

**Maine State Prison
Knox County
Warren, Maine
A-808-71-C-R (SM)**

**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

Maine State Prison (MSP) of Warren, Maine has applied to renew their Air Emission License permitting the operation of emission sources associated with their correctional institution.

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>Maximum Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur</u>	<u>Stack #</u>
Boiler #1	20.41	145.8	#2 fuel oil, 0.3%	1
Boiler #2	20.41	145.8	#2 fuel oil, 0.3%	1
Boiler #3	20.41	145.8	#2 fuel oil, 0.3%	1
Boiler #4	8.16	58.3	#2 fuel oil, 0.3%	1

Electrical Generation Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur</u>	<u>Stack #</u>
Generator #1	15.43	110.2	#2 fuel oil, 0.3%	2
Generator #2	15.43	110.2	#2 fuel oil, 0.3%	3

C. Application Classification

The application for MSP 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 of current licensed emission units only and has been processed through Chapter 115 of the Department's regulations. With the fuel limit on Boilers #1, #2, #3 and #4 and the operating hours restriction on Generators #1 and #2, the facility is licensed below the major source thresholds and is considered a synthetic minor.

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 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 and #4

Boilers #1, #2 and #3 are Cleaver-Brooks firetube boilers with maximum heat inputs of 20.41 MMBtu/hr each. Boiler #4 is a Cleaver-Brooks firetube boiler with a maximum heat input of 8.16 MMBtu/hr. Boilers #1, #2 and #3 were manufactured in 2000 and are therefore subject to the New Source Performance Standards (NSPS) Subpart Dc for steam generating units greater than 10 MMBtu/hr manufactured after June 9, 1989. Boiler #4 has a heat input of less than 10 MMBtu/hr and is therefore not subject to NSPS Subpart Dc.

All four boilers are equipped with low-NO_x burners. Boilers #1, #2 and #3 operate with O₂ trim. MSP shall not exceed 804,000 gallons of #2 fuel on a 12-month rolling total, with a sulfur content not to exceed 0.3% by weight.

A summary of the BPT analysis for Boilers #1, #2, #3 (20.41 MMBtu/hr each) and #4 (8.16 MMBtu/hr) is the following:

1. Chapter 106 regulates fuel sulfur content, however in this case the BACT analysis for SO₂ in License A-808-71-A-N determined a more stringent limit of 0.3% was appropriate and shall be used.

2. Boilers #1, #2 and #3 are equipped with O₂ trim which optimizes combustion and reduces PM emissions. Chapter 103 regulates PM emission limits, however in this case the BACT analysis for PM in License A-808-71-A-N determined a more stringent limit of 0.04 lb/MMBtu was appropriate and shall be used. The PM₁₀ limits are derived from the PM limits.
3. Boilers #1, #2, #3 and #4 are equipped with low-NO_x burners and O₂ trim to lower emissions due to formation of thermal NO_x. The NO_x emission limits are based on DEP guidance and manufacturer emission limits.
4. Boilers #1, #2 and #3 are equipped with O₂ trim which optimizes combustion and reduces CO emissions. CO emission limits are based on AP-42 data dated 9/98.
5. Boilers #1, #2 and #3 are equipped with O₂ trim which optimizes combustion and reduces VOC emissions. VOC emission limits are based upon AP-42 data dated 9/98.
6. Chapter 101 establishes opacity limits for emissions from several categories of air contaminant sources. Visible emissions from the boilers' combined stack shall not exceed 20% opacity on a 6-minute block average, except for no more than one 6-minute block average in a continuous 3-hour period.

