



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

**Red Shield Acquisition, LLC
Penobscot County
Old Town, Maine
A-180-77-6-A**

**Departmental
Findings of Fact and Order
New Source Review
NSR #4**

FINDINGS OF FACT

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., Section 344 and Section 590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Red Shield Acquisition, LLC (Red Shield)
LICENSE TYPE	06-096 CMR 115, Minor Modification, NSR
NAICS CODES	322110 Wood Pulp Manufacturing 221119 Electric Power Generation
NATURE OF BUSINESS	Pulp Manufacturing
FACILITY LOCATION	24 Portland Street, Old Town, Maine

Red Shield manufactures Kraft pulp, produces energy and process steam, and operates support facilities including the wastewater treatment plant, labs, and shipping and receiving operations. In addition, Red Shield is licensed for a demonstration scale biorefinery operation. The facility is considered an existing Part 70 Major Source as defined in *Definitions Regulations*, 06-096 CMR 100 (as amended) and currently operates under the Part 70 license A-180-70-A-I (December 2, 2009) and associated amendments.

Red Shield has submitted a minor modification application to license a new emergency diesel generator and to remove several non-operating sources from the air emission license.

B. Amendment Description

The amendment application includes licensing an emergency diesel generator associated with new electrical fire pumps installed as part of a new water intake system installed during the Great Works dam removal near the mill.

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

The amendment also includes a request to remove the following equipment from the license: the Riley Power Boiler, the Original Slaker, and the Boiler Building Fire Water Pump. The Riley Power Boiler will not be operated again, the original slaker was replaced by the Goslin slaker system which is licensed and continues to operate, and the Boiler Building Fire Water Pump was replaced by the new electric fire pumps and emergency generator.

C. Emission Equipment

The following equipment is addressed in this air emission license:

Electrical Generation Equipment

<u>Equipment</u>	<u>Power Output (kW)</u>	<u>Maximum Input Capacity (MMBtu/hr)</u>	<u>Firing Rate (gal/hr)</u>	<u>Fuel Type, % sulfur</u>	<u>Manufacture Date</u>	<u>Installation Date</u>
Water Intake Emergency Generator	600	5.75	42	Diesel, 0.0015%	Post 2010	2012

The following equipment will be removed from the air emission license: the Riley Power Boiler (245 MMBtu/hr, diesel/#2 fuel at 0.05% sulfur), the Original Slaker, and the Boiler Building Fire Water Pump (back-up generator).

D. Application Classification

The modification of a major source is considered a major modification based on whether or not expected emissions increases exceed the "Significant Emission Increase Levels" as given in *Definitions Regulation*, 06-096 CMR 100 (as amended).

The emissions increases for the Water Intake Emergency Generator operating at 500 hours per year were compared to the significance emissions increase levels as follows:

<u>Pollutant</u>	<u>Generator Licensed Emissions (ton/year)</u>	<u>Significant Emissions Increase Levels (ton/year)</u>
PM	0.2	25
PM ₁₀	0.2	15
PM _{2.5}	0.2	10
SO ₂	0.002	40
NO _x	2.2	40
CO	0.2	100
VOC	0.1	40
CO ₂ e	<75,000	75,000

Note: The above numbers are for the addition of the Water Intake Emergency Generator to the license. The total facility licensed emissions will be decreasing overall since the Riley Boiler and the Boiler Building Fire Water Pump are being removed from the license.

The Water Intake Emergency Generator emissions are below the significant emissions increase levels. 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. 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. Water Intake Emergency Generator - Diesel

Red Shield has requested the addition of a new diesel emergency generator to the facility's license. The emergency generator is rated at 5.75 MMBtu/hr maximum input capacity (42 gal/hr, 600 kw) and fires diesel fuel. The emergency generator was manufactured after 2010 and installed in 2012.

