



DEPARTMENT ORDER

Moose River Lumber Company, Inc.
Somerset County
Moose River, Maine
A-779-77-2-A

Departmental
Findings of Fact and Order
New Source Review
NSR #2

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	Moose River Lumber Company, Inc.
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	321113
NATURE OF BUSINESS	Lumber and Wood Products Manufacturer
FACILITY LOCATION	25 Tapley Road, Moose River, Maine

B. NSR License Description

Moose River Lumber Company, Inc. (MRL) has requested a New Source Review (NSR) license in order to construct and operate two new lumber kilns (Kilns #4 and #5).

C. Emission Equipment

The following equipment is addressed in this NSR license:

Fuel Burning Equipment

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate (ton/hr)	Fuel Type, % moisture	Manuf. Date	Install. Date	Stack #
Boiler #1	15.3	1.0	Wood, 15%	1988	1988	1
Boiler #4	29.4	2.2	Wood, 25%	2008	2008	4

Traditionally, Boiler #4 (also referred to as the Hurst Boiler) has provided primary heat for the facility and the kilns. Boiler #1 (also referred to as the Industrial Boiler) has been used as a backup to Boiler #4 and to provide supplemental heat during the winter. With the

addition of Kilns #4 and #5, Boiler #1 may be utilized more to heat the kilns. Therefore, both boilers have been conservatively considered units affected by this modification.

MRL also previously had a small bark boiler (Boiler #2). Boiler #2 has been dismantled and removed from the site.

Process Equipment

Equipment	Maximum Production Rate	Pollution Control Equipment
Kiln #4	32 MMBF/year*	none
Kiln #5	32 MMBF/year*	none

*Although each kiln is designed to be able to process up to 32 MMBF/year, the facility shall be restricted to a throughput of 33.5 MMBF/year for Kilns #4 and #5 combined. This restriction is necessary to limit emissions from this project to minor source levels.

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 for MRL does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing, or recordkeeping requirements.

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. For a major stationary source, the expected emissions increase from each modified or affected unit may be calculated as equal to the difference between the post-modification projected actual emissions and the baseline actual emissions for each NSR regulated pollutant.

1. Baseline Actual Emissions

Baseline actual emissions are equal to the average annual emissions from any consecutive 24-month period within the ten years prior to submittal of a complete license application. The selected 24-month baseline period can differ on a pollutant-by-pollutant basis. MRL has proposed using calendar years 2015/2016 as the 24-month baseline period from which to determine baseline actual emissions for all pollutants for emission units affected as part of this project. The results of this baseline analysis are presented in the table below.

Baseline Actual Emissions (2015-2016 Average)

Equipment	PM (ton/yr)	PM₁₀ (ton/yr)	PM_{2.5} (ton/yr)	SO₂ (ton/yr)	NO_x (ton/yr)	CO (ton/yr)	VOC (ton/yr)
Boiler #1	1.85	1.85	1.10	0.17	3.36	4.11	0.48
Boiler #4	23.56	23.56	13.97	2.36	32.17	56.76	1.61
Total	25.41	25.41	15.07	2.53	35.53	60.87	2.09

2. Projected Actual Emissions

Projected actual emissions are the maximum actual annual emissions anticipated to occur in the ten-year period following completion of the proposed project.

New emission units (e.g., Kilns #4 and #5) must use potential-to-emit emissions for projected actual emissions. MRL has proposed a federally-enforceable license limit on annual throughput for these kilns of 33.5 MMBF/year total. This limitation is necessary to limit emissions increases of PM₁₀ from the boilers to less than 15 tpy. Potential-to-emit emissions for Kilns #4 and #5 are based on this limitation.

Affected equipment includes upstream activities such as the boilers. Emissions increases from the boilers have been conservatively estimated by calculating emissions from the additional heat input required to dry the added 33.5 MMBF/year from the new kilns.

The results of this projected actual emissions analysis are presented in the table below.

Projected Actual Emissions

Equipment	PM (ton/yr)	PM₁₀ (ton/yr)	PM_{2.5} (ton/yr)	SO₂ (ton/yr)	NO_x (ton/yr)	CO (ton/yr)	VOC (ton/yr)
Boilers #1 & #4 (combined)	40.33	40.33	23.03	3.77	59.90	90.72	4.03
Kilns #4 and #5 (combined)	—	—	—	—	—	—	21.48
Total	40.33	40.33	23.03	3.77	59.90	90.72	25.51

3. Emissions Increases

The differences between the baseline actual emissions and projected actual emissions are compared to the significant emissions increase levels.

Pollutant	Baseline Actual Emissions 2015/2016 (ton/year)	Projected Actual Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	25.41	40.33	14.93	25
PM ₁₀	25.41	40.33	14.93	15
PM _{2.5}	15.07	23.03	7.96	10
SO ₂	2.53	3.77	1.24	40
NO _x	35.53	59.90	24.38	40
CO	60.87	90.72	29.85	100
VOC	2.09	25.51	23.42	40

4. Classification

Since emissions increases do not exceed significant emissions increase levels, 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.

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 operation of either Kiln #4 or #5.

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.

B. Kilns #4 and #5

MRL currently utilizes three kilns for the drying of lumber. They have proposed the installation of two new kilns (Kilns #4 and #5). Each of the new kilns will have a maximum throughput capacity of 32 MMBF/year and will dry predominantly spruce and fir.

