



DEPARTMENT ORDER

**Pine Grove Crematorium  
Penobscot County  
Bangor, Maine  
A-949-71-C-R/A**

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

**FINDINGS OF FACT**

After review of the air emission license renewal and amendment application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.), § 344 and § 590, the Maine Department of Environmental Protection (Department) finds the following facts:

**I. REGISTRATION**

A. Introduction

Pine Grove Crematorium (Pine Grove) has applied to renew their Air Emission License, permitting the operation of two Class IV-A crematory incinerators.

Pine Grove has also requested an amendment to their license to add natural gas as an auxiliary fuel for Cremators #1 and #2.

The equipment addressed in this license is located at 1347 Hammond Street, Bangor, Maine.

B. Emission Equipment

Pine Grove operates two B & L Systems Model N-20AA Human Crematory Incinerators, designated Cremators #1 and #2 (formerly Incinerators #1 and #2), each with the following specifications:

<b>Class Incinerator</b>	IV-A
<b>No. of Chambers</b>	2
<b>Type of Waste</b>	Type 4
<b>Max. Design Combustion Rate (lb/hr)</b>	150 pounds per hour (each)
<b>Auxiliary Fuel Input:</b>	Natural gas*, LP** gas
<b>Primary Chamber (Btu/hr)</b>	500,000 (each)
<b>Secondary Chamber (Btu/hr)</b>	1,000,000 (each)
<b>Emission Control</b>	Afterburner

\*This is a new licensed auxiliary fuel for these units

\*\*LP = liquefied petroleum

The crematory combustion gases from each unit vent to a 30 foot Above Ground Level (AGL) stack.

C. Application Classification

The application for Pine Grove does not include the licensing of increased emissions or the installation of new or modified equipment but does include the licensing of natural gas as a new auxiliary fuel. Therefore, the license is considered to be a renewal of currently licensed emission units with a minor modification and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 C.M.R. ch. 115 (as amended).

Based on the size and capacity of Cremators #1 and #2, Pine Grove is licensed below the major source threshold for criteria pollutants and is considered a natural minor. Based on the size and capacity of Cremators #1 and #2, Pine Grove is licensed below the major source thresholds for hazardous air pollutants (HAP) and is considered an area source of HAP.

II. BEST PRACTICAL TREATMENT

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 C.M.R. ch. 100 (as amended).

BPT for existing 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. Cremators #1 and #2

BPT for the cremators is the following:

1. Emission Limits

Emissions information is based on a licensed allowed particulate matter emission limit of 0.12 gr/dscf, corrected to 12% CO<sub>2</sub>, the burning of natural gas and LP gas as auxiliary fuels, and the use of the following emission factors:

The BPT emissions from the LP gas burner portion of the total exhaust were based on the following:

PM/PM <sub>10</sub>	0.2 lb/1000 gal. based on AP-42, Table 1.5-1, dated 7/08
SO <sub>2</sub>	0.018 lb/1000 gal. based on AP-42, Table 1.5-1, dated 7/08
NO <sub>x</sub>	13.0 lb/1000 gal. based on AP-42, Table 1.5-1, dated 7/08
CO	7.5 lb/1000 gal. based on AP-42, Table 1.5-1, dated 7/08
VOC	1.0 lb/1000 gal. based on AP-42, Table 1.5-1, dated 7/08

The BPT emissions from the natural gas burner portion of the total exhaust were based on the following:

PM/PM <sub>10</sub>	1.9 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
SO <sub>2</sub>	0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
NO <sub>x</sub>	100 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
CO	84 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
VOC	5.5 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98

The BPT emissions from the biomedical portion of the total exhaust were based on the following:

PM	0.12 gr/dscf corrected to 12% CO <sub>2</sub> based on 06-096 C.M.R. ch. 115, BACT/BPT
SO <sub>2</sub>	2.17 lb/ton, AP-42, Table 2.3-1, dated 7/93
NO <sub>x</sub>	3.56 lb/ton, AP-42, Table 2.3-1, dated 7/93
CO	2.95 lb/ton, AP-42, Table 2.3-1, dated 7/93
VOC	0.299 lb/ton, AP-42, Table 2.3-2, dated 7/93

The pound per hour BPT emission limits for Cremators #1 and #2 (each) are as follows:

	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)
Auxiliary fuel	negl.	negl.	negl.	0.21	0.12	0.02
Remains	0.72	0.72	0.16	0.27	0.22	0.02
Total Emission Limit (each)	0.72	0.72	0.16	0.48	0.34	0.04

Visible emissions from each of the crematory stacks shall not exceed 10% opacity on a six-minute block average basis.

