



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

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COMMISSIONER

**Red Shield Acquisition, LLC
Penobscot County
Old Town, Maine
A-180-70-D-A**

**Departmental
Findings of Fact and Order
Part 70 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., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Red Shield Acquisition, LLC (Red Shield)
LICENSE TYPE	06-096 CMR 140 Part 70 Significant Modification
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 pulp in Old Town, Maine. In addition to operating the pulp mill process, Red Shield produces energy and process steam. The mill also operates support facilities including the wastewater treatment plant, labs, and shipping and receiving operations.

Red Shield is an existing stationary source currently operating under a Part 70 license (A-180-70-A-I) and subsequent amendments. Red Shield is considered a Part 70 major source as defined in *Definitions Regulations*, 06-096 CMR 100 (as amended).

B. Amendment Description

Red Shield has submitted a Part 70 amendment application to incorporate air emission license amendment A-180-77-4-A (issued October 12, 2012) into the Part 70 license. The New Source Review air emission license amendment A-180-77-4-A, processed under *Minor and Major Source Air Emission License Regulations* 06-096 CMR 115 (as amended), licenses an increase in the CO limit from the Biomass Boiler and an increase in the allowable incineration time of non-condensable gases (NCGs) in the Biomass Boiler.

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The previous licensed CO limit was 0.35 lb/MMBtu on a 30 day rolling average. Prior to January 1, 2016, the Biomass Boiler will be licensed at a CO limit of 0.8 lb/MMBtu on a 30 day rolling average, including all operating times. Beginning January 1, 2016, the CO limit shall be 0.45 lb/MMBtu, excluding pre-defined startup and shutdown periods.

The allowable incineration time of non-condensable gases (NCGs) in the Biomass Boiler, used as a back-up incineration unit for the Lime Kiln, shall go from 20% of the total NCG incineration time to 23.8%.

C. Emission Equipment

This amendment addresses the following equipment:

EMISSION UNIT ID	UNIT CAPACITY	UNIT TYPE
Biomass Boiler	265.2 MMBtu/hr with 16 MW extraction condensing turbine	Fuel Burning - biomass, construction and demolition wood, NCGs, and supplemental natural gas

D. Application Classification

The incorporation of the New Source Review requirements into the Part 70 license for an increase to the licensed Biomass Boiler CO limit and NCG firing time is classified as a Part 70 Significant Modification and has been processed under *Part 70 Emission License Regulations* 06-096 CMR 140 (as amended).

Part 70 Significant Modification procedures are used for applications requesting license changes that do not qualify as Administrative Revisions or Part 70 Minor License Modifications. The New Source Review amendment was considered a major modification for CO and a minor modification for SO₂ based on the expected emissions increases compared to the "Significant Emission Increase Levels" as given in *Definitions Regulation*, 06-096 CMR 100 (as amended) for major sources. The emission increases were determined by subtracting the average actual emissions of the 24 months preceding the modification (or representative 24 months) or current licensed allowed, whichever is more stringent, from the maximum future license allowed emissions. The result of this determination is the following:

Pollutant	Average Current Actual Emissions or Current License Allowed (tons/year)	Future License Allowed (ton/year)	Net Change (ton/year)	Significance Level (ton/year)
SO ₂	70.8 ^a	110.7	39.9	40
CO	406.6 ^b	929.3	522.7	100

^a Calculated using actual % incineration time in the Biomass Boiler of 12.2% and the licensed emission rates of 85 lb/hr with NCGs and 6.6 lb/hr without NCGs.

^b Calculated using current licensed 0.35 lb/MMBtu limit and 8760 hr/yr.

Note: The above numbers are for the Biomass Boiler only. No other equipment at the facility is affected by this amendment.

Based on changes to the licensed emission levels, the application is not considered an Administrative Revision or Part 70 Minor License Modification; and has been processed as a Part 70 Significant Modification.

II. PART 70 SIGNIFICANT MODIFICATION DESCRIPTION

A. Overview

Red Shield submitted an air emission license amendment application addressing Biomass Boiler CO emissions and NCG incineration time with the request that the Chapter 115 New Source Review major modification amendment and the Part 70 Significant Modification amendment be processed simultaneously. The amendment application included a BACT analysis and an ambient air quality modeling analysis. The BACT and modeling analysis information is included in the New Source Review license amendment A-180-77-4-A (issued October 12, 2012).

B. Biomass Boiler CO

The 265.2 MMBtu/hr capacity Babcock & Wilcox Biomass Boiler was manufactured in 1986 and installed at the Red Shield facility in 2004/2005. The boiler is currently licensed with a CO limit of 0.35 lb/MMBtu on a 30 day rolling average. Due to the firing of green wood with high moisture content instead of construction and demolition wood fuel, and the size and age of the boiler, Red Shield requested an increase of the CO limit.

