



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

DARRYL N. BROWN
COMMISSIONER

**Evonik Cyro LLC
York County
Sanford, Maine
A-393-71-X-A (SM)**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #3**

After review of the air emissions 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., §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. Evonik Cyro LLC (Evonik) was issued Air Emission License A-393-71-T-R on June 10, 2003 permitting the operation of emission sources associated with their acrylic sheet manufacturing facility. The license was subsequently amended on March 4, 2004 (A-393-71-U-M), and on October 29, 2008 (A-393-71-W-A). An application for renewal was filed prior to June 10, 2008; thus, the license and current amendments remain in effect.
2. The equipment addressed in this license is located at 1796 Main Street, Sanford, Maine.
3. Evonik has requested an amendment to their license in order to replace two existing boilers (29.1 MMBtu/hr and 52.4 MMBtu/hr) and a propane oven (1.5 MMBtu/hr) with five natural gas fired units (12.7 MMBtu/hr, 1.6 MMBtu/hr, and three (3) 1.1 MMBtu/hr).
4. Corrections of the diesel units' ratings and operating hour limit changes are also included in this amendment.

B. Emission Equipment

The following equipment is addressed in this air emission license:

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 04679-2094
(207) 764-0477 FAX: (207) 760-3143

Boilers

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate (scf/hr)	Fuel Type, % sulfur	Stack #
Giebel Boiler 1*	12.7	12,451	Natural gas, negligible	Giebel Boiler Stack
Heater 1*	1.1	1078.4	Natural gas, negligible	N/A
Heater 2*	1.1	1078.4	Natural gas, negligible	N/A
Heater 3*	1.1	1078.4	Natural gas, negligible	N/A
Heater 4*	1.6	1568.6	Natural gas, negligible	N/A
MFC Thermal Oxidizer	2.5	27.6 gal/hr	Propane, negligible	6
Hot Oil Heater	7.3	52.1 gal/hr	#2 fuel oil, 0.5%	19

* Denotes new equipment

Electrical Generation Equipment

Equipment	Maximum Capacity (MMBtu/hr)	Firing Rate (gal/hr)	Fuel Type, % sulfur
Building 1 Generator	2.88	21.0	Diesel, 0.05%
Giebel Building Generator	3.14	22.9	Diesel, 0.05%
Fire Pump	1.75	12.7	Diesel, 0.05%

C. Application Classification

The modification of a minor source is considered a major modification based on whether or not expected emission increases exceed the "Significant Emission Levels" as defined in the Department's regulations, as follows:

<u>Pollutant</u>	<u>Future License (TPY)</u>	<u>Sig. Level</u>
PM	9.71	100
PM ₁₀	9.71	100
SO ₂	14.2	100
NO _x	25.2	100
CO	9.30	100
VOC	49.9	50

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

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 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.

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. Giebel Boiler 1

Giebel Boiler 1 has a maximum design heat input of 12.7 MMBtu/hr, will fire natural gas, and will be used to supply hot water, steam, and heat.

The boiler will be installed in 2011, and is therefore subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989. Natural gas-fired units are not subject to the standards, emission monitoring, or compliance and test methods and procedures requirements presented for PM and SO₂ in NSPS Subpart Dc.

In addition, gas-fired boilers are not subject to the proposed *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ).

A summary of the BACT analysis for Giebel Boiler 1 (12.7 MMBtu/hr) is the following:

1. Fuel sulfur content is regulated by 06-096 CMR 106. However, the firing of natural gas is more stringent and shall be considered BACT.

2. PM emissions limits are given in 06-096 CMR 103. However, the PM emission limit of 0.05 lb/MMBtu is more stringent and shall be considered BACT. The PM₁₀ emission limit is derived from the PM limit.
3. NO_x, and CO emission limits are based upon AP-42 data dated 7/98 for the combustion of natural gas.
4. VOC emission limits are based on manufacturer's data for Giebel Boiler 1.
5. Visible emissions from the boiler shall not exceed 10% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a continuous 3-hour period.

C. Heaters 1, 2, 3 and 4

Heaters 1, 2, and 3 are direct fired heaters each rated at 1.1 MMBtu/hr while Heater 4 is a direct fired heater rated at 1.6 MMBtu/hr. Heaters 1, 2, 3, and 4 will fire natural gas, be installed in 2011, and be used to heat production and warehouse areas.