2. Operating Parameters

- Operating temperature in the secondary chamber shall be maintained at or above 1600°F for the duration of the burn cycle, with a stack gas retention time, at or above 1600°F, of at least 1.0 second.
- To ensure an efficient burn and to prevent odors and visible emissions, the secondary chamber will be preheated, as specified by the manufacturer, until the pyrometer temperature measures at least 1600°F.
- No charge shall be introduced into the primary chamber until the temperature in the secondary chamber has reached 1600°F.
- Once the burn cycle has commenced by introduction of primary chamber combustion, the unit shall be operated in an efficient manner, and as specified by the manufacturer, for the period of time between preheat and reaching the set operational temperature of at least 1600°F in the secondary chamber.
- A pyrometer and 1/4 inch test port shall be installed and maintained at that location of the crematory or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 1.0 second at a minimum of 1600°F.
- A log will be maintained recording the initial weight of the charge, preheat time, charging time and the temperature of the secondary chamber every 60 minutes after start-up until, and including, final shutdown time. For facilities operating a chart recorder, the start time, date, and weight charged shall be logged on the chart.
- The crematory operator(s) shall receive adequate training to operate the crematory in accordance with the manufacturer's specifications and shall be familiar with the terms of the Air Emission License.

C. Annual Emissions

1. Pine Grove shall be restricted to the following annual emissions, based on a calendar year total. The tons per year limits were calculated based on 8,760 hours per year of operation for both Cremators #1 and #2:

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

	<u>PM</u>	<u>PM<sub>10</sub></u>	<u>SO<sub>2</sub></u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>VOC</u>
Cremator #1	3.15	3.15	0.7	2.1	1.49	0.18
Cremator #2	3.15	3.15	0.7	2.1	1.49	0.18
<b>Total TPY</b>	<b>6.3</b>	<b>6.3</b>	<b>1.4</b>	<b>4.2</b>	<b>3.0</b>	<b>0.4</b>

## 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 C.M.R. ch. 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 (CO<sub>2</sub>e).

The quantity of CO<sub>2</sub>e emissions from this facility is less than 100,000 tons per year, based on the following:

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

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

### III. AIR QUALITY ANALYSIS

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

<b>Pollutant</b>	<b>Tons/Year</b>
PM <sub>10</sub>	25
SO <sub>2</sub>	50
NO <sub>x</sub>	50
CO	250

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

**ORDER**

Based on the above Findings and subject to conditions listed below the Department concludes that the emissions from this above 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-949-71-C-R/A, 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 which any emission 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. [06-096 C.M.R. ch. 115]
- (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 C.M.R. ch. 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 C.M.R. ch. 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 C.M.R. ch. 115]

- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S. § 353-A. [06-096 C.M.R. ch. 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 C.M.R. ch. 115]
- (7) The licensee shall maintain and operate all emission units and air pollution control systems required by the air emission license in a manner consistent with good air pollution control practices for minimizing emissions. [06-096 C.M.R. ch. 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 C.M.R. ch. 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 the renewal of a license or amendment shall not stay any condition of the license. [06-096 C.M.R. ch. 115]
- (10) The licensee may not use as a defense is an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary to maintain compliance with the conditions of the air emission license. [06-096 C.M.R. ch. 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 the date of test completion.[06-096 C.M.R. ch. 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 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 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 C.M.R. ch. 115]
- (13) Notwithstanding any other provision 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 C.M.R. ch. 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 when such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitations. [06-096 C.M.R. ch. 115]
- (15) Upon the written request of 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 data. [06-096 C.M.R. ch. 115]



