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**Merlin One, LLC
Aroostook County
Limestone, Maine
A-862-71-E-N/T (SM)**

**Departmental
Findings of Fact and Order
Air Emission License
After-the-Fact Renewal and
Transfer**

FINDINGS OF FACT

After review of the air emission license transfer and renewal applications and related materials submitted with regard to the above noted applications, 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, and 06-096 Code of Maine Rules (CMR) 115 (as amended), the Maine Department of Environmental Protection (the Department) finds the following facts:

I. REGISTRATION

A. Introduction

Merlin One, LLC has requested the transfer of Air Emission License A-862-71-D-R from Algonquin Northern Maine Gen Co. to Merlin One, LLC (Merlin One) through an application to the Department received November 18, 2015. Air Emission License A-862-71-D-R was issued to WPS New England Generation, Inc., whose name was later changed to Algonquin Northern Maine Gen Co., on September 18, 2008. After a series of sales, agreements, and responsibility transfers among several entities, the licensed units and other property are to be transferred to Loring Development Authority of Maine (LDA). Merlin One will control the operation and maintenance of these units through a lease agreement with the LDA.

Merlin One has also applied to renew the Air Emission License for the operation of emission sources associated with this facility.

The facility is an electricity generating facility consisting of four distillate fuel oil-fired generators, operated as on-demand back-up to the local grid. Merlin One controls the operation and maintenance of these units through a lease with the LDA. There is also a small heating boiler included in the air emission license.

The equipment addressed in this license is located at 154 Development Drive in Limestone, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boiler

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur by weight</u>	<u>Date of Manuf.</u>
Boiler #1	1.9	13.8	Distillate, 0.5%	Pre-1994

Emergency Generators

<u>Equipment</u>	<u>Maximum Design Heat Input Capacity</u>	<u>Rated Output Capacity</u>	<u>Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur by weight</u>	<u>Date of Manuf.</u>	<u>Date of Install.</u>
Generator 1	10.4	1 MW	74.1	Distillate, 0.05%	Prior to 4/1/2006	Prior to 7/11/2005
Generator 2	10.4	1 MW	74.1			
Generator 3	11.2	1 MW	80.0			
Generator 5	26.6	2.5 MW	190.0			

C. Definitions

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

- Fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials (ASTM) in ASTM D396;
- Diesel fuel oil numbers 1 or 2, as defined in ASTM D975;
- Kerosene, as defined in ASTM D3699;
- Biodiesel, as defined in ASTM D6751; or
- Biodiesel blends, as defined in ASTM D7467.

D. Application Classification

The previous air emission license for this facility expired on September 18, 2013. A complete application was not submitted prior to the expiration date; therefore, this facility is considered to be an existing source applying for an after-the-fact renewal. The Department has determined the facility is a minor source, and the application has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended). With the annual fuel limit on the boiler and the operating hours restriction on the emergency generators, the facility is licensed as follows:

- As a synthetic minor source of air emissions, because the licensed emissions are below the major source thresholds for criteria pollutants; and

As an area source of hazardous air pollutants (HAP), because the licensed emissions are below the major source thresholds for HAP.

II. TRANSFER REQUIREMENTS

A. Title, Right, or Interest

In their application, Merlin One, LLC submitted copies of the lease agreement transferring operation and maintenance responsibilities of the facility to Merlin One, LLC. The parties have provided sufficient evidence of title, right, or interest in the facility to allow the transfer of the facility's air emission license.

B. Technical Capacity and Intent

Merlin One, LLC's acquisition of operation and maintenance responsibilities for the facility is not expected to result in any significant change in the employees that currently operate the equipment and facilities and conduct other activities. The facility's regulatory history with the Department demonstrates that the environmental personnel are competent in air pollution control. The information submitted in the application provides sufficient evidence that Merlin One, LLC has the technical capacity and intent to comply with the air emission license.

C. Full Name and Address

The full name and address of the new owner is:

James A. Barresi, President
Merlin One, LLC
1922 State Road
Castle Hill, Maine 04757

D. Certification

Merlin One certifies that there will be no increase in air emissions beyond that provided for in the existing air emission license, either in quantity or type.

