Maritimes & Northeast Pipeline, L.L.C.
Sagadahoc County
Richmond, Maine
A-745-71-J-R (SM)

Departmental
Findings of Fact and Order
Air Emission License
Renewal

FINDINGS OF FACT

After review of the air emissions 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

Maritimes & Northeast Pipeline, L.L.C. (M&N) has applied to renew their Air Emission License permitting the operation of emission sources associated with their natural gas compressor station.

The equipment addressed in this license is located at 547 Lincoln St, Richmond, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate (scf/hr)	Fuel Type	Combustion or Post Combustion Control Equipment	Stack #
Turbine #1	94.8	92,890	Natural Gas	SoLoNOx	1
Turbine #2	94.8	92,890	Natural Gas	SoLoNOx	2
Generator #1	5.0	4,903	Natural Gas	none	N/A
Boiler #1	1.6	1,575	Natural Gas	none	BLR-1

Additionally, M&N does not currently operate a parts washer but would like to maintain the ability to add one in the future.

C. Application Classification

The application for M&N 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 the annual facility-wide ton per year limits contained in the Conditions of this license the facility is licensed below the major source thresholds for criteria pollutants and is considered a synthetic minor. The facility is also 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. Turbines #1 and #2

Turbines #1 and #2 are Solar Taurus simple cycle combustion turbines. They provide direct drive power to run compressors that are used to recompress and move natural gas through the transmission pipeline. Each turbine has an approximate maximum heat input of 94.8 MMBtu/hr firing natural gas.

Turbines #1 and #2 were manufactured in 1999. The last compliance test for NO_x was performed in September 2013.

Turbines #1 and #2 are each equipped with SoLoNOx Combustion Technology which combines premixing and lean fuel-air mixtures with a two stage combustion zone, thereby reducing the flame temperature and consequently thermal NO_x formation.

1. Turbine Replacement

   Solar no longer manufactures the Taurus 70-9700 units originally installed at this facility. M&N's license allows for the replacement of turbine components with like-kind equipment without triggering additional New Source Performance Standards (NSPS) requirements. The Department has previously approved replacement at M&N's Baileyville station of a Taurus 70-9700 unit with a Taurus 70-10300 unit equipped with components that, together with software modifications, prevent the turbine from firing above the capacity of a Taurus 70-9700. This was determined to be a like-kind exchange for which additional licensing action is not required. Emissions for each pollutant are based on the higher value for either a Taurus 70-9700 or a Taurus 70-10300.

   Since the affected facility will not have been considered to be modified or reconstructed, M&N is not required to submit notification to EPA of turbine component replacement nor are they required to perform initial compliance testing after component replacement due to the NSPS. However, M&N shall notify the Department when a replacement occurs and the Department is not precluded from requiring compliance performance testing at any time.

2. 40 CFR Part 60, Subpart KKKK

   Stationary combustion turbines constructed, modified or reconstructed after February 18, 2005 are subject to 40 CFR 60 Subpart KKKK, *Standards of Performance for Stationary Combustion Turbines.* The replacement described above involves the replacement of modular turbine core components and not the entire "stationary combustion turbine" which makes up the affected facility as defined by NSPS. In order to constitute a modification or reconstruction the change would have to either result in an increase in emissions or exceed 50% of the fixed capital cost of a new facility. The replacement of the turbine core components does not meet either of these criteria. Therefore, the replacement of these components does not make the turbines subject to Subpart KKKK.

3. 40 CFR Part 60, Subpart GG

   Turbines #1 and #2 are subject to 40 CFR Part 60, Subpart GG, *Standards of Performance for Stationary Gas Turbines.* These turbines have maximum heat inputs of greater than 10 MMBtu/hr and were constructed after October 3, 1977.

   Subpart GG contains NO_x and SO_2 emission standards for Turbines #1 and #2. However, the BPT emission limits contained in this license have been determined to be more stringent.

