STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

Woodland Pulp LLC **Washington County** **Baileyville, Maine** **A-215-77-12-A**	**Departmental** **Findings of Fact and Order** **New Source Review** **NSR #12**

FINDINGS OF FACT

After review of the air emission license application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 Maine Revised Statutes (M.R.S.) § 344 and § 590, the Maine Department of Environmental Protection (the Department) finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Woodland Pulp LLC (Woodland Pulp)
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	32211
NATURE OF BUSINESS	Pulp Production
FACILITY LOCATION	144 Main Street, Baileyville, Maine

B. NSR License Description

Woodland Pulp LLC (Woodland Pulp) has applied for a New Source Review (NSR) Minor Modification license to conduct temporary trials of alternative black liquor firing scenarios for the #3 Recovery Boiler. In this pollution minimization and control optimization project, the facility will explore alternative scenarios to improve energy and production efficiencies over a six-month period and has requested a temporary increase in the unit's CO lb/hour limit with an overall mass emission increase limit to accommodate this exploration. Woodland Pulp has also requested temporary NO_x emission limits adjustments for the trial period in anticipation of changes that could result from the tested scenarios.

In accordance with state and federal guidance, there is no need to amend the facility's Part 70 license for these temporary adjustments.

C. Emission Equipment

The following equipment is addressed in this NSR license:

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate	Primary Fuels	Stack #
#3 Recovery Boiler	1,207 MMBtu/hour	To Be Determined *	Black Liquor #6 Fuel Oil Natural Gas	02

*Though identified in the facility's Part 70 license as 5.2 MMlb dry BLS/day, 23,550 lb/hr #6 fuel oil, and 490,000 cfh natural gas, these values may be modified temporarily as part of this trial and may be more permanently modified as informed by the results of this trial.

D. Application Classification

All rules, regulations, or statutes referenced in this air emission license refer to the amended version in effect as of the issued date of this license.

The application to conduct temporary trials of alternative scenarios for black liquor firing in the #3 Recovery Boiler does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing, or recordkeeping requirements. However, this application to conduct trials to identify operating configurations for the #3 Recovery Boiler and the mill which result in overall reduced environmental impact does seek to temporarily modify a Best Available Control Technology (BACT) analysis performed per New Source Review for the duration of the trial.

The modification of a major source is considered a major or minor modification based on whether or not expected emissions increases exceed the "Significant Emission Increase" levels as given in *Definitions Regulation*, 06-096 Code of Maine Rules (C.M.R.) ch. 100. The maximum emission increases from this trial are presented in the table below, and the results of this comparison are as follows:

Pollutant	Maximum Emission Increases (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	0	25
PM_{10}	0	15
$PM_{2.5}$	0	10
SO_2	0	40
NO_x	13	40
CO	80	100
VOC	0	40
CO_2e	< 75,000	75,000

Note: The above values are for the #3 Recovery Boiler only. None of the other equipment at the facility is affected by this NSR license.

Therefore, this NSR license is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations,* 06-096 C.M.R. ch. 115 since the adjustments being made are temporary in nature and are not addressed or prohibited in the Part 70 air emission license, in agreement with the considerations explained in the following paragraph.

Item (A)(114) of Appendix B of state regulation *Part 70 Air Emission License Regulations*, 06-096 C.M.R. ch. 140 states that temporary air emission related activities which are granted approval from the Department are exempt from being included in a Chapter 140 license. Because the alternate operating scenarios for #3 Recovery Boiler investigated during this trial period to identify energy use and production efficiencies are temporary in nature and are approved by the Department, any increases in emissions realized during the trial period above emissions as licensed from normal operational scenarios are considered to be insignificant and are not required to be included in the facility's Part 70 license. All emissions are required to be reported as part of the annual emissions reporting per *Emission Statements*, 06-096 C.M.R. ch. 137; however, emissions from the #3 Recovery Boiler over currently licensed values which may result from this trial are considered insignificant and not to be considered in the annual compliance certification required by Special Condition (40) of the facility's Part 70 license, A-215-70-I-R/A (November 18, 2011).

