



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

**Houlton Regional Hospital
Aroostook County
Houlton, Maine
A-208-71-H-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

Houlton Regional Hospital (HRH) located in Houlton, Maine has applied to renew their Air Emission License permitting the operation of emission sources associated with their health care facility.

Houlton Hospital has requested to add an Ethylene Oxide Sterilizer to their Air Emission License.

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</u>	<u>Stack #</u>
Boiler #1	22.2	148	#2 fuel oil	1
Boiler #2	22.2	148	#2 fuel oil	1

Electrical Generation Equipment

<u>Equipment</u>	<u>Power Output (kW)</u>	<u>Firing Rate (gal/hr)</u>	<u>Fuel Type</u>	<u>Stack #</u>
Generator #1	350	25	diesel fuel	2
Generator #2	350	25	diesel fuel	3

Process Equipment

<u>Equipment</u>	<u>Pollution Control Equipment</u>
*Ethylene Oxide Sterilizer	none

*Denotes new equipment

C. Application Classification

This amendment will not increase emissions of any pollutant. Therefore, this application is determined to be a License renewal with a minor revision and 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 *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 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.

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 and #2

Boilers #1 and #2 are used primarily for facility hot water and heating needs. The boilers were installed in 1974, and are therefore not subject to the New Source Performance Standards (NSPS) Subpart Dc for steam generating units greater than 10 MMBtu/hr manufactured after June 9, 1989.

Until January 1, 2016, the fuel oil fired in the boilers shall be ASTM D396 compliant #2 fuel oil (maximum sulfur content of 0.5% by weight). Per 38 MRSA §603-A(2)(A)(3), beginning January 1, 2016, the boilers shall fire #2 fuel oil with a maximum sulfur content limit of 0.005% by weight (50 ppm), and beginning January 1, 2018, the boilers shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm).

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

1. The total fuel use for Boilers #1 and #2 combined shall not exceed 500,000 gal/year of #2 fuel oil which meets the criteria in ASTM D396, based on a calendar year.
2. 06-096 CMR 106 (as amended) regulates fuel sulfur content, however in this case a BPT analysis for SO₂ determined a more stringent limit of 0.5% was appropriate and shall be used.
3. 06-096 CMR 103 (as amended) regulates PM emission limits. The PM₁₀ limits are derived from the PM limits.
4. NO_x emission limits are based on data from similar #2 fired boilers of this size and age.
5. CO and VOC emission limits are based upon AP-42 data dated 9/98.
6. Visible emissions from the boilers shall not exceed 20% 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.

C. 40 CFR Part 63 Subpart JJJJJ

The boilers may be subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ).

For informational purposes, a summary of the current applicable federal 40 CFR Part 63 Subpart JJJJJ requirements is listed below. At this time, the Maine Department of Environmental Protection has not taken delegation of

this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA, however HRH 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>.

a. Compliance Dates, Notifications, and Work Practice Requirements

i. Initial Notification of Compliance

An Initial Notification submittal to EPA was due on September 17, 2011. [40 CFR Part 63.11225(a)(2)]

ii. Boiler Tune-Up Program – Initial and Biennial

(a) A boiler tune-up program shall be implemented to include the tune-up of applicable boilers by March 21, 2012 or by any revised date by the EPA. [40 CFR Part 63.11196(a)(1)]

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

1. As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted; however, the burner must be inspected at least once every 36 months. [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. [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 (ppm), by volume, and oxygen in volume percent, before and after adjustments are made. [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 one week of start-up. [40 CFR Part 63.11223(b)(7)]

(c) A Notification of Compliance Status shall be submitted to EPA no later than 120 days after conducting the initial boiler tune-up. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)]

(d) The facility shall implement a biennial boiler tune-up program after the initial tune-up and initial compliance report has been submitted.

1. Each biennial tune-up shall be conducted no more than 25 months after the previous tune-up. [40 CFR Part 63.11223(a)]
2. The biennial report shall be maintained onsite and submitted to EPA, if requested. The report shall contain the concentration of CO in the effluent stream (ppmv) and oxygen in volume percent, measured before and after the boiler tune-up, a description of any corrective actions taken as part of the tune-up of the boiler, and the type and amount of fuel used over the 12 months prior to the biennial tune-up of the boiler. [40 CFR Part 63.11223(b)(6)] The biennial compliance report shall also include the company name and address; a compliance statement signed by a responsible official certifying truth, accuracy, and completeness; and a description of any deviations and corrective actions. [40 CFR Part 63.11225(b)]

D. Generators #1 and #2

HRH operates two back-up diesel generators. Because the generators were manufactured before 2005, they are not subject to the requirements of 40 CFR Part 60, Subpart III. The units are considered existing, emergency stationary reciprocating internal combustion engines at an area HAP source, however they are considered exempt from the requirements of 40 CFR Part 63, Subpart ZZZZ, the NESHAP for stationary reciprocating internal combustion engines per 40 CFR Part 63.6590(b)(3)(iii), since they are categorized as residential, commercial, or institutional emergency engines.

