



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

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COMMISSIONER

**Scarborough School Department
Cumberland County
Scarborough, Maine
A-897-71-C-A**

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

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. Scarborough School Department (SSD) was issued Air Emission License A-897-71-B-R on September 9, 2009, permitting the operation of emission sources associated with their educational facility. The Scarborough High School Campus includes the Scarborough Middle School, the Wentworth Intermediate School and Scarborough High School.
2. SSD has requested an amendment to their license to add a 750 hp diesel fired, emergency generator, and to increase their natural gas limit from 30 to 35 million standard cubic feet per year.
3. The equipment addressed in this license is located at 11 Municipal Drive, Scarborough, ME.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Generator

<u>Equipment</u>	<u>Horse Power (HP)</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur</u>
Emergency Generator	750	5.25	38.32	Diesel, 0.05%

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17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
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106 HOGAN ROAD, SUITE 6
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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
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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 regulations. The emission increases are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

<u>Pollutant</u>	<u>Current License (TPY)</u>	<u>Future License (TPY)</u>	<u>Net Change (TPY)</u>	<u>Significance Level (TPY)</u>
PM	1.0	1.2	0.2	100
PM ₁₀	1.0	1.2	0.2	100
SO ₂	1.2	1.2	0.0	100
NO _x	2.1	19.2	17.1	100
CO	1.4	6.0	4.6	100
VOC	0.2	0.6	0.4	50
CO _{2e}	-	2,723	-	100,000

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. Emergency Generator

SSD operates a 750 horse power, Caterpillar emergency generator. The emergency generator is rated at 38.32 MMBtu/hr and fires diesel fuel. The generator was manufactured and installed in 1993.

1. BACT Findings

The BACT emission limits for the generator are based on the following:

- PM/PM₁₀ – 0.12 lb/MMBtu based on 06-096 CMR 103
- SO₂ – based on firing 0.0015% sulfur, 0.0015 lb/MMBtu
- NO_x – 3.2 lb/MMBtu, AP-42, Table 3.3-1 (dated 10/96)
- CO – 0.85 lb/MMBtu, AP-42, Table 3.3-1 (dated 10/96)
- VOC – 0.09 lb/MMBtu, AP-42, Table 3.3-1 (dated 10/96)
- Opacity – Visible emissions from the emergency generator shall not exceed 20 percent opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a three (3) hour period.

<u>Unit</u>	<u>PM</u> <u>(lb/hr)</u>	<u>PM₁₀</u> <u>(lb/hr)</u>	<u>SO₂</u> <u>(lb/hr)</u>	<u>NO_x</u> <u>(lb/hr)</u>	<u>CO</u> <u>(lb/hr)</u>	<u>VOC</u> <u>(lb/hr)</u>
Emergency Generator	0.63	0.63	0.01	16.8	4.46	0.47

The emergency generator shall be limited to 500 hours of operation a year, based on a 12-month rolling total. SSD shall keep records of the hours of operation for the emergency generator.

2. 40 CFR Part 60, Subpart IIII

The federal regulation 40 CFR Part 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* is applicable to emergency generators ordered after July 11, 2005 and manufactured after April 1, 2006. The emergency generator listed above was manufactured and installed prior to July 11, 2005, therefore is not subject to 40 CFR Part 60, Subpart IIII.

3. 40 CFR Part 63, Subpart ZZZZ

The federal regulation 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines* is not applicable to the emergency generator listed above. The unit is considered an existing, emergency stationary reciprocating internal combustion engine at an area HAP source, however it considered exempt from the requirements of Subpart ZZZZ as it is categorized as an institutional emergency engine

C. Annual Emissions

1. SSD shall be restricted to the following annual emissions, based on a 12-month rolling total and the following:

- 500 hours per year of operation of the emergency generator
- annual fuel limit of 35,000,000 standard cubic feet of natural gas fired in the school boilers.

Total Licensed Annual Emissions for the Facility

Tons per year

(Used to calculate the annual license fee)

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Existing Boilers (based on currently licensed #2 oil limit)	0.17	0.17	1.06	0.63	0.08	0.01
Existing Boilers (based on new natural gas limit)	0.90	0.90	0.10	1.75	1.47	0.10
Emergency Generator	0.16	0.16	0.01	16.8	4.46	0.47
Total TPY	1.2	1.2	1.2	19.2	6.0	0.6

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) means the aggregate group of the following gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Greenhouse gases (GHG) for purposes of licensing are calculated and reported as carbon dioxide equivalents (CO₂e).

Based on the facility's fuel use limit(s), the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, SSD is below the major source threshold of 100,000 tons of CO₂e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time.

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-897-71-C-A subject to the conditions found in Air Emission License A-897-71-B-R and in the following conditions:

Specific Condition (16)A. shall be amended to read:

Total fuel use for Boilers #1 - #7 inclusive shall not exceed 35 million standard cubic feet per year of natural gas and 30,000 gallons per year of ASTM D396 compliant #2 fuel oil with a maximum sulfur content not to exceed 0.5% by weight. Compliance shall be demonstrated by fuel records from the supplier showing the quantity of fuel delivered and the percent sulfur of the fuel. Records of annual fuel use shall be kept on a 12-month rolling total basis. [06-096 CMR 115, BPT]

The following Special Condition #18 shall be added:

(18) **Emergency Generator**

- A. The Emergency Generator is limited to 500 hours per year total operation, based on a 12-month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours. [06-096 CMR 115]
- B. A summary of the BACT analysis for the Emergency Generator is the following:
1. The Emergency Generator shall fire only diesel fuel with a maximum sulfur content not to exceed 0.05% by weight.
 2. The Emergency Generator shall be limited to 500 hours per year of operation based on a 12-month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours.
 3. 06-096 CMR 106 regulates fuel sulfur content, however in this case a BACT analysis for SO₂ determined a more stringent limit of 0.05% was appropriate and shall be used.
 4. 06-096 CMR 103 regulates PM emission limits. The PM₁₀ limits are derived from the PM limits.
 5. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 10/96.
 6. Visible emissions from the Emergency 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.
- C. Emissions from the Emergency Generator shall not exceed the following:

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

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

<u>Unit</u>	<u>PM</u> <u>(lb/hr)</u>	<u>PM₁₀</u> <u>(lb/hr)</u>	<u>SO₂</u> <u>(lb/hr)</u>	<u>NO_x</u> <u>(lb/hr)</u>	<u>CO</u> <u>(lb/hr)</u>	<u>VOC</u> <u>(lb/hr)</u>
Emergency Generator	0.63	0.63	0.01	16.80	4.46	0.47

E. Visible emissions from the Emergency Generator shall not exceed 20 per cent opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous three (3) hour period. [06-096 CMR 101]

DONE AND DATED IN AUGUSTA, MAINE THIS 2nd DAY OF March, 2012.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie B. For
PATRICIA W. AHO, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-897-71-B-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 12/15/2011

Date of application acceptance: 12/15/2011

Date filed with the Board of Environmental Protection:

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

