



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

**Eco Maine
d/b/a ecomaine
Cumberland County
South Portland/Scarborough, Maine
A-697-71-E-R**

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

FINDINGS OF FACT

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 Maine Revised Statutes Annotated (M.R.S.A.), §344 and §590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

Eco Maine d/b/a ecomaine (**ecomaine**) has applied to renew their Air Emission License permitting the operation of equipment associated with their closed balefill landfill in South Portland and Scarborough, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Process Equipment

Equipment	Design Capacity (MMBtu/hr)	Pilot Fuel Input (MMBtu/hr)	Process Flow Rate (SCFM)	Fuel Type
Landfill Gas Collection and Flare System	26.6	0.06 (propane)	875	Landfill Gas, 30-60% methane

C. Application Classification

The application for **ecomaine** does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of currently licensed emission units only and has been processed through *Major and Minor Source Air Emission License*

Regulations, 06-096 Code of Maine Rules (CMR) 115 (as amended). Based on historic emissions information, the facility is licensed below the major source thresholds for hazardous air pollutants (HAP) and is considered an area source of HAP.

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. Landfill Gas Collection and Flare System

ecomaine operates a gas management and blower/process flare system to control the release of gases (LFG) generated by the closed sanitary balefill landfill. The flare system is comprised of: wells installed in the waste; headers, lateral pipelines and a blower system to collect and direct the landfill gases; and a flare gas oxidation unit for destruction of the volatile organic compounds (VOCs), hazardous air pollutants (HAPs) and odors.

The flare gas oxidation unit has a design heat input capacity of 26.6 MMBtu/hr and is fed by the blower system with a design capacity of 875 standard cubic feet per minute (scfm). The unit operates with a destruction efficiency of 98%. The unit utilizes propane for the first five minutes of the start-up sequence at a heat input of 0.06 MMBtu/hr in order to ignite the released landfill gases.

The release of uncombusted landfill gases is prevented with the use of a thermocouple at the main flame to monitor the continuous presence of flame. If the unit experiences a flame loss during operation, the controller causes the automatic shutdown of the flare and closes a pneumatic "fail safe" valve at the main gas header. The unit initiates an automatic relight sequence after an operator-specified cool down period and the flare is brought back online.

The flow rate of the landfill gas is monitored by a thermal mass flow meter with a standard cubic feet per minute (scfm) digital totalizer and a continuous paper chart recorder. The flare gas oxidation unit is also equipped with an hour meter that displays the cumulative number of hours of operation of the flare system.

ecomaine performed initial performance tests in June 1999 as per Condition (17) of original air emission license A-697-71-A-N. **ecomaine** operates the flare gas oxidation unit within the equipment parameter boundaries established in the initial performance testing.

1. BPT Findings

The BPT emission limits for the gas collection and flare system were based on the following:

PM/PM₁₀

BPT based on 15 lb/million dscf of CH₄ from draft AP-42, Table 2.4-4 dated 10/08. This emission limit is considered more stringent than 06-096 CMR 104.

$$\left(\frac{15 \text{ lb}}{10^6 \text{ dscf CH}_4}\right) \left(\frac{875 \text{ dscf LFG}}{\text{min}}\right) \left(\frac{0.5 \text{ dscf CH}_4}{\text{dscf LFG}}\right) \left(\frac{60 \text{ min}}{\text{hr}}\right) = 0.39 \text{ lb/hr}$$

SO₂

Sampling of the landfill gas performed in 2009 indicate that concentrations of total reduced sulfur (TRS) compounds in the landfill are likely less than 10 ppmv. Therefore, the emission factor of 46.9 ppmv of TRS in the landfill gas from draft AP-42, Section 2.4.4.2, page 2.4-11, dated 10/08 is considered a conservative estimate for BPT.

$$\left(\frac{47 \text{ mol TRS}}{10^6 \text{ mol LFG}}\right) \left(\frac{\text{mol SO}_2}{\text{mol TRS}}\right) \left(\frac{64 \text{ g SO}_2}{\text{mol SO}_2}\right) \left(\frac{\text{lb SO}_2}{453.6 \text{ g SO}_2}\right) \left(\frac{\text{mol LFG}}{24.45 \text{ L LFG}}\right) \left(\frac{28.317 \text{ L LFG}}{\text{ft}^3 \text{ LFG}}\right) \left(\frac{875 \text{ scf}}{\text{min}}\right) \left(\frac{60 \text{ min}}{\text{hr}}\right) = 0.40 \text{ lb/hr}$$

NO_x

BPT based on 39 lb/million dscf of CH₄ from draft AP-42, Table 2.4-4 dated 10/08.

$$\left(\frac{39 \text{ lb}}{10^6 \text{ dscf CH}_4}\right) \left(\frac{875 \text{ dscf LFG}}{\text{min}}\right) \left(\frac{0.5 \text{ dscf CH}_4}{\text{dscf LFG}}\right) \left(\frac{60 \text{ min}}{\text{hr}}\right) = 1.02 \text{ lb/hr}$$

CO

BPT based on 46 lb/million dscf of CH₄ from draft AP-42, Table 2.4-4 dated 10/08.

$$\left(\frac{46 \text{ lb}}{10^6 \text{ dscf CH}_4}\right) \left(\frac{875 \text{ dscf LFG}}{\text{min}}\right) \left(\frac{0.5 \text{ dscf CH}_4}{\text{dscf LFG}}\right) \left(\frac{60 \text{ min}}{\text{hr}}\right) = 1.21 \text{ lb/hr}$$

VOC

BPT based on 2,060 ppmv as hexane and a control efficiency of 98% from draft AP-42, Table 2.4-2 dated 10/08.

$$\left(\frac{2,060 \text{ mol hexane}}{10^6 \text{ mol LFG}}\right) \left(\frac{86.17 \text{ g VOC}}{\text{mol hexane}}\right) \left(\frac{\text{lb VOC}}{453.6 \text{ g VOC}}\right) \left(\frac{\text{mol LFG}}{24.45 \text{ L LFG}}\right) \left(\frac{28.317 \text{ L LFG}}{\text{ft}^3 \text{ LFG}}\right) \left(\frac{875 \text{ scf}}{\text{min}}\right) \left(\frac{60 \text{ min}}{\text{hr}}\right) (0.02) = 0.48 \text{ lb/hr}$$

HAP

BPT for total HAP emissions is 0.03 lb/hr based on emission factors from draft AP-42, Table 2.4-1 dated 10/08.

