



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PAUL MERCER
COMMISSIONER

**Eastern Maine Medical Center
Penobscot County
Bangor, Maine
A-184-71-R-R (SM)**

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

FINDINGS OF FACT

After review of the air emission license renewal application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes Annotated (M.R.S.A.), §344 and §590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

Eastern Maine Medical Center (EMMC) has applied to renew their Air Emission License permitting the operation of emission sources associated with their medical facility.

The equipment addressed in this license is located at 489 State Street, Bangor, Maine.

As part of this renewal, EMMC has requested an alternative compliance strategy for oil firing in the Combustion Turbine Generator.

In addition, EMMC has requested the addition of operational flexibility language to allow for the replacement of combustion turbine prime mover parts with like-kind parts.

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boilers

<u>Equipment</u>	<u>Date of Manuf.</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Fuel Type, % sulfur</u>	<u>Maximum Firing Rate (gal/hr)</u>	<u>Stack #</u>
Boiler #4	1974	21.0	Natural Gas Distillate, 0.05 %S	20,388 scf/hr 150 gal/hr	1
Boiler #5	1974	21.0	Natural Gas Distillate, 0.05 %S	20,388 scf/hr 150 gal/hr	1
Boiler #6	1985	21.0	Natural Gas Distillate, 0.05 %S	20,388 scf/hr 150 gal/hr	1
Boiler #7	2015	12.25	Natural Gas Distillate, 0.05 %S	12,247 scf/hr 87.5 gal/hr	1
Boiler #8	2015	12.25	Natural Gas Distillate, 0.05 %S	12,247 scf/hr 87.5 gal/hr	1

Generators

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur</u>	<u>Date of Installation</u>	<u>Stack</u>
Generator #1 (previously Gen. #2)	14.6	107 gal/hr	Distillate, 0.0015% S	1998	EG1
Generator #2 (previously Gen. #3)	14.6	107 gal/hr	Distillate, 0.0015% S	1998	EG2
Generator #3 Newest Unit	19.3	138 gal/hr	Distillate, 0.0015% S	2015	EG3
Generator #4 (previously Gen. #1)	4.88	35.6 gal/hr	Distillate, 0.0015% S	1991	EG4
Combustion Turbine Generator	64.4 (gas) 63.5 (oil)	62,524 scf/hr 454 gal/hr	Natural Gas or Distillate @ 0.05% S	2006	Cogen

Snowmelting Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (scf/hr)</u>	<u>Fuel Type</u>	<u>Date of Installation</u>
Snow Melter #1	9.0 MMBtu	9,000	Natural Gas	2008
Snow Melter #2	9.0 MMBtu	9,000	Natural Gas	2008
Snow Melter #3	9.0 MMBtu	9,000	Natural Gas	2010
Snow Melter #4	9.0 MMBtu	9,000	Natural Gas	2010

C. Definitions

Distillate Fuel means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396, diesel fuel oil numbers 1 or 2, as defined in ASTM D975, kerosene, as defined in ASTM D3699, biodiesel as defined in ASTM D6751, or biodiesel blends as defined in ASTM D7467.

D. Application Classification

The application for EMMC 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 currently licensed emission units only and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 Code of Maine Rules (CMR) 115 (as amended). With a total heat input limit of 200,000 MMBtu per year from Boilers #4-#8, an annual operating hours limit of 100 hours each of non-emergency service on Generators #1-#4, a fuel use limit of 1,339,551 gallons per year of distillate in the Combustion Turbine Generator (CTG), and a 18 MMscf of natural gas limit on the Snow Melters annually, the facility is licensed below the major source thresholds and is considered a synthetic minor and is licensed below the major source thresholds for hazardous air pollutants (HAP) and is considered an area source of HAP.

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.

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 #4, #5, #6, #7, and #8

As part of amendment A-184-71-S-A, Boilers #1 and #2 were removed from service and replaced with Boilers #7 and #8. Boilers #7 and #8 were installed in 2015. Boiler #3 was removed from service as part of the previous renewal (A-184-71-O-R/M).

The distillate fuel fired in Boilers #4, #5, #6, #7, and #8 shall have a maximum sulfur content of 0.05% by weight. Per 38 M.R.S.A. §603-A(2)(A)(3), beginning July 1, 2016, or on the date specified in the statute, distillate fuel fired at the facility shall have a maximum sulfur content of 0.005% by weight (50 ppm), and beginning January 1, 2018, or on the date specified in the statute, distillate fuel fired at the facility shall have a maximum sulfur content of 0.0015% by weight (15 ppm). The specific dates and requirements contained in this paragraph reflect the current dates and requirements in the statute as of the effective date of this license; however, if the statute is revised, the facility shall comply with the revised dates and requirements upon promulgation of the statute revision.

EMMC Boilers shall be limited to firing natural gas and distillate fuel at a total heat input capacity equivalent to 200,000 MMBtu per year on a 12 month rolling total basis.

1. Boilers #4, #5, and #6

EMMC operates Boilers #4, #5, and #6 for steam and heat. These three boilers are rated at 21.0 MMBtu/hr and fire distillate fuel with a maximum sulfur content of 0.05%, and natural gas. All three boilers exhaust through a common stack, Stack #1.

Boilers #4 and #5 were manufactured in 1974 and Boiler #6 was manufactured in 1985. Due to the manufacture date of the boilers, they are not 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.

