



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE  
GOVERNOR

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COMMISSIONER

PORTSMOUTH NAVAL SHIPYARD )  
YORK COUNTY )  
KITTERY, MAINE )  
A-452-77-4-A 1

DEPARTMENTAL  
FINDINGS OF FACT AND ORDER  
NEW SOURCE REVIEW (NSR)  
NSR #4

**FINDINGS OF FACT**

After review of the air emission license minor revision 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, Section 590, 06-096 CMR 115, the Maine Department of Environmental Protection (Department) finds the following facts:

**I. REGISTRATION**

**A. Introduction**

<b>FACILITY</b>	Portsmouth Naval Shipyard (PNS)
<b>PART 70 LICENSE NUMBER</b>	A-452-70-C-R
<b>LICENSE TYPE</b>	06-096 CMR 115 New Source Review Amendment
<b>NAIC CODES</b>	336611- Ship Building and Repair
<b>NATURE OF BUSINESS</b>	National Security (Submarine Repair for U.S. Navy)
<b>FACILITY LOCATION</b>	Kittery, Maine

**B. Amendment Description**

PNS has submitted an application to amend Air Emissions License, A-452-70-C-R per 06-096 CMR 115 New Source Review requirements. The amendment is for the installation and operation of a 1.6 MMBtu/hr (150 kW) emergency generator for the reconstructed Gate No. 2 Entry Control Facility (ECF) at the shipyard. The reconstructed ECF will bring the ECF into conformance with current Anti-Terrorism/Force Protection (ATFP) requirements. The new emergency generator set is EPA Tier 3 emissions certified.

**Emergency Generation Equipment**

Equipment	Power Output (kW)	Diesel Firing Rate (gal/hr)	Maximum Capacity (MMBtu/hr)	Stack #
Emergency Generator (G10)	150	11.8	1.6	110

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

PNS is a major source per the Department's 06-096 CMR 100 regulation. PNS has not requested to increase its current licensed allowed emissions and the installation of an emergency generator will not exceed "Significant Emissions Increase Levels" as defined in the Department's regulations. Therefore, this amendment is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations* 06-096 CMR 115 (as amended) since the changes being made are not addressed or prohibited in the Part 70 air emission license.

Since the emergency generator is not currently licensed, all criteria pollutants are subject to Best Available Control Technology (BACT) requirements. An application to incorporate the requirements of this amendment into the Part 70 air emission license shall be submitted no later than 12 months from commencement of the requested operation.

## 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 06-096 CMR 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

### B. Emergency Generator (G10)

PNS's construction of the Gate No. 2 Entry Control Facility will include the new 1.6 MMBtu/hr emergency diesel generator (G10) for backup power. The Caterpillar D150-8 Diesel Engine generator manufactured in 2012 is rated at 150 kW and is EPA Certified Tier III. Generator G10 was ordered after July 11, 2005 and manufactured after April 1, 2006; therefore, it is subject to New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart III, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*.

06-096 CMR 115 of the Department's regulations requires that a BACT analysis be conducted for the generator, and for each pollutant emitted. This BACT analysis addresses the five criteria combustion pollutants emitted from the generator: sulfur

dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM/PM<sub>10</sub>), carbon monoxide (CO), and volatile organic compounds (VOC).

BPT for PM/PM<sub>10</sub>

Particulate matter emissions from diesel engines are generally controlled through proper operation and maintenance. To meet BACT, the emission limits required in 40 CFR Part 60 Subpart IIII will be used therefore PNS shall limit particulate emissions to 0.1 lb/hr.

BPT for SO<sub>2</sub>

The generator will only be operated for providing backup power. PNS will accept a restriction on annual operating time of 500 hours per year. At this low level of operation, the only practical method for limiting sulfur dioxide emissions is through the use of ultra low sulfur fuel. PNS will minimize SO<sub>2</sub> emissions from the generator by using diesel fuel having a sulfur content no greater than 0.0015% by weight to comply with EPA new source performance standards, Subpart IIII.

