



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE  
GOVERNOR

AVERY T. DAY  
ACTING COMMISSIONER

**The Jackson Laboratory  
Hancock County  
Bar Harbor, Maine  
A-93-71-Z-A (SM)**

**Departmental  
Findings of Fact and Order  
Air Emission License  
Amendment #2**

**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 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**

The Jackson Laboratory (JAX) was issued Air Emission License A-93-71-X-R on November 24, 2014 permitting the operation of emission sources associated with their biomedical facility. The license was subsequently amended on 3/20/15 (A-93-71-Y-A).

JAX has requested an amendment to their license in order to replace the existing Incinerator #2 unit with a new, high efficiency, propane-fired incineration unit. The equipment addressed in this license is located at 600 Main St, Bar Harbor, Maine.

**B. Emission Equipment**

The following equipment is addressed in this air emission license:

**Incinerators**

	<b><u>Incinerator #3</u></b>
<b>Class Incinerator</b>	IV-A
<b>No. of Chambers</b>	2
<b>Type of Waste</b>	Types 0-4
<b>Max. Design (Combustion/Feed) Rate</b>	250 lb/hr
<b>Auxiliary Fuel Input:</b>	propane
<b>Primary Chamber (MMBtu/hr)</b>	0.6
<b>Secondary Chamber (MMBtu/hr)</b>	1.2
<b>Emission Control</b>	Afterburner

Incinerator #3 replaces previously licensed Incinerator #2.

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

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	19.0	19.8	+0.8	100
PM <sub>10</sub>	19.0	19.8	+0.8	100
SO <sub>2</sub>	21.1	18.3	-2.8	100
NO <sub>x</sub>	71.4	63.7	-7.7	100
CO	50.3	55.0	+4.7	100
VOC	4.5	5.7	+1.2	50

This modification is determined to be a minor modification and has been processed as such.

With the annual heat input limit on the boilers and the operating hours restriction on the emergency generators JAX is licensed below the major source thresholds for criteria pollutants and hazardous air pollutants (HAP) and is considered a synthetic minor and 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.

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.

B. Incinerator #3

Incinerator #3 is a new dual-combustion chamber Mathews Environmental Solutions IEB Series 32 incineration unit which will be used for the disposal of type 0 through 4 wastes only. Incinerator #3 has a maximum combustion rate of 250 lb/hr and fires propane.

1. BACT Findings

The BACT emission limits for Incinerator #3 were based on the following:

PM/PM <sub>10</sub>	–	0.10 gr/dscf @ 7% O <sub>2</sub> based on 06-096 CMR 115, BACT and 7.00 lb/ton based on AP-42 Table 2.1-12 dated 10/96
SO <sub>2</sub>	–	2.50 lb/ton based on AP-42 Table 2.1-12 dated 10/96
NO <sub>x</sub>	–	3.00 lb/ton based on AP-42 Table 2.1-12 dated 10/96
CO	–	10.0 lb/ton based on AP-42 Table 2.1-12 dated 10/96
VOC	–	3.00 lb/ton based on AP-42 Table 2.1-12 dated 10/96
Opacity	–	06-096 CMR 115, BACT

To meet the requirements of BACT, Incinerator #3 shall be operated according to the following specifications:

- a. The 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 seconds.
- b. To ensure an efficient burn, and to prevent odors and visible emissions, the secondary chamber shall be preheated, as specified by the manufacturer.
- c. The temperature in the secondary chamber shall be maintained at or above 1600°F for the duration of the burn cycle.
- d. A pyrometer and a ¼ inch test port shall be installed and maintained at the location of the incinerator which provides sufficient volume to ensure a flue gas retention time of not less than 1.0 second at a minimum of 1600°F.
- e. A log shall be maintained recording the dates and times of operation, type (e.g. pathological) and weight of the waste charged, preheat time, charging time and the temperature of the secondary chamber every 60 minutes after start-up until, and including, final shutdown time. The start time, date and weight of waste charged may be logged manually, on a chart, or electronically.
- f. The ash shall be disposed of in accordance with the requirements of the Bureau of Remediation and Waste Management.
- g. The incinerator operator(s) shall receive adequate training annually to operate the incinerator in accordance with the manufacturer's specifications and shall be familiar with the terms of the Air Emission License.

- h. Emissions from Incinerator #3 shall be limited to the following:

<b>Pollutant</b>	<b>gr/dscf</b>	<b>lb/hr</b>
PM	0.10 (@ 7% O <sub>2</sub> )	0.88
PM <sub>10</sub>	n/a	0.88
SO <sub>2</sub>	n/a	0.31
NO <sub>x</sub>	n/a	0.38
CO	n/a	1.25
VOC	n/a	0.38

- i. Visible emissions from Incinerator #3 shall not exceed 5% opacity based on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a one (1) hour period.

2. 06-096 CMR 104: Incinerator Particulate Emission Standard

Incinerator #3 is subject to a particulate emission standard (0.2 gr/dscf) and opacity standard contained in 06-096 CMR 104. The emission standards contained in this license have been determined to be more stringent than those contained in the rule.

3. New Source Performance Standards

Solid waste incinerators constructed after June 4, 2010 are subject to 40 CFR Part 60, Subpart CCCC, *Standards of Performance for Commercial and Industrial Solid Waste Incineration Units*. Per §60.2020, units which burn 90% or more by weight of pathological waste are not subject to Subpart CCCC provided the source (1) notifies the Administrator that the unit meets this criteria and (2) keeps records on a calendar quarter basis of the weight of all pathological waste burned and the weight of all other fuels and waste burned in the unit. Incinerator #3 meets these requirements and is therefore not subject to Subpart CCCC.