The BPT emission limits for Boilers #4-#6 are based on the following:

Distillate Fuel

- PM/PM₁₀ – 0.03 lb/MMBtu based on 06-096 CMR 115, BPT
- SO₂ – 0.05 lb/MMBtu; based on firing distillate fuel with 0.05% sulfur, 06-096 CMR 115, BPT
- NO_x – 0.25 lb/MMBtu based on 06-096 CMR 115, BPT
- CO – 0.07 lb/MMBtu based on 06-096 CMR 115, BPT
- VOC – 0.025 lb/MMBtu based on 06-096 CMR 115, BPT

The BPT emission limits for the boilers firing distillate fuel are the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
Boilers #4, #5, & #6	PM	0.03

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Boiler #4 (21.0 MMBtu/hr)	0.63	0.63	1.06	5.25	1.47	0.53
Boiler #5 (21.0 MMBtu/hr)	0.63	0.63	1.06	5.25	1.47	0.53
Boiler #6 (21.0 MMBtu/hr)	0.63	0.63	1.06	5.25	1.47	0.53

Natural gas

- PM/PM₁₀ – 0.02 lb/MMBtu, 06-096 CMR 115, BPT
- SO₂ – 0.6 lb/MMscf: AP-42, Table 1.4-2 (dated 7/98)
- NO_x – 0.118 lb/MMBtu based on vendor data, 06-096 CMR 115, BPT
- CO – 0.15 lb/MMBtu based on vendor data, 06-096 CMR 115, BPT
- VOC – 0.016 lb/MMBtu based on vendor data, 06-096 CMR 115, BPT

The BPT emission limits for the boilers firing natural gas are the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
Boilers #4, #5, & #6	PM	0.02

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Boiler #4 (21.0 MMBtu/hr)	0.42	0.42	0.01	2.48	3.15	0.34
Boiler #5 (21.0 MMBtu/hr)	0.42	0.42	0.01	2.48	3.15	0.34
Boiler #6 (21.0 MMBtu/hr)	0.42	0.42	0.01	2.48	3.15	0.34

Visible emissions from the combined stack (Stack #1) serving the boilers #4-#8 shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BPT]

Periodic Monitoring

Periodic monitoring for Boilers #4-6 shall include recordkeeping to document fuel use, both on a monthly and 12 month rolling total basis, and % sulfur of the distillate fuel, if fired. Documentation shall include the type of fuel used and the sulfur content of the distillate fuel.

2. Boilers #7 & #8

Boilers #7 and #8 are Cleaver Brooks Model CBEX Elite boilers with heat input capacities of 12.25 MMBtu/hr each and are equipped to fire natural gas and distillate fuel. EMMC intends to operate Boilers #7 and #8 for steam and heat. Boilers #7 and #8 are equipped with oxygen trim systems that maintain optimum air-to-fuel ratios. The boilers were installed in 2015 and will exhaust through the combined stack (Stack #1)

Due to the size and year of manufacture, the boilers are 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.

EMMC submitted a notification to EPA and the Department dated June 17, 2015 which included the date of construction and anticipated start-up of Boilers #7 and #8. The notification also included the design heat input capacity of the boilers and the type of fuel to be combusted. [40 CFR §60.48c(a)]

BPT Findings

The BPT emission limits for the boilers are based on the following:

Distillate Fuel

PM/PM ₁₀	–	0.03 lb/MMBtu based on Manufacturer's data
SO ₂	–	0.05 lb/MMBtu based on firing distillate fuel with a sulfur content of 0.05% sulfur by weight
NO _x	–	0.12 lb/MMBtu based on Manufacturer's data
CO	–	0.04 lb/MMBtu based on Manufacturer's data
VOC	–	0.01 lb/MMBtu based on Manufacturer's data
Opacity	–	06-096 CMR 101

The BPT emission limits for the boilers when firing distillate are the following:

Unit	Pollutant	lb/MMBtu
Boilers #7 & #8	PM	0.03

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boilers #7 & #8 distillate fuel	0.37	0.37	0.62	1.47	0.49	0.12

Natural Gas

- PM/PM₁₀ – 0.02 lb/MMBtu based on Manufacturer’s data
- SO₂ – 0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
- NO_x – 0.04 lb/MMBtu based on Manufacturer’s data
- CO – 0.04 lb/MMBtu based on Manufacturer’s data
- VOC – 0.01 lb/MMBtu based on Manufacturer’s data
- Opacity – 06-096 CMR 101

The BPT emission limits for the boiler when firing natural gas are the following:

Unit	Pollutant	lb/MMBtu
Boiler #7 & #8	PM	0.02

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #7 & #8 Natural gas	0.25	0.25	0.01	0.49	0.49	0.12

Visible emissions from the combined stack (Stack #1) serving the boilers #4-#8 shall not exceed 20% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period.

3. 40 CFR Part 63 Subpart JJJJJ – Boilers #4-#8

Boilers #4-#8 are subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ). Boilers #4, #5, and #6 are considered existing oil boilers rated greater than 10 MMBtu/hr. Boilers #7 and #8 are considered new oil boilers rated greater than 10 MMBtu/hr each equipped with oxygen trim system.

Gas-fired boilers are exempt from 40 CFR Part 63, Subpart JJJJJ. However, boilers which fire fuel oil are not. A “gas-fired boiler” is defined as any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on

liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.[40 CFR Part 63.11237]

Any boiler designed to burn fuels besides gaseous fuels prior to June 4, 2010 will be considered an existing boiler under this rule. A boiler which currently fires gaseous fuels, but converts back to firing another fuel (such as distillate fuel) in the future would become subject as an existing boiler at the time it is converted back to oil.

