



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAVID P. LITTELL
COMMISSIONER

**University of Southern Maine
Cumberland County
Gorham, Maine
A-462-71-N-R/M**

**Departmental
Findings of Fact and Order
Air Emission License**

After review of the air emissions license application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

The University of Maine System has applied to renew their Air Emission License permitting the operation of emission sources associated with the Gorham Campus of the University of Southern Maine (USM).

USM has requested a revision to their Air Emission License to reflect the removal of Boiler #4.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Firing Rate Gal/hr (scf/hr)</u>	<u>Fuel Type</u>	<u>Stack #</u>
Boiler #1	20.9	149.3 20,490	#2 Fuel Oil Natural Gas	1
Boiler #2	20.9	149.3 20,490	#2 Fuel Oil Natural Gas	2
Boiler #3	6.3	45.0 6176.5	#2 Fuel Oil Natural Gas	3
Boiler #5	3.75	26.8 3676	#2 Fuel Oil Natural Gas	8
Boiler #6	3.75	26.8 3676	#2 Fuel Oil Natural Gas	8
Boiler #7	3.12	22.0 3059	#2 Fuel Oil Natural Gas	8

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PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
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Emergency Electrical Generation Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Firing Rate</u>	<u>Fuel Type</u>	<u>Stack #</u>
Generator #1	0.78	5.7 gal/hr	Diesel, 0.05% S	5
Generator #2	1.60	11.7 gal/hr	Diesel, 0.05% S	6
Generator #3	0.62	608 scf/hr	Natural Gas	7
Generator #4	0.55	535 scf/hr	Natural Gas	9

C. Application Classification

The application for USM does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal and minor revision of current licensed emission units only and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (last amended December 24, 2005).

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 (last amended December 24, 2005). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

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

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

B. Boilers

Boilers #1 and #2 have a maximum design capacity of 20.9 MMBtu/hr and were installed in 1969. Boilers #3, #5, #6 and #7 each have maximum design capacities below 10 MMBtu/hr. Therefore, none of the boilers are subject to New Source Performance Standards (NSPS), Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr and manufactured after June 9, 1989.

A summary of the BPT analysis for the boilers is the following:

1. USM shall not exceed 600,000 gallons of #2 fuel oil that meets the criteria in ASTM D396 on a 12 month rolling total in Boilers #1, #2, and #3. USM shall not exceed 65,000 gallons of #2 fuel oil that meets the criteria in ASTM D396 on a 12 month rolling total in Boilers #5, #6, and #7.
2. USM shall not exceed 92 MMscf of Natural Gas on a 12 month rolling total in Boilers #1, #2, and #3. USM shall not exceed 9 MMscf on a 12 month rolling total in Boilers #5, #6, and #7.
3. *Low Sulfur Fuel*, 06-096 CMR 106 (last amended June 9, 1999) regulates fuel sulfur content. However, the use of Natural Gas and #2 fuel oil which meets the criteria in ASTM D396 is more stringent and shall be considered BPT.
4. *Fuel Burning Equipment Particulate Emission Standard*, 06-096 CMR 103 (last amended November 3, 1990) regulates PM emission limits. However, PM limits of 0.05 lb/MMBtu when firing Natural Gas and 0.08 lb/MMBtu when firing #2 fuel oil are more stringent and shall be considered BPT. The PM₁₀ limits are derived from the PM limits.
5. NOx, CO and VOC emission limits are based upon AP-42 data dated 2/98 for the combustion of natural gas, and AP-42 data dated 9/98 for the combustion of #2 fuel oil.
6. Visible emissions from the boilers when firing natural gas shall not exceed 10% opacity on a six (6) minute block average, except for no more than one (1), six (6) minute block average in a continuous 3-hour period.
7. Visible emissions from the boilers when firing #2 fuel oil shall not exceed 20% opacity on a six (6) minute block average, except for no more than one (1), six (6) minute block average in a continuous 3-hour period.

C. Generators #1 and #2

USM operates two emergency diesel generators. Generator #1 is rated at 0.78 MMBtu/hr. Generator #2 is rated at 1.6 MMBtu/hr. Both Generators were installed in 1999.

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. Back-up generators are not to be used for prime power when reliable offsite power is available, or to participate in any demand response program.