III. 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 an after-the-fact

renewal requires an analysis similar to a Best Available Control Technology analysis per 06-096 CMR 115 (as amended).

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. Boiler #1

Merlin One operates Boiler #1 for building and engine heating requirements. The boiler is rated at 1.9 MMBtu/hour and fires distillate fuel. The boiler was installed in 1994 and exhausts through its own stack.

1. BPT Findings

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

<u>Distillate Fuel</u>		
<u>Pollutant</u>	<u>Emission Factor</u>	<u>Source of Emission Factor</u>
PM, PM ₁₀	0.08 lb/MMBtu	06-096 CMR 115, BPT
SO ₂	0.5 lb/MMBtu	Based on firing distillate fuel with a maximum sulfur content of 0.5% by weight
NO _x	20 lb/1000 gal	AP-42, Table 1.3-1 (5/10)
CO	5 lb/1000 gal	
VOC	0.34 lb/1000 gal	

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

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Boiler #1 1.9 MMBtu/hour distillate fuel	0.12	0.12	0.95	0.28	0.1	0.01

- b. Visible emissions from Boiler #1 shall not exceed 20% opacity on a six-minute block average basis, except for no more than one six-minute block average in a three-hour period. [06-096 CMR 101]
- c. Merlin One shall be limited to 81,000 gallons/year of distillate fuel fired in Boiler #1 on a 12-month rolling total basis.

2. Fuel Sulfur Content Requirements

Per 38 M.R.S.A. §603-A(2)(A)(3), as of July 1, 2018, no person shall import, distribute, or offer for sale any distillate fuel with a sulfur content greater than 0.0015% by weight (15 ppm). Therefore, beginning July 1, 2018, the distillate fuel purchased or otherwise obtained for use in Boiler #1 shall not exceed 0.0015% by weight (15 ppm).

3. Periodic Monitoring

Periodic monitoring for Boiler #1 shall include recordkeeping to document fuel use both on a monthly and 12-month rolling total basis. Documentation shall include the type of fuel used and sulfur content of the fuel.

4. New Source Performance Standards (NSPS)

Due to the 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/hour manufactured after June 9, 1989.

5. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

Boiler #1 is subject to 40 CFR Part 63, Subpart JJJJJ, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*. The unit is considered an existing oil boiler rated less than 10 MMBtu/hour.

A summary of the currently applicable federal 40 CFR Part 63, Subpart JJJJJ requirements is listed below. At this time, the Department has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA; however, Merlin One is still subject to the requirements. Notification forms and additional rule information can be found on the following website: <http://www.epa.gov/ttn/atw/boiler/boilerpg.html>.

a. Compliance Dates, Notifications, and Work Practice Requirements

(1) Initial Notification of Compliance

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

(2) Boiler Tune-Up Program

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

(ii) Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. Under this Subpart, a

tune-up is required for Boiler #1 every five years, because it is an oil-fired boiler with a heat input rating less than 5.0 MMBtu/hour. [40 CFR §63.11223(a) and Table 2]

(iii) The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:

1. As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted; not to exceed 72 months from the previous inspection. [40 CFR §63.11223(b)(1)]
2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR §63.11223(b)(2)]
3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted; not to exceed 72 months from the previous inspection. [40 CFR §63.11223(b)(3)]
4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR §63.11223(b)(4)]
5. Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [40 CFR § 63.11223(b)(5)]
6. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up. [40 CFR §63.11223(b)(7)]

(iv) Tune-Up Report: A tune-up report for Boiler #1 shall be maintained onsite and, if requested, submitted to EPA and the Department. The report shall contain the following information:

1. The concentration of CO in the effluent stream (ppmv) and oxygen (volume percent) measured at high fire or typical operating load both **before** and **after** the boiler tune-up;
2. A description of any corrective actions taken as part of the tune-up of the boiler; and

