



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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COMMISSIONER

**MaineGeneral Medical Center
Kennebec County
Augusta, Maine
A-935-71-D-A (SM)**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #1**

After review of the air emissions license amendment 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., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. MaineGeneral Medical Center (MaineGeneral) was issued Air Emission License A-935-71-C-R on January 18, 2011, permitting the operation of emission sources associated with their health care facility, the Harold Alfond Center for Cancer Care.
2. The equipment addressed in this license amendment is located at 35 Medical Center Parkway, Augusta, ME.
3. MaineGeneral has requested an amendment to their license in order to install three new boilers and three new emergency generators at the MaineGeneral Medical Center Regional Hospital to be built on the existing campus.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boilers

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate</u>	<u>Fuel Type, % sulfur</u>	<u>Stack #</u>
Boiler #3	24.5	24,500 cfh 271 gph	Natural gas, neg. Liquefied propane, neg.	2
Boiler #4	24.5	24,500 cfh 271 gph	Natural gas, neg. Liquefied propane, neg.	2
Boiler #5	24.5	24,500 cfh 271 gph	Natural gas, neg. Liquefied propane, neg.	2

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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>
Emergency Gener. #2	14.4	105	Diesel, 0.0015%	-
Emergency Gener. #3	14.4	105	Diesel, 0.0015%	-
Emergency Gener. #4	14.4	105	Diesel, 0.0015%	-

C. Application Classification

The modification of a minor source is considered a major modification based on whether or not expected emission increases exceed the "Significant Emission Levels" as defined in the Department's regulations. The emission increases are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

<u>Pollutant</u>	<u>Current License (TPY)</u>	<u>Future License (TPY)</u>	<u>Net Change (TPY)</u>	<u>Sig. Level</u>
PM	1.3	5.1	3.8	100
PM ₁₀	1.3	5.1	3.8	100
SO ₂	7.1	7.5	0.4	100
NO _x	7.0	45.7	38.7	100
CO	1.4	16.1	14.7	100
VOC	0.1	1.9	1.8	50

This modification is determined to be a minor modification and has been processed as such.

With the operating hours restriction on the Emergency Generators, 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 *Definitions Regulation*, 06-096 CMR 100 (as amended). 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 #3, #4 and #5

MaineGeneral will operate Boiler #3, #4 and #5 for steam for heat. Each boiler is a Cleaver Brooks CBLE-600-150ST, packaged, firetube unit, with a maximum rated heat input capacity of 24.5 MMBtu/hr, firing natural gas at a maximum rate of 24,500 cubic feet per hour. Each boiler also has the capability of firing liquefied propane at a maximum rate of 271 gallons per hour. The boilers will be manufactured and installed in 2011, or later. All three boilers will exhaust through common Stack #2.

Due to their size and date of manufacture, Boilers #3, #4 and #5 are each 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.

Boilers #3, #4 and #5 are not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ) as each fires natural gas and liquefied propane.

BACT Findings:

The BACT emission limits for the three Boilers were based on the following:

PM/PM₁₀ – 0.008 lb/MMBtu based on Manufacturer's emission factors
SO₂ – 0.001 lb/MMBtu based on Manufacturer's emission factors
NO_x – 0.052 lb/MMBtu based on Manufacturer's emission factors
CO – 0.037 lb/MMBtu based on Manufacturer's emission factors
VOC – 0.004 lb/MMBtu based on Manufacturer's emission factors
Opacity – Visible emissions from each boiler firing natural gas 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.

MaineGeneral shall fire only natural gas or liquefied propane gas in Boilers #3, #4 and #5.

Periodic Monitoring

Periodic monitoring for the boilers 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 of the fuel..

C. Emergency Generators #2, #3 and #4

MaineGeneral proposes to install three emergency generators. Each generator is a 1,500 kilowatt, 14.4 MMBtu/hour, diesel fired unit.

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.

Emergency Generators #2, #3 and #4 will be ordered after July 11, 2005 and manufactured after April 1, 2006. Therefore, all three Emergency Generators are subject to New Source Performance Standards 40 CFR Part 60, Subpart III, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*.

A summary of the BACT analysis for Generators #2, #3 and #4 is the following:

1. Emergency Generators #2, #3 and #4 shall fire only diesel fuel with a maximum sulfur content not to exceed 15 ppm.
2. Emergency Generators #2, #3 and #4 shall each be limited to 100 hours per year of operation for maintenance checks and readiness testing. Emergency Generators #2, #3 and #4 shall each be limited to 500 hours per year of total operation. Both of these limits are based on a 12-month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours.
3. Emergency Generators #2, #3 and #4 Generator #1 shall each be equipped with a non-resettable hour meter.
4. 06-096 CMR 103 regulates PM emission limits. The PM₁₀ limits are derived from the PM limits.
5. NO_x, CO, and VOC emission limits are based upon Manufacturer's "Not To Exceed" data.
6. MaineGeneral shall operate and maintain Emergency Generators #2, #3 and #4 in accordance with the manufacturer's written instructions. MaineGeneral shall not change settings that are not approved in writing by the manufacturer.
7. Visible emissions from each of the Emergency Generators shall 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.

D. Annual Emissions

MaineGeneral shall be restricted to the following annual emissions, based on a 12-month rolling total and the following:

- Only natural gas or liquefied propane shall be fired in Boilers #3, #4 and #5;
- Emergency Generators #2, #3 and #4 shall be limited to 500 hours per year of operation.

