

Pine Grove Crematorium)
Penobscot County)
Bangor, Maine)
A-949-71-A-N)

Departmental
Findings of Fact and Order
Air Emission License

After review of the initial air emission 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., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Pine Grove Crematorium (Pine Grove) of Bangor, Maine has applied for an Air Emission License, permitting the operation of two Class IV-A incinerators at the crematory facility.

B. Licensed Equipment

The facility will consist of two B&L Systems Model N-20AA Human Crematory incinerators, designated Incinerators #1 and #2, with the following specifications:

Unit Number	Incinerators #1 and #2
Class Incinerator	IV-A
Date of Manufacture/Installation	2006/2006 each
No. of Chambers	2 each
Type of Waste	Type 4
Max. Design (Combustion/Feed) Rate	150 lb/hr each
Max. Charge	500 lb each
Auxiliary Fuel Input:	
Primary Chamber (Btu/hr), Fuel Type	500,000 each, LP Gas
Secondary Chamber (Btu/hr) , Fuel Type	1,000,000 each, LP gas
Emission Control	NA
Monitors	2 nd Chamber Temp. Recorders and opacity monitors on each unit
Stack Numbers	Stack-01 and Stack-02

Incinerators #1 and #2 vent combustion gases to two 30-foot AGL (Above Ground Level) stacks, designated Stack-01 and Stack-02, respectively.

C. Application Classification

Pine Grove is a new source requesting a first license. A new source is considered a major source based on whether or not expected emissions exceed the “Significant Emission Levels” as given in Maine’s Air Regulations. This source is determined to be a minor new source and has been processed as such.

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 Chapter 100 of the Air Regulations.

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.

BPT for new units requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in Chapter 100 of the Air Regulations. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Facility Description

Pine Grove plans to construct a crematorium consisting of two B&L Systems Model N-20AA Human Crematory incinerators, designated Incinerators #1 and #2, in Bangor, Maine. Deceased human remains will be manually placed into the primary chamber of each incinerator. The door will be closed and after a pre-heat of the afterburner chambers by the auxiliary burner, initial and supplementary combustion is provided by propane fired burners located in the primary chamber of each incinerator. Once material combustion is initiated, the rate of combustion is controlled by limiting both the combustion air and fuel supplied to the primary chamber through the primary burner. This process generates a highly combustible gas mixture that flows into a secondary chamber where more air is admitted to insure further oxidation of the gases. The auxiliary burner is installed in the secondary chamber of each incinerator to facilitate complete combustion of all gaseous materials entering this chamber.

C. Incinerators #1 and #2

Incinerators #1 and #2 are both B&L Systems Model N-20AA Human Crematory incinerators. Each incinerator has a maximum design primary chamber heat input capacity of 0.5 MMBtu/hr and secondary chamber heat input capacity of 1.0 MMBtu/hr. The incinerators were manufactured in 2006 and exhaust to two 30-foot AGL (Above Ground Level) stacks designated Stack-01 and Stack-02, respectively. The incinerators are new equipment and are therefore subject to BACT. BACT for a new or modified incinerator is a maximum particulate emission rate of 0.12 gr/dscf corrected to 12% CO₂.

BACT for the incinerators requires that the operating temperature in the secondary chamber or refractory lined stack shall be maintained at or above 1600°F with a stack gas retention time, at or above 1600°F, for at least 1.0 seconds.

To ensure an efficient burn and to prevent odors and visible emissions, the secondary chamber shall be preheated, as specified by the manufacturer, until the pyrometer temperature measures a minimum of 1200°F prior to commencing the burn cycle.

Once the burn cycle has commenced by introduction of primary chamber combustion, the incinerator 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 to be a minimum of 1600°F in the secondary chamber.

A pyrometer and ¼ inch test port shall be installed and maintained at the location of each incinerator or refractory lined stack, which provides sufficient volume to insure a flue gas retention time of not less than 0.5 seconds at the minimum of 1600°F.

A log will be maintained recording the 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 facility may make use of the chart recorder chart to record the start time, date, and weight charged.

Visible emissions from Stack-01 and Stack-02 each shall not exceed 10% opacity based on a (6) six-minute block average basis.

The incinerator operator(s) shall receive adequate training to operate the incinerator in accordance with the manufacturer's specifications and shall be familiar with the terms of the Air Emission License.

A summary of the BACT analysis for Incinerators #1 and #2 is as follows:

1. BACT for PM for the incinerators is 0.12 grs/dscf. PM₁₀ emissions limits are based on PM limits.
2. SO₂, NO_x, CO and VOC emission limits are based upon AP-42 data dated 10/96 for the burning of LP gas and 1/95 for the operation of medical waste incinerators.
3. Visible emissions from Stack-01 and Stack-02 each shall not exceed 10% opacity based on a (6) six-minute block average basis.

