



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

**Backyard Farms, LLC
Somerset County
Madison, Maine
A-937-71-M-M (SM)**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #3**

FINDINGS OF FACT

After review of the air emissions license amendment 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 Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

1. Backyard Farms, LLC (BYF) was issued Air Emission License A-937-71-J-R on July 2, 2012, permitting the operation of emission sources associated with their greenhouse facility. The license was subsequently amended on August 16, 2012 (A-937-71-K-A), and on February 8, 2013 (A-937-71-L-M).
2. In light of recent changes to federal regulations, BYF has requested a minor revision to their license in order to reclassify their generators from non-emergency to emergency generators, in accordance with 40 CFR Part 60 Subpart IIII and Subpart JJJJ, and 40 CFR Part 63, Subpart ZZZZ.
3. The equipment addressed in this license is located at 141 River Road, Madison, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

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

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

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

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

Generators

Equipment	Maximum Capacity (MMBtu/hr)	Firing Rate (gal/hr)	Fuel Type, % sulfur	Install. Date	Stack #
Generator #1	4.6	32.9	Diesel fuel, 0.0015%	2006	4
Generator #2	5.1	36.4	Diesel fuel, 0.0015%	2009	5
Generator #3	1.87	20.4	Propane, neg. S	2012	3

C. Application Classification

This amendment will not increase emissions of any pollutant. Therefore, this modification is determined to be a minor revision and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license, the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 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. Emergency Generators #1, #2 and #3

BYF operates three emergency generators. The emergency generators are rated at 4.6 MMBtu/hr, 5.1 MMBtu/hr, and 1.87 MMBtu/hr. Generators #1 and #2 fire diesel fuel; Generator #3 fires propane. The generators were installed in 2006, 2009 and 2012, respectively.

1. BACT/BPT Findings

The BPT emission limits for Generator #1 firing diesel fuel, are based on the following:

PM/PM ₁₀	- 0.12 lb/MMBtu from 06-096 CMR 103, 0.55 lb/hr
SO ₂	- combustion of diesel fuel with a maximum sulfur content not to exceed 15 ppm (0.0025% sulfur), 0.09 lb/hr
NO _x	- 1.29 lb/MMBtu, Manufacturer's Guaranteed Not To Exceed (MGNTE), 5.93 lb/hr
CO	- 0.174 lb/MMBtu, MGNTE, 0.80 lb/hr
VOC	- 0.025 lb/MMBtu, MGNTE, 0.12 lb/hr
Opacity	- Visible emissions from Generator #1 shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a three (3) hour period, 06-096 CMR 101

The BPT emission limits for Generator #2 firing diesel fuel, are based on the following:

PM/PM ₁₀	- 0.012 lb/MMBtu, MGNTE, 0.06 lb/hr
SO ₂	- combustion of diesel fuel with a maximum sulfur content not to exceed 15 ppm (0.0025% sulfur), 0.01 lb/hr
NO _x	- 2.286 lb/MMBtu, MGNTE, 11.66 lb/hr
CO	- 0.174 lb/MMBtu, MGNTE, 0.80 lb/hr
VOC	- 0.025 lb/MMBtu, MGNTE, 0.12 lb/hr
Opacity	- Visible emissions from Generator #2 shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a three (3) hour period, 06-096 CMR 101

The BPT emission limits for Generator #3 firing propane, are based on the following:

PM/PM ₁₀	- 0.00991 lb/MMBtu, AP-42, Table 3.2-2, 0.02 lb/hr
SO ₂	- 0.001 lb/MMBtu, AP-42, Table 3.2-2, 0.01 lb/hr
NO _x	- 0.052 lb/MMBtu, MGNTE, 0.10 lb/hr
CO	- 0.261 lb/MMBtu, MGNTE, 0.49 lb/hr
VOC	- 0.0220 lb/MMBtu, MGNTE, 0.41 lb/hr
Opacity	- Visible emissions from Generator #3 shall not exceed 10% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a three (3) hour period, 06-096 CMR 101

<u>Unit</u>	<u>PM</u> (lb/hr)	<u>PM₁₀</u> (lb/hr)	<u>SO₂</u> (lb/hr)	<u>NO_x</u> (lb/hr)	<u>CO</u> (lb/hr)	<u>VOC</u> (lb/hr)
Generator #1	0.55	0.55	0.01	5.93	0.80	0.12
Generator #2	0.06	0.06	0.01	11.66	1.25	0.03
Generator #3	0.02	0.02	0.01	0.10	0.49	0.41

Each of the emergency generators shall be limited to 500 hours of operation a year, based on a 12-month rolling total. BYF shall keep records of the hours of operation for each unit.

2. 40 CFR Part 60, Subpart IIII and Subpart JJJJ

The federal regulation 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)* is applicable to Emergency Generators #1 and #2 since the units were ordered after July 11, 2005 and manufactured after April 1, 2006. By meeting the requirements of Subpart IIII, 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.

The federal regulation 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Spark Ignition Internal Combustion Engines (SI ICE)* is applicable to Emergency Generator #3 since the unit was ordered after June 12, 2006 and manufactured after January 1, 2009. By meeting the requirements of Subpart JJJJ, the unit also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ.

a. Emergency Definition:

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

- (1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

- (2) Paragraph (1) above notwithstanding, the emergency stationary ICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:
- (i) Maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
 - (ii) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.
 - (iii) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- (3) Paragraphs (1) and (2) above notwithstanding, emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

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

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

[40 CFR §60.4211(f) and §60.4219]

b. 40 CFR Part 60, Subpart IIII and Subpart JJJJ Requirements

(1) Manufacturer Certification Requirement

Generators #1 and #2 shall be certified by the manufacturer as meeting the emission standards for new non-road compression ignition engines found in 40 CFR §60.4202. [40 CFR §60.4205(b)]

Generator #3 shall be certified by the manufacturer as meeting the emission standards for new non-road spark ignition engines found in 40 CFR Part 60, Subpart JJJJ, Table 1.