In order to not monitor the total sulfur content of the fuel combusted in the turbines, M&N has elected to keep records of tariff sheets to demonstrate gas quality characteristics as provided for in Subpart GG.

4. BPT Findings

The following control strategies represent BPT for Turbines #1 and #2:

PM/PM_{10}	Good Combustion Practices
SO2	Firing of Pipeline Quality Natural Gas
NOx	SoLoNOx Combustion Technology
CO	SoLoNOx Combustion Technology
VOC	SoLoNOx Combustion Technology
HAP	Good Combustion Practices

The BPT emission limits for the turbines were based on the following:

a. Operation at Low Temperatures
Under normal operating conditions the majority of the fuel is lean-premixed fuel and the balance is pilot fuel. However, the turbine control systems are programmed to increase pilot fuel when the ambient temperature drops below zero degrees Fahrenheit to maintain combustion stability. As a result, emissions increase at these temperatures. This license includes provisions for increased emissions during periods when the ambient temperature falls below zero degrees Fahrenheit.

a. Particulate Matter (PM, PM_{10})
BPT for PM emissions from Turbines #1 and #2 consists of firing pipeline quality natural gas exclusively and good combustion practices. Units firing fuels with low ash content and high combustion efficiency exhibit low particulate matter emissions. The most stringent particulate control method demonstrated for gas turbines is the use of low ash fuel such as natural gas. Thus firing of only pipeline quality natural gas represents BPT.

b. Sulfur Dioxide
Sulfur Dioxide (SO_2) is formed from the oxidation of sulfur in fuel. The most stringent method of control for SO_2 that has been demonstrated for gas fired turbines is firing pipeline quality natural gas.

c. Nitrogen Oxides
Nitrogen Oxides (NO_x) emitted from the combustion turbines result from the oxidation of both fuel bound nitrogen and atmospheric nitrogen (thermal NO_x). Natural gas has very low fuel bound nitrogen. Therefore, reducing NO_x emissions must focus on reducing the thermal NO_x component. M&N uses $SoLoNO_x$

Combustion Technology, which employs lean-premixed combustion techniques. The premixing of fuel and air upstream of the combustor primary zone helps to ensure that the flame operates at a fuel lean condition, thus lowering flame temperature and minimizing thermal NO_x formation.

The Department has concluded BPT for NO_x emissions shall consist of operating the turbines with SoLoNOx combustion technology. NSPS, Subpart GG contains a NO_x emission limit of 150 ppmvd at 15% O_2. BPT for all ambient temperatures is more stringent than the NSPS limit.

b. Carbon Monoxide
Carbon Monoxide (CO) results from the incomplete combustion of gas in the turbine.

The gas turbine uses a dry low NO_x combustor system, integrates sophisticated burner controls with staged premixed combustion zones, and uses fuel feed systems to achieve the required low NO_x emissions. Additional CO reductions are attributed to the SoLoNOx technology.

The Department has determined M&N's use of SoLoNOx combustion technology and associated good combustion practices and instrumentation and controls for CO is BPT. The lb/hr emission limits listed in the Conditions of this license are based off of the ppm values.

c. Volatile Organic Compounds
The majority of volatile organic compounds (VOCs) emitted from gas fired turbines come from unburned hydrocarbons. Control of VOCs is accomplished by providing adequate fuel residence time and high temperature in the combustion zone to ensure complete combustion. The Department has determined that BPT for VOC's is using combustion control, via the SoLoNOx combustion technology.

d. Hazardous Air Pollutants
Formaldehyde is the only organic compound which is also a hazardous air pollutant emitted in more than a negligible amount. Total emissions are less than 2 tons/year, substantially below the 10 ton/year major source threshold. Good combustion practices with a state of art combustion system insure complete combustion of organic constituents of the fuel streams. Therefore, good combustion practices constitute BPT for the control of hazardous air pollutants.

