minute block averages in a 3-hour period.

Visible emissions from each of the natural gas and propane fired emergency generators shall not exceed an opacity of 10% on a 6-minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hour period.

2. 40 CFR Part 63, Subpart ZZZZ

The federal regulation 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines* is not applicable to the emergency engines at Bowdoin College. The older units are considered existing, emergency stationary reciprocating internal combustion engines at an area HAP source. However, they are considered exempt from the requirements of Subpart ZZZZ since they are categorized as a residential, commercial, or institutional emergency engine and they do not operate or are not contractually obligated to be available for more than 15 hours per calendar year 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 as specified in §63.6640(f)(4)(ii). Operation of the existing emergency engines such that each exceeds 15 hours per calendar year 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 as specified in §63.6640(f)(4)(ii), would cause the engine(s) to be subject to 40 CFR Part 63, Subpart ZZZZ, and require compliance with all applicable requirements.

For the emergency engines considered ‘new’ emergency stationary reciprocating internal combustion engines at an area HAP source, by meeting the requirements of 40 CFR Part 60, Subparts IIII and JJJJ, the units also meet the requirements found in 40 CFR Part 63, Subpart ZZZZ.

3. 40 CFR Part 60, Subpart IIII

The federal regulation 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)* is applicable to the following emergency engines: Hubbard Hall Generator, Moulton Union 2 (outside) Generator, and the Watson Ice Arena Generator since the units were ordered after July 11, 2005 and manufactured after April 1, 2006. The respective manufactured dates for the three distillate-fired generators were 2011, 2009, and 2008.

a. Emergency Definition:

Emergency stationary ICE means any stationary reciprocating internal combustion engine that meets all of the following criteria:

- i. The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to

produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. There is no time limit on the use of emergency stationary ICE in emergency situations.

ii. Paragraph (i) above notwithstanding, the emergency stationary ICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:

- (a) 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 beyond 100 hours per calendar year.
- (b) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.
- (c) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

iii. Paragraphs (i) and (ii) above notwithstanding, emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (ii) above.

The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency 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, except if the following conditions are met:

- (a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

- (b) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
- (c) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
- (d) The power is provided only to the facility itself or to support the local transmission and distribution system.
- (e) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR §60.4211(f) and §60.4219]

b. 40 CFR Part 60, Subpart IIII Requirements:

i. 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 CFR §60.4202. [40 CFR §60.4205(b)]

ii. Ultra-Low Sulfur Fuel Requirement

The fuel fired in the engines shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR §60.4207(b)]

iii. Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on each engine. [40 CFR §60.4209(a)]

iv. Operation and Maintenance Requirements

The engines shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by facility that are approved by the engine manufacturer. Bowdoin College may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]

v. 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, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not

include peak shaving, non-emergency 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 unless the conditions in §60.4211(f)(3)(i) are met). [40 CFR §60.4211(f)]

vi. Initial Notification Requirement

No initial notification is required for emergency engines. [40 CFR §60.4214(b)]

vii. Recordkeeping

Bowdoin College 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 hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If the engines are operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), Bowdoin College shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes. [40 CFR §60.4214(b)]

viii. Annual Reporting Requirements for Demand Response Availability Over 15 Hours Per Year (for engines greater than 100 brake hp)

If Bowdoin College operates or is contractually obligated to be available for more than 15 hours per calendar year 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 as specified in §60.4211(f)(3)(i), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

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

[40 CFR §60.4214(d)]

4. 40 CFR Part 60, Subpart JJJJ

The federal regulation 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Spark Ignition Internal Combustion Engines (SI ICE)* is applicable to the following emergency engines: Farley Field House Generator, Rhodes Hall 2 Generator, and Wellness Center Generator since the units were ordered after June 12, 2006 and manufactured after January 1, 2009. The manufactured dates for the three natural gas-fired generators are 2011, 2015, and 2009, respectively.

a. Emergency Definition:

Emergency stationary ICE means any stationary reciprocating internal combustion engine that meets all of the following criteria:

