



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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GOVERNOR

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**Maritimes & Northeast Pipeline LLC
Hancock County
Township T35 MD, Maine
A-955-71-E-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 M.R.S.A., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Maritimes & Northeast Pipeline LLC (M&N) has applied to renew their Air Emission License permitting the operation of emission sources associated with their Woodchopping Ridge facility.

The equipment addressed in this license is located off of Stud Mill Road in Township T35 MD. The facility is also known as the Woodchopping Ridge Compressor Station.

Maritimes and Northeast Pipeline, LLC (M&N) operates a natural gas transmission pipeline that brings offshore, onshore and liquefied natural gas (LNG)-sourced natural gas from Atlantic Canada to North American markets. Of the 670 miles of pipeline in this transmission system, 340 of those miles are in the United States extending through Maine, New Hampshire and Massachusetts, where it then connects with other transmission pipelines. In 2008, Maritimes and Northeast installed five compressor stations in Maine transporting gas supplies from a new Canaport liquefied natural gas receiving terminal near Saint John New Brunswick to the United States. M&N's Woodchopping Ridge Compressor Station is part of this transmission system and is addressed in this license.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (scf/hr)</u>	<u>Fuel Type</u>	<u>Control Equipment</u>	<u>Install. Date</u>	<u>Stack #</u>
Turbine #1	174.9	171,492	Natural Gas	SoLoNOxII	2008	1
Generator #1	5.02	4,920	Natural Gas	None	2008	2
Generator #2	5.02	4,920	Natural Gas	None	2008	3
Generator #3	5.02	4,920	Natural Gas	None	2008	4
Boiler #1	3.5*	3,432	Natural Gas	None	2008	5

*Note: Unit capacity for Boiler #1 is based on boiler nameplate.

Eight (8) new natural gas fired heating devices, all with rated heat input capacities less than 1 million BTU per hour (MMBtu/hr), have been installed at the Woodchopping Ridge Compressor Station since the December 2008 application for a minor modification. All eight heating devices are considered insignificant per Appendix B Section B(2) of 06-096 CMR 115 but are mentioned here for inventory purposes.

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 CMR 115 (as amended). With an operating hours restriction of 9,636 hours per year combined on the generators, the facility is licensed below the major source thresholds and is considered a synthetic minor.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for 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. Turbine #1

M&N operates Turbine #1, a Solar Titan Model 130-20502S3 (Titan 130) combustion turbine. Turbine #1 provides power to run a compressor that is used to recompress and transport natural gas through the transmission pipeline. Turbine #1 has an approximate heat input of 174.9 MMBtu/hr firing natural gas and exhausts through its own stack.

Turbine #1 is subject to New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart KKKK, Standards of Performance for Stationary Gas Turbines for which construction commenced after February 18, 2005. Turbines subject to Subpart KKKK are exempt from NSPS Subpart GG, Standards of Performance for Stationary Gas Turbines for which construction commenced after October 3, 1977.

The following control strategies represent BPT for Turbine #1:

PM/PM ₁₀	Good Combustion Practices
SO ₂	Firing of Pipeline Quality Natural Gas
NO _x	SoLoNO _x II Combustion Technology
CO	SoLoNO _x II Combustion Technology
VOC	SoLoNO _x II Combustion Technology
HAP	Good Combustion Practices

1. Emission Limit Basis

a. Particulate Matter (PM, PM₁₀)

BPT for PM emissions from Turbine #1 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 is BPT.

b. Sulfur Dioxide

Sulfur Dioxide (SO₂) is formed from the oxidation of sulfur in fuel. The most stringent method of control for SO₂ 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 turbine results 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 SoLoNO_x Combustion Technology includes augmented backside cooled (ABC) liners and an advanced thermal barrier coating (TBC). The ABC liners eliminate air injection into the combustor for wall cooling. The wall temperatures are controlled exclusively through convective cooling by high velocity air flow on the cold side of the liner. The TBC is a zirconia-based material that is plasma-sprayed onto the liner which reduces wall temperature. The ABC/TBC combination allows operation without air injection for cooling of the combustor liner, which eliminates quenching along the walls and thereby reduces CO emissions. The reduction of CO levels also allows the combustor to be operated at lower flame temperatures, which reduces NO_x formation.