5. Fuel Monitoring

In accordance with 40 CFR §60.334(h)(3), M&N demonstrates compliance with the total sulfur content of the fuel requirements by maintaining a current tariff sheet for the fuel specifying that the maximum total sulfur content of the gas is 20 grains of sulfur or less per 100 standard cubic feet.

6. Low Compressor Speeds

   Operation of SoLoNOx is adversely affected at gas producer speeds below 90% of capacity. During normal operating conditions, above these minimum gas producer speeds, the majority of the fuel (90-100%) is lean-premixed fuel and the balance is pilot fuel. However, when the gas producer speed falls below 90%, the fuel ratio shifts to a high portion of pilot fuel, causing an increase in NO_x and CO emissions.

   To address this, M&N uses a programming interlock in its control software to ensure that after the units are brought on line they do not operate below a gas producer speed of 90% except as part of the start-up and shut-down process. Estimates of the likely number of start-up/shutdown events per year that occur have been included in the data to account for start-up/shutdown emissions as part of the facility's potential to emit (PTE) calculations.

7. Operation at Low Temperatures

   Under normal operating conditions the majority of the fuel is lean-premixed fuel and the balance is pilot fuel. However, the turbine control systems are programmed to increase pilot fuel when the ambient temperature drops below zero degrees Fahrenheit to maintain combustion stability. As a result, emissions increase at these temperatures. The license includes provisions for increased emissions during periods when the ambient temperature falls below zero degrees Fahrenheit. These provisions still provide for compliance with NSPS Subpart GG.

8. Turbine Case Venting and Station Piping Venting

   When a turbine sits idle for some time, it is decompressed and vented to atmosphere to prevent damage to equipment. The turbine is also decompressed and vented when maintenance work is done on the turbine. M&N shall keep records as specified for the turbine venting.

   M&N performs emergency shutdown (ESD) testing and routine maintenance of station piping which results in venting natural gas to the atmosphere and may also experience actual ESDs. These activities are necessary for safety reasons and no specific emission limit is imposed to restrict these activities. M&N shall notify the Department as specified of any release that results in more than 85,000 scf of natural gas.

9. Summary of Emission Limits

Except during periods of start-up and shutdown, Turbines #1 and #2 shall each not exceed the following emissions at ambient temperatures greater than 0°F.

Pollutant	ppmvd @ 15% O_2	lb/hr	lb/MMBtu	Citation
PM	--	0.63	0.01	06-096 CMR 115, BPT
PM_{10}	--	0.63	–	06-096 CMR 115, BPT
SO_2	--	0.32	--	06-096 CMR 115, BPT
NO_x	25	8.54	--	06-096 CMR 115, BPT
CO	--	10.40	--	06-096 CMR 115, BPT
VOC	--	0.65	--	06-096 CMR 115, BPT

Except during periods of start-up and shut-down, Turbines #1 and #2 shall each not exceed the following emissions at ambient temperatures greater than -20°F and less than or equal to 0°F:

Pollutant	ppmvd @ 15% O_2	lb/hr	lb/MMBtu	Citation
PM	--	0.66	0.01	06-096 CMR 115, BPT
PM_{10}	--	0.66	–	06-096 CMR 115, BPT
SO_2	--	0.34	--	06-096 CMR 115, BPT
NO_x	42	15.20	--	06-096 CMR 115, BPT
CO	--	22.02	--	06-096 CMR 115, BPT
VOC	--	1.38	--	06-096 CMR 115, BPT

Except during periods of start-up and shut-down, Turbines #1 and #2 shall each not exceed the following emissions at ambient temperatures less than or equal to -20°F:

Pollutant	ppmvd @ 15% O_2	lb/hr	lb/MMBtu	Citation
PM	--	0.66	0.01	06-096 CMR 115, BPT
PM_{10}	--	0.66	–	06-096 CMR 115, BPT
SO_2	--	0.34	--	06-096 CMR 115, BPT
NO_x	120	43.41	--	06-096 CMR 115, BPT
CO	--	33.04	--	06-096 CMR 115, BPT
VOC	--	2.07	--	06-096 CMR 115, BPT

Visible emissions from Turbines #1 and #2 shall each not exceed 10% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period.