- i. The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. There is no time limit on the use of emergency stationary ICE in emergency situations
- ii. Paragraph (i) above notwithstanding, the emergency stationary ICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:
 - (a) 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 beyond 100 hours per calendar year.
 - (b) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

- (c) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- iii. Paragraphs (i) and (ii) above notwithstanding, emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency 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, except if the following conditions are met:

- (a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
- (b) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
- (c) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
- (d) The power is provided only to the facility itself or to support the local transmission and distribution system.
- (e) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR §60.4243(d) and §60.4248]

b. 40 CFR Part 60, Subpart JJJJ Requirements:

i. 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 CFR Part 60, Subpart JJJJ, Table 1.

ii. Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on each engine.
[40 CFR §60.4237]

iii. Operation and Maintenance Requirement

The engines shall be operated and maintained according to the manufacturer's written instructions or procedures developed by Bowdoin College that are approved by the engine manufacturer. Bowdoin College may only change those settings that are permitted by the manufacturer. [40 CFR §60.4243]

iv. 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 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 CFR §60.4243(d)]

v. Recordkeeping

Bowdoin College 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 hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If the engines are operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4243(d)(3)(i), Bowdoin College shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes. [40 CFR §60.4245(b)]

vi. Annual Reporting Requirement for Demand Response Availability Over 15 Hours Per Year (for engines greater than 100 brake hp)

If Bowdoin College operates or is contractually obligated to be available for more than 15 hours per calendar year 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 as specified in §60.4243(d)(3)(i), the facility shall submit an annual report containing the information in §60.4245(e)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However,

if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

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

[40 CFR §60.4245(e)]

5. Requirements for the Generators not Subject to Federal Rules

The following section shall apply to the emergency generators not subject to the federal New Source Performance Standards due to their date of manufacture, including: the Central Heating Plant Generator (distillate, 2003), Chamberlain Hall Generator (distillate, 1999), Druckenmiller Hall Generator (distillate, 1997), Kanbar Hall Generator (natural gas, 2004), Memorial Hall Generator (distillate, 2004), Moulton Union 1 Generator (natural gas, 2007), Portable 1 Generator (distillate, 2000), Portable 2 Generator (distillate, 2005), Rhodes Hall 1 Generator (propane, 1995), Smith Union Generator (propane, 1994), Stowe Hall Generator (natural gas, 2005), Thorn Dining Generator (distillate, 2000), and Walker Art Museum Generator (natural gas, 2007).

Each of these 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 College 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 for more than 15 hours per calendar year 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.

F. Fugitive Emissions

Bowdoin College shall minimize fugitive emissions from the facility such that visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour.

G. Annual Emissions

1. Total Annual Emissions

Bowdoin College shall be limited to the following annual emissions, based on a 12 month rolling total, calculated from the 206,000 MMBtu/yr and SO₂ 37.3 tons/year limit from the Central Heating Plant Units; 50,000 MMBtu/yr from the non-Central Heating Plant licensed units; and 100 hours per year per emergency generator. 500 gallons/year of waste oil is also allowed to be fired.

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

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Central Heating Plant Boilers *	8.24	8.24	37.31	20.60	8.40	0.52
Non-Central Heating Plant Boilers *	2.0	2.0	12.59	5.0	2.0	0.13
Generators						
Central Heating Plant	0.03	0.03	negl.	0.44	0.09	0.04
Chamberlain Hall	0.03	0.03	negl.	0.45	0.10	0.04
Druckenmiller Hall	0.02	0.02	negl.	0.34	0.07	0.03
Farley Field House	negl.	negl.	negl.	0.13	0.01	0.004
Hubbard Hall	0.02	0.02	negl.	0.29	0.06	0.02
Kanbar Hall	negl.	negl.	negl.	0.12	0.01	0.004
Memorial Hall	0.03	0.03	negl.	0.40	0.09	0.03
Moulton Union 1	0.001	0.001	negl.	0.37	0.03	0.01
Moulton Union 2 (outside)	0.04	0.04	negl.	0.58	0.12	0.05
Portable 1	0.02	0.02	negl.	0.23	0.05	0.02
Portable 2	0.02	0.02	negl.	0.67	0.15	0.05
Rhodes Hall 1	0.01	0.01	negl.	0.25	0.05	0.02
Rhodes Hall 2	0.001	0.001	negl.	0.29	0.02	0.01
Smith Union	0.004	0.004	negl.	0.16	0.04	0.01
Stowe Hall	negl.	negl.	negl.	0.19	0.01	0.01
Thorn Dining	0.02	0.02	negl.	0.88	0.19	0.07
Walker Art Museum	0.001	0.001	negl.	0.37	0.03	0.01
Watson Ice Arena	0.02	0.02	negl.	0.34	0.07	0.03
Wellness Center	negl.	negl.	negl.	0.17	0.01	0.005
Total TPY	10.5	10.5	49.9	32.3	11.6	1.1