The Department has concluded BPT for NO_x emissions shall consist of operating the turbines with SoLoNO_x II Combustion Technology. NSPS, Subpart KKKK contains a NO_x emission limit of 25 ppmvd at 15% O₂ for temperatures greater than or equal to 0°F, and 150 ppmvd at 15% O₂ for temperatures less than 0°F and loads less than 75% of peak load. BPT for

ambient temperatures above 0°F shall be a NO_x emission limit of 15 ppmvd @ 15% O₂. The BPT for cold weather operations shall be the NSPS limit of 150 ppmvd at 15% O₂.

d. Carbon Monoxide

Carbon Monoxide (CO) results from the incomplete combustion of gas in the turbine. The turbine is guaranteed to achieve 25 ppmvd CO @ 15% O₂ above 0°F.

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 ABC/TBC technology described above.

The Department has determined M&N's use of SoLoNO_x II combustor 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.

e. 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 SoLoNO_x II combustor.

f. 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.

2. Fuel Monitoring

In accordance with 40 C.F.R. §60.4365(a), 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.

3. Low Compressor Speeds

According to the turbine manufacturer and M&N, operation of SoLoNO_x II for this unit is adversely affected at gas producer speeds below 87% 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 87%, the fuel ratio shifts to a high portion of pilot fuel, causing an increase in NO_x and CO emissions.

To address this problem, 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 87% except as part of the start-up and shut-down process. M&N estimates the likely number of start-up/shutdown events that occur is 65 events per year and have included data to account for start-up/shutdown emissions as part of the facility's PTE calculations.

4. 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 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 are consistent with the NSPS Subpart KKKK limits for cold temperature operation.

5. 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.

It is estimated that the total annual VOC emissions from the station from venting activities is approximately 8.8 ton/year.

6. Summary of Emission Limits

Except during periods of start-up and shutdown, Turbine #1 shall not exceed the following emissions at ambient temperatures greater than or equal to 0°F.

Pollutant	ppmvd @ 15% O ₂	lb/hr	lb/MMBtu	Citation
PM	--	1.15	0.01	06-096 CMR 115, BPT
PM ₁₀	--	1.15	0.01	06-096 CMR 115, BPT
SO ₂	--	0.59	--	06-096 CMR 115, BPT
NO _x	15	9.46	--	06-096 CMR 115, BPT
CO	--	9.60	--	06-096 CMR 115, BPT
VOC	--	1.20	--	06-096 CMR 115, BPT

Except during periods of start-up and shut-down, Turbine #1 shall not exceed the following emissions at ambient temperatures less than 0°F:

Pollutant	ppmvd @ 15% O ₂	lb/hr	lb/MMBtu	Citation
PM	--	1.19	0.01	06-096 CMR 115, BPT
PM ₁₀	--	1.19	0.01	06-096 CMR 115, BPT
SO ₂	--	0.61	--	06-096 CMR 115, BPT
NO _x	150	78.23	--	40 CFR 60, Subpart KKKK and Chapter 115, BPT
CO	--	59.53	--	06-096 CMR 115, BPT
VOC	--	3.73	--	06-096 CMR 115, BPT

C. Generators #1, #2, & #3

M&N installed three (3) Waukesha VGF24GL 4-stroke, natural gas-fired lean burn, low emitting reciprocating engines. These engines have a nominal rating of 395 kW, and 530 bhp, and a rated heat input capacity of 4.55 MMBtu/hr and ratings of 436 kW and 585 bhp, and 5.02 MMBtu/hr at 110% rated capacity.

These engines are used to provide operating power to the station. Due to the size of the generators actually installed, two generators may be needed during the brief time (less than one hour) it takes to start the compressor turbine. In addition, an allowance needs to be made for starting a second generator prior to shutting down the "operating" generator. Therefore, M&N is allowed to operate more than one generator simultaneously and has to limit the annual operating hours of the generators to 9,636 hours/year combined.

The Department has concluded BPT for NO_x emissions from the prime power generators is the use of lean-burn technology combustion controls.

1. BPT Findings

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

- PM/PM₁₀ – 0.12 lb/MMBtu based on 06-096 CMR 103
- SO₂ – 0.60 lb/MMscf, AP-42, Table 3.2-2 (dated 7/00)
- NO_x – 525 lb/MMscf, manufacturer’s data
- CO – 459 lb/MMscf, manufacturer’s data
- VOC – 197 lb/MMscf, manufacturer’s data
- Opacity – Visible emissions from Generator’s #1, #2 and #3 shall each not exceed 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hour period based on 06-096 CMR 115.