A summary of the currently applicable federal 40 CFR Part 63 Subpart JJJJJ requirements is listed below. At this time, the Department has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA, however EMMC 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 Applicability

An Initial Notification submittal to EPA was due within 120 days after the boilers became subject to the standard. EMMC submitted an Initial Notification dated August 22, 2011. [40 CFR Part 63.11225(a)(2)]

ii. Boiler Tune-Up Program

(a) A boiler tune-up program shall be implemented to include the initial tune-up of applicable boilers. [40 CFR Part 63.11196(a)(1)]

Boilers #7 and #8 are not required to complete an initial performance tune-up, but are required to complete the applicable tune-up no later than 61 months after the initial start of the new boiler. [40 CFR Part 63.11210(f)]

(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)]

- . 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 by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [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 30 days of start-up. [40 CFR Part 63.11223(b)(7)]
- (c) After conducting the initial boiler tune-up, a Notification of Compliance Status shall be submitted to EPA. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)]
- (d) The facility shall implement a boiler tune-up program after the initial tune-up and initial compliance report (called a Notification of Compliance Status) has been submitted.
1. Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. See chart below:

Boiler Category	Tune-Up Frequency
Existing Oil – Boilers #4-#6	Every 2 years
New Oil Boiler with oxygen trim system which maintains an optimum air-to-fuel ratio – Boilers #7 and #8	Every 5 years

[40 CFR Part 63.11223(a) and Table 2]

2. The tune-up compliance report shall be maintained onsite and, if requested, submitted to EPA. The report shall contain the concentration of CO in the effluent stream (ppmv) and oxygen in volume percent, measured at high fire or typical operating load, 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 types and amounts of fuels used over the 12 months prior to the tune-up of the boiler. [40 CFR Part 63.11223(b)(6)]

The 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)]

iii. Emission Limits

Boilers #7 and #8 are limited to a 0.05% sulfur content when firing distillate fuels and do not use post-combustion technology to reduce PM or SO₂ emissions. Therefore, they are not subject to the PM emission limit and subsequent testing requirements in Table 1 of Subpart JJJJJJ. When firing fuel oil, EMMC, must monitor and record, on a monthly basis the type of fuel combusted. [40 CFR Part 63.11210 (e)].

iv. Energy Assessment

Boilers #4-#6 are subject to the energy assessment requirement as follows:

- (a) A one-time energy assessment shall be performed by a qualified energy assessor on the applicable boilers. [40 CFR Part 63.11196(a)(3)]
- (b) The energy assessment shall include a visual inspection of the boiler system; an evaluation of operating characteristics of the affected boiler systems, specifications of energy use systems, operating and maintenance procedures, and unusual operating constraints; an inventory of major energy use systems consuming energy from affected boiler(s) and which are under control of the boiler owner or operator; a review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage; a list of major energy conservation measures that are within the facility's control; a list of the energy savings potential of the energy conservation measures identified; and a comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. [40 CFR Part 63, Table 2(4)]
- (c) A Notification of Compliance Status shall be submitted to EPA. EMMC submitted a Notification of Compliance Status on July 18, 2014. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(c)]

b. Recordkeeping

Records shall be maintained consistent with the requirements of 40 CFR Part 63 Subpart JJJJJJ including the following [40 CFR Part 63.11225(c)]: copies of notifications and reports with supporting compliance documentation; identification of each boiler, the date of tune-up, procedures followed for tune-up,

and the manufacturer's specifications to which the boiler was tuned; documentation of fuel types used monthly by each boiler; the occurrence and duration of each malfunction of the boiler; and actions taken during periods of malfunction to minimize emissions and actions taken to restore the malfunctioning boiler to its usual manner of operation. Records shall be in a form suitable and readily available for expeditious review.

C. Generators #1, #2 and #4

EMMC operates Emergency Generators #1, #2, and #4. The emergency generators are generator sets with each gen set consisting of an engine and an electrical generator. The emergency generators have engines with maximum heat input ratings of 14.6 MMBtu/hr, 14.6 MMBtu/hr, and 4.88 MMBtu/hr which fire distillate fuel. The emergency generators were manufactured in 1998, 1998, and 1991, respectively.

1. BPT Findings

The BPT emission limits for the generators are based on the following:

- PM/PM₁₀ - 0.12 lb/MMBtu from 06-096 CMR 103
- SO₂ - combustion of distillate fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur by weight)
- NO_x - 3.682 lb/MMBtu from Manufacturer data for Gen. #1 & #2
 - 3.2 lb/MMBtu from AP-42 dated 10/96 for Gen. #4
- CO - 0.85 lb/MMBtu from AP-42 dated 10/96
- VOC - 0.09 lb/MMBtu from AP-42 dated 10/96
- Opacity - 06-096 CMR 101

The BPT emission limits for the generators are the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
Generator #1	PM	0.12
Generator #2	PM	0.12
Generator #4	PM	0.12

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Generator #1 (14.6 MMBtu/hr) Distillate fuel	1.75	1.75	0.02	53.76	12.41	1.31
Generator #2 (14.6 MMBtu/hr) Distillate fuel	1.75	1.75	0.02	53.76	12.41	1.31
Generator #4 (4.88MMBtu/hr) Distillate fuel	0.59	0.59	0.01	15.62	4.15	0.44

Visible emissions from each of the distillate fuel-fired emergency generators shall not exceed 20% opacity on a 6-minute block average, except for no more than two (2) six (6) minute block averages in a 3-hour period.

Each of the emergency generators shall be limited to 100 hours of operation per calendar year excluding operating hours during emergency situations. There is no limit on emergency operation. Each emergency generator shall be equipped with a non-resettable hour-meter to record operating time. To demonstrate compliance with the operating hours limit, EMMC shall keep records of the total hours of operation and the hours of emergency operation for each unit.

Emergency generators are only to be operated for maintenance purposes and readiness testing purposes, for other allowable non-emergency operations up to 50 hours per year, for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Emergency generators are not to be used for prime power when reliable offsite power is available; nor to operate or to be contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity.

2. 40 CFR Part 63, Subpart ZZZZ

The federal regulation 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines* is not applicable to the emergency engines listed above. 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 Subpart ZZZZ since they are categorized as residential, commercial, or institutional emergency engines and they do not operate or are not contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §63.6640(f)(4)(ii).

Operation of emergency engines such that each exceeds 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §63.6640(f)(4)(ii), would cause the engine(s) to be subject to 40 CFR Part 63, Subpart ZZZZ, and require compliance with all applicable requirements.