Visible Emissions

Visible emissions from the flare shall not exceed 5% opacity on a 6 minute block average basis except for on (1) six (6) minute block average in any 2-hour period.

Control Efficiency

The flare shall meet a destruction efficiency of at least 98%.

C. 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.

D. Annual Emissions

1. Total Annual Emissions

ecomaine shall be restricted to the following annual emissions, based on a calendar year. The tons per year limits were calculated based on operation of the flare 8,760 hours per year.

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

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC	Total HAP
Gas Collection & Flare System	1.7	1.7	1.8	4.5	5.3	2.1	0.2
Total TPY	1.7	1.7	1.8	4.5	5.3	2.1	0.2

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).

Based on the facility’s fuel use limit(s), the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, **ecomaine** is below the major source threshold of 100,000 tons of CO₂e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time.

III.AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source shall be 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 emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

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

The total facility licensed emissions 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 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-697-71-E-R subject to the following conditions.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S.A. §347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 CMR 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 CMR 115]

- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 115]
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S.A. §353-A. [06-096 CMR 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 CMR 115]
- (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 115]
- (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 CMR 115]
- (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 CMR 115]
- (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 CMR 115]
- (11) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:
 - A. perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
 1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
 2. pursuant to any other requirement of this license to perform stack testing.

- B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
 - C. submit a written report to the Department within thirty (30) days from date of test completion.
[06-096 CMR 115]
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:
- A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
 - B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
 - C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.
[06-096 CMR 115]
- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 115]
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect 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) Landfill Gas Oxidation System

- A. **ecomaine** shall not exceed the following emission limits [06-096 CMR 115, BPT]:

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Flare	0.39	0.39	0.40	1.02	1.21	0.48

- B. Visible emissions from the flare shall not exceed 5% opacity on a 6 minute block average basis except for on (1) six (6) minute block average in any 2-hour period. [06-096 CMR 115, BPT]
- C. **ecomaine** shall operate the flare within the equipment parameter boundaries established by the most recent performance test. [06-096 CMR 115, BPT]
- D. Monitoring and Recordkeeping
1. **ecomaine** shall monitor for the presence of a flame at the flare gas oxidizer unit's main flame with a thermocouple. **ecomaine** shall maintain records of all periods of operation during which the pilot flame is absent.
 2. **ecomaine** shall monitor gas flow rate to the flare gas oxidizer unit with a thermal mass flow meter and shall record gas flow with a scfm digital totalizer and a continuous paper strip chart recorder. The gas flow rate to the flare gas oxidizer unit shall be measured and recorded at least every 15 minutes. The gas flow rate is considered a parameter monitor.
 3. **ecomaine** shall use an hour meter to display the cumulative number of hours of operation of the flare gas oxidizer system and shall maintain a log recording hours of operation. The hour meter is considered a parameter monitor.
 4. **ecomaine** shall maintain records documenting all routine and non-routine maintenance on the flare gas oxidizer system.
 5. **ecomaine** shall maintain purchase records of propane fuel indicating the quantity of fuel purchased.
 6. **ecomaine** shall monitor and record the landfill gas extraction system and final cap system performance on a quarterly basis in accordance with the

monitoring program in Attachment A and B of Appendix J of the Balefill Closure Application dated September 18, 1995.

7. **ecomaine** shall maintain records of the most current six-year period for the gas flow rate and hour meter monitors. The records shall include the following:
 - a. Documentation that shows monitor operational status during all source operation time, including specifics for calibration and audits.
 - b. A complete set of all monitored parameters as specified in this license. All parameter records shall be made available to the Bureau of Air Quality upon request.
 - c. Records of the control device vendor specifications shall be maintained on site until the removal of the flare gas oxidizer system.

[06-096 CMR 115, BPT]

(17) **Parameter Monitors**

Each parameter monitor must record accurate and reliable data. If the parameter monitor is recording accurate and reliable data less than 98% of the source operating time within any quarter of the calendar year, the Department may initiate enforcement action and may include in that enforcement action any period of time that the parameter monitor was not recording accurate and reliable data during that quarter unless the licensee can demonstrate to the satisfaction of the Department that the failure of the system to record accurate and reliable data was due to the performance of established quality assurance and quality control procedures or unavoidable malfunctions. [06-096 CMR 115, BPT]

(18) **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]

Eco Maine
d/b/a ecomaine
Cumberland County
South Portland/Scarborough, Maine
A-697-71-E-R

11

Departmental
Findings of Fact and Order
Air Emission License
Renewal

- (19) **ecomaine** 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 24 DAY OF March, 2014.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Mar. Allen Robert Come for
PATRICIA W. AHO, COMMISSIONER

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

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

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 7/12/13

Date of application acceptance: 7/15/13

Date filed with the Board of Environmental Protection:

This Order prepared by Lynn Poland, Bureau of Air Quality.

