



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE  
GOVERNOR

DARRYL N. BROWN  
COMMISSIONER

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

**Departmental  
Findings of Fact and Order  
Air Emission License**

After review of the air emissions license 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 application for an anaerobic digester facility at Stonyvale Farm (226 Fogler Road, Exeter, Maine) for the purpose of digesting cow manure and organic food processing waste material. The digester will provide biogas fuel for a 1 megawatt (MW) electric generator, which in turn will provide heat to the farm and optimize the anaerobic digester temperature. A flare and back-up biogas boilers will also be part of the operation for those times the generator is down.

**B. Emission Equipment**

The following equipment is addressed in this air emission license:

**Fuel Burning Equipment**

<b><u>Equipment</u></b>	<b><u>Maximum Capacity (MMBtu/hr)</u></b>	<b><u>Maximum Firing Rate</u></b>	<b><u>Fuel Type, % sulfur</u></b>	<b><u>Stack #</u></b>
1 MW Cogeneration Unit	9.5	15,767 scf/hr	Biogas	1
Backup Boiler	3.1	5,167 scf/hr	Biogas	2
Emergency Flare	9.5	15,767 scf/hr	Biogas	N/A
Emergency Generator (125 kW)	1.3	9.3 gal/hr	Diesel	
Saw Mill Diesel Drive (166 hp)	1.5	10.7 gal/hr	Diesel	

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RAY BLDG., HOSPITAL ST.

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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

### C. Application Classification

A new source is considered a major source based on whether or not expected emissions exceed the "Significant Emission Levels" as defined in the Department's regulations. The emissions for the new source are determined by the maximum future license allowed emissions, as follows:

<u>Pollutant</u>	<u>Max. Future License (TPY)</u>	<u>Sig. Level</u>
PM	5.0	100
PM <sub>10</sub>	5.0	100
SO <sub>2</sub>	2.8	100
NO <sub>x</sub>	22.3	100
CO	31.7	100
VOC	10.2	50

The Department has determined Exeter Agri-Energy 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).

## 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 new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

### **Process Description**

Exeter Agri-Energy is a wholly-owned subsidiary of Stonyvale, a dairy farm with 1200 milking head equivalent of cattle. Exeter Agri-Energy is proposing to install an anaerobic digester system with two parallel digester units (1500 m<sup>3</sup> each) to produce biogas from cow manure generated on-site and eventually also from off-site generated food wastes. Manure will be collected from the dairy barns on an ongoing basis and pumped directly into the anaerobic digester system. The direct

and constant supply of manure minimizes the potential for aerobic degradation and odor.

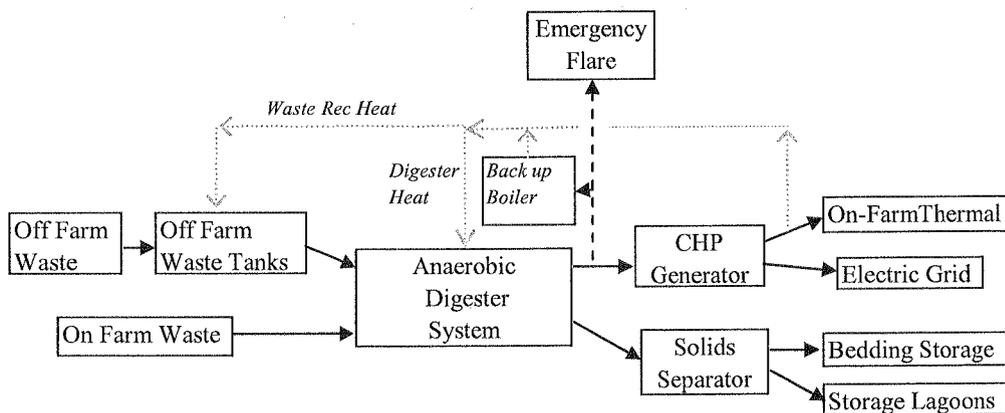
The off-farm organic feedstocks which may be used in the future include source-separated organic wastes such as fruit and vegetable waste, fats, oils, and greases. These off-farm feedstocks will be stored and pre-treated in one of two heated receiving tanks. A chopper pump would be used to slurry incoming material and pump materials from the receiving tanks into the anaerobic digester system where they would be co-digested with the manure.

