STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

Central Maine Medical Center **Androscoggin County** **Lewiston, Maine** **A-387-71-L-A (SM)**	**Departmental** **Findings of Fact and Order** **Air Emission License** **Amendment**

FINDINGS OF FACT

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

I. REGISTRATION

A. Introduction

Central Maine Medical Center (CMMC) was issued Air Emission License A-387-71-K-R on 10/01/2012, for the operation of emission sources associated with its healthcare facility.

CMMC has requested an amendment to its license to make the following changes:

- Install a 2.58 MMBtu/hr (input) natural gas-fired cogeneration unit;
- Correct emissions calculations from A-387-71-K-R;
- Reduce the facility's #6 fuel oil annual limit from 800,000 gallons to 500,000 gallons; and
- Update the operating hours restriction on the emergency generators to be consistent with current state and federal requirements.

The equipment addressed in this license is located at 300 Main Street, Lewiston, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license amendment:

Boilers

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type, % sulfur	Installation Date	Stack #
Boiler #1	25.0	167 gal/hr	#6 Fuel oil, 0.7% by weight	1969	1
		26, 215 scf/hr	Natural gas, Negligible sulfur		

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type, % sulfur	Installation Date	Stack #
Boiler #2	25.0	167 gal/hr	#6 Fuel oil, 0.7% by weight	1969	1
		26, 215 scf/hr	Natural gas, Negligible sulfur		
Boiler #3	9.0	60 gal/hr	#6 Fuel oil, 0.7% by weight	1967	1
		8,740 scf/hr	Natural gas, Negligible sulfur		

Stationary Engines

Equipment	Max. Input Capacity (MMBtu/hr)	Rated Output Capacity (kW)	Fuel Type, % sulfur	Firing Rate (gal/hr)	Date of Manuf.	Date of Install.	Stack #
Gen #1	6.7	700	Distillate fuel, 0.0015% by weight	48.8 gal/hr	1975	1975	2
Gen #2	5.7	600	Distillate fuel, 0.0015% by weight	41.8 gal/hr	1989	1989	4
Gen #3	14.5	1,500	Distillate fuel, 0.0015% by weight	104.5 gal/hr	2003	2003	5
Cogen #1*	2.58	250	Natural gas, Negligible Sulfur	2,500 scf/hr	2017	2018	6

* Cogen #1 is being added in this amendment

C. Definitions

Distillate Fuel. For the purposes of this license, *distillate fuel* means the following:

- Fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials (ASTM) 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

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the "Significant Emission" levels as defined in the Department's *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. The emission increases are determined by subtracting the current licensed annual

emissions preceding the modification from the maximum future licensed annual emissions, as follows:

Pollutant	Current License (TPY)	Future License (TPY)	Net Change (TPY)	Significant Emission Levels
PM	20.9	16.3	- 4.6	100
PM_{10}	20.9	16.3	- 4.6	100
SO_2	44.4	27.8	- 16.6	100
NO_x	98.5	44.4	- 54.1	100
CO	50.0	30.5	- 19.5	100
VOC	3.8	4.1	- 0.3	50

This modification is determined to be a minor modification 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 C.M.R. ch. 100. Separate control requirement categories exist for new and existing equipment.

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 C.M.R. ch. 100. 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. Project Description

1. Emissions, Fuel Use Limit, and Engine Operating Hours

CMMC has requested that hourly and annual emissions be updated for the units at the facility. Boilers #1-3 and Generators #1-3 were licensed in A-387-71-K-R (10/01/2012); however, some lb/hr emission limits and the allowable annual emissions were inaccurately calculated for the license. In this amendment, the previously

established emission factors will be used with the licensed unit sizes to recalculate both lb/hr emission limits and the maximum allowable annual emissions.

