Rumford Paper Company
Oxford County
Rumford, Maine
A-214-77-12-A

Departmental
Findings of Fact and Order
New Source Review
NSR #12

FINDINGS OF FACT

After review of the New Source Review air emission license 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 (the Department) finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Rumford Paper Company
LICENSE TYPE	06-096 CMR 115, New Source Review (NSR) Minor Modification
NAICS CODES	322121
NATURE OF BUSINESS	Pulp & Paper Mill
FACILITY LOCATION	35 Hartford Street, Rumford, Maine

B. Amendment Description

Rumford Paper Company (RPC, Rumford, or the Mill) has applied for a NSR license to include construction/demolition debris (CDD) as a licensed biomass fuel for Cogen Boilers #6 and #7.

C. Emission Equipment

The following equipment is addressed in this NSR license:

Fuel Burning Equipment

Equipment	Maximum Heat Input Capacity (MMBtu/hr)	Fuel Type*	Manuf. Date	Stack #
Cogen Boiler #6	610 (annual) 630 (24-hr)	#6 fuel oil, natural gas, biomass, coal, TDF, DPC, specification and off-spec. used oil, lime kiln rejects, LVHCs, HVLCs, SOGs	1986 (started operation in 1990)	6&7
Cogen Boiler #7	610 (annual) 630 (24-hr)			

*
TDF – Tired-Derived Fuel
SOGs – Stripper Off-Gases
LVHCs –Low Volume, High Concentration Gases, from the pulping process
HVLCs – High Volume, Low Concentration Gases, from the pulping process
DPC – Delayed Petroleum Coke, a byproduct of petroleum refining

D. Application Classification

The application for the addition of CDD as a licensed biomass fuel for Cogen Boilers #6 and #7 does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing or record keeping requirements.

A modification is identified as major or minor based on whether or not projected net emissions increases exceed the "Significant Emission Increase" levels as given in *Definitions Regulation*, 06-096 CMR 100 (as amended). RPC proposes to utilize CDD biomass as a substitute, on an equivalent heat input basis, for a portion of the other biomass fuel currently fired in the Cogen Boilers #6 and #7. Comparison of analyses of CDD and of the biomass fuel currently in use shows that CDD has a lower moisture content and a higher heating value (Btu/pound). Thus, the same heat input can be achieved with less CDD than other biomass fuel, resulting in a net decrease in material combusted in the Cogen Boilers. Inclusion of CDD as a biomass fuel in these two units is expected to result in no change to or decreased emissions of PM, NO_x, and VOC.

Sulfur dioxide (SO_2) is the only criteria pollutant which may increase in emissions from the addition of CDD as a licensed biomass fuel for Cogen Boilers #6 and #7. The CDD analysis shows a higher sulfur content than biomass. Considering the higher sulfur content of CDD and the decrease in the volume of material combusted in both units combined, a net emissions increase of 11.36 tons/year of SO_2 was calculated. This is above the threshold for a Minor Revision but is below the significance threshold of 40 tons/year for SO_2.

To calculate greenhouse gas (GHG) emissions in carbon dioxide equivalents (CO_2e), the same emission factors are used for biomass, creosote-treated wood (CTW, a biomass fuel for which these units are already licensed), and CDD. Therefore, annual emissions of CO_2e are expected to decrease due to the net reduction in volume of biomass burned.

Emissions increases from the inclusion of CDD as a licensed biomass fuel are summarized in the following table:

Pollutant	Net Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	--	25
PM_{10}	--	15
$PM_{2.5}$	--	10
SO_2	11.36	40
NO_x	--	40
CO	--	100
VOC	--	40
CO_2e	--	75,000

Note: The above numbers are for combined emissions from Cogen Boilers #6 and #7 only. None of the other equipment at the facility is affected by this amendment.

Therefore, the changes at the facility addressed in this NSR license 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 NSR license 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.