The biogas from the anaerobic digester system, made up of approximately 60% methane and 40% carbon dioxide (CO<sub>2</sub>), will provide fuel for an electric generator. The generator will produce both thermal energy to be used on-site and electricity for the grid.

Effluent material will go through a solid separator. The solid portion will be used as livestock bedding and the liquid portion will be land-applied as a nutrient-rich organic fertilizer.

The system will include a biogas fired boiler and a flare. When the cogeneration unit is offline, the biogas will be used to fire the back-up boiler. The excess digester gas produced during generator downtime and not used by the back-up boiler will be flared.

Below is a diagram of Exeter Agri-Energy's proposed process:



Stonyvale Farms also owns and operates two small diesel units adjacent to the anaerobic digester system, one is an emergency generator and one is a direct drive unit used to power a small sawmill. These units are included in this license since Stonyvale Farms owns Exeter Agri-Energy and they are on the same site.

B. Cogeneration Unit

The proposed combined heat and power generator is a 1475 hp unit (9.5 MMBtu/hr), manufactured in 2010 by Guascor Power. This 1 MW generator will fire biogas produced from the anaerobic digester system. The cogeneration unit is considered a combined heat and power generator (producing both electrical energy to the grid and thermal heat for the facility). The cogeneration unit will have its own stack and the stack shall be at least 20 feet in height, which is expected to meet ambient air quality standards.

*NSPS Requirements*

The generator is subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart JJJJ, *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*. The applicability for this engine is under the category of engines manufactured after July 1, 2007 with a maximum engine power greater than or equal to 500 hp burning landfill/digester gas (§60.423(a)(4)(i)). Owners of these units are required to purchase an engine certified to the standards of Subpart JJJJ, Table 1 (manufacturer certification is acceptable).

*NESHAP Requirements*

The generator is also subject to 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines*. The generator is considered a new stationary reciprocating internal combustion engine at an area HAP source (construction commenced on or after June 12, 2006); however, since the unit is subject to 40 CFR Part 60, Subpart JJJJ there are no further requirements under 40 CFR Part 60, Subpart ZZZZ (§63.6590(c)(1)).

*BACT*

Exeter Agri-Energy submitted a BACT analysis as part of the license application. The summary of the BACT analysis for the generator is the following:

PM/PM<sub>10</sub>— The options for controlling particulate matter from the generator include add-on controls and good operating practices. Add on-controls were not considered for this unit. The anaerobic digester system uses a particulate filter to remove particulate matter from the biogas prior to combustion. The cogeneration unit has its own fuel and air filters which further remove particulates and improves engine performance and reliability. These filters, inherent combustion efficiencies of a new lean burn unit, and good operating practices were proposed as BACT, with the PM emission limit for the generator based on the emission standard in *Fuel Burning Equipment Particulate Emission Standard*, 06-096 CMR 103 (as amended).

The BACT emission limit for PM/PM<sub>10</sub> from the generator is 0.12 lb/MMBtu (1.14 lb/hr).

SO<sub>2</sub> – Sulfur dioxide emissions result from the combustion oxidation of hydrogen sulfide (H<sub>2</sub>S) and possibly other reduced sulfur compounds formed through the anaerobic digestion process. H<sub>2</sub>S and other reduced sulfur compounds can also lead to corrosion in the fuel handling systems. Based on evaluations of uncontrolled sources, raw H<sub>2</sub>S concentrations were estimated to be approximately 2000 parts per million by volume (ppmv). However, the proposed system converts H<sub>2</sub>S to sulfate (SO<sub>4</sub>) which remains in the liquid effluent. A small percentage of air is injected into the digester head space which biologically converts most of the H<sub>2</sub>S present in the digester gas zone to SO<sub>4</sub>, with the remaining H<sub>2</sub>S concentration expected to be below 200 ppm. Exeter Agri-Energy proposes this internal system design technology as BACT to minimize SO<sub>2</sub>. External H<sub>2</sub>S removal systems exist, but were not considered for this facility due to cost effectiveness.