**SPECIFIC CONDITIONS**

**(16) Cremators #1 and #2**

- A. Cremators #1 and #2 shall be used for the disposal of human remains as classified as Type 4 waste and shall not be used for the disposal of plastics, cytotoxic (antineoplastic) drugs or any radioactive wastes and shall not be used to dispose of any medical waste classified as type 7 waste, as defined in 06-096 C.M.R. ch. 100. [06-096 C.M.R. ch. 115, BPT/BACT]
- B. Cremators #1 and #2 shall not exceed the unit's maximum design combustion rates. Auxiliary fuel inputs to the primary and secondary chambers shall be propane and natural gas. Compliance shall be demonstrated through fuel receipts. [06-096 C.M.R. ch. 115, BPT/BACT]
- C. Cremators #1 and #2 shall each not exceed a particulate matter emission limit of 0.12 gr/dscf, corrected to 12% CO<sub>2</sub>. Licensed allowed emissions for the crematories shall not exceed the following:

**Cremator Emission Limits  
(Pounds per Hour)**

	<b>Cremator #1 (lb/hr)</b>	<b>Cremator #2 (lb/hr)</b>
<b>PM</b>	0.72	0.72
<b>PM<sub>10</sub></b>	0.72	0.72
<b>SO<sub>2</sub></b>	0.16	0.16
<b>NO<sub>x</sub></b>	0.48	0.48
<b>CO</b>	0.34	0.34
<b>VOC</b>	0.04	0.04

Compliance shall be demonstrated through stack testing by request of the Department, in accordance with the appropriate method found in 40 CFR Part 60, Appendix A.

[06-096 C.M.R. ch. 115, BPT/BACT]

- D. Visible emissions from each stack serving Cremators #1 and #2 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT/BACT]
- E. Operating temperature in the secondary chamber shall be maintained at or above 1600°F, with a stack gas retention time, at or above 1600°F, of at least 1.0 second. [06-096 C.M.R. ch. 115, BPT/BACT]

- F. To insure an efficient burn and to prevent odors and visible emissions, the secondary chamber will be preheated, as specified by the manufacturer, until the pyrometer temperature measures at least 1600°F. [06-096 C.M.R. ch. 115, BPT/BACT]
- G. No charge shall be introduced into the primary chamber until the temperature in the secondary chamber has reached 1600°F. [06-096 C.M.R. ch. 115, BPT/BACT]
- H. Once the burn cycle has commenced by introduction of primary chamber combustion, the Cremators shall be operated in an efficient manner, and as specified by the manufacturer, for the period of time between preheat and reaching the set operational temperature of at least 1600°F in the secondary chamber. The temperature in the secondary chamber shall be maintained at a minimum of 1600°F for the duration of the burn cycle. [06-096 C.M.R. ch. 115, BPT/BACT]
- I. A pyrometer and 1/4 inch test port shall be installed and maintained at that location of the crematory or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 1.0 second at a minimum of 1600°F. [06-096 C.M.R. ch. 115, BPT/BACT]
- J. A log will be maintained for each Cremator recording the initial weight of the charge, preheat time, charging time and the temperature of the secondary chamber every 60 minutes after start-up until, and including, final shutdown time. For facilities operating a chart recorder, the start time, date, and weight charged shall be logged on the chart. [06-096 C.M.R. ch. 115, BPT/BACT]

K. The crematory operator(s) shall receive adequate training to operate the crematory in accordance with the manufacturer's specifications and shall be familiar with the terms of the Air Emission License. [06-096 C.M.R. ch. 115, BPT/BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 30 DAY OF September, 2016.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Maec Allen Robert Corne for  
PAUL MERCER, COMMISSIONER

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

[Note: If a complete renewal application, as determined by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 M.R.S. § 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: 2/10/2016

Date of application acceptance: 2/12/2016

Date filed with the Board of Environmental Protection:

This Order prepared by Jonathan E. Rice, Bureau of Air Quality.