A summary of the BPT analysis for Generator #1 and Generator #2 is the following:

1. The generators shall fire only diesel fuel with a maximum sulfur content not to exceed 0.05% by weight.

2. The generators shall each be limited to 500 hr/yr of operation based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours.
3. 06-096 CMR 106 regulates fuel sulfur content, however in this case a BPT analysis for SO₂ determined a more stringent limit of 0.05% was appropriate and shall be used.
4. A PM emission limit of 0.12 shall be considered BPT. The PM₁₀ limits are derived from the PM limits.
5. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 10/96.
6. Visible emissions from the generators shall each not exceed 20% opacity on a six (6) minute block average, except for no more than two (2), six (6) minute block averages in a continuous 3-hour period.

D. Generators #3 and #4

USM operates two emergency natural gas generators. Generator #3 is rated at 0.62 MMBtu/hr. Generator #4 is rated at 0.55 MMBtu/hr. The generators were installed in 2004 and 2007 respectively and are therefore not subject to New Source Performance Standards, Subpart JJJJ for Spark Ignition Engines installed after 1/1/2009.

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. Back-up generators are not to be used for prime power when reliable offsite power is available.

A summary of the BPT analysis for Generator #3 and Generator #4 is the following:

1. The generators shall fire only natural gas.
2. The generators shall each be limited to 500 hr/yr of operation based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours.
3. 06-096 CMR 106 regulates fuel sulfur content. However, the use of natural gas is more stringent and shall be considered BPT.
4. A PM emission limit of 0.05 shall be considered BPT. The PM₁₀ limits are derived from the PM limits.
5. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 7/2000.
6. Visible emissions from the generators shall each not exceed 10% opacity on a six (6) minute block average, except for no more than one (1), six (6) minute block averages in a continuous 3-hour period.

E. Fuel Use Limits and Annual Emissions

USM shall be restricted to the following fuel use limits and annual emissions, each based on a 12 month rolling total:

1. Boilers #1, #2, and #3 shall be limited to 600,000 gallons of #2 fuel oil which meets the criteria in ASTM D396, on a 12 month rolling total.
2. Boilers #1, #2, and #3 shall be limited to 92,000,000 scf of natural gas on a 12 month rolling total.
3. Boilers #5, #6, and #7 shall be limited to 65,000 gallons of #2 fuel oil which meets the criteria in ASTM D396, on a 12 month rolling total.
4. Boilers #5, #6, and #7 shall be limited to 9,000,000 scf of natural gas on a 12 month rolling total.
5. Generators #1, #2 (firing diesel fuel, 0.05% S), #3 and #4 (firing natural gas) shall each be limited to 500 hours of operation.

Total Licensed Annual Emission for the Facility

Tons/year

(used to calculate the annual license fee)

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Boilers #1, #2, #3						
#2 Fuel Oil	3.36	3.36	21.15	6.00	1.50	0.17
Natural Gas	2.35	2.35	0.03	4.60	3.86	0.25
Boilers #5, #6, #7						
#2 fuel oil	0.36	0.36	2.29	0.65	0.16	0.02
Natural Gas	0.23	0.23	0.01	0.45	0.38	0.02
EmGen #1	0.02	0.02	0.01	0.86	0.19	0.07
EmGen #2	0.05	0.05	0.02	1.76	0.38	0.14
EmGen #3	0.01	0.01	0.01	0.50	0.06	0.02
EmGen #4	0.01	0.01	0.01	0.43	0.05	0.02
Total TPY	6.39	6.39	23.53	15.25	6.58	0.71

III. AMBIENT AIR QUALITY ANALYSIS

According to the 06-096 CMR 115, the level of air quality analyses required for a renewal source shall be determined on a case-by case basis. Based on the above total facility emissions, USM is below the emissions level required for modeling and monitoring.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-462-71-N-R/M 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. [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 emission 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) Boilers #1 - #3 and #5 - #7