3. The types and amounts of fuels used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit. [40 CFR §63.11223(b)(6)]

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

(3) Compliance Report

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

- (i) Company name and address;
- (ii) A statement of whether the source has complied with all the relevant requirements of 40 CFR Part 63, Subpart JJJJJ pertaining to Boiler #1;
- (iii) A statement certifying truth, accuracy, and completeness of the notification and signed by a responsible official, and containing the official's name, title, phone number, email address, and signature;
- (iv) The following certifications, as applicable:
 - 1. "This facility complies with the requirements in 40 CFR §63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."
 - 2. "No secondary materials that are solid waste were combusted in any affected unit."
 - 3. "This facility complies with the requirement in 40 CFR §§63.11214(d) to conduct a tune-up of each applicable boiler according to 40 CFR §63.11223(b)."

b. Recordkeeping

Records shall be maintained consistent with the requirements of 40 CFR Part 63, Subpart JJJJJ pertaining to Boiler #1, including the following [40 CFR §63.11225(c)]:

- (1) Copies of notifications and reports with supporting compliance documentation;
- (2) Identification of the boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned;
- (3) Records of the occurrence and duration of each malfunction of each applicable boiler; and

(4) Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler.

Records shall be in a form suitable and readily available for expeditious review. EPA requires submission of Notification of Compliance Status reports for tune-ups and energy assessments through their electronic reporting system. [40 CFR §63.1125(a)(4)(vi)]

C. Generators 1, 2, 3, and 5

Merlin One operates four generators, Generator 1, Generator 2, Generator 3, and Generator 5. Each unit is a generator set, with each gen set consisting of an engine and an electrical generator. The generator sets have engines rated at 10.4 MMBtu/hour, 10.4 MMBtu/hour, 11.2 MMBtu/hour, and 26.6 MMBtu/hour, respectively, which fire distillate fuel. The generators were all manufactured prior to April 1, 2006. Generators 1, 2, 3, and 5 are classified as emergency generators and therefore only operate during emergency situations and for required operation and maintenance.

1. BPT Findings

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

<u>Pollutant</u>	<u>Emission Factor</u>	<u>Source of Emission Factor</u>
PM, PM ₁₀	0.12 lb/MMBtu	06-096 CMR 103 (2)(B)(1)(a)
SO ₂	0.05 lb/MMBtu	Based on firing distillate fuel with a maximum sulfur content of 0.05% by weight
NO _x	3.2 lb/MMBtu	AP-42 Table 3.4-1 (10/96)
CO	0.85 lb/MMBtu	
VOC	0.09 lb/MMBtu	

The BPT emission limits for the distillate fuel-fired generators are the following:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
Generator 1	PM	0.12
Generator 2	PM	0.12
Generator 3	PM	0.12
Generator 5	PM	0.12

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Generator 1 (10.4 MMBtu/hr)	1.3	1.3	0.5	33.3	8.8	0.9
Generator 2 (10.4 MMBtu/hr)	1.3	1.3	0.5	33.3	8.8	0.9

Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Generator 3 (11.2 MMBtu/hr)	1.3	1.3	0.6	35.8	9.5	1.0
Generator 5 (26.6 MMBtu/hr)	3.2	3.2	1.3	85.1	22.6	2.4

- b. Visible emissions from each of the distillate fuel-fired emergency generators shall not exceed 20% opacity on a six-minute block average basis, except for no more than two six-minute block averages in a three-hour period.
- c. Total fuel use for the generators shall not exceed 92,000 gal/year of distillate fuel, based on a 12-month rolling total. [A-862-71-D-R (September 18, 2008), BPT]
- d. Generator 1, Generator 2, Generator 3, and Generator 5 are currently licensed to fire distillate fuel with a maximum sulfur content of 0.05% by weight. Per 38 M.R.S.A. §603-A(2)(A)(3), as of July 1, 2018, no person shall import, distribute, or offer for sale in the State of Maine any distillate fuel with a sulfur content greater than 0.0015% by weight (15 ppm). Therefore, beginning July 1, 2018, the distillate fuel purchased or otherwise obtained for use in Generator 1, Generator 2, Generator 3, and Generator 5 shall not exceed 0.0015% by weight (15 ppm).