The BACT emission limit for SO<sub>2</sub> from the generator is 0.65 lb/hr. This is based on assuming complete conversion of 250 ppmv of H<sub>2</sub>S in the fuel.

NO<sub>x</sub> – Exeter Agri-Energy evaluated various options for controlling nitrogen oxides from the generator. NO<sub>x</sub> emissions from internal combustion engines are primarily reduced by optimizing combustion to limit NO<sub>x</sub> formation or by using control systems such as selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), biogas firing, lean burn combustion, Ignition Timing Retard, and derating.

SCR is an add-on control which uses urea or ammonia injection along with a catalyst to react with the NO<sub>x</sub> in the flue gas to form water and nitrogen. No information was found regarding the use of SCR in digester gas fired internal combustion engines, however a recent report by the California Air Resources Board stated that the use of SCR in landfill gas combustion systems is experimental; stable, long-term operation of similar waste gas systems has not, to date, been achieved in practice. Therefore, SCR was not considered technologically feasible for Exeter Agri-Energy.

SNCR is an add-on control which also uses ammonia or urea injection, but without a catalyst. The reaction requires the injection point at a specific temperature (1600-2100°F), which is above the expected 975°F Exeter Agri-Energy exhaust temperature, therefore SNCR was not considered feasible for the facility.

Firing biogas fuel can be considered a part of a NO<sub>x</sub> emissions reduction control strategy. Biogas has large amounts of CO<sub>2</sub>, causing peak engine

temperatures to be reduced, and thereby minimizing NO<sub>x</sub> formation. This is a viable method to reducing NO<sub>x</sub> from the generator.

Lean burn combustion engines are designed to be operated at high excess air levels resulting in lower combustion temperatures and therefore lower NO<sub>x</sub> emissions. Lean burn combustion simultaneously minimizes emissions of NO<sub>x</sub> along with PM, CO, and VOC. Lean burn technology for digester gas-fired internal combustion engines is widely accepted as BACT. Exeter Agri-Energy is proposing to use a lean burn technology generator.

Ignition timing retard delays the ignition timing to minimize peak combustion temperature. NO<sub>x</sub> formation can be greatly reduced, but CO and PM emissions potentially increase, along with a decrease in engine performance and operational stability. Exeter Agri-Energy is proposing to adjust ignition timing to optimize both NO<sub>x</sub> and CO emissions.

Proper operation and good combustion and maintenance practices minimize emissions for all pollutants including NO<sub>x</sub>. The cogeneration unit's fuel and air filters improve engine performance and the anaerobic digester system utilizes a condenser system to remove moisture from the biogas prior to combustion. Exeter Agri-Energy will maintain the anaerobic digester system and generator unit in accordance with the manufacturers' written instruction for proper operation and maintenance.

Derating, consisting of limiting the engine capacity to less than full power, reduces NO<sub>x</sub> formation by reducing cylinder pressures and temperatures. Derating is not considered economically justified at this time due to the relatively low NO<sub>x</sub> emissions from this unit.

Exeter Agri-Energy proposed the use of biogas fuel, lean burn combustion technology, ignition timing retard tuning, proper operation, and good combustion and maintenance practices as BACT for the generator to minimize NO<sub>x</sub> emissions.

The BACT emission limit for NO<sub>x</sub> from the generator is 4.9 lb/hr. This is based on tuning the generator to 1.5 g/hp-hr, which is more stringent than the 2.0 g/hp-hr emissions requirement found in Table 1 of 40 CFR Part 60, Subpart JJJJ.

- CO – The options for controlling carbon monoxide from the generator include good combustion control and an add-on oxidation catalyst. Add on-controls were not considered for this unit. The inherent combustion efficiencies of a new lean burn unit and good operating practices were proposed as BACT.