C. Boiler #1

M&N operates Boiler #1 for heat. The boiler is rated at 1.6 MMBtu/hr and fires natural gas. The boiler was installed in 1999 and exhausts through its own stack.

1. 40 CFR Part 60, Subpart Dc

Due to its size, Boiler #1 is 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.

2. 40 CFR Part 63 Subpart JJJJJJ

Gas-fired boilers are exempt from 40 CFR Part 63, Subpart JJJJJJ, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources.*

3. BPT Findings

The BPT emission limits for Boiler #1 were based on the following:

PM/PM_{10}	–	7.6 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
SO_2	–	0.6 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
NO_x	–	75 lb/MMscf based on manufacturer data
CO	–	38 lb/MMscf based on manufacturer data
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 Boiler #1 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)
Boiler #1	0.01	0.01	neg	0.12	0.06	0.01

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

D. Generator #1

M&N operates one emergency generator, Generator #1. Generator #1 was manufactured in 1999 with a nominal rating of 5.0 MMBtu/hr (395 kW) and fires natural gas.

1. BPT Findings

The BPT emission limits for Generator #1 are based on the following:

PM/PM_{10}	- 0.12 lb/MMBtu from 06-096 CMR 103
SO_2	- 5.88 x 10^{-4} lb/MMBtu from AP-42 dated 7/00
NO_x	- 524.30 lb/MMscf from manufacturer's data
CO	- 458.77 lb/MMscf from manufacturer's data
VOC	- 196.61 lb/MMscf from manufacturer's data
Opacity	- 06-096 CMR 115, BPT

The BPT emission limits for Generator #1 are the following:

Unit	Pollutant	lb/MMBtu
Generator #1	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	0.60	0.60	neg	2.57	2.25	0.96

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

2. 40 CFR Part 60, Subpart JJJJ

The federal regulation 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Spark Ignition Internal Combustion Engines* is not applicable to Generator #1 since it was manufactured and installed prior to 2009.

3. 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 applicable to Generator #1. This unit is considered an existing, emergency stationary reciprocating internal combustion engine at an area HAP source which is not subject to New Source Performance Standards regulations. EPA's August 9, 2010 memo (*Guidance Regarding Definition of Residential, Commercial, and Institutional Emergency Stationary RICE in the NESHAP for*

Stationary RICE) does not specifically exempt these units from the federal requirements.

a. Emergency Definition:

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

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE 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 RICE used to pump water in the case of fire or flood, etc. There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) Paragraph (1) above notwithstanding, the emergency stationary RICE 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 RICE 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 RICE 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 provided all of 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.

Generator #1 shall be limited to the usage outlined in §63.6640(f) and therefore may be classified as an existing emergency stationary RICE as defined in 40 CFR Part 63, Subpart ZZZZ. Failure to comply with all of the requirements listed in §63.6640(f) may cause this engine to not be considered an emergency engine and therefore subject to all the requirements for non-emergency engines.

b. 40 CFR Part 63, Subpart ZZZZ Requirements:

(1) Operation and Maintenance Requirements

	Operating Limitations (40 CFR §63.6603(a) and Table 2(d))
Spark ignition (natural gas, propane) units: (Generator #1)	- Change oil and filter every 500 hours of operation or annually, whichever comes first; - Inspect spark plugs every 1000 hours of operation or annually, whichever comes first, and replace as necessary; and - Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Generator #1 shall be operated and maintained according to the manufacturer's emission-related written instructions or M&N shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §63.6625(e)]

(2) Optional Oil Analysis Program
M&N has the option of utilizing an oil analysis program which complies with the requirements of §63.6625(i) in order to extend the specified oil change requirement. If this option is used, M&N must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR§63.6625(i)]

