



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE  
GOVERNOR

PATRICIA W. AHO  
COMMISSIONER

**Exeter Agri-Energy, LLC  
Penobscot County  
Exeter, Maine  
A-1047-71-B-M**

**Departmental  
Findings of Fact and Order  
Air Emission License  
Amendment #1**

After review of the air emissions license minor revision 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**

Exeter Agri-Energy, LLC (Exeter Agri-Energy) submitted an air emission license minor revision to update the proposed plan for a back-up boiler. The licensed 3.1 MMBtu/hr boiler is instead going to be a rental boiler that will be brought on-site occasionally.

The proposed anaerobic digester facility was licensed in air emission license A-1047-71-A-N, issued on March 8, 2011, and is to be located at Stonyvale Farm at 226 Fogler Road, Exeter, Maine.

**B. Emission Equipment**

The equipment addressed in this air emission license amendment is an update to the 3.1 MMBtu/hr back-up biogas boiler which is now planned to be a rental unit with a capacity of 3 MMBtu/hr or less and firing #2 fuel/diesel oil.

**C. Application Classification**

The change from a planned permanent boiler to a rental boiler will likely not increase emissions from the facility. However, calculations were performed using a 2000 hour/year limit on an oil fired back-up boiler with a maximum capacity of 3 MMBtu/hr. Worst-case maximum emissions from the back-up boiler alone (not included with the cogeneration system as was previously licensed) are the following:

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 04679-2094  
(207) 764-0477 FAX: (207) 760-3143

Ton/year from the Back-up Boiler

	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Back-up Boiler	0.36	0.36	1.51	0.9	0.11	0.01

Since this is a revision to the original proposed project (i.e. the back-up boiler was not yet installed) and emissions for the back-up boiler are below 4 tons/year of any single pollutant and 8 tons/year total criteria pollutants, the application has been classified as a minor revision and the application has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended).

## II. MINOR REVISION DESCRIPTION

### A. Background

The anaerobic digester system will produce biogas, made up of approximately 60% methane and 40% carbon dioxide (CO<sub>2</sub>). The biogas fuels the electric generator which provides thermal energy to be used both on-site and to supply electricity to the grid. In addition to the digester and generator, the system includes a flare. A biogas fired boiler was also initially licensed in anticipation of being used during the scenario when the cogeneration unit was offline and the digester was operating. The boiler was to provide the heat normally supplied to the digester by the generator. The excess digester gas produced during generator downtime and not used by the back-up boiler was to be flared.

In the new proposed configuration, a back-up boiler will be brought in temporarily for start-ups and heating the system occasionally when the generator is down for maintenance. Any excess digester gas produced when the generator is down will be flared.

### B. Back-up Boiler

Exeter Agri-Energy has requested to be allowed to use a trailer mounted rental boiler instead of the originally designed 3.1 MMBtu/hr biogas fired back-up boiler. The rental unit will fire #2/diesel fuel and is expected to be brought on-site approximately 1 month during startup and then for 3 days each year, as necessary, when the generator is serviced. The unit will be used to heat the digester vessels when the generator is not operating (i.e. during startup or maintenance).

Exeter Agri-Energy may bring a rental boiler on-site that is equal to or less than 3 MMBtu/hr. Total rental boiler hours at the facility shall be limited to a maximum of 2000 hours/year a calendar year basis.

The BACT emission limits for a 3 MMBtu/hr #2 fuel/diesel oil back-up boiler are based on the following:

- PM/PM<sub>10</sub> – 0.12 lb/MMBtu based on 06-096 CMR 103 (0.36 lb/hr).
- SO<sub>2</sub> – use of fuel oil with a maximum of 0.5% sulfur; (1.51 lb/hr)
- NO<sub>x</sub> – 0.3 lb/MMBtu: BACT (0.9 lb/hr)
- CO – 5 lb/1000 gal: AP-42, Table 1.3-1 dated 5/10 (0.11 lb/hr)
- VOC – 0.34 lb/MMscf: AP-42, Table 1.3-3 dated 5/10 (0.01 lb/hr)
- Opacity – Visible emissions from the boiler shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than two (2) six (6) minute block averages in a 3 hour period.

Exeter Agri-Energy shall maintain records of the date(s) and amount of time the rental boiler is on-site and operated; as well as fuel type, fuel use, and documentation of fuel sulfur content. Information about the rental boiler including size, make, model, year, and serial number shall also be documented.

C. Annual Emissions

Exeter Agri-Energy shall be restricted to the following annual emissions, calculated with the cogeneration unit operating 8760 hrs/year, a back-up boiler operating at 2000 hrs/year, the emergency generator operating 500 hrs/year, and the sawmill diesel drive unit operating 200 hrs/year, based on a 12 month rolling total:

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

	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC
Cogeneration Unit *	5.0	5.0	2.8	21.4	31.3	10.0
Back-up Boiler	0.36	0.36	1.51	0.9	0.11	0.01
Emergency Generator	0.04	0.04	0.0005	0.64	0.30	0.12
Sawmill Diesel Drive Unit	0.02	0.02	0.002	0.25	0.14	0.05
<b>Total TPY</b>	<b>5.4</b>	<b>5.4</b>	<b>4.3</b>	<b>23.2</b>	<b>31.9</b>	<b>10.2</b>

\* This is worst case scenario. The operation of the back-up flare when the cogeneration unit is not available has the same or lower emissions as the cogeneration unit.

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

The Department hereby grants Air Emission License A-1047-71-B-M subject to the conditions in A-1047-71-A-N and 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 CONDITIONS

The following shall replace Condition (17) in air emission license A-1047-71-A-N:

### (17) Back-up Boiler

- A. Exeter Agri-Energy may bring a portable rental back-up boiler on-site that is equal to or less than 3.0 MMBtu/hr for purposes of heating the digester vessels when the generator unit is not operating (i.e. during startup or maintenance).
  1. Total rental boiler hours at the facility shall be limited to a maximum of 2000 hours/year on a calendar year basis.
  2. Exeter Agri-Energy shall maintain records on the back-up boiler, including documentation of:
    - a. the rental boiler size, make, model, year, and serial number,
    - b. the date(s) and amount of time the rental boiler is on-site and operated, and
    - c. the fuel type, and fuel use, along with documentation of fuel sulfur content.

[06-096 CMR 115, BACT]

B. Emissions from the back-up boiler shall not exceed the following:

Pollutant	lb/MMBtu	Origin and Authority
PM	0.12	06-096 CMR 103

C. Emissions from the back-up boiler shall not exceed the following [06-096 CMR 115, BACT]:

PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
0.36	0.36	1.51	0.90	0.11	0.01

D. Visible emissions from the back-up boiler shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than two (2) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 5<sup>th</sup> DAY OF October, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie Lopez for  
PATRICIA W. AHO, COMMISSIONER

**The term of this license shall be concurrent with air emission license A-1047-71-A-N.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: August 31, 2011

Date of application acceptance: September 6, 2011

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