Table Notes:

- The Central Heating Plant calculations were based on oil factors for PM, and NO_x and natural gas factors for CO and VOC, using the 206,000 MMBtu/yr limit.
- The Central Heating Plant calculation for SO₂ was based on the 37.31 tpy limit, which allows for flexibility with the fuel sulfur content.
- The Central Heating Plant NO_x tpy number is reduced from the previous license since the Boiler 3 NO_x emission limit had been the limiting factor (0.3 lb/MMBtu), but Boiler 3 will be removed, so 0.2 lb/MMBtu was used for the current calculations.
- The non-Central Heating Plant Boilers calculations were based on oil factors for PM, SO₂, and NO_x and natural gas factors for CO and VOC, using the 50,000 MMBtu/yr limit.
- The generator emissions are reduced from the previous license since the annual operating limit has changed from 500 hr/yr to 100 hr/yr per each unit.

2. Greenhouse Gases

Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans*, 40 CFR Part 52, Subpart A, §52.21, *Prevention of Significant Deterioration of Air Quality* rule. Greenhouse gases, as defined in 06-096 CMR 100 (as amended), are the aggregate group of the following gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO₂e).

The quantity of CO₂e emissions from this facility is less than 100,000 tons per year, based on the following:

- the facility's fuel use limits;
- worst case emission factors from the following sources: U.S. EPA's AP-42, the Intergovernmental Panel on Climate Change (IPCC), and 40 CFR Part 98, *Mandatory Greenhouse Gas Reporting*; and
- global warming potentials contained in 40 CFR Part 98.

No additional licensing actions to address GHG emissions are required at this time.

III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source shall be determined by the Department on a case-by case basis. In accordance with 06-096 CMR 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:

<u>Pollutant</u>	<u>Tons/Year</u>
PM ₁₀	25
SO ₂	50
NO _x	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

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-Z-R/A subject to the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

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.A. §347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115.
[06-096 CMR 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 CMR 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 CMR 115]
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353-A. [06-096 CMR 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 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 CMR 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 CMR 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 CMR 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 CMR 115]
- (11) In accordance with the Department's air emission compliance test protocol and 40 CFR 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 CFR 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 CMR 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 such test results, 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 CFR 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 CMR 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 Part 70 license requirement. [06-096 CMR 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 CMR 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 CMR 115]

SPECIFIC CONDITIONS

(16) Central Heating Plant Boilers (Boilers 1, 2, and 3)

- A. Boilers 1, 2, and 3 may fire distillate fuel, natural gas, or specification waste oil. [06-096 CMR 115, BPT]
- B. Boiler 3 shall be removed from service once Boiler 2 is fully operational. [06-096 CMR 115, BACT]
- C. Emissions from Boilers 1, 2, and 3 shall not exceed the following 06-096 CMR 115, BPT/BACT]:

Unit	Fuel	Pollutant	lb/MMBtu
Boiler 1	distillate fuel or natural gas	PM	0.08
	distillate fuel	NO _x	0.20
	natural gas		0.10
Boiler 2	distillate fuel or natural gas	PM	0.08
	distillate fuel	NO _x	0.20
	natural gas		0.10
Boiler 3	distillate fuel or natural gas	PM	0.08
	distillate fuel	NO _x	0.30
	natural gas		0.10