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

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

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1 (5.02 MMBtu/hr), Natural gas	0.60	0.60	0.01	2.58	2.26	0.97
Generator #2 (5.02 MMBtu/hr), Natural gas	0.60	0.60	0.01	2.58	2.26	0.97
Generator #3 (5.02 MMBtu/hr), Natural gas	0.60	0.60	0.01	2.58	2.26	0.97

Generators #1, #2, & #3 shall be limited to 9,636 hr/yr of operation combined based on a 12 month rolling total. Compliance shall be demonstrated by a log of all generator operating hours.

A non-resettable hour meter shall be installed and operated on each generator. The value from each meter shall be entered into a spreadsheet on a monthly basis. The spreadsheet shall track operating hours on a monthly and a 12 month rolling total basis.

2. 40 CFR Part 63, Subpart ZZZZ

The federal regulation 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines* applies to any existing, new, or reconstructed RICE located at a major or area source or HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand. These generators are considered new stationary RICE located at an area source of HAP emissions because construction commenced on or after June 12, 2006. Therefore, the generator must meet the requirements of 40 CFR Part 63, Subpart ZZZZ by meeting the requirements of New Source Performance Standards at 40 CFR Part 60, Subpart JJJJ. [40 CFR Part 63, §63.6590(c)(1)]

3. 40 CFR Part 60, Subpart JJJJ

The federal regulation 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Spark Ignition Internal Combustion Engines (SI ICE)* is applicable to the non-emergency generators listed above whose construction was commenced after June 12, 2006 and were manufactured on or after January 1, 2008. By meeting the requirements of Subpart JJJJ, the units also meet the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ.

40 CFR Part 60, Subpart JJJJ Requirements:

The generators shall demonstrate compliance with the emission standards specified in §60.4233(e) according to the requirements specified in §60.4244, as applicable. [40 CFR §60.4243 (b)(2)]

M&N shall keep a maintenance plan and records of conducted maintenance and shall, to the extent practicable, maintain and operate the engines in a manner consistent with good air pollution control practice for minimizing emissions. In addition, M&N shall conduct performance testing every 8,760 hours or 3 years, whichever comes first. [40 CFR §60.4243(b)(2)(ii)]

D. Boiler #1

M&N operates Boiler #1 for heat. The boiler is rated at 3.5 MMBtu/hr and fires natural gas. The boiler was installed in 2008 and exhausts through its own stack.

Due to the size, the boiler 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.

Since natural gas is the only fuel fired in Boiler #1, it is not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* [40 CFR Part 63 Subpart JJJJJ].

BPT Findings

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

- PM/PM₁₀ – 0.08 lb/MMBtu based on 06-096 CMR 115
- SO₂ – 0.60 lb/MMscf, AP-42, Table 1.4-2 (dated 7/98)
- NO_x – 75.0 lb/MMscf, manufacturer's data;
- CO – 38.0 lb/MMscf, manufacturer's data);
- VOC – 5.5 lb/MMscf, AP-42, Table 1.4-2 (dated 7/98);
- Opacity – Visible emissions from the boiler shall not exceed 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hour period based on 06-096 CMR 101.

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

Emission Unit	Pollutant	lb/MMBtu
Boiler #1	PM	0.08

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 (3.5 MMBtu/hr), Natural gas	0.28	0.28	0.01	0.29	0.15	0.02

E. Annual Emissions

The following annual emissions for the facility are used to calculate the annual emissions fee::

**Total Licensed Annual Emissions for the Facility
Tons/year**

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Turbine #1	5.1	5.1	2.60	44.0	59.3	5.6
Generators	2.9	2.9	0.01	12.5	10.9	4.7
Boiler #1	0.1	0.1	0.01	1.1	0.6	0.1
Gas Releases & Fugitives	--	--	--	--	--	23.9
Total TPY	8.1	8.1	2.62	57.6	70.8	34.3

The above table is based on the following assumptions:

- Turbine #1 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 Turbine #1 including 65 startup and shutdown events per year.
- 9,636 hours of combined generator operation.
- 8,760 hours/year of boiler operation.
- VOC emissions from process equipment of 23.9 tons/year.

F. Greenhouse Gases

Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans*, 40 CFR Part 52, Subpart A, §52.21 Prevention of Significant Deterioration of Air Quality rule. Greenhouse gases, as defined in 06-096 CMR 100 (as amended); are the aggregate group of the following gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO₂e).