The Cummings Model DQCA diesel emergency generator will provide backup power to new electric fire pumps, installed as part of a new mill water intake system when the Great Works dam was removed in 2012 by the Penobscot River Restoration Trust. If normal power supply is lost, the emergency generator will start up to provide power to the fire pumps to maintain water pressure in the mill fire protection system.

1. BACT Findings

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

- PM/PM₁₀ - 0.12 lb/MMBtu from 06-096 CMR 103
- SO₂ - combustion of diesel fuel with a maximum sulfur content not to exceed 15 ppm (0.0015% sulfur)
- NO_x - manufacturer data: 4.40 g/hp-hr at full standby 905 hp load (worst case)
- CO - manufacturer data: 1.5 g/hp-hr at ¼ standby 226 hp load (worst case)
- VOC - 0.09 lb/MMBtu from AP-42 Table 3.4-1, dated 10/96
- Opacity - 06-096 CMR 101

The BACT emission limits for the generator are the following:

<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>
Water Intake Emergency Generator (5.75 MMBtu/hr) diesel, 0.0015% S	0.69	0.69	0.009	8.78	0.75	0.52

Visible emissions from the emergency generator shall not exceed 20% opacity on a 6-minute block average, except for no more than two (2) six (6) minute block averages in a 3-hour period.

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

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 (CI ICE)* is applicable to the emergency generator since the unit was ordered after July 11, 2005 and manufactured after April 1, 2006. By meeting the requirements of Subpart IIII, the units also meet 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 III Requirements:

(1) Manufacturer Certification Requirement

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)]

Red Shield submitted an EPA Tier 2 Exhaust Emission Compliance Statement from the manufacturer (Cummins Engine Power Generation). The Tier 2 standards must be met for units over 560 kw after 2006 (§89.112).

- (2) Ultra-Low Sulfur Diesel Fuel Requirement
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)]
- (3) Non-Resettable Hour Meter Requirement
A non-resettable hour meter shall be installed and operated on the generator. [40 CFR §60.4209(a)]
- (4) Operation and Maintenance Requirements
The generator shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by facility that are approved by the engine manufacturer. Facility may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]
- (5) Annual Time Limit for Maintenance and Testing
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). [40 CFR §60.4211(f)]
- (6) Initial Notification Requirement
No initial notification is required for emergency engines. [40 CFR §60.4214(b)]
- (7) Annual Reporting Requirements for Demand Response Availability
Over 15 Hours Per Year (for generators greater than 100 brake hp)
If Red Shield 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). 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)]

C. Equipment to be Removed from License

Red Shield has requested three pieces of equipment that are no longer in operation at the mill be removed from the license.

1. Riley Boiler

The Riley Boiler is a power boiler rated at 245 MMBtu/hr, currently licensed with a 10% annual capacity factor equating to a fuel limit of 1,600,000 gallons of diesel/#2 fuel oil with a maximum sulfur content of 0.05%. The Riley Boiler was originally manufactured in 1945, shut down in May 1999 with the licensing of Boiler #5 and NO_x Reasonably Available Control Technology (RACT) provisions, and reactivated in November 1999 for the purpose of facility cold starts and backup steam production in support of mill operations. Red Shield will render the Riley Boiler inoperable and the unit will no longer be a considered a licensed source.

2. Original Slaker

A Goselin water induced slaker was installed in 2002 and addressed in the air emission license. However, Red Shield retained the original slaker on the license to be used as back-up, if necessary. Red Shield has now rendered the original slaker inoperable (it is partially demolished) and the unit will no longer be considered a licensed source.

3. Boiler Building Fire Water Pump

The Boiler Building Fire Water Pump was a 1965 Cummins back-up diesel engine rated at 1.45 MMBtu/hr. The unit is no longer on-site since it was replaced by the new electric fire pumps and emergency generator addressed in this license amendment. The Boiler Building Fire Water Pump will no longer be considered a licensed source.