Rumford Paper Company is an integrated pulp and paper manufacturing facility which has been operating since 1901. The mill consists of both Kraft (chemical pulping) and groundwood pulping systems, a paper production process system, a pulp dryer process system, and supporting industrial systems, including power and steam production, landfill operations, and wastewater treatment. The facility

operates two cogeneration boilers, Cogen Boilers #6 and #7, to produce steam and electricity to support mill operations.

B. Description of Cogen Boilers #6 and #7

Cogeneration (Cogen) Boilers #6 and #7 are identical, circulating fluidized bed (CFB) boilers manufactured by Pyropower. These boilers commenced construction in 1986 and started operation in 1990. Cogen Boilers #6 and #7 are each currently licensed at the following maximum firing rates:

Fuel	Maximum Capacity
Combination	630 MMBtu/hr (24-hour block average) 610 MMBtu/hr (12-month rolling average)

Emissions from the two boilers exit through a common stack with an inside diameter of 11.5 feet and an above ground level (AGL) stack height of 411 feet.

Cogen Boilers #6 and #7 are licensed to fire a variety of fuels, including coal, natural gas, HVLCs, LVHCs, SOGs, biomass (including wood waste, creosote-treated wood chips (CTW), mill waste, wastewater treatment plant sludge, and waste papers), Tire Derived Fuel (TDF), Delayed Petroleum Coke (DPC), lime kiln rejects, and oil (including specification used oil, off-specification used oil, and #6 fuel oil). Upon issuance of this NSR license, the list of license-allowed biomass fuels shall include construction or demolition debris, also known as construction/demolition debris (CDD), as defined in 06-096 CMR 418 [6].

The original design of Cogen Boilers #6 and #7 included the capability to fire solid fuels such as CDD. RPC is proposing to use the existing blended fuel handling system, currently used to blend and convey other categories of biomass and TDF, to also handle CDD. No physical modifications are proposed to either Cogen Boiler #6 or #7 to accommodate CDD. The addition of CDD biomass to the Cogen Boilers' fuel mix will not exceed the existing emission limits and licensed firing rates for Cogen Boilers #6 and #7, and no changes to the current limits and firing rates are being requested by RPC.

C. New Source Performance Standards (NSPS), 40 CFR, Part 60

Cogen Boilers #6 and #7 are subject to 40 CFR Part 60, Subpart Db, *Industrial-Commercial-Institutional Steam Generating Units,* requirements of which include emission standards for PM, NO_x, and SO_2. Emissions limits for Cogen Boilers #6 and #7 as currently licensed are based on the more stringent of either NSPS or BACT. The combustion of CDD will not change the applicability of this NSPS Subpart. As a result, no additional or more stringent NSPS emission limits will apply to these units.

Additionally, under 40 CFR Part 60, the addition of this fuel is not considered a modification. According to NSPS regulations, except as provided under 40 CFR §60.14 (e) and (f), any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies *is* considered a modification. Federal regulation 40 CFR §60.14(e)(4) states that the use of an alternative fuel or raw material *is not*, by itself, considered a modification under NSPS if, prior to the date any standard under 40 CFR Part 60 becomes applicable to that source type as provided by 40 CFR §60.1, the existing facility was designed to accommodate that alternative fuel. Further, it is specified that a facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change. Cogen Boilers #6 and #7 were designed for the combustion of solid fuel and are capable of accommodating the combustion of CDD biomass without modification to either boiler.

D. National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 63

Cogen Boilers #6 and #7 are categorized as existing fluidized bed units designed to burn biomass/bio-based solids under 40 CFR Part 63, Subpart DDDDD (Industrial Boiler MACT). Consistent with the requirements of Subpart DDDDD, RPC submitted an Initial Notification on 05/31/2013 outlining the applicable effective date by which Cogen Boilers #6 and #7 will comply with Industrial Boiler MACT.