Usually, an application to incorporate the requirements of a NSR license into the Part 70 air emission license for permanent changes is required to be submitted to the Department no later than 12 months from commencement of the requested operation; however, due to the temporary nature of these changes, no incorporation of these temporary changes are necessary. If Woodland Pulp determines alternate operating scenarios for use on an ongoing basis, a Part 70 license amendment application would be required to be submitted within the 12-month time period identified above.

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 C.M.R. ch. 100. 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 C.M.R. ch. 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts. Before

presenting the BACT determination, specifics of the project are described in the following section.

B. #3 Recovery Boiler Black Liquor Firing Trial

1. Project Description

Woodland Pulp proposes to conduct trials to minimize overall environmental impacts from the #3 Recovery Boiler by identifying environmentally optimal black liquor firing rates and to refine the balance between NO_x and CO emissions under various black liquor firing scenarios. The facility has requested this NSR license to accommodate the exploration of various alternate operating scenarios for black liquor firing in the #3 Recovery Boiler. Specifically, the facility has requested the following adjustments to the licensed emission limits for #3 Recovery Boiler for the six-month trial period:

- Increase of the CO lb/hr emission limit from 235 lb/hour to 350 lb/hour (24-hour average);
- Cap the increase in CO emissions during the trial period to no greater than 80 tons;
- Allow an additional 40 higher NO_x caps, in addition to the 60 higher NO_x caps for a 12-month rolling period as currently allowed in the facility's Part 70 license; and
- Raise the 80 ppm (dry basis, 30-day average) NO_x limit to 164 ppm (dry basis, 30-day average) to provide additional flexibility during this trial.

The facility has made some significant changes in the last five years, including converting the largest combustion units (#9 Power Boiler, #3 Recovery Boiler, and Lime Kiln) from #6 fuel oil to natural gas as the primary fuel. Specific to the #3 Recovery Boiler, a licensed project was completed in 2015 to burn non-condensable gases (NCGs), stripper off-gases (SOGs), and high volume, low concentration gases (HVLCs) in the #3 Recovery Boiler, the primary incineration point for those gases. This project resulted in the facility being able to recapture some sulfur in the liquor cycle and to utilize the #9 Power Boiler as the back-up incineration point. Importantly, this project allowed the NCG Incinerator, an additional fuel burning source of combustion emissions, to be retired from service.

Prior to requesting this NSR license, the facility has researched and explored ways to improve the #3 Recovery Boiler's performance while maintaining environmental compliance. Research has included the following:

- Conducted trials with different design liquor nozzles, spray angles, pressures;
- Explored changes and evaluations of black liquor chemistry;
- Consulted with peer mills and recognized industry experts;

- Implemented mechanical and electrical control upgrades to the electrostatic precipitator (ESP); and
- Have hosted original manufacturer and independent consultant visit and review of this facility's black liquor firing practices.

The facility plans to continue exploration and refinement of the #3 Recovery Boiler operation under the allowances requested in this NSR license. The outcome from improved energy use and production efficiencies for the #3 Recovery Boiler is anticipated to result in greater control equipment efficiency and lower particulate matter emissions.

Woodland Pulp will continue to operate the #3 Recovery Boiler under normal operating conditions during this trial, which will not affect the established control equipment and required monitoring. The facility will continue to operate all licensed equipment in accordance with license requirements and best practices to minimize emissions.

2. Emission Limitations Accommodations for the Six-Month Trial Period

   a. Nitrogen Oxides (NO_x)

      (1) The facility has requested an additional 40 higher NO_x caps to supplement the 60 higher NO_x caps for a 12-month rolling period as currently allowed in the facility's Part 70 license.