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

Unit	Fuel	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler 1 (72 MMBtu/hr oil) (73.3 MMBtu/hr gas)	distillate fuel	5.76	5.76	36.26	14.40	2.57	0.10
	natural gas	5.92	5.92	0.04	7.18	6.03	0.40
Boiler 2 (72 MMBtu/hr)	distillate fuel	5.76	5.76	36.26	14.40	2.57	0.10
	natural gas	5.92	5.92	0.04	7.18	6.03	0.40
Boiler 3 (48.8 MMBtu/hr oil) (51.3 MMBtu/hr gas)	distillate fuel	3.90	3.90	24.58	14.64	1.74	0.07
	natural gas	4.14	4.14	0.03	5.03	4.22	0.28

E. Visible Emissions

- 1. Visible emissions from Boilers 1 and 2 shall each not exceed 10% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block

average in a 3 hour period of not more than 27% opacity. [06-096 CMR 115, BACT]

2. Visible emissions from Boiler 3 when firing distillate fuel shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3-hour period. [06-096 CMR 101]
3. Visible emissions from Boiler 3 when firing natural gas shall not exceed 10% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3-hour period. [06-096 CMR 101]

F. 40 CFR Part 60, Subpart Dc

Bowdoin College shall comply with all requirements of 40 CFR Part 60, Subpart Dc applicable to Boilers 1 and 2 including, but not limited to, the following notifications, initial performance testing, and reporting and recordkeeping requirements:

1. Bowdoin College shall submit notification to EPA and the Department of the date of construction, anticipated start-up, and actual start-up of Boiler 2. This notification shall include the design heat input capacity of the boiler and the type of fuel to be combusted. [40 CFR §60.48c(a)]
2. Bowdoin College shall perform an initial performance test for opacity on Boiler 2 using 40 CFR Part 60, Method 9 of Appendix A-4 within 180 days after the initial start-up of the facility. Bowdoin College shall perform an initial performance test for SO₂ on Boiler 2, consisting of fuel supplier certification on the sulfur content of the fuel fired in Boiler 2. The results of the performance tests shall be submitted to EPA and the Department. [40 CFR §60.44c(h) and 40 CFR §60.47c(a)]
3. Bowdoin College shall perform monitoring of opacity from Boilers 1 and 2 according to the procedures in §60.47c, including, but not limited to the following for each subsequent performance test:
 - a. 40 CFR Part 60, Method 9 of Appendix A-4 [40 CFR §60.47c(a)(1)]
 - i. If no visible emissions are observed, a subsequent 40 CFR Part 60, Method 9 of Appendix A-4 performance test must be completed within 12 calendar months from the date that the most recent performance test was conducted;
 - ii. If visible emissions are observed but the maximum 6-minute average opacity is less than or equal to 5%, a subsequent 40 CFR Part 60, Method 9 of Appendix A-4 performance test must be completed within 6 calendar months from the date that the most recent performance test was conducted;
 - iii. If the maximum 6-minute average opacity is greater than 5%, but less than or equal to 10%, a subsequent 40 CFR Part 60, Method 9 of Appendix A-4

performance test must be completed within 3 calendar months from the date that the most recent performance test was conducted; or

- iv. If the maximum 6-minute average opacity is greater than 10%, a subsequent 40 CFR Part 60, Method 9 of Appendix A-4 performance test must be completed within 45 calendar days from the date that the most recent performance test was conducted.

- b. 40 CFR Part 60, Method 22, Appendix A-7 [40 CFR §60.47c(a)(2)]

If the maximum 6-minute opacity is less than 10% during the most recent 40 CFR Part 60, Method 9 of Appendix A-4, Bowdoin College may, as an alternative to performing subsequent 40 CFR Part 60, Method 9 of Appendix A-4 performance tests, elect to perform subsequent monitoring using 40 CFR Part 60, Method 22, Appendix A-7 according to the procedures specified in §60.47c(a)(2)(i-ii).