CMMC has also requested that the annual fuel limit for #6 fuel oil in the boilers be changed from 800,000 gallons on a 12-month rolling total basis to 500,000 gallons on a 12-month rolling total basis and that the operating hours restriction on the emergency generators be changed from 500 hours per year to 100 hours per year for non-emergency operations. The changes reduce allowable annual emissions for the facility. The adjustment to the emergency engine operating hours also makes the state-enforced limit consistent with those of federal Reciprocating Internal Combustion Engine (RICE) rules (which none of the existing units are subject to) and current Department practices.

With the above changes, when calculating the maximum allowable annual emissions for the facility, a worst case-scenario has been assumed for each pollutant. For the existing units, that constitutes the following:

Pollutant	Operating Scenario
PM PM_{10} SO_2 NO_x	- 100 hours of operation of each emergency engine - 8,760 hours of operation of each boiler, including: • 500,000 gallons of #6 fuel oil burned in one boiler • Natural gas burned in that boiler for the remaining hours • 8,760 hours of natural gas burning in each of the other boilers
CO	- 100 hours of operation of each emergency engine - 8,760 hours of operation of each boiler, all burning natural gas
VOC	- 100 hours of operation of each emergency engine - 8,760 hours of operation of each boiler, including: • 500,000 gallons of #6 fuel oil burned in Boiler #3 • Natural gas burned for the remaining hours in Boiler #3 • 8,760 hours of natural gas burning in each of the other boilers

Due to the amount of changes being made, the entirety of BPT will be re-listed in this amendment for each unit. This BPT change will include updating the date of the fuel sulfur requirement change pursuant to 38 M.R.S. § 603-A(2)(A)(1) and (2), removing the conditional phrases from visible emission requirements to be consistent with current Department practices, and removing the gallons per hour restriction on #6 fuel oil use in the boilers.

2. Cogeneration Unit

CMMC has requested to install and operate a new cogeneration unit, Cogen #1. The unit is a RICE and will be licensed as such. BACT requirements for this unit are contained in section E.

C. Boilers #1-3

CMMC operates Boilers #1-3 for heat, sterilizing steam, and hot water. The boilers are rated at 25 MMBtu/hr, 25 MMBtu/hr, and 9.0 MMBtu/hr, respectively, and they all fire both #6 fuel oil and natural gas. The boilers were installed in 1969, 1969, and 1967, respectively, and they exhaust through a shared stack, Stack #1.

1. BPT Findings

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

	#6 Fuel Oil	Natural Gas
PM/PM_{10}	0.12 lb/MMBtu 06-096 C.M.R. ch. 115, BPT	0.05 lb/MMBtu 06-096 C.M.R. ch. 115, BPT
SO_2	0.735 lb/MMBtu The firing of #6 fuel oil with a sulfur content of 0.7% by weight	0.6 lb/MMscf AP-42 Table 1.4-2, dated 07/98
NO_x	55 lb/1000 gal AP-42 Table 1.3-1, dated 05/10	100 lb/MMscf AP-42 Table 1.4-1, dated 07/98
CO	5 lb/1000 gal AP-42 Table 1.3-1, dated 05/10	84 lb/MMscf AP-42 Table 1.4-1, dated 07/98
VOC	0.28 lb/1000 gal AP-42 Table 1.3-3, dated 05/10	5.5 lb/MMscf AP-42 Table 1.4-2, dated 07/98
Visible Emissions	06-096 C.M.R. ch. 115, BPT	

The BPT emission limits for the boilers are the following:

		#6 Fuel Oil	**Natural Gas**
Unit	**Pollutant**	**lb/MMBtu**	**lb/MMBtu**
Boiler #1	PM	0.12	0.05
Boiler #2	PM	0.12	0.05
Boiler #3	PM	0.12	0.05

Unit	**Fuel**	**PM (lb/hr)**	**PM_{10} (lb/hr)**	**SO_2 (lb/hr)**	**NO_x (lb/hr)**	**CO (lb/hr)**	**VOC (lb/hr)**
Boiler #1	#6 Fuel Oil	3.00	3.00	18.38	9.19	0.84	0.05
	Natural Gas	1.25	1.25	0.02	2.62	2.20	0.14
Boiler #2	#6 Fuel Oil	3.00	3.00	18.38	9.19	0.84	0.05
	Natural Gas	1.25	1.25	0.02	2.62	2.20	0.14