(3) Non-Resettable Hour Meter Requirement
A non-resettable hour meter shall be installed and operated on Generator #1. [40 CFR §63.6625(f)]

(4) Startup Idle and Startup Time Minimization Requirements
During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2d]

(5) Annual Time Limit for Maintenance and Testing
Generator #1 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 §63.6640(f)(4)(ii) are met). [40 CFR §63.6640(f)]

(6) Recordkeeping
M&N shall keep records that include maintenance conducted on Generator #1 and the hours of operation of the engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If Generator #1 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 §63.6640(f)(4)(ii), M&N shall

keep records of the notification of the emergency situation, and the date, start time, and end time of generator operation for these purposes. [40 CFR §63.6655(e) and (f)]

(7) Requirements for Demand Response Availability Over 15 Hours Per Year (and greater than 100 brake hp)

If M&N 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 §63.6640(f)(4)(ii), the facility shall submit an annual report containing the information in §63.6650(h)(1)(i) through (ix). 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:

Director, Office of Ecosystem Protection
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

[40 CFR §63.6650(h)]

E. 40 CFR Part 60, Subpart OOOO

M&N is not subject to 40 CFR Part 60, Subpart OOOO, *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution.* This subpart applies to affected facilities which commenced construction, modification, or reconstruction after August 23, 2011. The list of affected facilities includes storage vessels used in the transmission or storage of natural gas which have potential VOC emissions greater than 6 ton/year. M&N's Richmond compressor station was built prior to 2011 and has not undergone a modification or reconstruction that would trigger applicability of this subpart.

F. Parts Washer

Currently there is no parts washer in service at the Richmond compressor station. However, M&N wishes to retain the option to operate a degreaser in accordance with 06-096 CMR 130.

G. Annual Emissions

1. Total Annual Emissions

M&N shall be restricted to the following annual emissions, based on a 12 month rolling total. The tons per year limits were calculated based on the following:

- Turbines #1 and #2 emission limits were calculated based on ambient temperature data indicating 275 hours per year of operation at ambient temperatures less than or equal to 0°F; 2 hours per year of operation at ambient temperatures less than or equal to -20 °F.
- 8,760 hours per year of operation on Turbines #1 and #2 including 65 startup and shutdown events per year.
- 100 hours/year operation of Generator #1
- 8,760 hours/year operation of Boiler #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	Total HAP
Turbine #1	2.5	2.5	1.3	34.5	48.3	2.7	–
Turbine #2	2.5	2.5	1.3	34.5	48.3	2.7	–
Boiler #1	0.1	0.1	neg	0.5	0.3	0.1	–
Generator #1	0.1	0.1	neg	0.1	0.1	0.1	–
Gas Releases & Fugitives	–	–	–	–	–	30.3	–
Facility-wide	–	–	–	–	–	–	9.9
Total TPY	**5.2**	**5.2**	**2.6**	**69.6**	**97.0**	**35.9**	**9.9**

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 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 (CO_2e).

The potential emissions of CO_2e from this facility are greater than 100,000 tons per year, based on the following:

- the facility's potential fuel use;
- the facility's potential fugitive emissions of CO_2e;
- 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.

M&N has accepted a license restriction limiting the facility to less than 100,000 tpy of CO_2e. Therefore, no additional licensing actions to address GHG emissions are required at this time.