Hospital, medical, and infectious waste incinerators constructed after December 1, 2008 are subject to 40 CFR Part 60, Subpart Ec, *Standards of Performance for New Stationary Sources: Hospital/Medical/Infectious Waste Incinerators*. The waste burned in Incinerator #3 contains animal remains, bags containing waste material, and animal bedding which has not been exposed to infectious agents. Therefore, this material is not hospital, medical, or infectious waste per the definitions of §60.51c. In addition, units are not subject to Subpart Ec during times when only pathological waste is burned provided the source (1) notifies the Administrator that the unit meets this criteria and (2) keeps records on a calendar quarter basis of times when only pathological waste is burned.

C. Annual Emissions

1. Total Annual Emissions

JAX shall be restricted to the following annual emissions, based on a 12-month rolling total. The tons per year limits were calculated based on the following:

- A combined annual fuel heat input limit of 315,000 MMBtu/year for the boilers, vaporizers, and incinerators.
- Operation of 100 hr/year for each generator.
- Operation of the ethylene oxide sterilizers and catalytic oxidizers for 8760 hr/year each.

**Total Licensed Annual Emissions for the Facility**

**Tons/year**

(used to calculate the annual license fee)

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>	<b>HAP</b>
Boilers and Vaporizers	12.6	12.6	12.3	47.3	47.3	3.2	-
Generator #2	0.1	0.1	0.1	0.5	0.1	0.1	-
Generator #3	0.1	0.1	0.1	0.5	0.1	0.1	-
Generator #6	0.1	0.1	0.1	2.0	0.5	0.1	-
Generator #8, #9, #10	0.1	0.1	0.1	2.5	0.7	0.1	-
Incinerator #1	3.0	3.0	4.2	9.3	0.8	0.4	
Incinerator #3	3.8	3.8	1.4	1.6	5.5	1.6	
Sterilizers	-	-	-	-	-	0.1	0.1
<b>Total TPY</b>	<b>19.8</b>	<b>19.8</b>	<b>18.3</b>	<b>63.7</b>	<b>55.0</b>	<b>5.7</b>	<b>0.1</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 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 (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 limits;
- 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. AMBIENT AIR QUALITY ANALYSIS

JAX previously submitted an ambient air quality impact analysis for air emission license A-93-71-V-A (dated February 18, 2011) demonstrating that emissions from the facility, in conjunction with all other sources, do not violate Ambient Air Quality Standards (AAQS). An additional air quality impact analysis is not required for this amendment.

### 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-93-71-Z-A subject to the conditions found in Air Emission License A-93-71-X-R, in amendment A-93-71-Y-A, and 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.

**Condition (22) of Air Emission License A-93-71-X-R is Deleted.**

**The following are New Conditions:**

**(28) Incinerator #3**

- A. Incinerator #3 shall be used for the disposal of type 0 through type 4 (veterinary) 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 CMR 100. Incinerator #3 shall burn at least 90% or more by weight of pathological waste (type 4) on a quarterly basis excluding auxiliary fuel and combustion air. [06-096 CMR 115, BACT]

- B. Incinerator #3 shall not exceed the maximum design charging rate of 250 pounds per hour. Auxiliary fuel input to the primary and secondary chamber shall be propane. [06-096 CMR 115, BACT]
- C. A log shall be maintained recording the dates and times of operation, type (e.g. pathological) and weight of the waste charged, preheat time, charging time and the temperature of the secondary chamber every 60 minutes after start-up until, and including, final shutdown time. The start time, date and weight of waste charged may be logged manually, on a chart, or electronically. [06-096 CMR 115, BACT]
- D. The secondary chamber of Incinerator #3 shall be preheated as specified by the manufacturer to a minimum of 1600°F prior to combusting any waste and shall be maintained at a minimum of 1600°F for the duration of the burn. [06-096 CMR 115, BACT]
- E. Once the burn cycle has commenced by introduction of primary chamber combustion, Incinerator #3 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 a minimum of 1600°F in the secondary chamber. [06-096 CMR 115, BACT]
- F. A pyrometer and a ¼ inch test port shall be installed and maintained at the location of the incinerator or refractory lined stack which provides sufficient volume to ensure a flue gas retention time of not less than 1.0 seconds at the minimum 1600°F. [06-096 CMR 115, BACT]
- G. Emissions from Incinerator #3 shall be limited to the following [06-096 CMR 115, BACT]:

<b>Pollutant</b>	<b>gr/dscf</b>	<b>lb/hr</b>
PM	0.10 (@ 7% O <sub>2</sub> )	0.88
PM <sub>10</sub>	n/a	0.88
SO <sub>2</sub>	n/a	0.31
NO <sub>x</sub>	n/a	0.38
CO	n/a	1.25
VOC	n/a	0.38

- H. Visible emissions from Incinerator #3 shall not exceed an opacity limit of 5% based on a six (6) minute block average basis except for no more than one (1) six (6) minute block average in a one (1) hour period. [06-096 CMR 115, BACT]
- I. The ash shall be disposed of in accordance with the requirements of the Bureau of Remediation and Waste Management. [06-096 CMR 115, BACT]

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- J. The incinerator operator(s) shall receive annual 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. [06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 2 DAY OF October, 2015.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Max Allen Robert Corce for  
AVERY T. DAY, ACTING COMMISSIONER

**The term of this amendment shall be concurrent with the term of Air Emission License A-93-71-X-R.**

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 8/31/15

Date of application acceptance: 9/4/15

Date filed with the Board of Environmental Protection:

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