D. Generator #3

In 2015, EMMC installed a new 2,000-kilowatt, diesel-fired, standby electric generator that is located in the same generator room as the two existing 1,500-kilowatt generators. Generator #3 has maximum firing rate of 138 gal/hr (19.3 MMBtu/hr). This generator has its own exhaust stack discharging exhaust gases vertically and is configured in a similar fashion to the exhaust stacks for the 1,500-kilowatt units.

Generator #3 is equipped with an engine that is certified to meet EPA Tier 2 standards referred to in 40 CFR Part 60, Subpart IIII.

The BPT emission limits for Generator #3 were based on the following:

Distillate Fuel

- PM/PM₁₀ – 0.12 lb/MMBtu from 06-096 CMR 103;
- SO₂ – 0.0015 lb/MMBtu based on firing ultra-low sulfur diesel fuel (0.0015 % sulfur);
- NO_x – 2.18 lb/MMBtu based on Manufacturer's data;
- CO – 0.18 lb/MMBtu; based on Manufacturer's data;
- VOC – 0.048 lb/MMBtu, based on Manufacturer's data;
- Opacity – Visible Emissions from Generator #3 stack (Stack #EG3) shall not exceed an opacity of 20 percent recorded as six (6) minute block averages, except for no more than two (2) six (6) minute block averages in a 3-hour block period; [06-096 CMR 115, BACT]

The BPT emission limits for Generator #3 are the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
Generator #3	PM	0.12

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Generator #3 (19.3 MMBtu/hr)	2.32	2.32	0.03	42.1	3.45	0.93

Generator #3 shall be limited to 100 hours of non-emergency operation on a calendar year basis. EMMC shall keep records of the hours of operation on a monthly and a 12 month rolling total basis.

40 CFR Part 60, Subpart IIII

The federal regulation 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)* is applicable to emergency Generator #3 since the unit was ordered after July 11, 2005 and

manufactured after April 1, 2006. By meeting the requirements of Subpart IIII, the unit also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ.

At present, EMMC intends to utilize Generator #3 as an emergency unit meeting the definition of emergency unit in 40 CFR 60 Subpart IIII, Section 60.4211 (f) as follows:

Emergency definition, Subpart IIII

Emergency Definition:

Emergency stationary ICE means any stationary reciprocating internal combustion engine that meets all of the following criteria:

- (1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE 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 ICE used to pump water in the case of fire or flood, etc.
- (2) Paragraph (1) above notwithstanding, the emergency stationary ICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:
 - (i) Maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
 - (ii) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

- (iii) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- (3) Paragraphs (1) and (2) above notwithstanding, emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity, except if the following conditions are met:

- (i) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
- (ii) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
- (iii) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
- (iv) The power is provided only to the facility itself or to support the local transmission and distribution system.
- (v) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

40 CFR Part 60, Subpart IIII Requirements:

The generator shall be certified by the manufacturer as meeting the emission standards for new non-road compression ignition engines found in 40 CFR §60.4202. [40 CFR §60.4205(b)]

The distillate fuel fired in Generator #3 shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing distillate fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR §60.4207(b)]

A non-resettable hour meter shall be installed and operated on the generator. [40 CFR §60.4209(a)]

The generator shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by EMMC that are approved by the engine manufacturer. EMMC may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]

The generator shall be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). [40 CFR §60.4211(f)]

No initial notification is required for emergency engines. [40 CFR §60.4214(b)]

F. Cogeneration Plant

The Cogeneration Plant includes a Solar Combustion Turbine Generator (CTG) and an unfired heat recovery steam generator (HRSG). The CTG has an electric generating capacity of 4.6 MW (at International Standards Organization (ISO) conditions) and is capable of firing natural gas and distillate fuel. The dual-fuel design provides EMMC with an alternative fuel option in the event the natural gas supply is interrupted or becomes economically unfavorable due to market pricing.

As part of this renewal, EMMC has requested an alternative compliance strategy for oil firing in the CTG. Below is a table with an overview of the CTG oil firing restrictions and NO_x emission rates:

License	Annual Number of Days on oil	Annual Fuel Oil Limit (Gallons)	NO_x Emission rate (lb/hr)	CTG NO_x (TPY)	Facility Total NO_x (TPY)
A-184-71-M-A (5/10/2005) & A-184-71-O-R/M (12/26/2008)	90	941,871	23.7	45.73	99.53
A-184-71-Q-A (4/5/2013)	60	628,000	23.7	39.40	98.40
A-184-71-R-R Alt. Compliance Strategy	128	1,339,551	18.4	45.61	79.79

License amendment A-184-71-Q-A allowed for the addition of new fuel firing equipment at EMMC. This new equipment resulted in an increase in the total facility NO_x. In order

to stay below major source NO_x thresholds, EMMC reduced the NO_x emissions from the CTG by further restricting the annual fuel oil firing in the unit.

As part of this renewal, the CTG NO_x emission rate has been reduced to correlate with the NO_x emission standards in the New Source Performance Standards (NSPS) Part 60, Subpart KKKK (Stationary Combustion Turbines). The reduction in the hourly NO_x emission rate allows for an increase in annual fuel oil firing without increasing the total annual NO_x emissions from the unit. Since the alternative compliance strategy will not result in an increase of NO_x emissions, EMMC's annual fuel oil firing limit increased in this license renewal to 1,339,551 gallons which equates to 128 days per year of oil firing.

Please note, the facility total NO_x has decreased, resulting from a change in how the Potential To Emit (PTE) totals for the emergency generators were calculated.

If EMMC operates the CTG on oil for more than the equivalent of 128 days per year, EMMC will retrofit the CTG/HRSG with Selective Catalytic Reduction (SCR) technology. The retrofit shall take place within twelve (12) months of the turbine operating on oil for more than the equivalent of 128 days per year.