2. New Source Performance Standards (NSPS)

Generators 1, 2, 3, and 5 were installed prior to the NSPS applicability dates for 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)*, applicable to generators ordered after July 11, 2005, and manufactured after April 1, 2006. Thus, there are no NSPS requirements applicable to these units.

3. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

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 the emergency generators listed above. The units are considered existing, emergency stationary reciprocating internal combustion engines at an area HAP source and are 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*) specifically does not exempt these units from the federal requirements.

a. Emergency Engine Designation and Operating Criteria

Under Subpart ZZZZ, a stationary reciprocating internal combustion engine (RICE) is considered an **emergency** stationary RICE (emergency engine) as long as the engine is operated in accordance with the following criteria. Operation of an engine outside of the criteria specified below may cause the engine to no longer be considered an emergency engine under Subpart ZZZZ, resulting in the engine being subject to requirements applicable to **non-emergency** engines.

(1) Emergency Situation Operation

There is no operating time limit on the use of an emergency engine to provide electrical power or mechanical work during an emergency situation. Examples of an emergency situation include using an engine 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, using an engine to pump water in the case of fire or flood, etc.

(2) Non-Emergency Situation Operation

An emergency engine may be operated up to a maximum of 100 hours per calendar year for Maintenance Checks, Readiness Testing, and other non-emergency situations as described below.

(i) An emergency engine may be operated for a maximum of 100 hours per calendar year for 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 more than 100 hours per calendar year.

(ii) An emergency engine may be operated for up to 50 hours per calendar year for other non-emergency situations. **However, these operating hours are counted as part of the 100 hours per calendar year operating limit described in paragraphs (2) and (2) (i) above.**

The 50 hours per calendar year operating limit for other 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, unless:

1. The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
2. 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.
3. The dispatch follows reliability, emergency operation or similar protocols that follow specific North American Electric Reliability Corporation (NERC), regional, state, public utility commission, or local standards or guidelines.
4. The power is provided only to the facility itself or to support the local transmission and distribution system.
5. 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.

b. 40 CFR Part 63, Subpart ZZZZ Requirements

(1) Operation and Maintenance Requirements

[40 CFR §63.6603(a) and Table 2(d)]

	<u>Operating Limitations</u>
Compression ignition (diesel, fuel oil) units: <i>Generators 1, 2, 3, and 5</i>	- Change oil and filter every 500 hours of operation or annually, whichever comes first; - Inspect the air cleaner every 1,000 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.

The generators shall be operated and maintained according to the manufacturer's emission-related written instructions, or Merlin One shall develop a maintenance plan which provides to the extent practicable for the maintenance and operation of each engine in a manner consistent with good air pollution control practice for minimizing emissions.
[40 CFR §63.6625(e)]

(2) Optional Oil Analysis Program

Merlin One has the option of utilizing an oil analysis program which complies with the requirements of 40 CFR §63.6625(i) in order to extend the specified oil change requirement. If this option is used, Merlin One must keep records

of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for each engine. The analysis program must be part of the maintenance plan for each engine. [40 CFR §63.6625(i)]

(3) Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on each engine. [40 CFR §63.6625(f)]

(4) Startup Idle and Startup Time Minimization Requirements

During periods of startup, the facility must minimize each engine's time spent at idle and minimize each engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ, Table 2d]

(5) Annual Time Limit for Maintenance and Testing

The generators shall each be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in 40 CFR §63.6640(f)(4)(ii) are met). [40 CFR §63.6640(f)]

(6) Recordkeeping Requirements

Merlin One shall keep records that include maintenance conducted on each engine and the hours of operation of each engine recorded through its non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, including what classified the operation as emergency, and the number of hours each unit operated for non-emergency purposes.