Under 40 CFR Part 241, *Identification of Non-Hazardous Secondary Materials That Are Solid Waste (NHSM)*, certain materials are defined as solid wastes that, when burned as fuel, will cause the combustion unit to be subject to the requirements of 40 CFR Part 60 Subpart CCCC, *Commercial and Industrial Solid Waste Incineration Units (CISWI)*. Under the NHSM rule, clean CDD is classified as a non-hazardous secondary material that does not subject Cogen Boilers #6 and #7 to CISWI requirements.

NESHAP requirements applicable to Cogen Boilers #6 and #7 do not change as a result of the addition of CDD as a licensed biomass fuel. Such requirements are addressed in the Initial Notification already submitted by RPC and will be incorporated into the Part 70 license renewal currently being processed by the Department.

E. Best Available Control Technology (BACT)

Although the only pollutant with a projected emissions increase from the addition of CDD as a licensed biomass fuel is SO_2, a BACT analysis is required for every

criteria pollutant emitted from the unit undergoing modification. The following is a summary of the BACT determination for the proposed fuel addition, by pollutant.

1. Particulate Matter (PM, PM_{10}, $PM_{2.5}$)

   Particulate emissions from circulating fluidized bed boilers are generated from the combustion of fuel. Flue gas cleaning is the most widely employed approach used for the control of particulate matter emissions from CFB steam generating units.

   RPC currently employs on each Cogen Boiler a combination of multi-cyclones (mechanical collection) and an electrostatic precipitator (ESP) consisting of one chamber with four fields per chamber, powered by four transformer rectifier sets. Emissions of PM and PM_{10} from each Cogen Boiler are currently limited to 0.03 lb/MMBtu from a previous BACT determination, which is more stringent than the NSPS limit specified in 40 CFR Part 60, Subpart Db.

   RPC proposes the continued operation of the multi-cyclones and ESP and compliance with the current PM and PM_{10} limit of 0.03 lb/MMBtu as BACT. The Department is in agreement with the PM and PM_{10} BACT determination as proposed. Compliance with this emission limit shall be demonstrated via emissions testing once every five years, or more frequently upon Department request.

2. Sulfur Dioxide (SO_2)

   Sulfur dioxide is formed from the oxidation of sulfur and sulfur compounds during fuel combustion. Control options to reduce SO_2 emissions include firing low sulfur fuels, use of sulfur-absorbing bed compounds such as limestone or dolomite, and flue gas desulfurization by means of wet scrubbing, spray dryer absorbers, or dry sorbent injection followed by a fabric filter or ESP.

   Examination of BACT control strategies for similar multi-fuel biomass boilers at other facilities shows the use of low sulfur fuel as the most effective SO_2 control method. RPC is already utilizing low sulfur fuels in conjunction with a circulating limestone bed to control SO_2 emissions from each boiler. The facility's review of the U.S. EPA's RACT/BACT/LAER Clearinghouse (RBLC) database identified no dedicated, add-on flue gas desulfurization technologies required for previously permitted multi-fuel biomass boilers.

The current BACT SO_2 emission limit for Cogen Boilers #6 and #7 is a weighted lb/MMBtu limit based on fuel contribution: 0.28 lb/MMBtu firing any combination of fuels and 0.32 lb/MMBtu for the contribution from coal, DPC, and TDF. Cogen Boilers #6 and #7 are also required to achieve a BACT limit of 90% SO_2 removal efficiency. This weighted lb/MMBtu limit is within the range of limits being met at facilities with similar biomass boilers. The additional costs associated with installing and operating an auxiliary scrubber, installing and operating spray dryer absorbers, or installing and operating a dry sorbent injection system in addition to the existing controls to remove SO_2 from a flue gas stream that is already meeting stringent BACT/NSPS limits is not economically justifiable for these units.

Rumford Paper Company proposes the continued use of low sulfur fuels, operation of the circulating limestone bed to achieve sulfur removal of at least 90% based on potential SO_2 emissions on a 30-day rolling average basis, and compliance with the current SO_2 lb/MMBTU weighted limits, on a 24-hour block average basis, for Cogen Boilers #6 and #7 continue to represent BACT for SO_2 emissions. The Department is in agreement with the BACT determination as proposed.