EMMC has requested operational flexibility language be added to allow for the replacement of turbine components with like-kind components. Replacements would take place in the event of unscheduled repairs or scheduled maintenance. The replacement of turbine components with like-kind components shall have no effect on turbine capacity or air contaminant emissions. EMMC shall notify the Department in writing in advance of any major replacement of turbine components.

The BPT emission factors for the CTG when firing distillate are based on the following:

1. Distillate Fuel

- PM/PM₁₀ – 0.061 lb/MMBtu based on Manufacturer's data
- SO₂ – 0.052 lb/MMBtu based on firing distillate fuel with a sulfur content of 0.05% sulfur by weight
- NO_x – 0.29 lb/MMBtu based on Manufacturer's data
- CO – 0.118 lb/MMBtu based on Manufacturer's data
- VOC – 0.035 lb/MMBtu based on Manufacturer's data
- Opacity – 06-096 CMR 101

The BPT emission limits for the CTG when firing distillate are the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
CTG	PM	0.061

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CTG	3.9	3.9	3.3	18.4	7.5	2.2

The BPT emission factors for the CTG when firing natural gas are based on the following:

2. Natural Gas

- PM/PM₁₀ – 0.042 lb/MMBtu based on Manufacturer’s data
- SO₂ – 0.0028 lb/MMBtu based on AP-42, Table 1.4-2, dated 7/9
- NO_x – 0.095 lb/MMBtu based on Manufacturer’s data
- CO – 0.115 lb/MMBtu based on Manufacturer’s data
- VOC – 0.006 lb/MMBtu based on Manufacturer’s data
- Opacity – 06-096 CMR 101

The BPT emission limits for the CTG when firing natural gas are the following:

Unit	Pollutant	lb/MMBtu
CTG	PM	0.042

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CTG Natural gas	2.7	2.7	0.2	6.1	7.4	0.4

Visible emissions from the CTG shall not exceed 10% opacity on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period.

G. Snow Melters

EMMC installed four Snow Melters, each rated at 9.0 MMBtu/hr firing natural gas. A BPT analysis for the Snow Melters is as follows:

The BPT emission limits for the Snow Melters are based on the following:

Natural Gas

- PM/PM₁₀ – 0.05 lb/MMBtu based on 06-096 CMR 115, BPT
- SO₂ – 0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
- NO_x – 100 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
- CO – 84 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
- VOC – 5.5 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
- Opacity – 06-096 CMR 101

The BPT emission limits for the Snow Melters when firing natural gas are the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
Snow Melters	PM	0.05

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Snow Melters	0.45	0.45	0.01	0.87	0.73	0.05

Visible Emission from the Snow Melters shall not exceed 10% on a six minute block average basis.

The Snow Melters shall be limited to firing 18 MMscf combined of Natural Gas on a 12 month rolling total basis. A fuel meter shall be operated and maintained for compliance purposes.

H. Annual Emissions

1. EMMC shall be restricted to the following annual emissions, based on a 12-month rolling total. The annual emissions were based on the following:
 - a. Combined fuel use (natural gas and distillate fuel) equivalent to 200,000 MMBtu per year in the existing and new boilers. Annual licensed emissions are calculated using the worst-case scenario of firing the following:
 - i. 100% distillate fuel fired for PM, SO₂, NO_x, and VOC.
 - ii. 100% natural gas in Boilers #4-#8 for CO (Boilers #1 and #2 removed).
 - b. Up to 1,339,551 gallons per year of distillate fuel in the CTG (which is equivalent to 128 days per year of distillate use) without SCR technology installed.
 - c. 100 hours each of non-emergency operation on a calendar year basis for Generators #1, #2, #3, and #4.
 - d. The CTG's Total Annual Emissions for all pollutants except NO_x are based on year-round operation on distillate fuel with SCR installed, as this scenario results in the maximum potential emissions.
 - e. The CTG's Total Annual Emissions for NO_x are based on the equivalent of 128 days of distillate fuel use, with the remaining turbine operating time on natural gas, as this scenario results in the maximum potential annual NO_x emissions.
 - f. Combined fuel use of 18 MMscf per year of Natural Gas on a 12 month rolling total basis in the Snow Melters.

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

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Boilers #4-#8	3.00	3.00	5.04	25.0	15.00	2.50
Generator #1	0.09	0.09	0.01	2.7	0.62	0.07
Generator #2	0.09	0.09	0.01	2.7	0.62	0.07
Generator #3	0.12	0.12	0.01	2.1	0.17	0.05
Generator #4	0.03	0.03	0.01	0.78	0.21	0.02
Combustion Turbine Generator	17.08	17.08	14.45	45.61 (28.26 oil & 17.3 NG)	32.85	9.64
Snow Melters	0.46	0.46	0.01	0.90	0.76	0.05
Total TPY	20.87	20.87	19.54	79.79	50.23	12.45

2. 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), are the aggregate group of the following gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO₂e).

The quantity of CO₂e emissions from this facility is less than 100,000 tons per year, based on the following:

- the facility's fuel use limits;
- worst case emission factors from the following sources: U.S. EPA's AP-42, the Intergovernmental Panel on Climate Change (IPCC), and 40 CFR Part 98, *Mandatory Greenhouse Gas Reporting*; and
- global warming potentials contained in 40 CFR Part 98.

No additional licensing actions to address GHG emissions are required at this time.

III. AMBIENT AIR QUALITY ANALYSIS

EMMC previously submitted an ambient air quality impact analysis for air emission license A-184-71-M-A (dated May 10, 2005) demonstrating that emissions from the facility, in conjunction with all other sources, do not violate Ambient Air Quality Standards (AAQS). An additional air quality impact analysis is not required for this renewal.