4. Bowdoin College shall record and maintain records of the amounts of each fuel combusted each month, along with fuel certifications. [40 CFR §60.48c(g)(2)]
5. Bowdoin College shall submit to EPA and the Department semi-annual reports for Boilers 1 and 2. These reports shall include the calendar dates covered in the reporting period and records of fuel supplier certifications. The semi-annual reports are due within 30 days of the end of each 6-month period. [40 CFR §60.48c]
6. 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

- G. 40 CFR Part 63, Subpart JJJJJ

Bowdoin College shall comply with all requirements of 40 CFR Part 63, Subpart JJJJJ applicable to Boilers 1, 2 and 3 including, but not limited to, the following:

1. An Initial Notification submittal to EPA is due within 120 days after Boiler 2 becomes subject to the standard. [40 CFR Part 63.11225(a)(2)]
2. The facility shall implement a boiler tune-up program. [40 CFR Part 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 [40 CFR Part 63.11223(a) and Table 2]:

Boiler Category	Tune-Up Frequency
New or Existing Oil, Biomass and Coal fired boilers that are not designated as "Boilers with less frequent tune up requirements" listed below	Every 2 years
<i>New and Existing Oil, Biomass, and Coal fired Boilers with less frequent tune up requirements</i>	
Seasonal (see definition §63.11237)	Every 5 years
Limited use (see definition §63.11237)	Every 5 years
With a heat input capacity of <5MMBtu/hr	Every 5 years
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

- b. The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:
- i. 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; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim systems, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(1)]
 - ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR Part 63.11223(b)(2)]
 - iii. 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; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim systems, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(3)]
 - iv. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 63.11223(b)(4)]
 - v. 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 CFR Part 63.11223(b)(5)]

vi. 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 CFR Part 63.11223(b)(7)]

c. Tune-Up Report: A tune-up report shall be maintained onsite and, if requested, submitted to EPA. The report shall contain the following information:

- i. 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;
- ii. A description of any corrective actions taken as part of the tune-up of the boiler; and
- iii. 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 CFR §63.11223(b)(6)]

3. Compliance Report

A compliance report shall be prepared by March 1st every five years. The report shall be maintained by the source and submitted to the Department and to the EPA upon request, unless the source experiences any deviations from the applicable requirements of this Subpart during the previous calendar year, then the report must be submitted to the Department and to the EPA by March 15th. The report must include the items contained in §63.11225(b)(1) through (4), including the following: [40 CFR §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:
 - i. "This facility complies with the requirements in 40 CFR §63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."
 - ii. "No secondary materials that are solid waste were combusted in any affected unit."
 - iii. "This facility complies with the requirement in 40 CFR §§63.11214(d) to conduct a tune-up of each applicable boiler according to 40 CFR §63.11223(b)."
- e. If the sources experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time

periods during which the deviations occurred, and the corrective actions taken; and

- f. The total fuel use by each affected boiler subject to an emission limit for each calendar month within the reporting period.

4. Records shall be maintained consistent with the requirements of 40 CFR Part 63, Subpart JJJJJ including the following [40 CFR Part 63.11225(c)]:
- a. Copies of notifications and reports with supporting compliance documentation;
 - b. 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;
 - c. Records of the occurrence and duration of each malfunction of each applicable boiler; and
 - d. Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler.

Records shall be in a form suitable and readily available for expeditious review.

(17) Small Boilers and Hot Water Heaters

A. The Small Boilers and Hot Water Heaters shall not exceed the following emission limits while firing the listed allowable fuels [06-096 CMR 115, BPT]:

Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Admissions Building Boiler (1.2 MMBtu/hr, distillate fuel)	0.10	0.10	0.6	0.24	0.04	negl.
Chamberlain Hall Hot Water Heater (1.6 MMBtu/hr, natural gas)	0.13	0.13	negl.	0.16	0.13	0.01
Coffin St. Dorm West Hot Water Heater (1.0 MMBtu/hr, natural gas)	0.08	0.08	negl.	0.10	0.08	0.01
Farley Field House Boiler (6.4 MMBtu/hr, natural gas)	0.32	0.32	negl.	0.70	0.52	0.03
MacMillan House Boiler (1.4 MMBtu/hr, natural gas)	0.07	0.07	negl.	0.14	0.11	0.01
Moulton Union Boiler (1.6 MMBtu/hr, natural gas)	0.08	0.08	negl.	0.16	0.13	0.01
Smith Union Boiler (2.4 MMBtu/hr, propane)	0.19	0.19	negl.	0.34	0.2	0.02
Stowe Hall Boiler (1.0 MMBtu/hr, natural gas)	0.08	0.08	negl.	0.1	0.08	0.01
Thorn Hall Boiler (3.2 MMBtu/hr, natural gas)	0.26	0.26	negl.	0.31	0.26	0.02
Watson Ice Arena Boiler 1 (2.0 MMBtu/hr, natural gas)	0.16	0.16	negl.	0.19	0.16	0.01

Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Watson Ice Arena Boiler 2 (2.0 MMBtu/hr, natural gas)	0.16	0.16	negl.	0.19	0.16	0.01
Watson Ice Arena Boiler 3 (2.0 MMBtu/hr, natural gas)	0.16	0.16	negl.	0.19	0.16	0.01
Watson Ice Arena Heater (1.5 MMBtu/hr, natural gas)	0.12	0.12	negl.	0.15	0.12	0.01
Wellness Center Boiler (2.0 MMBtu/hr, natural gas)	0.16	0.16	negl.	0.19	0.16	0.01

B. Visible Emissions

1. Visible emissions from each boiler firing distillate fuel shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 101]
2. Visible emissions from each boiler firing natural gas or propane shall not exceed 10% opacity on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 101]

(18) Facility Fuel and SO₂ tons/year Requirements

A. Distillate Fuel Limits

1. Per the current dates and requirements of 38 M.R.S.A. §603-A(2)(A)(3), the facility shall comply with the following statements; however, if the statute is revised, the facility shall comply with the revised dates and requirements upon promulgation of the statute revision.
 - a. Prior to July 1, 2016, or the date specified in 38 M.R.S.A. §603-A(2)(A)(3), the distillate fuel fired at the facility shall have a maximum sulfur content of 0.5% by weight. [06-096 CMR 115, BPT]
 - b. Beginning July 1, 2016, or on the date specified in 38 M.R.S.A. §603-A(2)(A)(3), the distillate fuel fired at the facility shall have a maximum sulfur content of 0.005% by weight (50 ppm). [38 M.R.S.A. §603-A(2)(A)(3)]
 - c. Beginning January 1, 2018, or on the date specified in 38 M.R.S.A. §603-A(2)(A)(3), the distillate fuel fired at the facility shall have a maximum sulfur content of 0.0015% by weight (15 ppm). [38 M.R.S.A. §603-A(2)(A)(3)]
2. Compliance shall be demonstrated by fuel records from the supplier showing the quantity, type, and the percent sulfur of the fuel delivered (if applicable). [06-096 CMR 115, BPT]

B. Central Heating Plant

1. Bowdoin College shall be limited to a combined annual heat input of 206,000 MMBtu/yr from the Central Heating Plant Boilers on a 12-month rolling total basis, unless distillate fuel with greater than 0.35% sulfur content is fired, then an SO₂ limit of 37.3 tons/year shall also apply.
2. Bowdoin College shall keep fuel records documenting the amount and type of fuel fired (distillate fuel, natural gas) on a monthly and 12 month rolling total basis, and the supporting calculations documenting compliance with the relevant Central Heating Plant 206,0000 MMBtu/yr and/or 37.3 tons/year SO₂ limit.

[06-096 CMR 115, BPT]

C. Non-Central Heating Plant Units (Small Boilers and Hot Water Heaters)

1. Bowdoin College shall be limited to a combined annual heat input of 50,000 MMBtu/yr from the non-Central Heating Plant licensed units on a 12 month rolling total basis.
2. Bowdoin College shall keep fuel records documenting the amount and type of fuel (distillate fuel, natural gas, propane) fired on a monthly and 12 month rolling total basis, and the supporting calculations documenting compliance with the 50,000 MMBtu/yr limit.