C. Emergency Generators

MSP operates two 1500 kW emergency generators, Generator #1 and Generator #2. The generators are each rated at a maximum capacity of 15.43 MMBtu/hr. The generators draw fuel from the same tanks as the boilers, therefore they fire #2 fuel with a sulfur content not to exceed 0.3% by weight. Each generator is limited to 200 hours of operation per year on a 12-month rolling total. MSP operates and maintains an hour meter on each unit. An emergency shall be defined according to MEDEP Chapter 148:

“Emergency” means an electric power outage due to a failure of the electrical grid, on-site disaster, local equipment failure, or public service emergencies such as flood, fire, natural disaster. Emergency shall also mean when the imminent threat of a power outage is likely due to failure of the electrical supply or capacity deficiencies result in a deviation of voltage from the electrical supplier to the premises of three percent (3%) above or five percent (5%) below standard voltage.

A summary of the BPT analysis for Generator #1 (1500 kW) and Generator #2 (1500 kW) is the following:

1. The emergency generators shall each be limited to 200 hours/year of operation based on a 12-month rolling total.
2. Chapter 106 regulates fuel sulfur content, however in this case the BACT analysis for SO₂ in License A-808-71-A-N determined a more stringent limit of 0.3% was appropriate and shall be used.

3. Chapter 103 regulates PM emission limits. The PM₁₀ limits are derived from the PM limits.
4. NO_x emission limits are based on manufacturer's performance data at 100% load plus 15%.
5. CO and VOC emission limits are based upon AP-42 data dated 10/96.
6. Chapter 101 establishes opacity limits for emissions from several categories of air contaminant sources. Visible emissions from each of the generators shall not exceed 20% opacity on a 6-minute block average, except for no more than two 6-minute block averages in a continuous 3-hour period.

D. Annual Emissions

MSP shall be restricted to the following annual emissions, based on a 12 month rolling total. Annual emissions were calculated based on the following:

- A facility fuel limit of 804,000 gallons of #2 fuel with a sulfur content not to exceed 0.3% by weight.
- 200 hours of operation of Generator #1 and 200 hours of operation of Generator #2, on a 12-month rolling total, firing #2 fuel with a sulfur content not to exceed 0.3% by weight.
- Remaining #2 fuel fired in Boilers #1 - #4.

Total Licensed Annual Emission for the Facility

Tons/year

(used to calculate the annual license fee)

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Boilers	2.13	2.13	16.08	15.96	1.90	0.09
Generator #1	0.19	0.19	0.47	4.40	1.32	0.14
Generator #2	0.19	0.19	0.47	4.40	1.32	0.14
Total TPY	2.51	2.51	17.02	24.76	4.54	0.37

III. AMBIENT AIR QUALITY ANALYSIS

MSP previously submitted an ambient air quality analysis demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards. An additional ambient air quality analysis is not required for this renewal.

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-808-71-C-R 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 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, #3 and #4**

- A. Boilers #1, #2, #3 and #4 shall fire #2 fuel with a sulfur content not to exceed 0.3% by weight. [MEDEP Chapter 115, BPT]
- B. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1	PM	0.04	MEDEP Chapter 115, BACT
Boiler #2	PM	0.04	MEDEP Chapter 115, BACT
Boiler #3	PM	0.04	MEDEP Chapter 115, BACT
Boiler #4	PM	0.04	MEDEP Chapter 115, BACT

- C. Emissions shall not exceed the following [MEDEP Chapter 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	0.82	0.82	6.17	6.13	0.73	0.03
Boiler #2	0.82	0.82	6.17	6.13	0.73	0.03
Boiler #3	0.82	0.82	6.17	6.13	0.73	0.03
Boiler #4	0.33	0.33	2.47	2.45	0.30	0.02

- D. Visible emissions from the boilers' combined stack shall not exceed 20% opacity on a 6-minute block average, except for no more than one 6-minute block average in a continuous 3-hour period. [MEDEP Chapter 101]