ORDER

Based on the Findings of Fact 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, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-184-71-R-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 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-A. [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 emissions 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) Facility Fuel Requirements

A. Fuel Requirements

1. Boilers #4 - #8 are licensed to combust natural gas and distillate fuel.
2. The distillate fuel fired in the boilers shall have a maximum sulfur content of 0.05% by weight. [06-096 CMR 115, BPT]
3. Per the current dates and requirements of 38 M.R.S.A. §603-A(2)(A)(3), the facility shall comply with the following statements; however, if the statute is revised, the facility shall comply with the revised dates and requirements upon promulgation of the statute revision.
 - i. Beginning July 1, 2016, or on the date specified in 38 M.R.S.A. §603-A(2)(A)(3), the distillate fuel fired at the facility shall have a maximum sulfur content of 0.005% by weight (50 ppm). [38 M.R.S.A. §603-A(2)(A)(3)]
 - ii. Beginning January 1, 2018, or on the date specified in 38 M.R.S.A. §603-A(2)(A)(3), the distillate fuel fired at the facility shall have a maximum sulfur content of 0.0015% by weight (15 ppm). [38 M.R.S.A. §603-A(2)(A)(3)]
4. 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. Fuel use limits for Boilers #4 - #8

The combined heat input of all the fuels fired in the boilers shall not exceed 200,000 MMBtu on a 12-month rolling total basis. The actual heat value of the natural gas, as provided by the supplier, may be used instead of the 0.00103 MMBtu/scf value listed in the equation below. The actual heat value of the distillate fuel, as provided by the supplier, may be used instead of the 0.14 MMBtu/gal value listed in the equation below.

The following shall be used to determine the monthly heat input into all of the boilers:

$$\left(\frac{\text{gal dist. fuel}}{\text{month}} \right) \left(\frac{0.14 \text{ MMBtu}}{\text{gal distillate fuel}} \right) + \left(\frac{\text{scf nat. gas}}{\text{month}} \right) \left(\frac{0.00103 \text{ MMBtu}}{\text{scf nat. gas}} \right) = \frac{\text{MMBtu heat input to boilers}}{\text{month}}$$

(17) **Boilers**

A. Distillate Fuel

1. Emissions from Boilers #4-#8 shall not exceed the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>Origin and Authority</u>
Boiler #4	PM	0.03	06-096 CMR 115, BPT
Boiler #5	PM	0.03	06-096 CMR 115, BPT
Boiler #6	PM	0.03	06-096 CMR 115, BPT
Boiler #7	PM	0.03	06-096 CMR 115, BPT
Boiler #8	PM	0.03	06-96 CMR 115, BPT

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

<u>Emission Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Boiler #4	0.63	0.63	1.06	5.25	1.47	0.53
Boiler #5	0.63	0.63	1.06	5.25	1.47	0.53
Boiler #6	0.63	0.63	1.06	5.25	1.47	0.53
Boiler #7	0.37	0.37	0.62	1.47	0.49	0.12
Boiler #8	0.37	0.37	0.62	1.47	0.49	0.12

B. Natural Gas

1. Emissions from Boilers #4-#8 shall not exceed the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>Origin and Authority</u>
Boiler #4	PM	0.02	06-096 CMR 115, BPT
Boiler #5	PM	0.02	06-096 CMR 115, BPT
Boiler #6	PM	0.02	06-096 CMR 115, BPT
Boiler #7	PM	0.02	A-184-71-S-A, 06-096 CMR 115, BPT
Boiler #8	PM	0.02	A-184-71-S-A, 06-096 CMR 115, BPT

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

<u>Emission Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Boiler #4	0.42	0.42	0.01	2.48	3.15	0.34
Boiler #5	0.42	0.42	0.01	2.48	3.15	0.34
Boiler #6	0.42	0.42	0.01	2.48	3.15	0.34
Boiler #7	0.25	0.25	0.01	0.49	0.49	0.12
Boiler #8	0.25	0.25	0.01	0.49	0.49	0.12

- C. Visible Emission requirements for Boilers #4-#8
Visible emissions from Stack #1 (shared by Boilers #4-#8) shall not exceed an opacity of 20 percent on six (6) minute block average basis, except for no more than one (1), six (6) minute block average in a 3-hour period.
[A-184-710-S-A, 06-096 CMR 115, BPT]
- D. 40 CFR Part 60, Subpart Dc
EMMC shall comply with all requirements of 40 CFR Part 60, Subpart Dc applicable to Boilers #7- #8 including, but not limited to, the following:
1. EMMC shall perform and submit to EPA and the Department an initial performance test within 30 days after achieving the maximum production rate at which the facility will be operated but not later than 180 days after the initial start-up of the facility. The performance test shall consist of fuel supplier certification of the sulfur content of the fuel fired in Boiler #7 - #8. 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. [40 CFR §60.44c and 40 CFR §60.45c]
 2. EMMC shall record and maintain records of the amounts of each fuel combusted during each day. As an alternative, EMMC may elect to record and maintain records of the amount of fuel combusted during each calendar month.
[40 CFR §60.48c(g)]
 3. EMMC shall submit to EPA and the Department semi-annual reports for the periods of January through June and July through December. 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 after the end of each 6-month period.
 4. The following address for EPA shall be used for any reports or notifications required to be copied to them:
U.S. Environmental Protection Agency, Region I
5 Post Office Square, Suite 100 (OES04-2)
Boston, MA 02109-3912
Attn: Air Compliance Clerk
- E. Boiler MACT (40 CFR Part 63, Subpart JJJJJ) Requirements for Boilers #4-#8
[incorporated under 06-096 CMR 115, BPT]
1. For Boilers #7 and #8, an Initial Notification submittal to EPA is due within 120 days after the source becomes subject to the standard.
[40 CFR Part 63.11225(a)(2)]

2. The facility shall implement a boiler tune-up program. [40 CFR Part 63.11223]

(a) Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. See chart below:

Boiler Category	Tune-Up Frequency
Existing Oil – Boilers #4, #5, and #6	Every 2 years
Boilers #7 and #8 which are equipped with oxygen trim system which maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune up	Every 5 years