Based on the facility's fuel use limit(s), the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory*

Greenhouse Gas Reporting, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, M&N is below the major source threshold of 100,000 tons of CO₂e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time. M&N's PTE for GHG is approximately 95,500 tons of CO₂e per year. M&N's actual annual GHG emissions are below 50,000 tons of CO₂e per year thus additional recordkeeping for this pollutant is not necessary.

III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115, the level of air quality analyses required for a renewal source shall be determined on a case-by case basis. Modeling is not required for a renewal if the total emissions of any pollutant released do not exceed the following and there are no extenuating circumstances:

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

Based on the total facility licensed emissions, M&N is below the emissions level required for modeling.

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-955-71-E-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 emission and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 CMR 115]
- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 115]

SPECIFIC CONDITIONS

(16) **Turbine #1**

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

Pollutant	ppmvd @ 15% O ₂	lb/hr	lb/MMBtu	Citation
PM	--	1.15	0.01	06-096 CMR 115, BPT
PM ₁₀	--	1.15	0.01	06-096 CMR 115, BPT
SO ₂	--	0.59	--	06-096 CMR 115, BPT
NO _x	15	9.46	--	06-096 CMR 115, BPT
CO	--	9.60	--	06-096 CMR 115, BPT
VOC	--	1.20	--	06-096 CMR 115, BPT

B. Except during periods of start-up and shutdown, Turbine #1 shall not exceed the following emissions at ambient temperatures less than 0°F:

Pollutant	ppmvd @ 15% O ₂	lb/hr	lb/MMBtu	Citation
PM	--	1.19	0.01	06-096 CMR 115, BPT
PM ₁₀	--	1.19	0.01	06-096 CMR 115, BPT
SO ₂	--	0.61	--	06-096 CMR 115, BPT
NO _x	150	78.23	--	40 CFR 60, Subpart KKKK and Chapter 115, BPT
CO	--	59.53	--	06-096 CMR 115, BPT
VOC	--	3.73	--	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 less than zero 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 Turbine #1 shall 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. Turbine #1 shall only fire pipeline quality natural gas.
[06-096 CMR 115, BPT]
- F. Compliance with the PM and PM₁₀ lb/hr emission limits shall be determined through stack testing in accordance with 40 CFR Part 60, Appendix A, Method 5 upon request by the Department. Test results shall be reported in the applicable units of the standard. [06-096 CMR 115, BPT]
- G. Compliance with the NO_x licensed emission limits shall be determined through stack testing in accordance with 40 CFR Part 60 Appendix A, Method 7E, upon request by the Department. Test results shall be reported in the applicable units of the standard.
[40 CFR 60 Subpart KKKK and 06-096 CMR 115, BPT]
- H. Compliance with the CO licensed emission limits shall be determined through stack testing in accordance with 40 CFR Part 60 Appendix A, Method 10, upon request by the Department. Test results shall be reported in the applicable units of the standard. [06-096 CMR 115, BPT]
- I. Compliance with the SO₂ lb/hr emission limit shall be demonstrated by the maximum natural gas firing rate into the turbine and the available sulfur content data that is maintained in accordance with NSPS Subpart KKKK and described in Condition (18) below. [40 CFR 60 Subpart KKKK and 06-096 CMR 115, BPT]

- J. M&N shall demonstrate compliance with the VOC lb/hr limit upon request by the Department by either performing a Method 25A test for Total Organic Compounds (TOC) or by performing a Method 25A test and Method 18 tests for methane and ethane and subtracting the Method 18 results from the Method 25A results. Test results shall be reported in the applicable units of the standard. [06-096 CMR 115, BPT]
- K. M&N shall keep documentation of all maintenance and repairs to Turbine #1. 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]
- L. Except during periods of start-up and shut-down, M&N shall not operate Turbine #1 at gas producer speeds less than 87%. Compliance shall be demonstrated by record keeping of gas producer speeds at all operating times. [06-096 CMR 115, BPT]
- (17) Turbine #1 is subject to and shall comply with the applicable requirements of the Federal NSPS 40 CFR Part 60, Subpart A (General Provisions) and Subpart KKKK (Stationary Gas Turbines).
- (18) In accordance with NSPS 40 CFR Part 60 Subpart KKKK, 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 §60.4365.
- (19) M&N may install like-kind manufacturer-supplied replacement components for the turbine that occurs 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 CNR 115, BPT]
- (20) M&N shall monitor and record the following as specified, for the facility [06-096 CMR 115, BPT]:

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

- (21) 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]