III. AMBIENT AIR QUALITY ANALYSIS

M&N previously submitted an ambient air quality impact analysis for air emission license A-745-71-A-N (dated 12/18/98) 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 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 A-745-71-J-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) **Turbines #1 and #2**

A. Except during periods of start-up and shut-down, Turbines #1 and #2 shall each not exceed the following emissions at ambient temperature greater than 0°F:

Pollutant	ppmvd @ 15% O_2	lb/hr	lb/MMBtu	Citation
PM	--	0.63	0.01	06-096 CMR 115, BPT
PM_{10}	--	0.63	–	06-096 CMR 115, BPT
SO_2	--	0.32	--	06-096 CMR 115, BPT
NO_x	25	8.54	--	06-096 CMR 115, BPT
CO	--	10.40	--	06-096 CMR 115, BPT
VOC	--	0.65	--	06-096 CMR 115, BPT

B. Except during periods of start-up and shutdown, Turbines #1 and #2 shall each not exceed the following emissions at ambient temperatures greater than -20°F and less than or equal to 0°F:

Pollutant	ppmvd @ 15% O_2	lb/hr	lb/MMBtu	Citation
PM	--	0.66	0.01	06-096 CMR 115, BPT
PM_{10}	--	0.66	–	06-096 CMR 115, BPT
SO_2	--	0.34	--	06-096 CMR 115, BPT
NO_x	42	15.20	--	06-096 CMR 115, BPT
CO	--	22.02	--	06-096 CMR 115, BPT
VOC	--	1.38	--	06-096 CMR 115, BPT

C. Except during periods of start-up and shutdown, Turbines #1 and #2 shall each not exceed the following emissions at ambient less than or equal to -20°F:

Pollutant	ppmvd @ 15% O_2	lb/hr	lb/MMBtu	Citation
PM	--	0.66	0.01	06-096 CMR 115, BPT
PM_{10}	--	0.66	–	06-096 CMR 115, BPT
SO_2	--	0.34	--	06-096 CMR 115, BPT
NO_x	120	43.41	--	06-096 CMR 115, BPT
CO	--	33.04	--	06-096 CMR 115, BPT
VOC	--	2.07	--	06-096 CMR 115, BPT

C. M&N shall keep records of the number of days during the calendar year that the ambient temperature is below zero and/or -20 degrees Fahrenheit. For any gaps in M&N's temperature data, it may utilize meteorological data from an appropriate representative location. [06-096 CMR 115, BPT]

D. Visible emissions from Turbines #1 and #2 shall each not exceed 10% opacity on a six (6) minute block average basis, except for one (1) six (6) minute average in a three (3) hour period. [06-096 CMR 115, BPT]

E. Turbines #1 and #2 shall only fire pipeline quality natural gas.
[06-096 CMR 115, BPT]

F. Compliance with the emission limits associated with Turbines #1 and #2 shall be demonstrated in accordance with the appropriate test methods upon request by the Department. [06-096 CMR 115, BPT]

G. M&N shall keep documentation of all maintenance and repairs to Turbines #1 and #2. The documentation shall include all planned shutdowns, maintenance procedures and major parts replacements. These records shall be available to the Department upon request. [06-096 CMR 115, BPT]

H. Except during periods of start-up and shut-down, M&N shall not operate Turbines #1 and #2 at gas producer speeds less than 90%. Compliance shall be demonstrated by the use of a programming interlock and verified through recordkeeping of gas producer speeds within the programmable logic controller. [06-096 CMR 115, BPT]

I. Turbines #1 and #2 are each subject to, and shall comply with, the applicable requirements of 40 CFR Part 60, Subpart GG.

J. M&N shall maintain a current FERC Gas Tariff establishing gas quality, which documents the total sulfur content is 20 grains of sulfur or less per 100 scf of gas or

otherwise comply with the specified methods for demonstrating compliance with the fuel sulfur content requirements of 40 CFR §60.334(h)(3).