D. 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.

E. Annual Emissions

1. Red Shield shall be restricted to the following annual emissions, based on a 12 month rolling total.

**Total Licensed Annual Emissions (Tons/year) –
 (used to calculate the annual license fee)**

<u>Equipment</u>	<u>PM</u>	<u>PM₁₀</u>	<u>SO₂</u>	<u>NO_x</u>	<u>CO</u>	<u>VOC</u>
Boiler #5	87	87	556.2	306	120	55
Biomass Boiler	35.0	35.0	29.0	290.3	929.3	19.7
(Firing NCGs in either #5 or biomass boiler)	-	-	343.4	-	-	-
Gas Turbine	1.1	1.1	0.5	20.9	12.8	5.7
#4 Recovery Boiler	177.2	177.2	768.3	812.3	1396.6	92.4
#4 Smelt Tank	33.07	33.07	14.61	0.28	0.28	0.28
Lime Kiln	144.1	144.1	31.1	157.7	357.8	5.3
Total Services Backup Sump Pump	0.1	0.1	0.02	1.4	0.3	0.1
Water Intake Emergency Generator	0.2	0.2	0.002	2.2	0.2	0.1
Power House Fire Backup Pump	0.1	0.1	0.02	1.5	0.3	0.1
#4 Turbine Backup Gen.	0.09	0.09	0.02	1.3	0.3	0.1
Back-up gen. for biomass boiler	0.1	0.1	0.14	5.1	1.4	0.3
Screw Press Steam Generator	2.2	2.2	5.5	81.1	17.5	6.6
Biorefinery	-	-	-	-	-	2.5
TOTALS	480.3	480.3	1748.8	1680.1	2836.8	188.2

Notes:

- The gas turbine tpy emissions were calculated with the operating hour restriction of 2628 hours per year.
- The #4 Recovery Boiler tpy emissions were based on adding the tpy from firing oil only to the tpy from firing black liquor only.
- PM₁₀ and CO are not used in calculating the annual fee, but are noted for completeness.
- The table above does not include process emission units or insignificant activities which have no licensed emission units.

2. Greenhouse Gases

CO₂e is not used to calculate the annual fee and is not listed in the above table since the source is already classified as major for greenhouse gases and does not currently have annual restrictions imposed.

III. AMBIENT AIR QUALITY ANALYSIS

Red Shield previously submitted ambient air quality analyses 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 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,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-180-77-6-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

(1) Water Intake Emergency Generator

A. The Water Intake 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. Emissions shall not exceed the following:

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

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

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM₁₀ (lb/hr)</u>	<u>SO₂ (lb/hr)</u>	<u>NO_x (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Water Intake Emergency Generator (5.75 MMBtu/hr) diesel, 0.0015% S	0.69	0.69	0.009	8.78	0.75	0.52

D. Visible Emissions

Visible emissions from the Water Intake 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. [06-096 CMR 101]

E. The Water Intake Emergency Generator shall meet the applicable requirements of 40 CFR Part 60, Subpart IIII, including the following:

1. Manufacturer Certification

The emergency 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. Ultra-Low Sulfur Diesel Fuel
The diesel fuel fired in the emergency 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. Non-Resettable Hour Meter
A non-resettable hour meter shall be installed and operated on the emergency generator. [40 CFR §60.4209(a)]
4. Annual Time Limit for Maintenance and Testing
The emergency 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. Operation and Maintenance
The emergency generator shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by Red Shield that are approved by the engine manufacturer. Red Shield may only change those emission-related settings that are permitted by the manufacturer. [40 CFR §60.4211(a)]
6. Annual Reporting For Demand Response Availability Over 15 Hours Per Year (for generators greater than 100 brake hp)
If Red Shield 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). 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) **Equipment Removed from License**

The following equipment shall be rendered inoperable or removed from the facility and are no longer considered licensed sources: the Riley Power Boiler, the Original Slaker, and the Boiler Building Water Fire Pump.

- (3) Red Shield 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 26 DAY OF July, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:

Maie Allen Robert Corne for
PATRICIA W. AHO, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: February 4, 2013

Date of application acceptance: February 7, 2013

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