Heaters 1, 2, 3, and 4 are each less than 10 MMBtu/hr and are therefore not subject to the New Source Performance Standards (NSPS) Subpart Dc for steam generating units greater than 10 MMBtu/hr manufactured after June 9, 1989. In addition, gas-fired boilers are not subject to the proposed *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJ).

A summary of the BACT analysis for Heaters 1, 2, 3, and 4 is the following:

1. Fuel sulfur content is regulated by 06-096 CMR 106. However, the firing of natural gas is more stringent and shall be considered BACT.
2. The PM and PM₁₀ limits for units larger than 3 MMBtu/hr are derived from 06-096 CMR 103. The PM and PM₁₀ limits for smaller units are based upon a BACT analysis.
3. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 7/98 for the combustion of natural gas.
4. The heaters vent indoors and thus will not be subject to opacity standards.

D. Back-up Diesel Units

Evonik operates two back-up diesel generators and one fire pump.

Back-up diesel units are only to be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. Back-up diesel units are not to be used for prime power when reliable offsite power is available.

The diesel units had previously been limited to a combined total of 500 operating hours per year based on a twelve month rolling total. This amendment will allow each unit to operate for 500 hours per year based on a twelve month rolling total.

A summary of the BPT analysis for Building 1 Generator (260 kW), Giebel Building Generator (300 kW), and the Fire Pump (240 hp) is the following:

1. The back-up diesel units shall fire only diesel fuel with a maximum sulfur content not to exceed 0.05% by weight.
2. The back-up diesel units shall each be limited to 500 hr/yr of operation based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all diesel unit operating hours.
3. Fuel sulfur content is regulated by 06-096 CMR 106; however, in this case a BPT analysis for SO₂ determined a more stringent limit of 0.05% was appropriate and shall be used.
4. The PM and PM₁₀ limits for units larger than 3 MMBtu/hr are derived from 06-096 CMR 103. The PM and PM₁₀ limits for smaller units are based upon a BPT analysis from the previous license.
5. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 10/96.
6. Visible emissions from the diesel units shall each not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period.

E. Annual Emissions

Evonik shall be restricted to the following annual emissions, based on a 12 month rolling total:

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	Single HAP	Total HAP
MFC Thermal Oxidizer	0.0	0.0	0.0	0.70	0.10	0.030	--	--
Hot Oil Heater	5.6	5.6	14	8.4	1.0	0.10	--	--
Giebel Boiler 1	2.8	2.8	0.030	5.5	4.6	1.40	--	--
Heater 1	0.24	0.24	0.0	0.47	0.40	0.030	--	--
Heater 2	0.24	0.24	0.0	0.47	0.40	0.030	--	--
Heater 3	0.24	0.24	0.0	0.47	0.40	0.030	--	--
Heater 4	0.35	0.35	0.0	0.69	0.58	0.040	--	--
Building 1 Generator	0.090	0.090	0.04	3.2	0.68	0.25	--	--
Giebel Building Generator	0.090	0.090	0.04	3.5	0.75	0.27	--	--
Fire Pump	0.050	0.050	0.02	1.9	0.42	0.15	--	--
Process Emissions	--	--	--	--	--	47.6	9.99	24.9
Total TPY	9.71	9.71	14.2	25.2	9.30	49.9	9.99	24.9

III. AMBIENT AIR QUALITY ANALYSIS

Evonik previously submitted an ambient air quality analysis demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards. An additional ambient air quality analysis is not required for this renewal.

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,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-393-71-X-A subject to the conditions found in Air Emission License A-393-71-T-R, in amendments A-393-71-U-M, A-393-71-W-A, and in 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.