Unit	Fuel	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #3	#6 Fuel Oil	1.08	1.08	6.62	3.30	0.30	0.07
	Natural Gas	0.45	0.45	0.01	0.87	0.73	0.05

Visible Emissions Requirements [06-096 C.M.R. ch. 115, BPT]

Visible emissions from Stack #1 shall not exceed 30% opacity on a six-minute block average basis when any of the units are firing #6 fuel oil.

Visible emissions from Stack #1 shall not exceed 10% opacity on a six-minute block average basis when all operating boilers are firing natural gas.

Fuel Use Requirements [06-096 C.M.R. ch. 115, BPT]

CMMC shall be limited to 500,000 gallons of #6 fuel oil use on a 12-month rolling total basis.

Operation Restriction [06-096 C.M.R. ch. 115, BPT]

Modeling was completed for license A-387-74-B-R (dated, August 23, 1999) which required CMMC to limit the total firing rate in Boilers #1-#3 to 200 gallons per hour when firing #6 fuel oil, based on a 3-hour average, in order to comply with the National Ambient Air Quality Standards (NAAQS).

The Department has determined that due to CMMC's estimated impact and because of improved SO_2 background values in the Central Maine region, the gallons per hour restriction on the boilers is no longer necessary for compliance with the NAAQS and have been removed.

Fuel Sulfur Content Requirements

Boilers #1-#3 are licensed to fire residual fuel (#6 fuel oil). The sulfur content of the residual fuel fired is currently limited to 0.7% by weight per 38 M.R.S. § 603-A(2)(A)(1) and (2), as of July 1, 2018, no person shall import, distribute, or offer for sale any residual fuel oil with a sulfur content greater than 0.5% by weight. Therefore, beginning July 1, 2018, the residual fuel purchased or otherwise obtained for use in the boilers shall not exceed 0.5% by weight.

2. Periodic Monitoring

CMMC shall document fuel use both on a monthly and 12-month rolling total basis to demonstrate compliance with the #6 fuel oil use and sulfur limits. CMMC shall

maintain records from the supplier showing the quantity, type, and percent sulfur of the fuel delivered. [06-096 C.M.R. ch. 115, BPT]

3. New Source Performance Standards (NSPS): 40 C.F.R. Part 60, Subpart Dc

   Due to the years of manufacture, the boilers are not subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R. Part 60, Subpart Dc for units greater than 10 MMBtu/hr manufactured after June 9, 1989. [40 C.F.R. § 60.40c]

4. National Emission Standards for Hazardous Air Pollutants (NESHAP): 40 C.F.R. Part 63, Subpart JJJJJJ

   Boilers #1-3 are all subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 C.F.R. Part 63, Subpart JJJJJJ. Boilers #1 and #2 are considered existing oil boilers rated higher than 10 MMBtu/hr, and Boiler #3 is considered an existing oil boiler rated lower than 10 MMBtu/hr. [40 C.F.R. §§63.11193 and 63.11195]

   Each of the boilers primarily fires natural gas; however, CMMC has chosen to maintain the boilers' oil-fired classifications. Gas-fired boilers are exempt from 40 C.F.R. Part 63, Subpart JJJJJJ. 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 (48 hours total during any calendar year). CMMC may elect to reclassify the boilers as gas fired as outlined in § 63.11225(g) and would therefore exempt the boilers from this rule. [40 C.F.R. § 63.11237]

   A summary of the currently applicable federal 40 C.F.R. Part 63, Subpart JJJJJJ requirements is listed below. Notification forms and additional rule information can be found on the following website: https://www.epa.gov/stationary-sources-air-pollution/compliance-industrial-commercial-and-institutional-area-source.

   a. Compliance Dates, Notifications, and Work Practice Requirements

      (1) Initial Notification of Compliance

      An Initial Notification submittal to EPA was due no later than January 20, 2014. [40 C.F.R. § 63.11225(a)(2)]

      CMMC submitted its Initial Notification to EPA on August 16, 2011.