      This higher NO_x caps allowance was established per NO_x Reasonably Available Control Technology (RACT) in A-215-71-S-A (2/25/1997, Amendment #16). As licensed, Woodland Pulp is allowed to comply with an alternate, higher lb/hour NO_x emission limit from the #3 Recovery Boiler up to 60 times per year, on a 12-month rolling total basis. NO_x emissions from the #3 Recovery Boiler are normally limited to 143.3 lb/hour (24-hour block average), and NO_x emissions from the #9 Power Boiler are normally limited to 186 lb/hour (24-hour block average), with a combined NO_x emission limit for both units of 329.3 lb/hour (24-hour block average). On occasions when NO_x emissions from the #3 Recovery Boiler exceed 143.3 lb/hour, an alternate limit of 170.3 lb/hour (24-hour block average) applies, with the caveat that at all times the combined NO_x emission limit of 329.3 lb/hour (24-hour block average) from both the #3 Recovery Boiler and the #9 Power Boiler shall apply.

      The addition of 40 more times per 12-month rolling total of allowed utilization of the alternate, higher NO_x lb/hour limit is not expected to cause ambient air quality concerns. The facility's NCG Incinerator, licensed to emit up to 39.6 tons/year of NO_x, is no longer in operation due to configuration changes in the combustion control of non-condensable gases (NCGs). With the addition of 40 more 24-hour

periods at the higher lb/hour emission rate, the maximum total additional NO_x emissions is 13 tons/year. In addition, the NCG Incinerator's stack is substantially shorter than the #3 Recovery Boiler's stack. Emission of this lesser quantity of NO_x from the taller stack with hotter plume temperature provides assurance of continued compliance with ambient air quality standards.

(2) The facility has also requested the temporary raising of the NO_x ppm emission limit (dry basis, 30-day average) from 80 to 164 ppm (dry basis, 30-day average) to provide additional flexibility during this trial.

The NO_x emission limit of 80 ppm (30-day rolling average basis) was established as BACT in air emission license A-215-71-B-A/R (4/12/1989). License Amendment A-215-71-N-A (11/8/1993) establishes this limit with the averaging period as a clarification of the original BACT (no averaging time was included in the original BACT). With the compliance with the facility's licensed short-term NO_x concentration limit (164 ppm, 24-hour block average basis), the lb/hour limit, and the tons/year limit, ambient air quality standards will be protected, and the Department concurs with the proposal to allow greater flexibility during the trial period.

b. Carbon Monoxide (CO)

The facility has requested the increase of the CO lb/hour emission limit from 235 lb/hour to 350 lb/hour (24-hour average), with a cap on the increase of CO emissions during this trial period to no greater than 80 tons.

The CO emission limit of 235 lb/hour (24-hour block average basis) was established as BACT in air emission license A-215-71-B-A/R (4/12/1989). In order to provide flexibility to explore alternate black liquor firing scenarios, Woodland Pulp's CO lb/hour limit shall be temporarily increased to the higher value. Woodland Pulp shall determine the actual CO emissions during this trial period using data from the CO continuous emissions monitoring system (CEMS) already in operation on the unit.

Based on the results of ambient air quality impact modeling analyses previously conducted for this facility, the Department finds that this increase in CO emissions from the #3 Recovery Boiler will not adversely impact ambient air quality standards and hereby approves this temporary adjustment.

With the exception of those licensed emission limits expressly described above, Woodland Pulp shall continue to comply with all licensed emissions standards, controls, and recordkeeping and reporting requirements.

3. Department Determination

The Department hereby authorizes the following CO and NO_x emission limits for a six-month trial period during which Woodland Pulp will explore alternate operating scenarios for black liquor firing in the #3 Recovery Boiler:

- Increase of the CO lb/hr emission limit from 235 lb/hour to 350 lb/hour (24-hour average);
- Cap the increase in CO emissions during the trial period to no greater than 80 tons;
- Allow an additional 40 higher NO_x caps, in addition to the 60 higher NO_x caps for a 12-month rolling period as currently allowed in the facility's Part 70 license; and
- Raise the 80 ppm (dry basis, 30-day average) NO_x limit to 164 ppm (dry basis, 30-day average).

For the duration of the trial, Woodland Pulp shall not operate the NCG Incinerator.

Woodland Pulp shall monitor the ongoing CO emissions totals and document compliance with the above limits for the duration of the trial.