SPECIFIC CONDITIONS

(38) **90 days after installation of Giebel Boiler 1 or after permanent shutdown of both Boiler #1 and Boiler #2 (whichever occurs first) Condition 19 from license A-393-71-T-R is no longer valid and shall be replaced with the following:**

- A. Evonik shall limit the Building 1 Generator, Giebel Building Generator, and Fire Pump to 500 hr/yr of operation each (based on a 12 month rolling total). An hour meter shall be maintained and operated on each diesel unit.
- B. Evonik shall maintain records of diesel unit operating time on a monthly basis.
- C. The diesel units shall only be operated for maintenance purposes and for situations arising from sudden and reasonably unforeseeable events beyond the control of the source. The diesel units shall not be used for prime power when reliable offsite power is available. A log shall be maintained documenting the date, time, and reason for operation. [06-096 CMR 115, BPT]
- D. The diesel units shall fire diesel fuel with a sulfur limit not to exceed 0.05% by weight. Compliance shall be based on fuel records from the supplier showing the quantity of fuel delivered and the sulfur content of the fuel. [06-096 CMR 115, BPT]
- E. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Giebel Building Generator	PM	0.12	06-096 CMR 103(2)(B)(1)(a)

F. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

Emission Unit	PM (lb/hr)	PM₁₀ (lb/hr)	SO₂ (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Giebel Building Generator	0.38	0.38	0.16	14	3.0	1.1
Building 1 Generator	0.35	0.35	0.15	13	2.7	1.0
Fire Pump	0.21	0.21	0.09	7.7	1.7	0.61

G. Visible emissions from each Back-up Generator shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 101]

(39) **90 days after installation of Giebel Boiler 1 or after permanent shutdown of Boiler #1 and Boiler #2 (whichever occurs first) Condition 20 from license A-393-71-T-R is no longer valid and shall be replaced with the following:**

A. Evonik shall not exceed an emission limit of 49.9 tons per year of VOC based on a 12 month rolling total demonstrated by the record keeping required by the license A-393-71-T-R.

B. Evonik shall not exceed an emission limit of 9.99 tons per year of any single HAP or 24.9 tons per year for all HAPs combined, each based on a 12 month rolling total demonstrated by the record keeping required by this license. HAP emissions are as specified in 06-096 CMR 115 Appendix B and in Section 112(b) of the Clean Air Act.

(40) **90 days after installation of Giebel Boiler 1 or after permanent shutdown of Boiler #1 and Boiler #2 (whichever occurs first) Conditions 16 and 21 from license A-393-71-T-R shall no longer be valid.**

(41) **Condition 18 from license A-393-71-T-R is no longer valid.**

(42) **Giebel Boiler 1**

A. Giebel Boiler 1 shall fire natural gas. Evonik shall maintain monthly records of fuel combusted (40 CFR Part 60.48c(g)(2)). In addition, records of annual fuel use shall be kept on a 12-month rolling total basis. [06-096 CMR 115, BACT]

B. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Giebel Boiler 1	PM	0.05	06-096 CMR 103(2)(B)(1)(a)

C. Emissions shall not exceed the following [06-096 CMR 115, BACT]:

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Giebel Boiler 1	0.64	0.64	0.01	1.2	1.0	0.32

D. Visible emissions from Boiler #1 shall not exceed 10% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block average in a continuous 3-hour period. [06-096 CMR 101]

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E. Evonik shall submit notification of the date of construction and actual startup which shall include: the design heat capacity of Giebel Boiler 1, identification of fuel to be combusted, the annual capacity factor at which Evonik anticipates operating Giebel Boiler 1 based on the fuel fired. [40 CFR Part 60.48c(a)(1)(3)]

(43) Heaters 1, 2, 3, and 4

- A. Heaters 1, 2, 3, and 4 shall fire natural gas. Records of annual fuel use shall be kept on a 12-month rolling total basis. [06-096 CMR 115, BACT]
- B. Emissions shall not exceed the following [MEDEP Chapter 115, BACT]:

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Heaters 1, 2, and 3 (each)	0.06	0.06	0.0	0.11	0.09	0.01
Heater 4	0.08	0.08	0.0	0.16	0.13	0.01

C. Heaters 1, 2, 3, and 4 shall vent indoors and thus will not be subject to opacity standards.

DONE AND DATED IN AUGUSTA, MAINE THIS 12th DAY OF March, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Darryl N. Brown*
DARRYL N. BROWN, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-393-71-T-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 12/22/2010

Date of application acceptance: 1/3/2011

Date filed with the Board of Environmental Protection:

This Order prepared by Amanda L. Gray, Bureau of Air Quality.