(2) Boiler Tune-Up Program

(i) A boiler tune-up program shall be implemented. [40 C.F.R. § 63.11223]

(ii) Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. Because the boilers are all classified as oil-fired boilers, and because they don't meet any of the conditions for less frequent tune-up requirements, they are required to be tuned-up every 2 years.
[40 C.F.R. § 63.11223(a) and Table 2]

(iii) 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. [40 C.F.R. § 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 C.F.R. § 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. [40 C.F.R. § 63.11223(b)(3)]
4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 63.11223(b)(7)]

(iv) Tune-Up Report: A tune-up report shall be maintained onsite and, if requested, submitted 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 C.F.R. § 63.11223(b)(6)]

(v) After conducting the initial boiler tune-up, a Notification of Compliance Status was required to be submitted to EPA no later than July 19, 2014. [40 C.F.R. § 63.11225(a)(4) and 40 C.F.R. § 63.11214(b)]

CMMC submitted its Notification of Compliance Status to EPA July 1, 2014.

(3) Compliance Report

A compliance report shall be prepared by March 1st biennially which covers the previous two calendar years. The report shall be maintained by the source and submitted to the Department and/or to the EPA upon request. The report must include the items contained in §§ 63.11225(b)(1) and (2), including the following: [40 C.F.R. § 63.11225(b)]

(i) Company name and address;

(ii) A statement of whether the source has complied with all the relevant requirements of this Subpart;

(iii) 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;

(iv) The following certifications, as applicable:

1. "This facility complies with the requirements in 40 C.F.R. § 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 §§ 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available."

(4) Energy Assessment [Boilers #1 and #2]

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 C.F.R. § 63.11196(a)(3)]

CMCC conducted its one-time energy assessment on March 17, 2014.

b. Recordkeeping

Records shall be maintained consistent with the requirements of 40 C.F.R. Part 63, Subpart JJJJJJ including the following [40 C.F.R. § 63.11225(c)]:

(1) Copies of notifications and reports with supporting compliance documentation;
(2) 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;
(3) Records of the occurrence and duration of each malfunction of each applicable boiler; and
(4) 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. [40 C.F.R. § 63.11225(a)(4)(vi)]

D. Generators #1-#3

CMMC operates three emergency generators, Generators #1-#3. The emergency generators are generator sets with each generator set consisting of an engine and an electrical generator. The emergency generators have engines rated at 6.7 MMBtu/hr, 5.7 MMBtu/hr, and 14.5 MMBtu/hr, respectively, which fire distillate fuel. The emergency generators were manufactured in 1975, 1989, and 2003, respectively.

1. BPT Findings

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

PM/PM_{10}	0.12 lb/MMBtu 06-096 C.M.R. ch. 103
SO_2	0.0015 lb/MMBtu The combustion of distillate fuel with a maximum sulfur content of 0.0015% sulfur by weight
NO_x	3.2 lb/MMBtu AP-42 Table 3.4-1, dated 10/96
CO	0.85 lb/MMBtu AP-42 Table 3.4-1, dated 10/96
VOC	0.09 lb/MMBtu AP-42 Table 3.4-1, dated 10/96
Visible Emissions	06-096 C.M.R. ch. 115, BPT

The BPT emission limits for the generators are the following:

Unit	Pollutant	lb/MMBtu
Generator #1	PM	0.12
Generator #2	PM	0.12
Generator #3	PM	0.12

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1	0.80	0.80	0.01	21.44	5.70	0.60
Generator #2	0.68	0.68	0.01	12.24	4.85	0.51
Generator #3	1.74	1.74	0.02	46.40	12.33	1.31

Visible Emissions Requirements [06-096 C.M.R. ch. 115, BPT]

Visible emissions from each of the distillate fuel-fired emergency generators shall not exceed 20% opacity on a six-minute block average basis.

