University of Southern Maine
Cumberland County
Gorham, Maine
A-462-71-K-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 that an additional Emergency Generator firing natural gas be added and a Diesel Emergency Generator be removed from their Air Emission License.

B. Emission Equipment
The following equipment is addressed in this air emission license:

Fuel Burning Equipment

Equipment	Maximum Capacity (MMBtu/hr)	Nat Gas Firing Rate (scf/hr)	Fuel Oil Firing Rate (gal/hr)	Fuel Type, % sulfur	Stack #
Boiler #1	20.9	20,490	149.3	Natural Gas #2 Fuel Oil, 0.35% S	1
Boiler #2	20.9	20,490	149.3	Natural Gas #2 Fuel Oil, 0.35% S	2
Boiler #3	6.3	6176.5	45.0	Natural Gas #2 Fuel Oil, 0.35% S	3
*Boiler #4	0.5	490.0	-	Natural Gas	4
EmGen #1	0.78	-	5.7	Diesel, 0.05% S	5
EmGen #2	1.6	-	11.7	Diesel, 0.05% S	6
Old Gen #2 (Removed)	-	-	-	-	-
EmGen #3	0.62	607.8	-	Natural Gas	7

* Boiler #4 is considered insignificant and is listed for inventory purposes only.

C. Application Classification

This modification will increase emissions by less than 4 ton/year for each single pollutant and less than 8 ton/year for all pollutants combined. Therefore, this modification is determined to be a minor revision and this license renewal has been processed as such.

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 Chapter 100 of the Department regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in Chapter 100 of the Department's regulations. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

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

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

B. Boilers #1, #2, #3

Boilers #1 and #2 have a maximum design capacity of 20.9 MMBtu/hr and were installed in 1969. Boiler #3 has a maximum design capacity of 6.3 MMBtu/hr and was installed in 1965. All three boilers were installed before the New Source Performance Standards (NSPS), Subpart Dc applicability date of June 9, 1989.

A summary of the BPT analysis for Boilers #1, #2 and #3 is the following:

1. Chapter 106 regulates fuel sulfur content, however in this case a BPT analysis for SO_2 determined the more stringent limit of 0.35% was appropriate and shall be used.
2. Chapter 103 regulates PM emission limits. However, the BPT 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 used.

3. SO_2, NO_x, CO and VOC emission limits are based on AP-42 data (1998) and are outlined below:
   - SO_2 - #2 Fuel Oil, 0.35% S – 49.7 lb SO_2/1000 gal
     Natural Gas – 0.6 lb SO_2/MMscf
   - NO_X - #2 Fuel Oil, 0.35% S – 20 lb NO_X/1000 gal
     Natural Gas – 100 lb/MMscf
   - CO - #2 Fuel Oil, 0.35% S – 5 lb CO/1000 gal
     Natural Gas – 84 lb CO/MMscf
   - VOC - #2 Fuel Oil, 0.35% S – 0.556 lb VOC/1000 gal
     Natural Gas – 5.5 lb VOC/MMscf

4. 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 two (2), six (6) minute block averages in a 3-hour period.
5. 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 two (2), six (6) minute block averages in a 3-hour period.

C. Emergency Diesel Generators

USM operates two Emergency Diesel Generators. EmGen #1 has a maximum design capacity of 0.78 MMBtu/hr and was installed in 1999. EmGen #2 has a maximum design capacity of 1.6 MMBtu/hr and was also installed in 1999.

"Emergency" is defined in Chapter 100 and throughout this document as: "… any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology based emission limitation under the license, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error."

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

1. EmGen #1 and #2 shall fire only diesel fuel with a maximum sulfur content not to exceed 0.05% by weight.
2. EmGen #1 and #2 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 **and** hour meters installed and maintained on each generator.
3. Chapter 106 regulates fuel sulfur content, however in this case a BPT analysis for SO_2 determined a more stringent limit of 0.05% was appropriate and shall be used.

4. A BPT analysis determined that a PM emission limit of 0.12 lb PM/MMBtu shall be used.
5. NO_x, CO, and VOC emission limits are based upon AP-42 data (1996).
6. Visible emissions from EmGen #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 continuous 3-hour period.

D. Emergency Natural Gas Generator

USM proposes to install one Emergency Natural Gas Generator. This Generator is projected to be installed by June 2004. EmGen #3 has a maximum design capacity of 0.62 MMBtu/hr.

"Emergency" is defined in Chapter 100 and throughout this document as: "… any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology based emission limitation under the license, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error."

A summary of the BACT analysis for EmGen #3 is the following:

1. EmGen #3 shall fire only natural gas.
2. EmGen #3 shall 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 **and** an hour meter installed and maintained on the generator.
3. Chapter 103 regulates PM emission limits. However, in this case a BACT analysis for PM determined a more stringent limit of 0.05 lb PM/MMBtu was appropriate and shall be used.
4. SO_2, NO_x, CO, and VOC emission limits are based upon AP-42 data (2000).
5. Visible emissions from the emergency generator 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.

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. USM shall be limited to 600,000 gallons of #2 fuel oil with a sulfur content not to exceed 0.35% for the #1, #2, and #3 Boilers.
2. USM shall be limited to 92,000,000 scf of natural gas for the #1, #2, and #3 Boilers.
3. EmGen #1, #2 (firing diesel fuel, 0.05% S) and #3 (firing nat gas) shall be limited to 500 hours of operation each.