K. M&N may install like-kind manufacturer-supplied replacement components for the turbines that occur either as part of scheduled maintenance of a turbine or in the event of a malfunction or outage and subsequent repair. M&N shall notify the Department in writing in advance of any replacement of turbine components and shall still be subject to and responsible for any applicable NSPS provisions with respect to replacement of the turbine or any components. [06-096 CMR 115, BPT]

L. M&N shall monitor and record the following. This monitor is considered a Parameter Monitor. [06-096 CMR 115, BPT]

Parameter	Monitor	Record Monitor Data	Compile Fuel Usage
Natural Gas Flow Rate to Each Turbine (actual cubic feet input)	Continuously	Continuously	Monthly

(17) If any parameter monitor is recording accurate and reliable data less than 98% of the source-operating time within any quarter of the calendar year, the Department may initiate enforcement action and may include in that enforcement action any period of time that the continuous emission monitoring system was not recording accurate and reliable data during that quarter unless the licensee can demonstrate to the satisfaction of the Department that the failure of the system to record accurate and reliable data was due to the performance of established quality assurance and quality control procedures or unavoidable malfunctions. [06-096 CMR 115, BPT]

(18) M&N shall maintain a log of all turbine case venting and ESD events that includes the following information:

A. date of the event
B. estimated or actual event start time
C. estimated or actual event duration
D. event source
E. event type (shutdown, maintenance, testing, or malfunction)
F. description of event
G. estimate of the amount of natural gas vented
H. estimate of VOC density of the released gas
I. calculation of the tons of VOC emitted based on the VOC content of the gas released.

[06-096 CMR 115, BPT]

(19) M&N shall notify the Department in advance of any scheduled venting event that is expected to result in the release of more than 85,000 scf of natural gas. M&N shall notify the Department within two working days of any unscheduled venting event that results in the release of more than 85,000 scf of natural gas. [06-096 CMR 115, BPT]

(20) **Record Keeping Requirements**

M&N shall maintain records of the most current six year period of all monitored fuel flow rates required as a condition of this license. These records shall consist of the following:

A. Documentation which shows fuel flow rates during all source operating time, including calibration and audits; and
B. A complete data set of all fuel flow rates, as specified in this license. All records shall be made available to the Department upon request.

[06-096 CMR 115, BPT]

(21) **Boiler #1**

A. Boiler #1 shall fire only pipeline quality natural gas. [06-096 CMR 115, BPT]

B. The sulfur content of the fuel shall not exceed 20 grains of sulfur per 100 scf of gas, as documented by a current FERC Gas Tariff sheet establishing gas quality. [06-096 CMR 115, BPT]

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

Emission Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	0.01	0.01	neg	0.12	0.06	0.01

D. Visible emissions from Boiler #1 shall not exceed 10% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a continuous 3-hour period. [06-096 CMR 115, BPT]

(22) **Generator #1**

A. Generator #1 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:

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

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

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1	0.60	0.60	neg	2.57	2.25	0.96

D. Visible emissions from Generator #1 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. [06-096 CMR 115, BPT]

E. Generator #1 shall meet the applicable requirements of 40 CFR Part 63, Subpart ZZZZ, including the following:

1. M&N shall meet the following operational limitations for Generator #1:

   a. Change the oil and filter annually,
   b. Inspect the spark plugs annually and replace as necessary, and
   c. Inspect the hoses and belts annually and replace as necessary.

   A log shall be maintained documenting compliance with the operational limitations.

   [40 CFR §63.6603(a) and Table 2(d); and 06-096 CMR 115]

2. Oil Analysis Program Option
   M&N has the option of utilizing an oil analysis program which complies with the requirements of §63.6625(i) in order to extend the specified oil change requirement. If this option is used, M&N must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR§63.6625(i)]

3. Non-Resettable Hour Meter
   A non-resettable hour meter shall be installed and operated on Generator #1.
   [40 CFR §63.6625(f)]

4. Maintenance, Testing, and Non-Emergency Operating Situations

   a. Generator #1 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 to supply power as part of a financial arrangement with another entity unless the conditions in §63.6640(f)(4)(ii) are met). These limits are based on a calendar year. Compliance shall be demonstrated by a written log of all generator operating hours. [40 CFR §63.6640(f) and 06-096 CMR 115]

b. M&N shall keep records that include maintenance conducted on Generator #1 and the hours of operation of the engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If the generator 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 §63.6640(f)(4)(ii), M&N shall keep records of the notification of the emergency situation, and the date, start time, and end time of generator operation for these purposes. [40 CFR §63.6655(e) and (f)]