The BACT emission limit for CO from the generator is 7.2 lb/hr. This is based on tuning the generator to 2.2 g/hp-hr, which is more stringent than the 5.0 g/hp-hr emissions requirement found in Table 1 of 40 CFR Part 60, Subpart JJJJ.

VOC – The options for controlling volatile organic compounds from the generator include good combustion control and an add-on oxidation catalyst. Add on-controls were not considered for this unit. The inherent combustion efficiencies of a new lean burn unit and good operating practices were proposed as BACT.

The BACT emission limit for VOC from the generator is 2.3 lb/hr. This is based on tuning the generator to 0.7 g/hp-hr, which is more stringent than the 1.0 g/hp-hr emissions requirement found in Table 1 of 40 CFR Part 60, Subpart JJJJ.

Opacity – Visible emissions from the cogeneration unit shall not exceed 20% opacity on a 6 minute block average, except for no more than two (2) six (6) minute block averages in a 3 hour period.

Greenhouse Gases – The operation of digesters in general is promoted by the US Department of Agriculture and the Department of Energy as a method of reducing greenhouse gas emissions. The overall methane and CO<sub>2</sub> emissions from the farm will be significantly reduced by the operation of the digester and the firing of biogas in the cogeneration unit. Exeter Agri-Energy is proposing to operate the anaerobic digester system with methane collection and cogeneration as part of their greenhouse gas emissions control strategy.

#### *Periodic Monitoring*

Exeter Agri-Energy shall keep records of the hours of operation of the cogeneration unit on a 12 month rolling total basis.

Exeter Agri-Energy shall test a grab sample of anaerobic digester outlet gas (prior to the cogeneration unit inlet) and test for H<sub>2</sub>S and total sulfur within 4 months and again at 12 months of beginning operation.

Compliance with the emission requirements in 40 CFR Part 60, Subpart JJJJ shall be demonstrated by certification from the manufacturer or an initial performance test and subsequent tests every 8760 hours or 3 years, whichever comes first, if a manufacturer certification is unavailable

C. Back-up Boiler

The 3.1 MMBtu/hr biogas fired boiler will be used for back-up to provide heat to the anaerobic digester system and feedstock tanks when the cogeneration unit is down.

This unit is a modern boiler design which optimizes fuel use efficiency and minimizes emissions through combustion optimization. Low NO<sub>x</sub> burners are available at a greater cost, as are possible other controls, however these are not considered justifiable due to the small size and minimal emissions from the boiler. Gas combustion inherently has low SO<sub>2</sub> and PM emissions. BACT is proposed to be the use of a new high efficiency biogas-fired boiler.

The BACT emission limits for the back-up boiler were based on the following:

- PM/PM<sub>10</sub> – 0.12 lb/MMBtu based on 06-096 CMR 103 (0.37 lb/hr).
- SO<sub>2</sub> – conversion of 250 ppm of H<sub>2</sub>S (0.21 lb/hr)
- NO<sub>x</sub> – 100 lb/MMscf: AP-42, Table 1.4-1 dated 7/98 (0.17 lb/MMBtu, 0.52 lb/hr)
- CO – 84 lb/MMscf: AP-42, Table 1.4-1 dated 7/98 (0.14 lb/MMBtu, 0.43 lb/hr)
- VOC – 5.5 lb/MMscf: AP-42, Table 1.4-2 dated 7/98 (0.01 lb/MMBtu, 0.03 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 one (1) six (6) minute block average in a 3 hour period.

Note that the emission factors used from AP-42 Table 1.4 are for natural gas firing in a boiler and not necessarily specific to biogas. For the lb/MMBtu calculations, a digester gas heat value of 600 Btu/scf was used from AP-42 Table 3.1-1 dated 4/2000.

D. Digester Flare

The digester flare is rated at 9.5 MMBtu/hr and will be used when the cogeneration unit is not available. The flare will be able to combust all biogas from the digester and associated structures during an emergency or maintenance period. By flaring the biogas, the resulting emissions are safer and more environmentally friendly than if venting the biogas uncontrolled. There will also be a reduction in odor, the destruction of VOCs, and the conversion of H<sub>2</sub>S to SO<sub>2</sub> which would not occur with direct venting.