[40 CFR Part 63.11223(a) and Table 2]

(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; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim systems, seasonal boilers, and limited use boilers. [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. Delay of the inspection until the next scheduled shutdown is permitted; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim systems, seasonal boilers, and limited use boilers. [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 by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [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 30 days of start-up. [40 CFR Part 63.11223(b)(7)]
- (c) Tune-Up Report: A tune-up report shall be maintained onsite and, if requested, submitted to the Department and to EPA. The report shall contain the following information:
- (1) The concentration of CO in the effluent stream (ppmv) and oxygen (volume percent) measured at high fire or typical operating load both **before** and **after** the boiler tune-up;
 - (2) A description of any corrective actions taken as part of the tune-up of the boiler; and
 - (3) The types and amounts of fuels used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit. [40 CFR §63.11223(b)(6)]
- (d) After conducting the initial boiler tune-up, a Notification of Compliance Status shall be submitted to EPA. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)]
3. Compliance Report
- A compliance report shall be prepared by March 1st the year following a required boiler tune-up (biennially for Boilers #4, #5, and #6, and every five years for Boilers #7 and #8) which covers the previous calendar years. The report shall be maintained by the source and submitted to the Department and to the EPA upon request. The report must include the items contained in §63.11225(b)(1) and (2), including the following: [40 CFR §63.11225(b)]
- (a) Company name and address;
 - (b) A statement of whether the source has complied with all the relevant requirements of this Subpart;
 - (c) A statement certifying truth, accuracy, and completeness of the notification and signed by a responsible official and containing the official's name, title, phone number, email address, and signature;
 - (d) The following certifications, as applicable:
 - (1) "This facility complies with the requirements in 40 CFR §63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."
 - (2) "No secondary materials that are solid waste were combusted in any affected unit."
 - (3) "This facility complies with the requirement in 40 CFR §§63.11214(d) to conduct a tune-up of each applicable boiler according to 40 CFR §63.11223(b)."

4. Energy Assessment (Boilers #4, #5, and #6):
 - (a) A one-time energy assessment was required to be performed by a qualified energy assessor on the applicable boilers no later than March 21, 2014. [40 CFR Part 63.11196(a)(3)]
 - (b) The energy assessment was required to include a visual inspection of the boiler system; an evaluation of operating characteristics of the affected boiler systems, specifications of energy use systems, operating and maintenance procedures, and unusual operating constraints; an inventory of major energy use systems consuming energy from affected boiler(s) and which are under control of the boiler owner or operator; a review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage; a list of major energy conservation measures that are within the facility's control; a list of the energy savings potential of the energy conservation measures identified; and a comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. [40 CFR 63, Table 2(4)]
 - (c) A Notification of Compliance Status was required to be submitted to EPA no later than July 19, 2014. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(c)]
5. Records shall be maintained consistent with the requirements of 40 CFR Part 63, Subpart JJJJJ including the following [40 CFR Part 63.11225(c)]:
 - (a) Copies of notifications and reports with supporting compliance documentation;
 - (b) Identification of each boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned;
 - (c) Records of the occurrence and duration of each malfunction of each applicable boiler; and
 - (d) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler.

Records shall be in a form suitable and readily available for expeditious review. EPA requires submission of Notification of Compliance Status reports for tune-ups and energy assessments through their electronic reporting system. [63.1125(a)(4)(vi)]

(18) Generators #1, #2, and #4

- A. Each of the emergency generators shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. [06-096 CMR 115, BPT]
- B. EMMC shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter and

the purpose of operating the generator. For the hours spent for emergency operation, describe what classified the operation as emergency. [06-096 CMR 115, BPT]

- C. If the engines are operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity, EMMC shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes. [06-096 CMR 115, BPT]
- D. As emergency engines, the units shall each be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise to supply power as part of a financial arrangement with another entity. These limits are based on a calendar year. Compliance shall be demonstrated by records (electronic or written logs) of all engine operating hours. [40 CFR §63.6640(f) and 06-096 CMR 115]
- E. The fuel sulfur content for Generators #1, #2, and #4 shall be limited to 0.0015% sulfur by weight. Compliance shall be demonstrated by fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06-096 CMR 115, BPT]
- F. Emissions shall not exceed the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>	<u>Origin and Authority</u>
Generator #1	PM	0.12	06-096 CMR 103(2)(B)(1)(a)
Generator #2	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 shall not exceed the following [06-096 CMR 115, BPT]:

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Generator #1 (14.6 MMBtu/hr) distillate fuel	1.75	1.75	0.75	53.76	12.41	1.31
Generator #2 (14.6 MMBtu/hr) distillate fuel	1.75	1.75	0.75	53.76	12.41	1.31
Generator #4 (4.88 MMBtu/hr) distillate fuel	0.59	0.59	0.25	15.62	4.15	0.44

H. Visible Emissions

Visible emissions from each of the distillate fuel-fired generators shall not exceed 20% opacity on a 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]

- I. The Generators #1, #2, and #4 are institutional emergency engines and are not subject to the requirements of 40 CFR Part 63, Subpart ZZZZ. However, if the engine(s) no longer meets the definition of an emergency engine, EMMC shall comply with the requirements of 40 CFR Part 63, Subpart ZZZZ for the applicable engine(s).