5. Operation and Maintenance
Generator #1 shall be operated and maintained according to the manufacturer's emission-related written instructions or M&N shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §63.6625(e)]

6. Startup Idle and Startup Time Minimization
During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2d]

7. Requirements For Demand Response Availability Over 15 Hours Per Year (and greater than 100 brake hp)

If M&N 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 §63.6640(f)(4)(ii), the facility shall submit an annual report containing the information in §63.6650(h)(1)(i) through (ix). 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:

Director, Office of Ecosystem Protection
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

[40 CFR §63.6650(h)]

(23) **Parts Washer**

Parts washers at M&N are subject to *Solvent Cleaners*, 06-096 CMR 130 (as amended).

A. M&N shall keep records of the amount of solvent added to each parts washer. [06-096 CMR 115, BPT]

B. The following are exempt from the requirements of 06-096 CMR 130 [06-096 CMR 130]:
   1. Solvent cleaners using less than two liters (68 oz) of cleaning solvent with a vapor pressure of 1.00 mmHg, or less, at 20° C (68° F);
   2. Wipe cleaning; and,
   3. Cold cleaning machines using solvents containing less than or equal to 5% VOC by weight.

C. The following standards apply to cold cleaning machines that are applicable sources under Chapter 130.
   1. M&N shall attach a permanent conspicuous label to each unit summarizing the following operational standards [06-096 CMR 130]:
      (i) Waste solvent shall be collected and stored in closed containers.
      (ii) Cleaned parts shall be drained of solvent directly back to the cold cleaning machine by tipping or rotating the part for at least 15 seconds or until dripping ceases, whichever is longer.
      (iii) Flushing of parts shall be performed with a solid solvent spray that is a solid fluid stream (not a fine, atomized or shower type spray) at a pressure that does not exceed 10 psig. Flushing shall be performed only within the freeboard area of the cold cleaning machine.
      (iv) The cold cleaning machine shall not be exposed to drafts greater than 40 meters per minute when the cover is open.
      (v) Sponges, fabric, wood, leather, paper products and other absorbent materials shall not be cleaned in the degreaser.
      (vi) When a pump-agitated solvent bath is used, the agitator shall be operated to produce no observable splashing of the solvent against the tank walls or the parts being cleaned. Air agitated solvent baths may not be used.
      (vii) Spills during solvent transfer shall be cleaned immediately. Sorbent material used to clean spills shall then be immediately stored in covered containers.

(viii) Work area fans shall not blow across the opening of the degreaser unit.
(ix) The solvent level shall not exceed the fill line.

2. The remote reservoir cold cleaning machine shall be equipped with a perforated drain with a diameter of not more than six inches. [06-096 CMR 130]

(24) **Annual Emissions**

A. Total emissions from all licensed sources at the facility shall not exceed the following on a 12-month rolling total basis. [06-096 CMR 115, BPT]

Pollutant	Tons/Year
PM	5.2
PM_{10}	5.2
SO_2	2.6
NO_x	69.6
CO	97.0
VOC	35.9
Total HAP	9.9
CO_2e	100,000

B. M&N shall keep monthly records sufficient to document the facility's emissions on a 12-month rolling total basis and shall make those records available to the Department upon request. [06-096 CMR 115, BPT]

(25) **Annual Emission Statement**

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

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

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

(26) M&N 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 17 DAY OF March , 2015.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PATRICIA W. AHO, 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 MRSA §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: 11/26/14
Date of application acceptance: 12/2/14

Date filed with the Board of Environmental Protection:

This Order prepared by Lynn Muzzey, Bureau of Air Quality.

Filed
MAR 18 2015
State of Maine
Board of Environmental Protection