[06-096 CMR 115, BPT]

D. Waste Oil

Bowdoin College may combust up to a total of 500 gallons/year of specification waste oil generated on site, based on a 12 month rolling total. Bowdoin College shall maintain records of the amount of specification waste oil burned in the boilers and shall have, on-site, a copy of the results of a representative test sample of the waste oil. [06-096 CMR 115 and 06-096 CMR 860]

(19) Generators

A. Emissions shall not exceed the following:

Unit	PM (lb/MMBtu)	Origin and Authority
Thorn Dining Gen.	0.12	06-096 CMR 103
Portable 2 Gen.	0.12	06-096 CMR 103

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

Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Central Heating Plant Gen. (2.0 MMBtu/hr, distillate)	0.62	0.62	0.01	8.76	1.89	0.72
Chamberlain Hall Gen. (2.1 MMBtu/hr, distillate)	0.64	0.64	0.01	9.06	1.95	0.74
Druckenmiller Hall Gen. (1.5 MMBtu/hr, distillate)	0.48	0.48	0.01	6.83	1.47	0.56
Farley Field House Gen. (0.6 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	2.53	0.20	0.07
Hubbard Hall Gen. (1.3 MMBtu/hr, distillate)	0.40	0.40	0.01	5.74	1.24	0.47
Kanbar Hall Gen. (0.6 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	2.42	0.19	0.07
Memorial Hall Gen. (1.8 MMBtu/hr, distillate)	0.56	0.56	0.01	7.98	1.72	0.65
Moulton Union 1 Gen. (1.8 MMBtu/hr, nat'l gas)	0.02	0.02	negl.	7.31	0.57	0.21
Mouton Union Gen. 2 (outside) (2.6 MMBtu/hr, distillate)	0.81	0.81	0.01	11.54	2.49	0.94
Portable 1 Gen. (1.0 MMBtu/hr, distillate)	0.32	0.32	0.01	4.53	0.98	0.37
Portable 2 Gen. (3.1 MMBtu/hr, distillate)	0.37	0.37	0.01	13.47	2.90	1.10
Rhodes Hall 1 Gen. (1.1 MMBtu/hr, propane)	0.13	0.13	negl.	4.91	1.06	0.40
Rhodes Hall 2 Gen. (1.4 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	5.71	0.44	0.17
Smith Union Gen. (0.7 MMBtu/hr, propane)	0.09	0.09	negl.	3.25	0.70	0.27
Stowe Hall Gen. (0.9 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	3.77	0.29	0.11
Thorn Dining Gen. (4.0 MMBtu/hr, distillate)	0.48	0.48	0.01	17.58	3.79	1.44
Walker Art Museum Gen. (1.8 MMBtu/hr) nat'l gas	0.02	0.02	negl.	7.31	0.57	0.21
Watson Ice Arena Gen. (1.6 MMBtu/hr, distillate)	0.48	0.48	0.01	6.89	1.48	0.56
Wellness Center Gen. (0.8 MMBtu/hr, nat'l gas)	0.01	0.01	negl.	3.32	0.26	0.10

C. Visible Emissions

1. Visible emissions from each of the distillate fuel-fired generators shall not exceed 20% opacity on a 6 minute block average, except for no more than two (2) six (6) minute block averages in a 3 hour period. [06-096 CMR 101]

2. Visible emissions from each of the natural gas and propane fired generators shall not exceed 10% opacity on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BPT]

D. Requirements for the Generators not Subject to Federal Rules

The Central Heating Plant, Chamberlain Hall, Druckenmiller Hall, Kanbar Hall, Memorial Hall, Moulton Union 1, Portable 1, Portable 2, Rhodes Hall 1, Smith Union, Stowe Hall, Thorn Dining, and Walker Art Museum Generators shall meet the following:

1. Each of the emergency generators listed shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. The 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. The 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 for more than 15 hours per calendar year 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 CMR 115, BPT]
2. Each emergency generator shall be equipped with a non-resettable hour-meter to record operating time. [06-096 CMR 115, BPT]
3. To demonstrate compliance with the operating hours limit, Bowdoin College shall keep records of the total hours of operation and the hours of emergency operation for each unit. Records shall 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 hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. [06-096 CMR 115, BPT]
4. The fuel sulfur content for the distillate fuel-fired emergency generators shall be limited to 0.0015% sulfur by weight. Compliance shall be demonstrated by fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06 096 CMR 115, BPT]