The flare will not produce an increase in emissions for any pollutant compared to the operation of the cogeneration unit. BACT is proposed to be the use of the flare for control of digester gases during downtime of the cogeneration unit.

The BACT emission limits for the flare were based on the following:

- PM/PM<sub>10</sub> – 0.12 lb/MMBtu based on 06-096 CMR 103 (1.14 lb/hr).
- SO<sub>2</sub> – conversion of 200 ppm of H<sub>2</sub>S (0.52 lb/hr)
- NO<sub>x</sub> – 0.07 lb/MMBtu: AP-42, Table 13.5-1 dated 9/91 (0.67 lb/hr)
- CO – 0.37 lb/MMBtu: AP-42, Table 13.5-1 dated 9/91 (3.51 lb/hr)
- VOC – 0.14 lb/MMBtu: AP-42, Table 13.5-1 dated 9/91 (1.33 lb/hr)
- Opacity – Visible emissions from the flare shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period.

#### *Periodic Monitoring*

Exeter Agri-Energy shall maintain a log of when the flare is in operation.

#### E. Emergency Generator

The emergency generator, manufactured in 2001, is a 125 kW Katolight generator with a John Deere engine rated at 1.3 MMBtu/hr (9.3 gal/hr). The unit fires diesel fuel and is used to provide back-up power for the facility.

The generator is subject to 40 CFR Part 63, Subpart ZZZZ. The generator is considered an existing stationary reciprocating internal combustion engine located at an area source of HAP emissions and the unit was constructed or reconstructed before June 12, 2006 (§69.6590(a)(1)(iii)).

BACT includes a limit of 500 hours/year and the use of ultra low sulfur fuel (15 ppm, 0.0015%).

The BACT emission limits for the emergency generator were based on the following:

- PM/PM<sub>10</sub> – 0.12 lb/MMBtu based on 06-096 CMR 103 (0.15 lb/hr).
- SO<sub>2</sub> – use of 0.0015% sulfur (0.002 lb/hr)
- NO<sub>x</sub> – 6.9 g/bhp-hr: EPA Tier 1 specifications for diesel engines built from 1997 to 2003 with a capacity of 100 to 175 hp (2.56 lb/hr)
- CO – 0.95 lb/MMBtu: AP-42, Table 3.3-1 dated 10/96 (1.24 lb/hr)
- VOC – 0.36 lb/MMBtu: AP-42, Table 3.3-1 dated 10/96 (0.47 lb/hr)
- Opacity – Visible emissions from the emergency generator 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 3-hour period.

*Periodic Monitoring*

Exeter Agri-Energy shall maintain records of hours of operation of the emergency generator through the use of the elapsed time meter on the unit.

The emergency generator shall comply with the applicable requirements of 40 CFR Part 63, Subpart ZZZZ for emergency stationary CI RICE and black start stationary CI RICE, including: changing the oil and filter every 500 hours of operation or annually, whichever comes first; inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary; and inspect the air cleaner every 1000 hours of operation or annually, whichever comes first (§63.6603(a) and Table 2(d)). Due to the 500 hour limit of operation, the inspections and changing of the oil and filters shall be done annually to meet the requirements of 40 CFR Part 63, Subpart ZZZZ.

F. Sawmill Diesel Drive Unit

The sawmill drive unit, installed in 2003 is a 166 hp John Deere unit rated at 1.5 MMBtu/hr (10.7 gal/hr). The unit fires diesel fuel and is used to provide power for the sawmill.

The generator is subject to 40 CFR Part 63, Subpart ZZZZ. The generator is considered an existing stationary reciprocating internal combustion engine located at an area source of HAP emissions and the unit was constructed or reconstructed before June 12, 2006 (§69.6590(a)(1)(iii)).

BACT includes a limit of 200 hours/year and the use of ultra low sulfur fuel (15 ppm, 0.0015%).