(17) **Emergency Generator #1 and #2**

- A. MSP shall limit each emergency generator to 200 hours/year of operation (based on a 12-month rolling total). An hour meter shall be maintained and operated on each of Generators #1 and #2. [MEDEP Chapter 115, BPT]
- B. Generator #1 and Generator #2 shall be operated for emergency purposes only or for short periods to exercise the units and to keep them in operating order. A log shall be maintained and updated each time each generator runs, documenting the date, time, and reason for its operation. [MEDEP Chapter 115, BPT]
- C. Generators #1 and #2 shall fire #2 fuel oil with a sulfur content not to exceed 0.3% by weight. [MEDEP Chapter 115, BPT]

D. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Generator #1	PM	0.12	MEDEP, Chapter 103, Section 2(B)(1)(a)
Generator #2	PM	0.12	MEDEP, Chapter 103, Section 2(B)(1)(a)

E. Emissions shall not exceed the following [MEDEP Chapter 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	1.86	1.86	4.67	43.98	13.12	1.39
Generator #2	1.86	1.86	4.67	43.98	13.12	1.39

F. Visible emissions from each of the generators shall not exceed 20% opacity on a 6-minute block average, except for no more than two 6-minute block averages in a continuous 3-hour period. [MEDEP Chapter 101]

(18) **New Source Performance Standards for Dc Boilers**

Boilers #1, #2 and #3 are subject to Federal New Source Performance Standards, Subpart Dc. MSP shall comply with all requirements of 40 CFR Part 60, Subpart Dc including, but not limited to, the following:

- A. MSP shall submit to EPA and the Department semi-annual reports. 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. The fuel supplier certification must contain the name of the oil supplier and a statement from the oil supplier that the oil complies with ASTM specifications for #2 fuel oil.
- B. MSP shall record and maintain records of the amounts of each fuel combusted during each day.
- C. The following address for EPA shall be used for any reports or notifications required to be copied to them:

Compliance Clerk
USEPA Region 1
1 Congress Street
Suite 1100
Boston, MA 02114-2023

(19) **Facility Fuel Use**

Total fuel use for the facility shall not exceed 804,000 gallons/year of #2 fuel oil with a maximum sulfur content not to exceed 0.3% by weight. This amount of fuel includes fuel used to fire the generators for 200 hours each per year. Compliance shall be demonstrated by fuel records from the supplier showing the quantity of fuel delivered and the percent sulfur of the fuel. Records of annual fuel use shall be kept on a 12-month rolling total basis. [MEDEP Chapter 115, BPT]

(20) **Malfunction and Breakdown Notification**

MSP 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 MRSA §605).

(21) **Air Toxics Emission Statement**

In accordance with MEDEP Chapter 137, if MSP exceeds the HAP reporting thresholds listed in Appendix A of MEDEP Chapter 137 in an inventory year (2005, 2008, 2011, etc.), the licensee shall report no later than July 1 of the following year (2006, 2009, 2012, etc.), the information necessary to accurately update the State's toxic air pollutants emission inventory. The information shall be reported by means of a computer program supplied by the Department or by other means as specified by MEDEP Chapter 137.

NOTE: Based on AP-42 emission factors for fuel burning equipment, MSP will most likely exceed the Chapter 137 thresholds of HAPs based on fuel burning alone should the facility exceed the firing of 770,000 gallons of #2 fuel oil in a calendar year.

Reports and questions should be directed to:

Attn: Criteria Emission Inventory Coordinator
Maine DEP
Bureau of Air Quality
17 State House Station
Augusta, ME 04333-0017

Phone: (207) 287-2437 [MEDEP Chapter 137]

(22) **Payment of Annual License Fee**

MSP shall pay the annual air emission license fee within 30 days of January 31 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 38 MRSA §341-D, subsection 3.

Maine State Prison
Knox County
Warren, Maine
A-808-71-C-R (SM)

11

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

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2006.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAVID P. LITTELL, 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: December 9, 2005

Date of application acceptance: January 3, 2006

Date filed with the Board of Environmental Protection: _____

This Order prepared by Rachel E. Pilling, Bureau of Air Quality.