Emergency Generator is defined as any stationary internal combustion engine whose operation is limited to emergency situations and required testing and maintenance. Examples include stationary engines 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 engines used to pump water in the case of fire or flood. Stationary engines used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity are not considered to be emergency engines.

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

1. The back-up generators shall fire only diesel fuel with a maximum sulfur content not to exceed 15 ppm.
2. The back-up generators shall each be limited to 500 hr/yr of operation based on a calendar year. 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 15 ppm was appropriate and shall be used.
4. A PM limit of 0.12 lb/MMBtu 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 back-up 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.

E. Ethylene Oxide Sterilizer

The Ethylene Oxide Sterilizer at HRH is subject to the requirements in the *National Emission Standards for Hazardous Air Pollutants*, 40 CFR, Part 63, Subpart WWWW. HRH must demonstrate continuous compliance with the management practice standard in §63.10390 by recording the date and time of each sterilization cycle, whether each sterilization cycle contains a full load of items, and if not, a statement from a hospital central services staff, a hospital administrator, or a physician that the less-than-full load was medically necessary.

F. Annual Emissions

1. HRH shall not exceed 500,000 gallons of #2 fuel oil use on a calendar year basis.
2. Each emergency generator shall be limited to 500 hours of operation on a calendar year basis.
3. HRH shall be restricted to the following annual emissions, based on a calendar year basis:

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	2.8	2.8	17.6	15.8	1.3	0.1
Generator#1	0.1	0.1	0.1	3.8	0.8	0.3
Generator #2	0.1	0.1	0.1	3.8	0.8	0.3
Total TPY	3.0	3.0	17.8	23.4	2.9	0.7

4. 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) means the aggregate group of the following

gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Greenhouse gases (GHG) for purposes of licensing are calculated and reported as carbon dioxide equivalents (CO₂e).

Based on the facility's fuel use limit(s), the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, GHG is below the major source threshold of 100,000 tons of CO₂e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time.

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, HRH 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-208-71-H-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 (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 and #2**

A. Fuel

1. Total fuel use for the boilers shall not exceed 500,000 gal/yr of #2 fuel oil, based on a calendar year basis. [06-096 CMR 115, BPT]
2. Until January 1, 2016, the #2 fuel oil fired in the boilers shall be ASTM D396 compliant (max. sulfur content of 0.5% by weight). [06-096 CMR 115, BPT]
3. Beginning January 1, 2016, HRH shall fire #2 fuel oil with a maximum sulfur content limit of 0.005% by weight (50 ppm). [38 MRSA §603-A(2)(A)(3)]
4. Beginning January 1, 2018, HRH shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm). [38 MRSA §603-A(2)(A)(3)]
5. Compliance shall be demonstrated by fuel records from the supplier showing the quantity, type, and the percent sulfur of the fuel delivered (if applicable). Records of annual fuel use shall be kept on a monthly and 12-month rolling total basis. [06-096 CMR 115, BPT]

B. Emissions shall not exceed the following:

Emission Unit	Pollutant	Ib/MMBtu	Origin and Authority
Boiler #1	PM	0.08	06-096 CMR 115, BPT
Boiler #2	PM	0.08	06-096 CMR 115, BPT

C. 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	1.80	1.80	11.33	3.21	0.80	0.09
Boiler #2	1.80	1.80	11.33	3.21	0.80	0.09

D. Visible emissions from the boilers shall each 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. 06-096 CMR 101]

(17) **Generators #1 and #2**

- A. HRH shall limit Generators #1 and #2 to 500 hr/yr of operation each (based on a calendar year). A non-resettable hour meter shall be maintained and operated on each Back-up Generator. [06-096 CMR 115, BPT]
- B. A log documenting the dates, times, and reason of operation for the Back-up Generators shall be kept. [06-096 CMR 115, BPT]
- C. The Back-up Generators shall fire diesel fuel with as sulfur content not to exceed 15 ppm. Compliance shall be based on fuel records from the supplier. [06-096 CMR 115, BPT]
- D. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Generator #1	PM	0.12	06-096 CMR 103, Section 2(B)(1)(a)
Generator #2	PM	0.12	06-096 CMR 103, Section 2(B)(1)(a)

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	0.41	0.41	0.01	15.04	3.24	1.19
Generator #2	0.41	0.41	0.01	15.04	3.24	1.19

F. Visible emissions from the Back-up 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. [06-096 CME 101]

(18) Ethylene Oxide Sterilizer

HRH must demonstrate continuous compliance with the management practice standard for the Ethylene Oxide Sterilizer in §63.10390 by recording the date and time of each sterilization cycle, whether each sterilization cycle contains a full load of items, and if not, a statement from a hospital central services staff, a hospital administrator, or a physician that the less-than-full load was medically necessary. [40 CFR, Part 63, Subpart WWWW]

(19) HRH 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 30th DAY OF March, 2012.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie P. [Signature] for
PATRICIA W. [Signature] 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: 2/17/2010

Date of application acceptance: 2/26/2010

Date filed with the Board of Environmental Protection:

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