D. Annual Emissions Restrictions

- Total annual emissions were calculated based on continuous firing at the maximum firing rate for 8,760 hours (1 year) of operation.

Total Allowable Annual Emission for the Facility
(used to calculate the annual license fee)

<u>Pollutant</u>	<u>Tons/Year</u>
PM	6.3
PM ₁₀	6.3
SO ₂	2.8
NO _x	6.8
CO	3.7
VOC	0.4

III. AIR QUALITY ANALYSIS

According to Chapter 115 of the Maine Bureau of Air Quality Regulations, the level of air quality analysis and monitoring are determined on a case-by-case basis. Based on analysis for similar sources, the size of the source, the allowable emissions, the location, and the stack height, ambient air quality standards, including increments, are not expected to be violated. Therefore, an ambient air impact analysis will not be required for this source at this time.

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-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 MRSA §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.
- (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.
- (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.
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to 38 MRSA §353.
- (6) The license does not convey any property rights of any sort, or any exclusive privilege.
- (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.

- (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.
- (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.
- (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 to maintain compliance with the conditions of the air emission license.
- (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.

- (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.
- (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.
- (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.
- (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 status.

SPECIFIC CONDITIONS

- (16) The incinerators shall not exceed the maximum design-charging rate of 150 lbs/hr and 500 lb/load each. Auxiliary fuel input to the primary and secondary chambers of each incinerator shall not exceed 0.5 MMBtu/hr, and 1.0 MMBtu/hr respectively firing LP gas.
- (17) The combustion gases of each incinerator shall vent to two stacks of at least 30 feet AGL.
- (18) The incinerators shall be used for the disposal of type 4 (human remains) 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 Maine Air Regulations Chapter 100.
- (19) A log shall be maintained recording the weight of the charge, preheating time, charging time, afterburner temperature directly after charging and every 60 minutes after startup until, and including, final shutdown time. For facilities operating a chart recorder, the facility may make use of the chart recorder to record the start time, date, and weight charged.
- (20) The secondary chamber of the incinerator shall be preheated to a minimum of 1200°F prior to commencing the burn cycle and shall be maintained at a minimum of 1600°F during the duration of the burn.
- (21) Once the burn cycle has commenced by introduction of primary chamber combustion, the incinerator 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 to be a minimum of 1600°F in the secondary chamber.
- (22) A pyrometer and ¼ inch test port shall be maintained at that location of each incinerator or refractory lined stack which provides sufficient volume to insure a flue gas retention time of not less than 0.5 seconds at the minimum of 1600°F.

- (23) Pine Grove shall not exceed a particulate matter emission limit of 0.12 gr/dscf for each incinerator corrected to 12% CO₂ from the auxiliary fuel. Therefore, based on the maximum design combustion rate and continuous operation of the Class IV-A incinerators, emissions from each incinerator shall be limited to the following:

Pollutant	<u>Incinerator #1</u>		<u>Incinerator #2</u>	
	<u>gr/dscf</u>	<u>lb/hr</u>	<u>gr/dscf</u>	<u>lb/hr</u>
PM	0.12	0.6	0.12	0.6
PM₁₀	-	0.6	-	0.6
SO₂	-	0.2	-	0.2
NO_x	-	0.5	-	0.5
CO	-	0.3	-	0.3
VOC	-	0.03	-	0.03

- (24) Visible emissions from Stack-01 and Stack-02 each shall not exceed 10% opacity based on a (6) six-minute block average basis.
- (25) The incinerator operator(s) shall receive adequate training to operate the incinerator in accordance with the manufacturer's specifications, and shall be familiar with the terms of this Air Emission License as it pertains to the operation of the incinerator.
- (26) Though it is not being required now, the installation and operation of continuous chart recording devices may become necessary to document compliance with the temperature requirements of this license. Should the Bureau of Air Quality determine that continuous recording devices are necessary, the licensee shall, within 120 days, demonstrate that continuous recorders have been installed and are operational.
- (27) Pine Grove 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 (Title 38 MRSA §605-C). [MEDEP Chapter 115]

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Findings of Fact and Order
Air Emission License

(28) Pine Grove shall pay the annual air emission license fee within 30 days of August 31 of each year. Pursuant to 38 MRSA 353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for the revocation of the license under 38 MRSA 341-D, Subsection 3.

DONE AND DATED IN AUGUSTA, MAINE THIS _____ DAY OF _____ 2006.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAVID P. LITTELL, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

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

Date of initial receipt of application: **July 7, 2006**

Date of application acceptance: **July 19, 2006**

Date filed with the Board of Environmental Protection: _____

This Order prepared by, Peter G. Carleton, Bureau of Air Quality