C. Incorporation into the Part 70 Air Emission License

The requirements in this 06-096 C.M.R. ch. 115 New Source Review license shall apply to the facility upon issuance. Per 06-096 C.M.R. ch. 140 § 1(C)(8), for a modification at the facility that has undergone NSR requirements or been processed through 06-096 C.M.R. ch. 115, the source must apply for an amendment to their Part 70 license within one year of commencing the proposed operations, as provided in 40 C.F.R. Part 70.5. Due to the temporary nature of the changes addressed in this NSR license, however, no incorporation of the temporary changes into the Part 70 license is necessary. If Woodland Pulp determines alternate operating scenarios for use on an ongoing basis, a Part 70 license amendment application to incorporate those alternate operating scenarios would be required to be submitted within the 12-month time period identified above.

III. AMBIENT AIR QUALITY ANALYSIS

Woodland Pulp 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 (A-215-71-AC-A, dated October 6, 1999). Based on modeled impact values, the projected worst-case increases from this six-month trial period, and the temporary nature of the changes authorized in this NSR license, the Department has determined that an additional ambient air quality analysis is not required for this NSR license.

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-215-77-12-A pursuant to the preconstruction licensing requirements of 06-096 C.M.R. ch. 115 and subject to the specific conditions below.

Severability. The invalidity or unenforceability of any provision of this License or part thereof 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) #3 Recovery Boiler: NO_x and CO Emission Limits for a Six-Month Trial

A. Woodland Pulp shall notify the Department prior to commencement of the six-month trial authorized by this NSR license, such notice to include the targeted conclusion date of the trial.

B. NO_x Emission Limits

1. Woodland Pulp, authorized in Special Condition (16)A. of Part 70 license A-215-70-I-R/A (November 18, 2011) to utilize up to 60 higher NO_x cap allowances on a 12-month rolling total basis, is authorized to utilize an additional 40 higher NO_x cap allowances per 12-month rolling period resulting from this trial.

2. For the duration of the trial authorized by this NSR license, Woodland Pulp is permitted to raise the 80 ppm NO_x limit to 164 ppm, dry basis, on a 30-day rolling average basis. The facility shall continue to comply with the short-term NO_x concentration limit, the lb/hour limit, and the tons/year limit as currently licensed.

3. The facility shall monitor and record actual emissions of NO_x, as currently required, and shall document all instances when each of the above NO_x emission limit variances is utilized for accommodation of this trial.

C. CO Emission Limits

1. For the duration of the trial authorized by this NSR license, CO emissions from the #3 Recovery Boiler shall not exceed 350 lb/hour on a 24-hour block average basis.

2. For the duration of the trial authorized by this NSR license, the total increase in CO emissions from the #3 Recovery Boiler over the currently license allowed level shall not exceed 80 tons.

3. Woodland Pulp shall monitor the actual CO emissions, as currently required, and document compliance with the above emission limits.

4. For the duration of the trial, Woodland Pulp shall not operate the NCG Incinerator and shall maintain records documenting compliance with this condition.

D. After four months of the trial have been completed, Woodland Pulp shall provide to the Department a report of the trial results to date, including the following:

1. Operational variables and scenarios experimented with;

2. The number of times, with actual values and durations, the NO_x concentration of emissions were above 80 ppm (dry basis, 30-day average);

3. The number of higher NO_x cap allowances utilized during the trial so far;

4. Actual CO lb/hr emissions data above 235 lb/hour (24-hour average); and

5. A summary of information acquired by the facility as a result of the trial so far, and possible projected results or outcomes, if available at that time, concerning Woodland Pulp's intent to pursue permanent air emission license changes to accommodate one or more alternate operating scenarios identified during this trial.

(2) NSR License Incorporation into the Part 70 License

If Woodland Pulp determines alternate operating scenarios from this trial for use on an ongoing basis, the facility shall submit an application to incorporate this NSR license into the facility's Part 70 air emission license no later than 12 months from commencement the trial period. [06-096 C.M.R. ch. 140 § 1(C)(8)]

DONE AND DATED IN AUGUSTA, MAINE THIS 13 DAY OF March , 2017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PAUL MERCER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 11/21/2016
Date of application acceptance: 11/22/2016

Date filed with the Board of Environmental Protection:

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

Filed
MAR 15 2017
State of Maine
Board of Environmental Protection