E. 40 CFR Part 60, Subpart III

The Hubbard Hall, Moulton Union 2, and Watson Ice Arena Generators shall meet the applicable requirements of 40 CFR Part 60, Subpart III, including the following:

1. **Manufacturer Certification**

The engines shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in §60.4202. [40 CFR §60.4205(b)]

2. **Ultra-Low Sulfur Fuel**

The fuel fired in the engines shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. Compliance with the fuel sulfur content limit shall be based on fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [40 CFR §60.4207(b) and 06-096 CMR 115]

3. **Non-Resettable Hour Meter**

A non-resettable hour meter shall be installed and operated on each engine. [40 CFR §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, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency 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 unless the conditions in §60.4211(f)(3)(i) are met). These limits are based on a calendar year. Compliance shall be demonstrated by a written log of all engine operating hours. [40 CFR §60.4211(f) and 06-096 CMR 115]

b. Bowdoin College shall keep records that include maintenance conducted on the engine(s) and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If the engines are operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), Bowdoin College shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

5. **Operation and Maintenance**

The engines shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by Bowdoin College that are approved by the engine manufacturer. Bowdoin College may

only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]

6. Annual Reporting For Demand Response Availability Over 15 Hours Per Year (for engines greater than 100 brake hp)

If Bowdoin College operates or is contractually obligated to be available for more than 15 hours per calendar year 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 as specified in §60.4211(f)(3)(i), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address [40 CFR §60.4214(d)]:

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

F. 40 CFR Part 60, Subpart JJJJ

The Farley Field House, Rhodes Hall 2, and Wellness Center Generators shall meet the applicable requirements of 40 CFR Part 60, Subpart JJJJ, including the following:

1. Manufacturer Certification

The engines shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 CFR 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 CFR §60.4237 and 06-096 CMR 115, BPT]

3. 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, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency 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 unless the conditions in §60.4243(d)(3)(i) are met). The limits are based on a calendar year. Compliance shall be demonstrated by a written log of all engine operating hours. [40 CFR §60.4243(d) and 06-096 CMR 115]

- b. Bowdoin College 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 hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If the engines are operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4243(d)(3)(i), Bowdoin College shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

4. Operation and Maintenance

The engines shall be operated and maintained according to the manufacturer's written instructions or procedures developed by Bowdoin College that are approved by the engine manufacturer. Bowdoin College may only change those settings that are permitted by the manufacturer. [40 CFR §60.4243]

5. Annual Reporting For Demand Response Availability Over 15 Hours Per Year (for engines greater than 100 brake hp)

If Bowdoin College operates or is contractually obligated to be available for more than 15 hours per calendar year 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 as specified in §60.4243(d)(3)(i), the facility shall submit an annual report containing the information in §60.4245(e)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address [40 CFR §60.4245(e)]:

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

(20) **Fugitive Emissions**

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour. [06-096 CMR 101]

(21) **Annual Emission Statement**

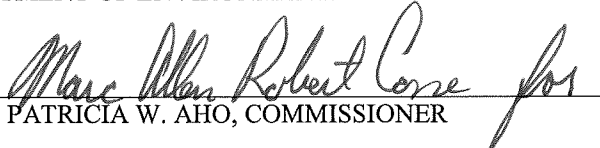
In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), the licensee shall annually report to the Department, in a format prescribed by the Department, the information necessary to accurately update the State's emission inventory. The emission statement shall be submitted as specified by the date in 06-096 CMR 137.

(22) Bowdoin College 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.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 14 DAY OF August, 2015.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:


PATRICIA W. AHO, COMMISSIONER

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

[Note: If a complete renewal application, as determined by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 MRSA §10002, all terms and conditions of the license shall remain in effect until the Department takes final action on the renewal of the license.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 10/30/2014 (renewal), 3/26/2015 (amend)

Date of application acceptance: 10/31/2014 (renewal), 3/27/2015 (amend)

Date filed with the Board of Environmental Protection:

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