The BACT emission limits for the sawmill diesel drive unit were based on the following:

- PM/PM<sub>10</sub> – 0.12 lb/MMBtu based on 06-096 CMR 103 (0.18 lb/hr).
- SO<sub>2</sub> – use of 0.0015% sulfur (0.002 lb/hr)
- NO<sub>x</sub> – 6.9 g/bhp-hr: EPA Tier 1 specifications for diesel engines built from 1997 to 2003 with a capacity of 100 to 175 hp (2.53 lb/hr)
- CO – 0.95 lb/MMBtu: AP-42, Table 3.3-1 dated 10/96 (1.43 lb/hr)
- VOC – 0.36 lb/MMBtu: AP-42, Table 3.3-1 dated 10/96 (0.54 lb/hr)
- Opacity – Visible emissions from the sawmill diesel drive unit 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 3-hour period.

*Periodic Monitoring*

Exeter Agri-Energy shall maintain records of hours of operation of the sawmill diesel drive through the use of the elapsed time meter on the unit.

The sawmill diesel drive shall comply with the applicable requirements of 40 CFR Part 63, Subpart ZZZZ for non-emergency, non-black start CI stationary RICE  $\leq$  300 hp, including: changing the oil and filter every 1000 hours of operation or annually, whichever comes first; inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary; and inspect the air cleaner every 1000 hours of operation or annually, whichever comes first (§63.6603(a) and Table 2(d)). Due to the 200 hour limit of operation, the inspections and changing of the oil and filters shall be done annually to meet the requirements of 40 CFR Part 63, Subpart ZZZZ.

G. Fugitive Emissions

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

H. General Process Emissions

Visible emissions from any general process source shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period.

I. Annual Emissions

Exeter Agri-Energy shall be restricted to the following annual emissions, calculated with the cogeneration unit operating 8760 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
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>5.0</b>	<b>5.0</b>	<b>2.8</b>	<b>22.3</b>	<b>31.7</b>	<b>10.2</b>

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

### III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115, the level of air quality analyses required for a minor new source shall be determined on a case-by case basis. Based on the information available in the file, and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source.

### 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-A-N 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. [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) **Cogeneration Unit**

- A. The cogeneration unit (9.5 MMBtu/hr) shall fire biogas. [06-096 CMR 115, BPT]
- B. Emissions from the cogeneration unit shall not exceed the following:

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

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

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)
1.14	1.14	0.65	4.9	7.2	2.3

- D. Visible emissions from the cogeneration unit 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 3-hour period. [06-096 CMR 101]
- E. The stack for the cogeneration unit shall be a minimum of 20 feet in height. [06-096 CMR 115, BACT]
- F. The cogeneration unit shall utilize timing retard to minimize emissions and shall keep records on site documenting the ideal settings for the unit. [06-096 CMR 115, BACT]
- G. Exeter Agri-Energy shall keep records of the hours of operation of the cogeneration unit on a monthly and 12 month rolling total basis. [06-096 CMR 115, BACT]
- H. Within 4 months of commencing operation and again at 12 months after commencing operation, Exeter Agri-Energy shall test a grab sample of anaerobic digester outlet gas (prior to the cogeneration unit inlet) and test for H<sub>2</sub>S and total sulfur. Additional testing shall be upon request. [06-096 CMR 115, BACT]
- I. NSPS, 40 CFR Part 60, Subpart JJJJ
1. The cogeneration unit shall be equipped with a non-resettable hour meter. [40 CFR 60.4237 and 06-096 CMR 115, BACT]
  2. The cogeneration unit is subject to emission requirements set forth in 40 CFR 60, Subpart JJJJ. Compliance with these emission requirements shall be demonstrated by certification from the manufacturer or an initial performance test and subsequent tests every 8760 hours or 3 years, whichever comes first, if a manufacturer certification is unavailable. [40 CFR 60, Subpart JJJJ]
  3. Exeter Agri-Energy shall meet all requirements of 40 CFR Part 60, Subpart JJJJ for the cogeneration unit.