3. Nitrogen Oxides (NO_x), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC)

The circulating bed design of Cogen Boilers #6 and #7 incorporates cyclonic mechanics to promote completeness of combustion at a relatively low combustion temperature, which was determined to meet the definition of an equivalent low NO_x control strategy as required by 06-096 CMR 138, *Reasonably Available Control Technology for Facilities that Emit Nitrogen Oxides* (NO_x RACT). These same combustion dynamics and good operating control practices minimize CO and VOC emissions.

RPC proposes the circulating bed technology and a NO_x emission limit of 0.60 lb/MMBtu on a 24-hour block average basis while firing any fuel combination, as currently licensed, as BACT for NO_x emissions from Cogen Boilers #6 and #7. The Department is in agreement with the BACT determination as proposed.

RPC proposes the circulating bed technology, use of good combustion practices, and the CO fuel-weighted emission limits, as currently licensed, as BACT for CO emissions from Cogen Boilers #6 and #7. The Department is in agreement with the BACT determination as proposed.

RPC proposes the circulating bed technology, use of good combustion practices, and a VOC emission limit of 0.008 lb/MMBtu on a 24-hour block

average basis while firing any fuel combination, as currently licensed, as BACT for VOC emissions from Cogen Boilers #6 and #7. The Department is in agreement with the BACT determination as proposed.

RPC will continue to demonstrate compliance with license conditions via use of existing continuous emissions monitoring systems (CEMS), parameter monitors, and operational information. No changes are proposed for demonstration of compliance with license requirements.

F. Incorporation into the Part 70 Air Emission License

The requirements in this 06-096 CMR 115 New Source Review license shall apply to the facility upon 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.

G. Annual Emissions

The proposed addition of CDD as a licensed biomass fuel for Cogen Boilers #6 and #7 will result in no changes to any of the annual emission limits currently contained in Rumford Paper Company's Air Emission Licenses and NSR licenses, including all amendments.

III. AMBIENT AIR QUALITY ANALYSIS

Rumford Paper Company 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 (see NO_x modeling results in license A-214-71-AN-A, issued April 9, 2002, and air emission license A-214-71-S-A/R, issued September 3, 1996, for other pollutants). This project does not result in a significant emissions increase for any criteria pollutant, and no new emissions limits are proposed as part of this project; therefore, additional ambient air quality analysis is not required for this NSR license.

Section 7(C)(2)(c) of 06-096 CMR 115 states that increment consuming sources located within 25 kilometers of a Class I area may be required to conduct a Class I increment analysis as part of a minor modification. The Rumford Mill is located more than 25 kilometers from the nearest Class I area; therefore, no new Class I increment analysis is required as part of this proposed project.

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

The Department hereby grants New Source Review License A-214-77-12-A pursuant to the preconstruction licensing requirements of 06-096 CMR 115 and subject to the following conditions.

(1) Rumford Paper Company is licensed to fire construction and/or demolition debris (CDD) which meets the fuel quality standards and fuel substitution limitations contained in 06-096 CMR 418, *Maine Solid Waste Management Rules - Beneficial Use of Solid Wastes*, as biomass fuel in Cogen Boilers #6 and #7.

This NSR license warrants no additional operational restrictions or emissions limitations. Rumford Paper Company shall continue to be subject to the standard and special conditions in the facility's initial Part 70 license A-214-70-A-I and all subsequent Part 70 license amendments and New Source Review licenses issued to this facility.

(2) Rumford Paper Company shall submit an application to incorporate this NSR license 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 8 DAY OF October , 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: September 9, 2013
Date of application acceptance: September 9, 2013

Date filed with the Board of Environmental Protection:

Filed
OCT 08 2013
State of Maine
Board of Environmental Protection

This Order prepared by Jane E. Gilbert, Bureau of Air Quality.