Operational Requirements

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, CMMC 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 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 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. New Source Performance Standards (NSPS):
   40 C.F.R. Part 60, Subpart IIII

   Due to the dates of manufacture of the compression ignition emergency engines listed above, the engines are not subject to the New Source Performance Standards (NSPS) *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE),* 40 C.F.R. Part 60, Subpart IIII since the units were manufactured prior to April 1, 2006. [40 C.F.R. § 60.4200]

3. National Emission Standards for Hazardous Air Pollutants (NESHAP):
   40 C.F.R. Part 63, Subpart ZZZZ

   National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, 40 C.F.R. Part 63, Subpart ZZZZ 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 40 C.F.R. Part 63, Subpart ZZZZ since they are categorized as institutional emergency engines and they do not operate or are not contractually obligated to be available in a demand response program, during a period of deviation from standard voltage or frequency, or for supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in 40 C.F.R. § 63.6640(f)(4)(ii).

   Operation of any emergency engine in a demand response program, during a period of deviation from standard voltage or frequency, or for supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in 40 C.F.R. § 63.6640(f)(4)(ii), would cause the engine to be subject to 40 C.F.R. Part 63, Subpart ZZZZ and require compliance with all applicable requirements.

E. Cogen #1

CMMC has requested to license the installation and operation of a natural gas-fired cogeneration unit capable of producing electricity and hot water for the facility. The 250 kW Co-Energy America 8250-Amerigen is a RICE with a maximum heat input capacity of 2.58 MMBtu/hr. The unit will be installed in an outdoor enclosure on the roof of the north-west CMMC Young building. The unit is anticipated to achieve an overall fuel conversion efficiency of 83% (33% electrical and 50% thermal). It is scheduled to be installed in 2018 and is designed to exhaust through its own stack.

1. BACT Findings

The BACT emission limits for the cogeneration unit are based on the following:

PM/PM_{10}	0.05 lb/MMBtu 06-096 C.M.R. ch. 115, BACT
SO_2	0.0006 lb/MMBtu AP-42 Table 3.2-2, dated 07/00
NO_x	1.0 g/HP-hr 40 C.F.R. Pat 60, Subpart JJJJ; Table 1
CO	2 g/HP-hr 40 C.F.R. Pat 60, Subpart JJJJ; Table 1
VOC	0.7 g/HP-hr 40 C.F.R. Pat 60, Subpart JJJJ; Table 1
Visible Emissions	06-096 C.M.R. ch. 115, BACT

The BACT emission limits for the cogeneration unit are the following:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Cogen #1	0.13	0.13	Negligible	0.78	1.56	0.55

Visible Emissions Requirements [06-096 C.M.R. ch. 115, BACT]

Visible emissions from Cogen #1 shall not exceed 10% opacity on a six-minute block average basis.

2. 40 C.F.R. Part 60, Subpart JJJJ

Standards of Performance for Spark Ignition Internal Combustion Engines, 40 C.F.R. Part 60, Subpart JJJJ is applicable to Cogen #1 since the unit will be ordered after June 12, 2006, and manufactured after January 1, 2009. [40 C.F.R. § 60.4230]

A summary of the currently applicable federal 40 C.F.R. Part 60, Subpart JJJJ requirements is listed below.

a. 40 C.F.R. Part 60, Subpart JJJJ Requirements

(1) Emission and Operation Standards

CMMC shall operate and maintain the engine to achieve the emission standards for Non-Emergency Spark Ignition Natural Gas engines in Table 1 of Subpart JJJJ for the life of the engine. [40 C.F.R. §§ 60.4233(e) and 60.4234]

CMMC shall demonstrate compliance with the applicable emissions standards in the following ways:

- Purchasing an engine certified by the manufacturer as meeting the emission standards; and
- Keeping records of maintenance conducted on the engine if the engine is operated and maintained according to the manufacturer's written instructions; **or**
- The following if the facility purchases a non-certified engine or the engine is not operated and maintained according to the manufacturer's written instructions:
  - Keeping a maintenance plan and records of maintenance conducted on the engine,
  - To the extent practicable, maintaining and operating the engine in a manner consistent with good air pollution control practices for minimizing emissions, and
  - Conducting an initial performance test according to § 60.4244 within 1 year of engine startup and complete all related notification and recordkeeping requirements.