Total Licensed Annual Emissions for the Facility
Tons per year
(Used to calculate the annual license fee)

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Existing Equipment	1.3	1.3	7.1	7.0	1.4	0.1
Boiler #2	0.85	0.85	0.11	5.56	3.95	0.43
Boiler #3	0.85	0.85	0.11	5.56	3.95	0.43
Boiler #4	0.85	0.85	0.11	5.56	3.95	0.43
Generator #3	0.43	0.43	0.01	7.34	0.96	0.18
Generator #4	0.43	0.43	0.01	7.34	0.96	0.18
Generator #5	0.43	0.43	0.01	7.34	0.96	0.18
Total TPY	5.1	5.1	7.5	45.7	16.1	1.9

III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 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:

<u>Pollutant</u>	<u>Tons/Year</u>
PM	25
PM ₁₀	25
SO ₂	50
NO _x	100
CO	250

Based on the total facility licensed emissions, MaineGeneral 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-935-71-D-A subject to the conditions found in Air Emission License A-935-71-C-R and in the following conditions:

The following Specific Conditions shall be added to A-935-71-C-R:

(19) Boilers #3, #4 and #5

- A. MaineGeneral may install proposed Boilers #3, #4 and #5 in the MaineGeneral Medical Center Regional Hospital.
- B. Boilers #3, #4 and #5 shall fire natural gas or liquefied propane fuel. Compliance shall be demonstrated by fuel records from the supplier showing the quantity of fuel delivered. Records of annual fuel use shall be kept on a calendar year basis. [06-096 CMR 115, BACT]
- C. Emissions from the Boilers shall not exceed the following:

Emission Unit	Pollutant	lb/ MMBtu	Origin and Authority
Boiler #3	PM	0.12	06-096 CMR 103(2)(B)(1)(a), BACT
Boiler #4	PM	0.12	06-096 CMR 103(2)(B)(1)(a), BACT
Boiler #5	PM	0.12	06-096 CMR 103(2)(B)(1)(a), BACT

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

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #3	0.20	0.20	0.02	1.27	0.90	0.10
Boiler #4	0.20	0.20	0.02	1.27	0.90	0.10
Boiler #5	0.20	0.20	0.02	1.27	0.90	0.10

- E. Visible emissions from Boilers #3, #4 and #5 shall 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. [06-096 CMR 101]

(20) Emergency Generators #2, #3 and #4

- A. MaineGeneral may install proposed Emergency Generators #2, #3 and #4 in the MaineGeneral Medical Center Regional Hospital.

- B. Emergency Generators #2, #3 and #4 shall fire only diesel fuel with a maximum sulfur content not to exceed 15 ppm. [40 CFR 60.4207(b)]
- C. Compliance with the sulfur content limits shall be based on fuel records from the supplier showing the type of fuel delivered and the sulfur content of the fuel. [06-096 CMR 115, BACT]
- D. Emergency Generators #2, #3 and #4 shall each be limited to 100 hours per year of operation for maintenance checks and readiness testing. Emergency Generators #2, #3 and #4 shall be limited to 500 hours per year of total operation. Both these limits are based on a 12-month rolling total. Compliance shall be demonstrated by a log of all generator operating hours. [40 CFR 60.4211(E) and 06-096 CMR 115, BACT]
- E. Emergency Generators #2, #3 and #4 shall each be equipped with a non-resettable hour meter. [40 CFR 60.4209(a)]
- F. Emissions from the Emergency Generators shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Generator #2	PM	0.12	06-096 CMR 103(2)(B)(1)(a)
Generator #3	PM	0.12	06-096 CMR 103(2)(B)(1)(a)
Generator #4	PM	0.12	06-096 CMR 103(2)(B)(1)(a)

- G. Emissions from the Emergency Generators 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 #2	1.73	1.73	0.02	29.35	3.85	0.72
Generator #3	1.73	1.73	0.02	29.35	3.85	0.72
Generator #4	1.73	1.73	0.02	29.35	3.85	0.72

- H. Emergency Generators #2, #3 and #4 are subject to PM, CO, and NO_x + VOC emission requirements set forth in 40 CFR 60, Subpart III. Compliance with these emission requirements shall be demonstrated by certification from the manufacturer that this engine class meets the appropriate Tier standards. [40 CFR 60, Subpart III]

- I. MaineGeneral shall operate and maintain Emergency Generators #2, #3 and #4 in accordance with the manufacturer's written instructions. MaineGeneral shall not change settings that are not approved in writing by the manufacturer. [40 CFR 60.4211(a)]
- J. Visible emissions from the Emergency 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 CMR 101]

(21) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), after startup of Boilers #3, #4, and #5, the licensee shall annually report to the Department the information necessary to accurately update the State's emission inventory by means of:

- 1) A computer program and accompanying instructions supplied by the Department; or
- 2) A written emission statement containing the information required in 06-096 CMR 137.

The emission statement must be submitted as specified by the date in 06-096 CMR 137.

DONE AND DATED IN AUGUSTA, MAINE THIS 29th DAY OF September, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie [Signature]
PATRICIA W. AHO, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-935-71-C-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 06/29/2011

Date of application acceptance: 07/11/2011

Date filed with the Board of Environmental Protection:

This Order prepared by N. Lynn Cornfield, Bureau of Air Quality.