(19) **Generator #3**

- A. Generator #3 shall be limited to 100 hours of operation per calendar year, excluding operating hours during emergency situations. [06-096 CMR 115]

- B. Emissions shall not exceed the following:

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

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

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Generator #3 (19.3 MMBtu/hr) distillate fuel	2.32	2.32	0.03	42.1	3.45	0.93

D. Visible Emissions

Visible emissions from Generator #3 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. [06-096 CMR 101]

- E. Generator #3 shall meet the applicable requirements of 40 CFR Part 60, Subpart IIII, including the following:

1. **Manufacturer Certification**

The engine shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in §60.4202. [40 CFR §60.4205(b)]

2. Ultra-Low Sulfur Fuel

The fuel fired in the engine shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. Compliance with the fuel sulfur content limit shall be based on fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [40 CFR §60.4207(b) and 06-096 CMR 115]

3. Non-Resettable Hour Meter

A non-resettable hour meter shall be installed and operated on the engine. [40 CFR §60.4209(a)]

4. Annual Time Limit for Maintenance and Testing

a. As an emergency engine, the unit shall be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). These limits are based on a calendar year. Compliance shall be demonstrated by records (electronic or written log) of all engine operating hours. [40 CFR §60.4211(f) and 06-096 CMR 115]

b. EMMC shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter and the purpose of operating the generator. For the hours spent for emergency operation, describe including what classified the operation as emergency. If the engine is operated during a period of demand response or deviation from standard voltage or frequency, or to supply power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), the EMMC shall keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

5. Operation and Maintenance

The engine shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by EMMC that are approved by the engine manufacturer. EMMC may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]

6. Annual Reporting For Demand Response Availability Over 15 Hours Per Year

If EMMC operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of

deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

U.S. Environmental Protection Agency, Region I
5 Post Office Square, Suite 100 (OES04-2)
Boston, MA 02109-3912
Attn: Air Compliance Clerk

[40 CFR §60.4214(d)]

(20) Combustion Turbine Generator (CTG)

- A. EMMC shall comply with the applicable New Source Performance Standards contained in 40 CFR, Part 60, Subpart KKKK.
- B. The sulfur content of the natural gas and distillate fuel used in the CTG shall not exceed the limits set forth in 40 CFR Part 60, Subpart KKKK. Records from the fuel suppliers documenting the sulfur content of the fuels shall be kept for compliance purposes. [06-096 CMR 115, BPT, 40 CFR Part 60, Subpart KKKK]
- C. EMMC shall not burn more than 1,339,551 gallons of distillate fuel in the CTG in a 12-month period without the installation and utilization of a selective catalytic reduction (SCR) unit as a NO_x pollution control device, as approved by the Department. Compliance with the fuel oil limit shall be demonstrated using fuel oil purchasing records and oil storage tank inventory readings. The estimated boiler fuel use shall then be subtracted from the total inventory to calculate the fuel use in the CTG. [06-096 CMR 115, BPT]
- D. If EMMC burns more than 1,339,551 gallons of distillate fuel in a 12-month period, EMMC shall install SCR technology in the CTG within twelve (12) months of the turbine exceeding the above oil consumption level. [06-096 CMR 115, BPT]

- E. When firing distillate fuel, emissions from the CTG shall not exceed the following [06-096 CMR 115, BPT]:

Unit	Pollutant	lb/MMBtu
CTG	PM	0.06

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CTG	3.9	3.9	3.3	18.4	7.5	2.2

- F. When firing natural gas, emissions from the CTG shall not exceed the following [06-096 CMR 115, BPT]:

Unit	Pollutant	lb/MMBtu
CTG	PM	0.042

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
CTG	2.7	2.7	0.2	6.1	7.4	0.4

- G. When firing natural gas, NO_x emissions from the CTG shall not exceed 25 ppm_{dv} (15% O₂). Compliance with this NO_x emission limit and the NO_x emission standards for natural gas and liquid fuels established in 40 CFR 60 Subpart KKKK shall be demonstrated by meeting the annual emission performance test requirements contained in Subpart KKKK. If the results from an annual performance test is less than or equal to 75% of the NO_x emission limit, frequency of subsequent testing may be reduced to once every two years. [06-096 CMR 115, BPT, 40 CFR 60.4340]

- H. Visible emissions from the CTG shall not exceed 10 percent opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hour period. This opacity limit shall not apply during the first four hours following the initiation of cold startup or planned shutdown, provided that operating records are available to demonstrate that the facility was being operated to minimize emissions. [06-096 CMR 101, BPT]

- I. EMMC is licensed to remove and replace turbine components with new, repaired, or refurbished like-kind components of the turbine as long as the installation of the components does not result in non-compliance with the terms of the air emission license or any representation made in the air emission license application. EMMC shall notify the department in writing in advance of any major replacement of turbine components.

(21) **Snow Melters #1 - #4**

- A. The Snow Melters shall fire only natural gas. [06-096 CMR 115, BACT]

- B. The Snow Melters shall be limited to a combined fuel use limit of 18 MMscf of natural gas on a 12 month rolling total basis. A fuel meter shall be operated and maintained for compliance purposes. [06-096 CMR 115, BACT]
- C. Emissions shall not exceed the following for each Snow Melter [06-096 CMR 115, 06-096 CMR 103, BACT]:

Unit	Pollutant	lb/MMBtu
Snow Melter	PM	0.05

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Snow Melter	0.45	0.45	0.01	0.87	0.73	0.05

- D. Visible Emissions from each Snow Melter shall not exceed 10% opacity on a six (6) minute block average. [06-096 CMR 101, BACT]

(22) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), the licensee shall annually report to the Department, in a format prescribed by the Department, the information necessary to accurately update the State's emission inventory. The emission statement shall be submitted as specified by the date in 06-096 CMR 137.

- (23) EMMC 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 M.R.S.A. §605).

DONE AND DATED IN AUGUSTA, MAINE THIS 9 DAY OF March, 2016.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Paul Allen Robert Core for
PAUL MERCER, COMMISSIONER

The term of this license shall be ten (10) years from the signature date above.

[Note: If a complete renewal application, as determined by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 M.R.S.A. §10002, all terms and conditions of the license shall remain in effect until the Department takes final action on the renewal of the license.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 9/23/2013
Date of application acceptance: 9/23/2013
Date filed with the Board of Environmental Protection:
This Order prepared by Lisa P. Higgins, Bureau of Air Quality.