- A. Combined natural gas use shall not exceed 92,000,000 scf/year (12-month rolling total) in boilers #1, #2 and #3, and 9,000,000 scf/yr in boilers #5, #6, and #7. Compliance shall be based on fuel receipts from the supplier documenting quantity delivered to boilers #1, #2, and #3 and to boilers #5, #6, and #7. [06-096 CMR 115, BPT]
- B. Combined #2 fuel oil use shall not exceed 600,000 gal/year (12-month rolling total) in boilers #1, #2 and #3, and 65,000 gal/yr in boilers #5, #6, and #7. All #2 fuel oil shall meet the criteria in ASTM D396. Compliance shall be based on fuel receipts from the supplier documenting quantity and type of fuel delivered to boilers #1, #2, and #3 and to boilers #5, #6, and #7. Compliance records shall be kept on a 12 month rolling total. [06-096 CMR 115, BPT]
- C. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu nat. gas	lb/MMBtu #2 fuel oil	Origin and Authority
Boiler #1	PM	0.05	0.08	06-096 CMR 103(2)(B)(1)(a), BPT
Boiler #2	PM	0.05	0.08	06-096 CMR 103(2)(B)(1)(a), BPT
Boiler #3	PM	0.05	0.08	06-096 CMR 103(2)(B)(1)(a), BPT
Boiler #5	PM	0.05	0.08	06-096 CMR 103(2)(B)(1)(a), BPT
Boiler #6	PM	0.05	0.08	06-096 CMR 103(2)(B)(1)(a), BPT
Boiler #7	PM	0.05	0.08	06-096 CMR 103(2)(B)(1)(a), BPT

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

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1, #2 (each)						
#2 fuel oil	1.67	1.67	10.52	2.99	0.75	0.08
Nat. gas	1.05	1.05	0.01	2.05	1.72	0.11
Boiler #3						
#2 fuel oil	0.50	0.50	3.17	0.90	0.23	0.03
Nat. gas	0.32	0.32	0.01	0.62	0.52	0.03
Boiler #5, #6 (each)						
#2 fuel oil	0.30	0.30	1.89	0.54	0.13	0.01
Nat. gas	0.19	0.19	0.01	0.36	0.31	0.02
Boiler #7						
#2 fuel oil	0.25	0.25	1.57	0.45	0.11	0.01
Nat. gas	0.16	0.16	0.01	0.30	0.25	0.02

E. Visible Emissions [06-096 CMR 101, BPT]

1. When firing #2 fuel oil, visible emissions from each boiler stack shall not exceed 20% opacity on a six (6) minute block average.
2. When firing natural gas, visible emissions from each boiler stack shall not exceed 10% opacity on a six (6) minute block average.

(17) **Generators #1 through #4**

- A. USM shall limit the operation of each generator to 500 hr/yr (based on a 12 month rolling total). An hour meter shall be maintained and operated on the Emergency Generators. [06-096 CMR 115, BPT]
- B. The generators shall only be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. The generators shall not to be used for prime power when reliable offsite power is available, nor participate in any demand response program. A log shall be maintained documenting the date, time, and reason for operation. [06-096 CMR 115, BPT]
- C. Generators #1 and #2 shall fire only Diesel Fuel with a sulfur limit not to exceed 0.05% by weight. Compliance shall be based on fuel receipts from the supplier documenting the sulfur content of the fuel. [06-096 CMR 115, BPT]
- D. Generators #3 and #4 shall fire only natural gas. [06-096 CMR 115, BPT]

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

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1	0.09	0.09	0.04	3.44	0.74	0.27
Generator #2	0.19	0.19	0.08	7.06	1.52	0.56
Generator #3	0.03	0.03	0.01	1.97	0.24	0.07
Generator #4	0.03	0.03	0.01	1.73	0.21	0.07

F. Visible emissions from Emergency Generators #1 and #2 shall not exceed 20% opacity on a six (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, BPT]

G. Visible emissions from Emergency Generators #3 and #4 shall not exceed 10% opacity on a six (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, BPT]

(18) USM 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 (Title 38 MRSA §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 22nd DAY OF September, 2009.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: James P. Brooks
DAVID P. LITTLE, COMMISSIONER

The term of this license shall be five (5) years from the signature date above.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 2/4/2009

Date of application acceptance: 2/26/2009

Date filed with the Board of Environmental Protection:

This Order prepared by Jonathan Voisine, Bureau of Air Quality.