The proposed cogeneration unit is not certified by the manufacturer to meet the applicable emission standards, so CMMC shall comply with all requirements of non-certified engines.
[40 C.F.R. § 60.4243(b)]

(2) Operational Flexibility

CMMC may operate Cogen #1 using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use.

If propane is used for more than 100 hours per year and the engine is not certified to the applicable emission standards when using propane, CMMC shall conduct a performance test to demonstrate compliance with the emission standards of § 60.4233 according to § 60.4244. [40 C.F.R. § 60.4243(e)]

(3) Recordkeeping

CMMC shall keep the following records:

- Maintenance conducted on the engine;
- Documentation from the manufacturer that the engine is certified to meet the applicable emission standards if the engine is operated according to the manufacturer's written directions; and
- Other documentation that the engine meets the emission standards if it is not operated according to the manufacturer's written directions.

[40 C.F.R. § 60.4245(a)]

(4) Notifications

CMMC shall submit to EPA a copy of the initial performance test as conducted in § 60.4244 within 60 days after the test has been completed. Performance test reports using EPA Method 18, EPA Method 320, or ASTM D6348-03 to measure VOC require reporting of all QA/QC data. For Method 18, report results from sections 8.4 and 11.1.1.4; for Method 320, report results from sections 8.6.2, 9.0, and 13.0; and for ASTM D6348-03 report results of all QA/QC procedures in Annexes 1-7.
[40 C.F.R. § 60.4245(d)]

F. Annual Emissions

1. Total Annual Emissions

CMMC shall be restricted to the following annual emissions on a 12-month rolling total basis. The tons per year limits were based on the firing of 500,000 gallons #6 fuel oil and unlimited natural gas in the boilers (worst-case-scenario was calculated for each pollutant), 100 hours of operation of each emergency generator, and 8,760 hours of operation of Cogen #1:

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

	PM	**PM_{10}**	**SO_2**	**NO_x**	**CO**	**VOC**
Boilers	15.55	15.55	27.70	36.62	22.51	1.56
Emergency Generators	0.16	0.16	--	4.30	1.14	0.12
Cogen #1	0.57	0.57	0.01	3.42	6.83	2.39
Total TPY	**16.3**	**16.3**	**27.8**	**44.4**	**30.5**	**4.1**

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

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 C.F.R. Part 52, Subpart A, § 52.21, *Prevention of Significant Deterioration of Air Quality* rule. Greenhouse gases, as defined in 06-096 C.M.R. ch. 100, 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 (CO_2e).

The quantity of CO_2e emissions from this facility is less than 100,000 tons per year, based on the following:

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

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

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, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License Amendment A-387-71-L-A subject to the conditions found in Air Emission License A-387-71-K-R and the following conditions.

Severability. The invalidity or unenforceability of any provision of this License Amendment or part thereof shall not affect the remainder of the provision or any other provisions. This License Amendment shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

SPECIFIC CONDITIONS

The Following Condition Replaces Specific Condition (16) in Air Emission License A-387-71-K-R.