The Department approves the incorporation of the New Source Review requirements of A-180-77-4-A into the Part 70 license, revising the Biomass Boiler CO licensed emission limits.

Prior to January 1, 2016 Red Shield shall meet a CO BACT limit of 0.8 lb/MMBtu on a 30 day rolling average from the Biomass Boiler for all operating times, including startup and shutdown, with the following calculation correction: for no more than four hours during startup, Red Shield may replace stack O₂ levels that exceed 14.0% with a value of 14.0 and recalculate the hourly lb/MMBtu actual average for CO using the 14.0 value. The CO lb/hr limit shall be 212.2 lb/hr, demonstrated to be in compliance with ambient air quality standards. This limit, effective through December 31, 2015, will allow boiler experts to be brought on-site, allow for staff to continue to fine tune the unit, as well as allow Red Shield to plan for the revised federal requirements in 40 CFR Part 63, Subpart DDDDD when promulgated.

Beginning January 1, 2016, the CO limit shall be 0.45 lb/MMBtu on a 30 day rolling average, excluding startups and shutdowns. Red Shield shall submit a Biomass Boiler startup and shutdown CO emissions minimization amendment application to the Department by January 1, 2015 clearly defining what constitutes startup and shutdown periods. The application shall be developed using appropriate internal and external expertise; and shall include information such as specific startup and shutdown timeframe ranges (including warm and cold startups), operating parameter measurements (ie. boiler temperature, definition of first fire, oxygen levels), and any additional information as necessary. Beginning January 1, 2016, the CO lb/hr limit shall be 119.3 lb/hr.

The exclusion of pre-defined startup and shutdown scenarios recognizes the operational difficulties of the Biomass Boiler during periods of ramping up or down, but will require very specific startup/shutdown conditions to be met for those emissions to be excluded from the 30 day rolling average calculations. Red Shield will be required to include the emissions from the startup/shutdown periods as part of the compliance documentation and reporting. The lb/hr limits on the Biomass Boiler shall be in effect at all times.

In order to document the facility's ongoing efforts to reduce CO emissions, Red Shield shall submit a Biomass Boiler CO emissions progress report to the Department by July 1, 2013. The report shall include progress-to-date on CO emission minimization and the expected plan moving forward to meet the future license requirement and EPA regulations.

C. Biomass Boiler NCG Firing

Red Shield proposed a revision to the incineration time for firing Low Volume High Concentration (LVHC) gases, also known as Non-Condensable Gases (NCGs), in the Biomass Boiler. The Lime Kiln is the primary incinerator for the LVHC gases (NCGs) generated by the pulp mill, with #5 Power Boiler and the Biomass Boiler as back-up. Currently, primary is defined as greater than 80% of

the total incineration time on an annual basis. Red Shield requested the Biomass Boiler NCG incineration percentage be increased from 20% to 23.8%, resulting in a 39.9 tons/year increase of SO₂, based on the licensed limit of 85 lb/hr when firing NCGs.

The Department approves the incorporation of the New Source Review requirements of A-180-77-4-A into the Part 70 license, revising the Biomass Boiler NCG incineration time to 23.8%. The Biomass Boiler SO₂ emissions were included in a previous ambient air quality analysis and showed compliance with ambient air quality standards. The short term SO₂ emissions are not increasing with 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 Part 70 License A-180-70-D-A pursuant to 06-096 CMR 140 and the preconstruction permitting requirements of 06-096 CMR 115 and subject to A-180-71-A-I, and amendments A-180-70-B-A and A-180-70-C-A, and the special conditions below.

Federally enforceable conditions in this Part 70 license must be changed pursuant to the applicable requirements in 06-096 CMR 115 for making such changes and pursuant to the applicable requirements in 06-096 CMR 140.