- (22) 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]

- (23) 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]

(24) **Performance Tests**

- A. M&N shall maintain test ports in Turbine #1 stack in accordance with the criteria in 40 CFR Part 60, Appendix A, Method 1 and test platforms, if necessary to allow emission compliance testing for each gas turbine. [40 CFR 60, Subpart KKKK and 06-096 CMR 115, BPT]
- B. M&N shall perform annual performance tests to demonstrate compliance with the NO_x emission limits. If the NO_x emission results meet the requirements of 40 CFR §60.4340, then the frequency of performance tests may be reduced to once every two years upon concurrence from the Department. [40 CFR 60 Subpart KKKK and 06-096 CMR 115, BPT]
- C. All testing shall comply with all of the requirements of the DEP Compliance Test Protocol and with 40 CFR Part 60, as appropriate, or other methods approved by the Bureau of Air Quality. A representative of the DEP or EPA

shall be given the opportunity to observe the compliance testing.
[40 CFR 60 Subpart KKKK and 06-096 CMR 115, BPT]

(25) **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]

(26) **Generators #1, #2 & #3**

- A. M&N shall limit Generators #1, #2, and #3 to 9,636 hr/yr of operation combined (based on a 12 month rolling total). [06-096 CMR 115, BPT]
- B. Each generator shall fire only pipeline quality natural gas. [06-096 CMR 115, BPT]
- C. A non-resettable hour meter shall be installed and operated on each generator. The value from each meter shall be entered into a spreadsheet on a monthly basis. The spreadsheet shall track operating hours on a monthly and a 12 month rolling total basis. [06-096 CMR 115, BPT]

D. Emissions shall not exceed the following:

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

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

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator #1 (5.02 MMBtu/hr), Natural Gas	0.60	0.60	0.01	2.58	2.26	0.97
Generator #2 (5.02 MMBtu/hr), Natural Gas	0.60	0.60	0.01	2.58	2.26	0.97
Generator #3 (5.02 MMBtu/hr), Natural Gas	0.60	0.60	0.01	2.58	2.26	0.97

F. Visible emissions from Generator #1, #2 and #3 shall each not exceed 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hour period. [06-096 CMR 115, BPT]

G. Generators #1, #2, and #3 shall meet the applicable requirements of 40 CFR Part 60, Subpart JJJJ, including, but not limited to, the following:

1. The generators shall meet the emission standards for non-emergency spark ignition lean-burn natural gas engines found in 40 CFR Part 60, Subpart JJJJ, Table 1. [40 CFR §60.4233(e)]
2. The generators shall demonstrate compliance with the emission standards specified in §60.4233(e) according to the requirements specified in §60.4244, as applicable. [40 CFR §60.4243 (b)(2)]
3. M&N shall keep a maintenance plan and records of conducted maintenance and shall, to the extent practicable, maintain and operate the engines in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §60.4243 (b)(2)(ii)]
4. M&N shall conduct performance testing every 8,760 hours or 3 years, whichever comes first. [40 CFR §60.4243(b)(2)(ii)]
5. M&N shall meet the notification, reporting, and recordkeeping requirements of 40 CFR §60.4245, as applicable.

(27) **Boiler #1** (3.5 MMBtu/hr)

- 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:

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

- D. 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 (3.5 MMBtu/hr), Natural gas	0.28	0.28	0.01	0.29	0.15	0.02

- E. Visible emissions from Boiler #1 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 101]

(28) **Annual Emissions**

- A. Total emission from licensed equipment shall not exceed the following on a 12 month rolling total basis [06-096 CMR, BPT]

Pollutant	Tons/Year
PM	8.1
PM10	8.1
SO2	2.62
NOx	57.6
CO	70.8
VOC	34.3

- B. M&N shall keep monthly records sufficient to document the facilities emission on a 12 month rolling total basis and shall make those records available to the Department upon request. [60-096 CMR 115, BPT]

Maritimes & Northeast Pipeline, LLC
Hancock County
Township T35 MD, Maine
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(29) **Fugitive Emissions**

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of individual fifteen (15)-second opacity observations which exceed 20 percent in any one (1) hour. [06-096 CMR 101]

(30) **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. [06-096 CMR 137]

- (31) 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 27 DAY OF March, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cove 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, 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: 12/30/2011
Date of application acceptance: 1/13/2012
Date filed with the Board of Environmental Protection:

This Order prepared by Lisa P. Higgins, Bureau of Air Quality.