(2) Ultra-Low Sulfur Diesel Fuel Requirement

The diesel fuel fired in Generators #1 and #2 shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR §60.4207(b)]

(3) Non-Resettable Hour Meter Requirement

A non-resettable hour meter shall be installed and operated on each generator. [40 CFR §60.4209(a), 40 CFR §60.4237]

(4) Operation and Maintenance Requirements

The generators shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by facility that are approved by the engine manufacturer. BYF may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a), 40 CFR §60.4243]

(5) Annual Time Limit for Maintenance and Testing

The generators shall each be limited to 100 hours per year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours per year of the 100 hours per year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). [40 CFR §60.4211(f), 40 CFR §60.4243(d)]

(6) Initial Notification Requirement

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

**(7) Annual Reporting Requirements for Demand Response Availability
Over 15 Hours per Year (for generators greater than 100 brake hp)**

If BYF operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i) (Generators #1 and #2) or §60.4243(d)(3)(i) (Generator #3), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii) (Generator #1 and #2) or §60.4245(e)(1)(i) through (vii) (Generator #3)

The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

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

[40 CFR §60.4214(d)]

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-937-71-M-M subject to the conditions found in Air Emission License A-937-71-J-R, in amendments A-937-71-K-A and A-937-71-L-M, and in 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.

Specific Condition (18) in air emission license A-937-71-J-R and Specific Condition (22) in air emission license amendment A-937-71-M-M shall be deleted, and replaced with the following Specific Condition (18):

(18) Emergency Generators #1, #2 and #3

- A. The generators are each limited to 500 hours per year total operation, based on a 12-month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours. [06-096 CMR 115]
- B. Emissions shall not exceed the following:

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

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

<u>Unit</u>	<u>PM</u> <u>(lb/hr)</u>	<u>PM₁₀</u> <u>(lb/hr)</u>	<u>SO₂</u> <u>(lb/hr)</u>	<u>NO_x</u> <u>(lb/hr)</u>	<u>CO</u> <u>(lb/hr)</u>	<u>VOC</u> <u>(lb/hr)</u>
Generator #1	0.55	0.55	0.01	5.93	0.80	0.12
Generator #2	0.06	0.06	0.01	11.66	1.25	0.03
Generator #3	0.02	0.02	0.01	0.10	0.49	0.41

D. Visible Emissions

1. Visible emissions from each of the diesel Generators #1 and #2 shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous three (3)-hour period. [06-096 CMR 101]

2. Visible emissions from the propane-fired Generator #3 shall not exceed 10% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous three (3)-hour period. [06-096 CMR 115, BPT]
- E. Emergency Generators #1, and #2 shall meet the applicable requirements of 40 CFR Part 60, Subpart IIII, and Emergency Generator #3 shall meeting the applicable requirements of 40 CFR Part 60, Subpart JJJJ, including the following:
1. **Manufacturer Certification**

Generators #1 and #3 shall be certified by the manufacturer as meeting the emission standards for new non-road compression ignition engines found in §60.4202. [40 CFR §60.4205(b), 40 CFR §60.4237 and 06-096 CMR 115, BPT]

Generator #3 shall be certified by the manufacturer as meeting the emission standards for new non-road spark ignition engines found in 40 CFR Part 60, Subpart JJJJ, Table 1.
 2. **Ultra-Low Sulfur Diesel Fuel**

The diesel fuel fired in Generators #1 and #2 shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. Compliance with the fuel sulfur content limit shall be based on fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [40 CFR §60.4207(b) and 06-096 CMR 115]
 3. **Non-Resettable Hour Meter**

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

4. Annual Time Limit for Maintenance and Testing

The generators shall each be limited to 100 hours per year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours per year of the 100 hours per year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) (Generators #1 and #2) and §60.4243(d)(3)(i) (Generator #3) are met). These limits are based on a calendar year. Compliance shall be demonstrated by a written log of all generator operating hours. [40 CFR §60.4211(f), 40 CFR §60.4243(d) and 06-096 CMR 115]

5. Operation and Maintenance

The generators shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by BYF that are approved by the engine manufacturer. BYF may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a), 40 CFR §60.4243]

6. Annual Reporting For Demand Response Availability Over 15 Hours Per Year (for generators greater than 100 brake hp)

If BYF operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i) (Generators #1 and #2) or §60.4243(d)(3)(i) (Generator #3), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii) (Generators #1 and #2) or §60.4245(e)(1)(i) through (vii) (Generator #3). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

Backyard Farms, LLC
Somerset County
Madison, Maine
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Director, Office of Ecosystem Protection
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

[40 CFR §60.4214(d), 40 CFR §60.4245(e)]

DONE AND DATED IN AUGUSTA, MAINE THIS 15 DAY OF August, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PATRICIA W. AHO, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-937-71-J-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 05/16/2013

Date of application acceptance: 05/20/2013

Date filed with the Board of Environmental Protection:

This Order prepared by N. Lynn Cornfield, Bureau of Air Quality.