If any of the generators 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 40 CFR §63.6640(f)(4)(ii), Merlin One shall keep records of the notification of the emergency situation, and the date, start time, and end time of operation for these purposes. [40 CFR §63.6655(e) and (f)]

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

If Merlin One 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 to supply power during a non-emergency situation as part of a financial arrangement with

another entity as specified in 40 CFR §63.6640(f)(4)(ii), beginning January 1, 2015, the diesel fuel fired in the generators shall not exceed 15 ppm sulfur (0.0015%). Any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted. [40 CFR §63.6604(b)]

If Merlin One 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 to supply power during a non-emergency situation as part of a financial arrangement with another entity as specified in 40 CFR §63.6640(f)(4)(ii), the facility shall submit an annual report containing the information in 40 CFR §63.6650(h)(1)(i) through (ix). The annual report for each calendar year must be submitted no later than March 31st of the following calendar year. Each 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)]

D. Fugitive Emissions

Visible emissions from any fugitive emission source, including stockpiles and roadways, shall not exceed 20% opacity, except for no more than five minutes in any one-hour period. Compliance shall be determined by an aggregate of the individual 15-second opacity observations which exceed 20% in any one hour.

E. Annual Emissions

1. Total Annual Emissions

Merlin One 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 fuel use caps of 81,000 gallons/year of distillate fuel fired in Boiler #1 and 92,000 gallons/year of distillate fuel fired in the four emergency generators, Generator 1, Generator 2, Generator 3, and Generator 5.

Total Licensed Annual Emissions for the Facility

Tons/year

(used to calculate the annual license fee)

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Boiler #1	0.45	0.45	2.84	0.81	0.20	0.01
Generator 1, Generator 2, Generator 3, and Generator 5	0.76	0.76	0.32	20.17	5.36	0.57
Total TPY *	1.2	1.2	3.2	21.0	5.6	0.6

* rounded to the nearest 0.1 ton

2. Greenhouse Gases

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

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

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

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

IV. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 CMR 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Merlin One, LLC
Aroostook County
Limestone, Maine
A-862-71-E-N/T (SM)

Departmental
Findings of Fact and Order
Air Emission License
After-the-Fact Renewal and
Transfer

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

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

ORDER

Based on the above, the Department concludes that the applicant for the air emission license transfer has the capacity to satisfy all applicable statutory criteria and hereby APPROVES the transfer of Air Emission License A-862-71-D-R from Algonquin Northern Maine Gen Co. to Merlin One, LLC, subject to all conditions attached to it.

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-862-71-E-N/T subject to the following conditions.

Severability. The invalidity or unenforceability of any provision of this License or part thereof 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 06-096 CMR 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) **Boiler #1**

A. Fuel

1. Total fuel use for Boiler #1 shall not exceed 81,000 gal/year of distillate fuel, on a 12-month rolling total basis, with a maximum sulfur content not to exceed 0.5% by weight. [06-096 CMR 115, BPT/BACT]
2. Beginning July 1, 2018, the facility shall not purchase or otherwise obtain distillate fuel with a maximum sulfur content that exceeds 0.0015% by weight (15 ppm). [38 M.R.S.A. §603-A(2)(A)(3) and 06-096 CMR 115, BPT/BACT]
3. Compliance shall be demonstrated by fuel records from the supplier showing the quantity, type, and the percent sulfur of the fuel delivered. Records of annual fuel use shall be kept on a monthly and 12-month rolling total basis. [06-096 CMR 115, BPT]

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

Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1 1.9 MMBtu/hour distillate fuel	0.12	0.12	0.95	0.28	0.1	0.01

- C. Visible emissions from Boiler #1 shall not exceed 20% opacity on a six-minute block average basis, except for no more than one six-minute block average in a three-hour period. [06-096 CMR 101]