For each special condition which is state enforceable only, state-only enforceability is designated with the following statement: **Enforceable by State-only.**

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 shall replace Condition 15(F) in air emission license A-180-70-A-I (issued December 2, 2009):

(15) Biomass Boiler and Turbine

F. Non-condensable Gases

Red Shield may incinerate NCGs in the Biomass Boiler as a back-up control option to the lime kiln for no greater than 23.8% of the total incineration time on an annual basis. Records shall be maintained to document compliance with the Biomass Boiler incineration time. [06-096 CMR 140, BPT and BACT, license A-180-71-AJ-A (2005), and A-180-77-4-A (2012)]

The following shall replace Condition 15(H) in air emission license A-180-70-A-I (issued December 2, 2009):

(15) Biomass Boiler and Turbine

H. Emission Limits

1. Emissions from the Biomass Boiler shall not exceed the following:

Pollutant	lb/MMBtu	Averaging Time	Compliance Method
PM	0.03	-	40 CFR Part 60, Appendix A
PM ₁₀	0.03	-	40 CFR Part 60, Appendix A; 40 CFR Part 51, Appendix M
NO _x	0.25	24 hr block ave	CEM
CO	0.8 (Prior to January 1, 2016)	30 day rolling ave, at all operating times	CEM
	0.45 (Beginning January 1, 2016)	30 day rolling ave, excluding startup and shutdown	CEM

Pollutant	lb/hr	Compliance Method
PM	8.0	40 CFR Part 60, Appendix A
PM ₁₀	8.0	40 CFR Part 60, Appendix A; 40 CFR Part 51, Appendix M
SO ₂	6.6 when not incinerating NCGs	Fuel Use Recordkeeping or 40 CFR Part 60, Appendix A
	85 when incinerating NCGs	
NO _x	66.3	40 CFR Part 60, Appendix A
CO	212.2 * (Prior to January 1, 2016)	40 CFR Part 60, Appendix A
	119.3 * (Beginning January 1, 2016)	40 CFR Part 60, Appendix A
VOC	4.5	40 CFR Part 60, Appendix A Method 25 or 25A
Lead	0.106	40 CFR Part 60, Appendix A

* lb/hr limits shall apply at all times.

[06-096 CMR 140, BPT and BACT, licenses A-180-71-AI-A (2004), A-180-71-AJ-A (2005), A-180-71-AL-M (2005), A-180-71-AX-A (2009), A-180-71-BA-A (2009), and A-180-77-4-A (2012)]

2. Calculations Corrections

- a. For no more than four (4) hours during start-up, Red Shield may make the following calculation corrections for the Biomass Boiler: Stack O₂ levels that exceed 14.0% may be replaced with a value of 14.0.
- b. Hourly lb/MMBtu averages for CO may be recalculated if the observed stack O₂ is greater than 14.0% for no more than four (4) hours during startup.
- c. The recalculated hourly lb/MMBtu averages may be used for compliance purposes.

[06-096 CMR 115, BACT]

The following shall be added to Condition 15 in air emission license A-180-70-A-I (issued December 2, 2009):

(15) **Biomass Boiler and Turbine**

M. CO Startup/Shutdown Definition Submittal

By January 1, 2015 Red Shield shall submit a Biomass Boiler startup and shutdown CO emissions minimization amendment which clearly defines startup and shutdown periods. If found acceptable, the plan shall be approved by the Department in the form of an issued air license amendment. The amendment application shall be developed using appropriate internal and external expertise; and shall include information such as specific startup and shutdown timeframe ranges (including warm and cold startups), operating parameter measurements (ie. boiler temperature, definition of first fire, oxygen levels), and any additional information as necessary. [06-096 CMR 115, BACT]

N. Biomass Boiler CO Emission Progress Report

By July 1, 2013, Red Shield shall submit a Biomass Boiler CO emissions progress report to the Department. The report shall include progress-to-date on CO emission minimization and the expected plan to meet the future license requirement and EPA regulations. [06-096 CMR 115, BACT]

O. Boiler NESHAP

Red Shield shall meet all applicable requirements of 40 CFR Part 63, Subpart DDDDD, *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters* for the Biomass Boiler. [40 CFR Part 63, Subpart DDDDD]

The following shall replace Condition 25(C) in air emission license A-180-70-A-I (issued December 2, 2009):

(25) Lime Kiln

C. The Lime Kiln shall be the primary incinerator for the LVHC gases (NCGs) generated by the pulp mill, with the Biomass Boiler as back-up, and #5 Power Boiler as the secondary back-up. Primary shall be defined as greater than 76.2% of the total incineration time on an annual basis. If a kiln failure occurs, Red Shield shall incinerate the LVHC gases in the Biomass Boiler or #5 Power Boiler. Records shall be maintained to document compliance with the 76.2% LVHC gas incineration time in the Lime Kiln, the use of the Biomass Boiler as back-up (no greater than 23.8% incineration time), and the

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use of the #5 Power Boiler as secondary back-up. [06-096 CMR 124, TRS,
and 06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 12th DAY OF October, 2012.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Melanie A. B. for
PATRICIA W. AHO, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: October 17, 2011

Date of application acceptance: October 21, 2011

Date filed with the Board of Environmental Protection:

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