BPT for NO<sub>x</sub>

Control technologies sometimes used to reduce NO<sub>x</sub> emissions from diesel engines include selective catalytic reduction (SCR) and fuel injection timing retard (FITR). For a generator limited by license to 500 hours per year of operation, with actual operating time being much less, both SCR and FITR would not provide a significant environmental benefit. In fact, each technology could adversely affect the reliability of the generator in power outage situations, and could result in emissions of new pollutants (ammonia from SCR) or increased emissions of current pollutants (increased CO, PM, and opacity from FITR). PNS proposes to meet BACT for NO<sub>x</sub> by meeting an emissions limit of 3.1 lb/hr, which meets the emission limit required in 40 CFR Part 60 Subpart IIII.

BPT for CO and VOC

CO and VOC emissions from electric generators are generally controlled through proper operation and maintenance. Oxidation catalysts have been used on large prime power applications to reduce CO and VOC emission levels in the exhaust. Like SCR technology, use of an oxidation catalyst on a generator of such limited use would not provide a significant environmental benefit, and could adversely affect the reliability of the unit. PNS proposes to meet BACT by meeting CO and VOC emission limits of 1.5 lb/hr and 0.6 lb/hr, respectively.

A summary of the BACT analysis for G10 (150 kW) is the following:

1. G10 shall fire only diesel fuel with a maximum sulfur content not to exceed 15 ppm.
2. G10 shall be limited to 100 hr/yr of operation for maintenance checks and readiness testing and shall be limited to 500 hours per year of total operation based on a

calendar year basis. Compliance shall be demonstrated by a written log of the generator operating hours.

3. G10 shall be equipped with a non-resettable hour meter.
4. PM emission limits from 40 CFR Part 60 Subpart IIII is streamlined into the PM BACT emission limit. The PM<sub>10</sub> limits are derived from the PM limits.
5. NO<sub>x</sub>, CO, and VOC emission limits are based upon 40 CFR Part 60 Subpart IIII.
6. PNS shall operate and maintain G10 in accordance with the manufacturer's written instructions. PNS shall not change settings that are not approved in writing by the manufacturer.
7. 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.
8. The BACT emission limits for the generator are based on the following:
  - PM/PM<sub>10</sub> – 0.2 g/kW-hr (40 CFR Part 60 Subpart IIII);
  - SO<sub>2</sub> – based on firing 0.0015% sulfur
  - NO<sub>x</sub> – 9.2 g/kW-hr (40 CFR Part 60 Subpart IIII);
  - CO – 3.5 g/kW-hr (40 CFR Part 60 Subpart IIII);
  - VOC – 1.3 g/kW-hr (40 CFR Part 60 Subpart IIII);

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Emergency Generator (G10)	0.1	0.1	0.1	3.1	1.2	0.4

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 (CI ICE)* is applicable to the emergency generator listed above since the unit was ordered after July 11, 2005 and manufactured after April 1, 2006. By meeting the requirements of Subpart IIII, the unit also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 63, Subpart ZZZZ.

a. Emergency Definition:

Emergency stationary ICE means any stationary reciprocating internal combustion engine that meets all of the following criteria:

- (1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

- (2) Paragraph (1) above notwithstanding, the emergency stationary ICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:
- (i) Maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
  - (ii) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.
  - (iii) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- (3) Paragraphs (1) and (2) above notwithstanding, emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing, emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity, except if the following conditions are met:

- (i) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
- (ii) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

- (iii) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
- (iv) The power is provided only to the facility itself or to support the local transmission and distribution system.
- (v) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

[40 CFR §60.4211(f) and §60.4219]

b. 40 CFR Part 60, Subpart IIII Requirements:

The generator shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 CFR §60.4202. [40 CFR §60.4205(b)]

The diesel fuel fired in the generator shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR §60.4207(b)]

A non-resettable hour meter shall be installed and operated on each generator. [40 CFR §60.4209(a)]

The generators shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by PNS that are approved by the engine manufacturer. PNS may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]