D. 40 CFR Part 63, Subpart JJJJJ Requirements for Boiler #1
[incorporated under 06-096 CMR 115, BPT]

1. The facility shall implement a boiler tune-up program. [40 CFR §63.11223]
 - a. A tune-up shall be conducted on Boiler #1 every five calendar years. [40 CFR §63.11223(a) and Table 2]
 - b. The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:
 - (1) As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted; not to exceed 72 months from the previous inspection. [40 CFR §63.11223(b)(1)]
 - (2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR §63.11223(b)(2)]
 - (3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted; not to exceed 72 months from the previous inspection. [40 CFR §63.11223(b)(3)]
 - (4) Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR §63.11223(b)(4)]
 - (5) Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [40 CFR §63.11223(b)(5)]
 - (6) If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up. [40 CFR §63.11223(b)(7)]
 - c. Tune-Up Report: A tune-up report shall be maintained onsite and, if requested, submitted to EPA. The report shall contain the following information: [40 CFR §63.11223(b)(6)]
 - (1) The concentration of CO in the effluent stream (ppmv) and oxygen (volume percent) measured at high fire or typical operating load both **before** and **after** the boiler tune-up;
 - (2) A description of any corrective actions taken as part of the tune-up of the boiler; and
 - (3) The types and amounts of fuels used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

2. Compliance Report

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

- a. Company name and address;
- b. A statement of whether the source has complied with all the relevant requirements of 40 CFR Part 63, Subpart JJJJJ pertaining to Boiler #1;
- c. A statement certifying truth, accuracy, and completeness of the notification and signed by a responsible official and containing the official's name, title, phone number, email address, and signature;
- d. The following certifications, as applicable:
 - (1) "This facility complies with the requirements in 40 CFR §63.11223 to conduct tune-ups of each boiler in accordance with the frequency specified in this Subpart."
 - (2) "No secondary materials that are solid waste were combusted in any affected unit."
 - (3) "This facility complies with the requirement in 40 CFR §§63.11214(d) to conduct a tune-up of each applicable boiler according to 40 CFR §63.11223(b)."

3. Records shall be maintained consistent with the requirements of 40 CFR Part 63, Subpart JJJJJ including the following [40 CFR §63.11225(c)]:

- a. Copies of notifications and reports with supporting compliance documentation;
- b. Identification of each boiler, the date of tune-up, procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned;
- c. Records of the occurrence and duration of each malfunction of each applicable boiler; and
- d. Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore the malfunctioning boiler.

Records shall be in a form suitable and readily available for expeditious review. EPA requires submission of Notification of Compliance Status reports for tune-ups and energy assessments through their electronic reporting system. [40 CFR §63.1125(a)(4)(vi)]

(17) **Generators 1, 2, 3, and 5**

A. Each of the emergency generators shall be limited to 100 hours of operation per calendar year for maintenance checks and readiness testing, excluding operating hours during emergency situations. Of those 100 hours per year, up to 50 of the hours may be used for the following purposes:

1. Emergency demand response participation;
2. Periods of voltage or frequency deviation of 5% or greater from standards;
3. Other non-emergency operations. Other non-emergency operations shall not include peak shaving, non-emergency demand response participation, the generation of income for a facility by providing power to a power grid, or the supplying of power as part of a financial arrangement with another entity unless the conditions in 40 CFR §63.6640(f)(4)(ii) are met.

There is no limitation on the hours of operation of an emergency engine for emergency purposes.

Compliance shall be demonstrated by records (electronic or written logs) of all engine operating hours and the purpose of operation for each occasion an engine was operated.

[40 CFR §63.6640(f) and 06-096 CMR 115, BPT]

B. Fuel

1. The fuel sulfur content for Generators 1, 2, 3, and 5 shall be limited to 0.05% sulfur by weight. Compliance shall be demonstrated by fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06-096 CMR 115, BPT]
2. Total fuel use for the generators shall not exceed 92,000 gal/year of distillate fuel, based on a 12-month rolling total. [A-862-D-R (September 18, 2008), BPT]
3. Generator 1, Generator 2, Generator 3, and Generator 5 are currently licensed to fire distillate fuel with a maximum sulfur content of 0.05% by weight. Per 38 M.R.S.A. §603-A(2)(A)(3), as of July 1, 2018, no person shall import, distribute, or offer for sale in the State of Maine any distillate fuel with a sulfur content greater than 0.0015% by weight (15 ppm). Therefore, beginning July 1, 2018, the distillate fuel purchased or otherwise obtained for use in Generator 1, Generator 2, Generator 3, and Generator 5 shall not exceed 0.0015% by weight (15 ppm).