(16) **Boilers #1-#3**

A. Fuel

1. Boilers #1-#3 are licensed to fire #6 fuel oil and natural gas.
2. Total #6 fuel oil use for the boilers shall not exceed 500,000 gal/yr on a 12-month rolling total basis. [06-096 C.M.R. ch. 115, BPT]
3. Prior to July 1, 2018, the facility shall fire #6 fuel oil with a maximum sulfur content not to exceed 0.7% by weight. [06-096 C.M.R. ch. 115, BPT]
4. Beginning July 1, 2018, the facility shall not purchase or otherwise obtain #6 fuel oil with a maximum sulfur content that exceeds 0.5% by weight. [06-096 C.M.R. ch. 106]
5. Compliance shall be demonstrated by fuel records from the supplier showing the quantity, type, and the percent sulfur of the fuel oil delivered. Records of annual fuel use shall be kept on a monthly and 12-month rolling total basis. [06-096 C.M.R. ch. 115, BPT]

B. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

		#6 Fuel Oil	Natural Gas
Unit	**Pollutant**	**lb/MMBtu**	**lb/MMBtu**
Boiler #1	PM	0.12	0.05
Boiler #2	PM	0.12	0.05
Boiler #3	PM	0.12	0.05

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

Unit	Fuel	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	#6 Fuel Oil	3.00	3.00	18.38	9.19	0.84	0.05
	Natural Gas	1.25	1.25	0.02	2.62	2.20	0.14
Boiler #2	#6 Fuel Oil	3.00	3.00	18.38	9.19	0.84	0.05
	Natural Gas	1.25	1.25	0.02	2.62	2.20	0.14
Boiler #3	#6 Fuel Oil	1.08	1.08	6.62	3.30	0.30	0.07
	Natural Gas	0.45	0.45	0.01	0.87	0.73	0.05

D. Visible Emissions Requirements [06-096 C.M.R. ch. 115, BPT]

1. Visible emissions from Stack #1 shall not exceed 30% opacity on a six-minute block average basis when any of the units are firing #6 fuel oil.
2. Visible emissions from Stack #1 shall not exceed 10% opacity on a six-minute block average basis when all operating boilers are firing natural gas.

E. CMMC shall comply with all requirements of 40 C.F.R. Part 63, Subpart JJJJJJ applicable to each boiler including, but not limited to, the following for as long as the boilers are classified as oil-fired and are subject to the rule:
[incorporated under 06-096 C.M.R. ch. 115, BPT]

1. The facility shall implement a boiler tune-up program. [40 C.F.R. § 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. Because the boilers are all classified as oil-fired boilers, and because they don't meet any of the conditions for less frequent tune-up requirements, they are required to be tuned-up every 2 years.
   [40 C.F.R. § 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. [40 C.F.R. § 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 C.F..R § 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. [40 C.F.R. § 63.11223(b)(3)]
      (4) Optimize total emissions of CO, consistent with manufacturer's specifications. [40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 63.11223(b)(7)]

c. Tune-Up Report: A tune-up report shall be maintained onsite and, if requested, submitted 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 C.F.R. § 63.11223(b)(6)]

2. Compliance Report

A compliance report shall be prepared by March 1st biennially which covers the previous two calendar years. The report shall be maintained by the source and submitted to the Department and/or to the EPA upon request. The report must include the items contained in §§ 63.11225(b)(1) and (2), including the following: [40 C.F.R. § 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 C.F.R. § 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 §§ 63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available."

3. Records shall be maintained consistent with the requirements of 40 C.F.R. Part 63, Subpart JJJJJJ including the following [40 C.F.R. § 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. [40 C.F.R. § 63.11225(a)(4)(vi)]

The Following Condition Replaces Specific Condition 17 in Air Emission License A-387-71-K-R.

(17) **Generators #1-#3**

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 C.M.R. ch. 115, BPT]

B. CMMC 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. Documentation shall include the number of hours each unit operated for emergency purposes, the number of hours each unit operated for non-emergency purposes, and the reason the engine was in operation during each time. [06-096 C.M.R. ch. 115, BPT]

C. The fuel sulfur content for Generators #1-#3 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 C.M.R. ch. 115, BPT]

D. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Unit	Pollutant	lb/MMBtu
Generator #1	PM	0.12
Generator #2	PM	0.12
Generator #3	PM	0.12

E. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BPT/BACT]:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1	0.80	0.80	0.01	21.44	5.70	0.60
Generator #2	0.68	0.68	0.01	12.24	4.85	0.51
Generator #3	1.74	1.74	0.02	46.40	12.33	1.31

F. Visible emissions from each of the distillate fuel-fired generators shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

G. Emergency generators are only to be operated for maintenance purposes and 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 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.