The generators shall each be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). [40 CFR §60.4211(f)]

No initial notification is required for emergency engines. [40 CFR §60.4214(b)]

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KITTERY, MAINE )  
A-452-77-4-A 7

DEPARTMENTAL  
FINDINGS OF FACT AND ORDER  
NEW SOURCE REVIEW (NSR)  
NSR #4

If PNS operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) ([www.epa.gov/cdx](http://www.epa.gov/cdx)). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address: [40 CFR §60.4214(d)]

Director, Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

#### Incorporation into the Part 70 Air Emission License

The requirements in this 06-096 CMR 115 New Source Review amendment shall apply to the facility upon amendment issuance. Per *Part 70 Air Emission License Regulations*, 06-096 CMR 140 (as amended), Section 1(C)(8), for a modification that has undergone NSR requirements or been processed through 06-096 CMR 115, the source must then apply for an amendment to the Part 70 license within one year of commencing the proposed operations as provided in 40 CFR Part 70.5.

### **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 this Minor Modification, Air Emission License A-452-77-4-A, pursuant to the preconstruction licensing requirements of 06-096 CMR 115 and subject to the standard and special conditions below.

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**

**The following are new conditions:**

**(1) NSPS Emergency Generator (G10)**

- A. The generator is limited to 500 hours per year total operation, on a calendar year basis. Compliance shall be demonstrated by a written log of all generator operating hours. [06-096 CMR 115]
- B. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Emergency Generator (G10)	0.1	0.1	0.1	3.1	1.2	0.4

- C. Visible emissions from the diesel generator 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. [06-096 CMR 101]
- D. The Emergency Generator (G10) shall meet the applicable requirements of 40 CFR Part 60, Subpart III, including the following:
  - 1. The generator shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in §60.4202. [40 CFR §60.4205(b)]
  - 2. The diesel fuel fired in the generator shall not exceed 15 ppm sulfur (0.0015% sulfur), except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. Compliance with the fuel sulfur content limit shall be based on fuel records from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [40 CFR §60.4207(b) and 06-096 CMR 115]
  - 3. A non-resettable hour meter shall be installed and operated on the generator. [40 CFR §60.4209(a)]



4. The generator shall be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §60.4211(f)(3)(i) are met). These limits are based on a calendar year. Compliance shall be demonstrated by a written log of all generator operating hours. [40 CFR §60.4211(f) and 06-096 CMR 115]
5. The generator shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by PNS that are approved by the engine manufacturer. PNS may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]
6. If PNS operates or is contractually obligated to be available for more than 15 hours per calendar year in a demand response program, during a period of deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial arrangement with another entity as specified in §60.4211(f)(3)(i), the facility shall submit an annual report containing the information in §60.4214(d)(1)(i) through (vii). The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) ([www.epa.gov/cdx](http://www.epa.gov/cdx)). However, if the reporting form is not available in CEDRI at the time that the report is due, the written report must be submitted to the following address:

Director, Office of Ecosystem Protection  
U.S. Environmental Protection Agency  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

[40 CFR §60.4214(d)]

- (2) PNS shall be in compliance with 40 CFR Part 63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines by demonstrating compliance with 40 CFR Part 60 Subpart IIII.  
[40 CFR 63, Subpart ZZZZ]

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A-452-77-4-A )

DEPARTMENTAL  
FINDINGS OF FACT AND ORDER  
NEW SOURCE REVIEW (NSR)  
10 NSR #4

- (3) PNS 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 (38 M.R.S.A. §605-C).
- (4) PNS shall submit an application to incorporate this amendment into the Part 70 air emission license no later than 12 months from commencement of the requested operation. [06-096 CMR 140, Section 1(C)(8)]

DONE AND DATED IN AUGUSTA, MAINE THIS 25 DAY OF April, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for  
PATRICIA W. AHO, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: January 31, 2013

Date of application acceptance: February 7, 2013

Date filed with the Board of Environmental Protection:

This Order prepared by Edwin Cousins, Bureau of Air Quality

