



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

**Gracelawn Memorial Park
Androscoggin County
Auburn, Maine
A-193-71-J-A (SM)**

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

FINDINGS OF FACT

After review of the air emission license amendment 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 Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

1. Gracelawn Memorial Park (Gracelawn) was issued Air Emission License A-193-71-I-R on August 26, 2013.
2. Gracelawn has applied for an Air Emission License amendment, to remove two currently licensed cremators, #3 and #4, and to install a new, 2.5 MMBtu/hr, natural gas-fired cremator, to be designated Crematory #3.
3. The equipment addressed in this license is located at 980 Turner Street, Auburn, ME.

B. Emission Equipment

The crematory incinerator is an American Crematory Equipment Co., model A-350-HT, with the following specifications:

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

Class Incinerator	IV-A
No. of Chambers	2
Type of Waste	Type 4
Design Combustion Rate (lb/hr)	200
Auxiliary Fuel Input: Natural Gas	
Primary Chamber (MMBtu/hr)	1.0
Secondary Chamber (MMBtu/hr)	1.5
Emission Control	Afterburner

The crematory combustion gases vent to a 19 foot Above Ground Level (AGL) stack.

C. Application Classification

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the “Significant Emission” levels as defined in the Department’s *Definitions Regulation*, 06-096 CMR 100 (as amended). The emission increases are determined by subtracting the current licensed annual emissions preceding the modification from the maximum future licensed annual emissions, as follows:

<u>Pollutant</u>	<u>Current License (TPY)</u>	<u>Future License (TPY)</u>	<u>Net Change (TPY)</u>	<u>Significant Emission Levels</u>
PM	8.6	6.9	- 1.7	100
PM ₁₀	8.6	6.9	- 1.7	100
SO ₂	2.9	2.4	- 0.5	100
NO _x	8.5	6.9	- 1.6	100
CO	7.1	5.7	- 1.4	100
VOC	0.6	0.5	- 0.1	50
CO ₂ e		<100,000	<100,000	100,000

This modification is determined to be a minor modification 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 06-096 CMR 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. Crematory #3 (New)

BACT for the new Crematory #3 is the following:

- Emission Limits

Emissions information is based on a licensed allowed particulate matter emission limit of 0.12 gr/dscf, corrected to 12% CO₂, the burning of natural gas as an auxiliary fuel, and the use of the following factors:

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

PM/PM ₁₀	1.9 lb/MMscf, AP-42, Table 1.4-1, dated 7/98
SO ₂	0.6 lb/MMscf, AP-42, Table 1.4-1, dated 7/98
NO _x	100 lb/MMscf, AP-42, Table 1.4-1, dated 7/98
CO	84 lb/MMscf, AP-42, Table 1.4-1, dated 7/98
VOC	5.5 lb/MMscf, AP-42, Table 1.4-1, 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 ₂ , BACT analysis
SO ₂	2.17 lb/ton, AP-42, Table 2.3-1, dated 7/93
NO _x	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 BACT emissions for Crematory #3 are as follows:

	<u>PM</u> (lb/hr)	<u>PM₁₀</u> (lb/hr)	<u>SO₂</u> (lb/hr)	<u>NO_x</u> (lb/hr)	<u>CO</u> (lb/hr)	<u>VOC</u> (lb/hr)
NG Burner	0.01	0.01	0.01	0.24	0.20	0.01
Biomedical	0.59	0.59	0.22	0.36	0.30	0.03
Total	0.60	0.60	0.23	0.60	0.50	0.04

Opacity: Visible emissions from the crematory stack shall not exceed 10% opacity based on a six (6) minute block average basis.

- 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 2.5 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 at least 1600°F.
 - No remains 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 cremator 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 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 2.5 seconds at a minimum of 1600°F.
- A log shall be maintained recording the weight of the remains, 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. Gracelawn shall be restricted to the following annual emissions, based on a 12-month rolling total. The tons per year limits were calculated based on each cremator operating 8760 hours per year at its design combustion rate and firing natural gas as the auxiliary fuel.

Total Licensed Annual Emissions for the Facility

Tons per year

(used to calculate the annual license fee)

	<u>PM</u>	<u>PM₁₀</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC</u>
Crematory #1	2.14	2.14	0.72	2.13	1.77	0.15
Crematory #2	2.14	2.14	0.72	2.13	1.77	0.15
Crematory #3	2.60	2.60	0.96	2.62	2.19	0.19
Total TPY	6.9	6.9	2.4	6.9	5.7	0.5

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).

The quantity of CO₂e 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

According to Chapter 115 of the Department's 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-193-71-J-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.

References to Crematory Incinerators #3 and #4 shall be deleted from A-193-71-I-R. Crematory #3 (New) shall be added.

SPECIFIC CONDITION (16) paragraphs B., C., E., and I., shall be deleted from A-193-71-I-R, and shall be replaced with the following paragraphs B., C., E., and I.

(16) Crematories #1, #2, and #3 (New)

- B. Each crematory shall not exceed the unit's maximum design combustion rates. Auxiliary fuel inputs to the primary and secondary chambers shall be natural gas. Compliance shall be demonstrated through fuel receipts. [06-096 CMR 115, BPT/BACT]
- C. The crematories shall not exceed a particulate matter emission limit of 0.12 gr/dscf, corrected to 12% CO₂. Licensed allowed emissions for the crematories shall not exceed the following:

**Crematory Emission Limits
(Pounds per hour)**

	Crem. #1 and #2	Crem. #3 (New)
PM	0.49	0.59
PM₁₀	0.49	0.59
SO₂	0.16	0.22
NO_x	0.49	0.60
CO	0.40	0.50
VOC	0.03	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 CMR 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 for Crematory Incinerators #1 and #2.

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 2.5 seconds for Crematory Incinerator #3 (New).

[06-096 CMR 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 in Crematory Incinerators #1 and #2.

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 2.5 seconds at a minimum of 1600°F in Crematory Incinerators #3 (New).

[06-096 CMR 115, BPT/BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS *12* DAY OF *March*, 2015.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Patricia W. Aho*
PATRICIA W. AHO, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-193-71-I-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 01/09/2015

Date of application acceptance: 01/07/2015

Date filed with the Board of Environmental Protection:

This Order prepared by N. Lynn Cornfield, PE, Bureau of Air Quality.