C. Emissions shall not exceed the following:

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

D. 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 (10.4 MMBtu/hr)	1.3	1.3	0.5	33.3	8.8	0.9
Generator 2 (10.4 MMBtu/hr)	1.3	1.3	0.5	33.3	8.8	0.9
Generator 3 (11.2 MMBtu/hr)	1.3	1.3	0.6	35.8	9.5	1.0
Generator 5 (26.6 MMBtu/hr)	3.2	3.2	1.3	85.1	22.6	2.4

E. Visible Emissions

Visible emissions from each of the distillate fuel-fired generators shall not exceed 20% opacity on a six-minute block average basis, except for no more than two six-minute block averages in a three-hour period. [06-096 CMR 101]

F. Generators 1, 2, 3, and 5 shall meet the applicable requirements of 40 CFR Part 63, Subpart ZZZZ, including the requirements identified in the following sections.

1. Operational Limitations

Merlin One shall meet the following operational limitations for each of the compression ignition emergency engines:

- a. Change oil and filter every 500 hours of operation or annually, whichever comes first;
- b. Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and
- c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Records 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

Merlin One has the option of utilizing an oil analysis program which complies with the requirements of 40 CFR §63.6625(i) in order to extend the specified oil

change requirement. If this option is used, Merlin One shall keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for each engine. The analysis program shall be part of the maintenance plan for each engine. [40 CFR §63.6625(i)]

3. Non-Resettable Hour Meter

A non-resettable hour meter shall be installed and operated on each engine. [40 CFR §63.6625(f)]

4. Startup Idle and Startup Time Minimization

During periods of startup the facility must minimize each engine's time spent at idle and minimize each engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 CFR §63.6625(h) and 40 CFR Part 63, Subpart ZZZZ Table 2d]

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

a. As emergency engines, the units shall each be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise to supply power as part of a financial arrangement with another entity. These limits are based on a calendar year. Compliance shall be demonstrated by records (electronic or written logs) of all engine operating hours. [40 CFR §63.6640(f) and 06-096 CMR 115]

b. Recordkeeping Requirements

Merlin One shall keep records that include maintenance conducted on each engine and the hours of operation of each engine recorded through its non-resettable hour meter. Documentation shall include the number of hours each unit operated for emergency purposes, including what classified the operation as emergency, and the number of hours each unit operated for non-emergency purposes.

If any of the generators 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 40 CFR §63.6640(f)(4)(ii), Merlin One shall keep records of the notification of the emergency situation, and the date, start time, and end time of operation for these purposes. [40 CFR §63.6655(e) and (f)]

6. Operation and Maintenance

The engines shall be operated and maintained according to the manufacturer's emission-related written instructions, or Merlin One shall develop a maintenance

plan which provides to the extent practicable for the maintenance and operation of the engines in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §63.6625(e)]

7. Requirements For Demand Response Availability Over 15 Hours Per Year (and greater than 100 brake hp) [40 CFR §63.6650(h)]
- a. If Merlin One's generators operate or are 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 for supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in 40 CFR §63.6640(f)(4)(ii), beginning January 1, 2015, the fuel fired in the engines shall not exceed 15 ppm sulfur (0.0015%). Any existing fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted. [40 CFR §63.6604(b)]
 - b. If Merlin One 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 40 CFR §63.6640(f)(4)(ii), Merlin One shall submit an annual report containing the information in §63.6650(h)(1)(i) through (ix). The annual report for each calendar year must be submitted no later than March 31st 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

(18) **Fugitive Emissions**

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

Merlin One, LLC
Aroostook County
Limestone, Maine
A-862-71-E-N/T (SM)

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**Departmental
Findings of Fact and Order
Air Emission License
After-the-Fact Renewal and
Transfer**

- (19) Merlin One 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 13 DAY OF May, 2016.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Corne for
PAUL MERCER, COMMISSIONER

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

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

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: November 18, 2015

Date of application acceptance: December 2, 2015

Date filed with the Board of Environmental Protection:

This Order prepared by Jane E. Gilbert, Bureau of Air Quality.