The Following Condition is in addition to the Conditions listed in Air Emission License A-387-71-K-R

(20) **Cogen #1**

A. Cogen #1 is licensed to fire natural gas. Cogen #1 may also fire propane as allowed by 40 C.F.R. Part 60, Subpart JJJJ.

B. Emissions shall not exceed the following [06-096 C.M.R. ch. 115, BACT]:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Cogen #1	0.13	0.13	Negligible	0.78	1.56	0.55

C. Visible emissions from Cogen #1 shall each not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]

D. Cogen #1 shall meet the applicable requirements of 40 C.F.R. Part 60, Subpart JJJJ, including the following [incorporated under 06-096 C.M.R. ch. 115, BACT]:

1. Emission and Operation Standards
CMMC shall operate and maintain the engine to achieve the emission standards for Non-Emergency Spark Ignition Natural Gas engines in Table 1 for the life of the engine. [40 C.F.R. §§ 60.4233(e) and 60.4234]

CMMC shall demonstrate compliance with the applicable emissions standards in the following ways:
- Purchasing an engine certified by the manufacturer as meeting the emission standards; and
- Keeping records of maintenance conducted on the engine if the engine is operated and maintained according to the manufacturer's written instructions; **or**
- The following if the facility purchases a non-certified engine or the engine is not operated and maintained according to the manufacturer's written instructions:
  - Keeping a maintenance plan and records of maintenance conducted on the engine,
  - To the extent practicable, maintaining and operating the engine in a manner consistent with good air pollution control practices for minimizing emissions, and

- Conducting an initial performance test according to § 60.4244 within 1 year of engine startup and complete all related notification and recordkeeping requirements.

The proposed cogeneration unit is not certified by the manufacturer to meet the applicable emission standards, so CMMC shall comply with all requirements of non-certified engines.
[40 C.F.R. § 60.4243(b)]

2. Operational Flexibility

   CMMC main operate Cogen #1 using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but shall keep records of such use.

   If propane is used for more than 100 hours per year and the engine is not certified to the applicable emission standards when using propane, CMMC shall conduct a performance test to demonstrate compliance with the emission standards of § 60.4233 according to § 60.4244. [40 C.F.R. § 60.4243(f)]

3. Recordkeeping
   CMMC shall keep the following records:
   - Maintenance conducted on the engine;
   - Documentation from the manufacturer that the engine is certified to meet the applicable emission standards if the engine is operated according to the manufacturer's written directions; and
   - Other documentation that the engine meets the emission standards if it is not operated according to the manufacturer's written directions.

   [40 C.F.R. § 60.4245(a)]

4. Notifications
   CMMC shall submit to EPA a copy of the initial performance test as conducted in § 60.4244 within 60 days after the test has been completed. Performance test reports using EPA Method 18, EPA Method 320, or ASTM D6348-03 to measure VOC require reporting of all QA/QC data. For Method 18, report results from sections 8.4 and 11.1.1.4; for Method 320, report results from sections 8.6.2, 9.0, and 13.0; and for ASTM D6348-03 report results of all QA/QC procedures in Annexes 1-7. [40 C.F.R. § 60.4245(d)]

DONE AND DATED IN AUGUSTA, MAINE THIS 7 DAY OF March , 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PAUL MERCER, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-387-71-K-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 01/16/2018
Date of application acceptance:01/18/2018

Date filed with the Board of Environmental Protection:

This Order prepared by Colby Fortier-Brown, Bureau of Air Quality.

Filed
MAR 07 2018
State of Maine
Board of Environmental Protection