(17) **Back-up Boiler**

- A. The back-up boiler (3.1 MMBtu/hr) shall fire biogas and shall be operated as a back-up to the cogeneration unit. [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)
0.37	0.37	0.21	0.52	0.43	0.03

- 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 one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 101, BACT]

(18) **Flare**

- A. The flare (9.5 MMBtu/hr) shall fire biogas and shall be operated when the cogeneration unit is off-line. [06-096 CMR 115, BACT]
- B. Emissions from the flare shall not exceed the following:

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

- C. Emissions from the flare 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)
1.14	1.14	0.52	0.67	3.51	1.33

- D. Visible emissions from the flare shall not exceed an opacity of 10% on a 6 minute block average basis, except for no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BACT]
- E. A log recording date, time, and duration of flare operations shall be maintained. [06-096 CMR 115, BACT]

**(19) Emergency Generator (1.3 MMBtu/hr)**

- A. The emergency generator shall fire only diesel fuel with a maximum sulfur content not to exceed 15 ppm (0.0015%). Compliance with the sulfur content shall be based on fuel records from the supplier showing the type of fuel delivered and the sulfur content of the fuel. Exeter Agri-Energy may utilize any fuel currently in storage for the emergency generator, but all future purchases must meet the 15 ppm sulfur limit. [06-096 CMR 115, BACT]
- B. The emergency generator shall be limited to 500 hours per year of total operation based on a 12 month rolling total. Compliance shall be demonstrated by the use of the elapsed time meter and a monthly log. [06-096 CMR 115, BACT]
- C. Emissions from the emergency generator shall not exceed the following:

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

- D. Emissions from the emergency generator 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)
0.15	0.15	0.002	2.56	1.24	0.47

- E. Visible emissions from the emergency generator 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 3-hour period. [06-096 CMR 101]
- F. The emergency generator shall comply with the applicable requirements of 40 CFR Part 63, Subpart ZZZZ, including the following:
  - 1. change the oil and filter annually;
  - 2. inspect all hoses and belts annually and replace as necessary; and
  - 3. inspect the air cleaner annually.[40 CFR Part 63, Subpart ZZZZ, including §63.6603(a)]

(20) Sawmill Diesel Drive Unit (1.5 MMBtu/hr)

- A. The sawmill diesel drive unit shall fire only diesel fuel with a maximum sulfur content not to exceed 15 ppm (0.0015%). Compliance with the sulfur content shall be based on fuel records from the supplier showing the type of fuel delivered and the sulfur content of the fuel. Exeter Agri-Energy may utilize any fuel currently in storage for the sawmill diesel drive unit, but all future purchases must meet the 15 ppm sulfur limit. [06-096 CMR 115, BACT]
- B. The sawmill diesel drive unit shall be limited to 200 hours per year of total operation based on a 12 month rolling total. Compliance shall be demonstrated by the use of the elapsed time meter and a monthly log. [06-096 CMR 115, BACT]
- C. Emissions from the sawmill diesel drive unit shall not exceed the following:

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

- D. Emissions from the sawmill diesel drive unit shall not exceed the following [06-096 CMR 115, BPT]:

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)
0.18	0.18	0.002	2.53	1.43	0.54

- E. Visible emissions from the sawmill diesel drive unit 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 3-hour period. [06-096 CMR 101]
- F. The sawmill diesel drive unit shall comply with the applicable requirements of 40 CFR Part 63, Subpart ZZZZ, including the following:
  - 1. change the oil and filter annually;
  - 2. inspect all hoses and belts annually and replace as necessary; and
  - 3. inspect the air cleaner annually.[40 CFR Part 63, Subpart ZZZZ, including §63.6603(a)]

(21) Fugitive Emissions

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20%, except for no more than five (5)

minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20% in any one (1) hour. [06-096 CMR 101]

(22) **General Process Sources**

Visible emissions from any general process source shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 1-hour period. [06-096 CMR 101]

(23) Exeter Agri-Energy 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 8<sup>th</sup> DAY OF March, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Patricia W. Brown, Dept. Comm.  
DARRYL N. BROWN, COMMISSIONER

**The term of this license shall be five (5) years from the signature date above.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: December 29, 2010

Date of application acceptance: January 11, 2011

Date filed with the Board of Environmental Protection:

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