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

	PM	**PM_{10}**	**SO_2**	**NO_x**	**CO**	**VOC**
Boilers #1, #2, #3						
#2 Fuel Oil	3.36	3.36	14.81	6.00	1.50	0.17
Natural Gas	2.35	2.35	0.03	4.60	3.86	0.25
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	0.35	0.54	0.01
Total TPY	**5.88**	**5.88**	**14.88**	**13.57**	**6.47**	**0.64**

III. AMBIENT AIR QUALITY ANALYSIS

According to the Maine Regulations Chapter 115, the level of air quality analyses required for a renewal source shall be determined on a case-by case basis. Modeling and monitoring are not required for a renewal if the total emissions of any pollutant released do not exceed the following:

Pollutant	**Tons/Year**
PM	25
PM_{10}	25
SO_2	50
NO_x	100
CO	250

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-K-R/M subject to the following conditions:

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 (Title 38 MRSA §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. [MEDEP Chapter 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. [MEDEP Chapter 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. [MEDEP Chapter 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. [MEDEP Chapter 115]

(6) The license does not convey any property rights of any sort, or any exclusive privilege. [MEDEP Chapter 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. [MEDEP Chapter 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. [MEDEP Chapter 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. [MEDEP Chapter 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. [MEDEP Chapter 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.

[MEDEP Chapter 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.

[MEDEP Chapter 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. [MEDEP Chapter 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. [MEDEP Chapter 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. [MEDEP Chapter 115]

SPECIFIC CONDITIONS

(16) **Boilers #1, #2 and #3** [MEDEP Chapter 115, BPT]

A. Combined natural gas use in Boiler #1, #2 and #3 shall not exceed 92,000,000 scf/year (12-month rolling total). Compliance shall be based on fuel receipts from the supplier documenting quantity and sulfur content.

B. Combined #2 fuel oil (maximum sulfur content of 0.35% by weight) use in Boiler #1, #2 and #3 shall not exceed 600,000 gallons/year (12-month rolling total). Compliance shall be based on fuel receipts from the supplier showing the quantity of fuel delivered and the percent sulfur.

C. Emissions shall not exceed the following:

Boilers #1 and #2 (each) firing natural gas

Pollutant	Lb/MMBtu	Lb/hr
PM	0.05	1.05
PM_{10}	-	1.05
SO_2	-	0.01
NO_x	-	2.05
CO	-	1.72
VOC	-	0.11

Boilers #1 and #2 (each) firing #2 fuel oil

Pollutant	Lb/MMBtu	Lb/hr
PM	0.08	1.67
PM_{10}	-	1.67
SO_2	-	7.37
NO_x	-	2.99
CO	-	0.75
VOC	-	0.08

Boiler #3 firing natural gas

Pollutant	Lb/MMBtu	Lb/hr
PM	0.05	0.32
PM_{10}	-	0.32
SO_2	-	0.01
NO_x	-	0.62
CO	-	0.52
VOC	-	0.03

Boiler #3 firing #2 fuel oil

Pollutant	Lb/MMBtu	Lb/hr
PM	0.08	0.50
PM_{10}	-	0.50
SO_2	-	2.22
NO_x	-	0.90
CO	-	0.23
VOC	-	0.03

D. Visible Emissions [MEDEP Chapter 101]

1. 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 two (2), six (6) minute block averages in a 3-hour period.
2. 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 two (2), six (6) minute block averages in a 3-hour period.

(17) **Emergency Generators (EmGen #1, #2, and #3)**

A. USM shall limit the operation of each Emergency Generator to 500 hr/yr (based on a 12 month rolling total). An hour meter shall be maintained and operated on the Emergency Generators. [MEDEP Chapter 115, BPT, BACT]

B. A log documenting the dates, times, and reason of operation for the Emergency Generators shall be kept. [MEDEP Chapter 115, BPT, BACT]

C. EmGen #1 and #2 shall fire Diesel Fuel with a sulfur limit not to exceed 0.05% by weight. Compliance shall be based on fuel receipts from the supplier showing the quantity of fuel delivered and the percent sulfur of the fuel. [MEDEP Chapter 115, BPT]

D. EmGen #3 shall fire only natural gas. [MEDEP Chapter 115, BACT]

E. Emissions shall not exceed the following [MEDEP Chapter 115, BPT, BACT]

Emission Unit	**PM (lb/hr)**	**PM_{10} (lb/hr)**	**SO_2 (lb/hr)**	**NO_x (lb/hr)**	**CO (lb/hr)**	**VOC (lb/hr)**
EmGen #1	0.09	0.09	0.04	3.44	0.74	0.27
EmGen #2	0.19	0.19	0.08	7.06	1.52	0.56
EmGen #3	0.03	0.03	0.01	1.41	2.18	0.02

F. Visible emissions from the Emergency Generators 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. [MEDEP Chapter 101]

(18) **Roadway Emissions**
Visible emissions from roadways shall not exceed an opacity of 20 percent, 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 percent in any one (1) hour. [MEDEP Chapter 101]

(19) 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).

(20) USM shall keep a copy of this Order on site, and have the operator(s) be familiar with the terms of this Order. [MEDEP Chapter 115, BPT]

(21) **Payment of Annual License Fee**
USM shall pay the annual air emission license fee within 30 days of **September 30th** of each year. Pursuant to 38 MRSA §353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for revocation of the license under section 341-D, subsection 3. [38 MRSA §353-A]

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2004.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
DAWN R. GALLAGHER, 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: 2/18/2004
Date of application acceptance: 3/8/2004

Date filed with the Board of Environmental Protection: _____

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