The only criteria pollutant emitted from Kilns #4 and #5 will be VOCs which are driven out of the wood during the drying process. Emissions from Kilns #4 and #5 were calculated based on an emission factor developed by the University of Maine of 1.283 pounds of VOC for every 1,000 board feet (MBF) dried. Add-on controls for emissions of VOC from Kilns #4 and #5 are not economically feasible because of the small pollutant concentration, the high moisture content, and the high volume of the vent exhaust gases.

In order to limit emissions increases from this project to minor source levels, MRL has proposed an annual throughput limit for Kilns #4 and #5 of 33.5 MMBF/year (both kilns combined). Therefore, BACT for VOC emissions from Kilns #4 and #5 shall be a combined throughput limit of 33.5 MMBF/year based on a 12-monthly rolling total. Compliance shall be demonstrated by monthly and 12-month rolling total records of the board feet of lumber dried in Kilns #4 and #5.

C. Facility-Wide Kiln Throughput

MRL is subject to a facility-wide kiln throughput limit. With the addition of Kilns #4 and #5 the facility-wide throughput limit will be raised from 98 MMBF/year to 131.5 MMBF/year. At this level MRL maintains its classification as an area source of HAP.

D. HAP Emissions

Emission factors for HAPs from the drying of lumber are included in the *Handbook of Substance-Specific Information of National Pollutant Release Inventory Reporting*, also known as the "NPRI Handbook," issued by the National Council for Air and Stream Improvement (NCASI). The NPRI Handbook is designed to assist NCASI's Canadian members with reporting requirements under Environment Canada's NPRI program which is similar to EPA's Toxics Release Inventory (TRI) reporting program. Additionally, Environment Canada publishes these same emission factors on their website for use in emissions reporting.

The NPRI Handbook provided emissions data for white spruce and black spruce. To establish appropriate emission factors for the predominant wood species processed at MRL (red spruce and fir), the average of the data for white and black spruce was used. This is consistent with the methodology used for other similar facilities within the state.

The emission factors used were as follows:

Pollutant	lb/MBF
Acetaldehyde	8.65×10^{-2}
Acrolein	1.15×10^{-3}
Benzene	1.55×10^{-5}
Formaldehyde	8.00×10^{-3}
Methanol	1.285×10^{-1}
Methyl Isobutyl Ketone	2.55×10^{-3}
Toluene	2.50×10^{-4}

Based on these emission factors and a throughput limit of 131.5 MMBF/year, MRL will be limited to a maximum single HAP emission of less than 9.9 tpy and total HAP emissions of less than 24.9 tpy.

E. 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 *Part 70 Air Emission License Regulations*, 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.

F. Annual Emissions

1. Emission Totals

MRL is licensed for the following annual emissions, based on a 12-month rolling total. The tons per year limits were calculated based on the following:

- Operating each of the boilers for 8,760 hr/year
- Operating Generator #1 for 100 hr/year
- A kiln throughput of 131.5 MMBF/year

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

	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Boiler #1	20.1	20.1	1.7	32.8	40.2	2.6
Boiler #4	38.6	38.6	3.2	43.8	77.3	2.2
Generator #1	–	–	–	0.4	0.1	–
Kilns	–	–	–	–	–	84.4
Total TPY	58.7	58.7	4.9	77.0	117.6	89.2

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

2. Greenhouse Gases

Greenhouse gases are considered regulated pollutants as of January 2, 2011, through ‘Tailoring’ revisions made to EPA’s *Approval and Promulgation of Implementation Plans*, 40 C.F.R. Part 52, Subpart A, § 52.21, *Prevention of Significant Deterioration of Air Quality* rule. Greenhouse gases, as defined in 06-096 C.M.R. ch. 100 are the aggregate group of the following gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO₂e).

The quantity of CO₂e emissions from this facility is less than 100,000 tons per year, based on the following:

- the facility’s operating restrictions;
- worst case emission factors from the following sources: U.S. EPA’s AP-42, the Intergovernmental Panel on Climate Change (IPCC), and *Mandatory Greenhouse Gas Reporting*, 40 C.F.R. Part 98,; and
- global warming potentials contained in 40 C.F.R. Part 98.

No additional licensing actions to address GHG emissions are required at this time.

III. AMBIENT AIR QUALITY ANALYSIS

MRL 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 license A-779-77-1-A). 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,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants New Source Review License A-779-77-2-A pursuant to the preconstruction licensing requirements of 06-096 C.M.R. ch. 115 and subject to the standard and special 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) **Kilns #4 and #5**

- A. MRL is licensed to install and operate Kilns #4 and #5. Kilns #4 and #5 combined shall not exceed a throughput of 33.5 MMBF of lumber per year on a 12-month rolling total basis. Compliance shall be demonstrated by monthly and 12-month rolling total records of the board feet of lumber dried in Kilns #4 and #5. [06-096 C.M.R. ch. 115, BACT]
- B. MRL shall be limited to drying a total of 131.5 MMBF/year in the all of the facility's drying kilns combined, based on a 12-month rolling total. [06-096 C.M.R. ch. 115, BACT]

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- (2) MRL 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 of the requested operation. [06-096 C.M.R. ch. 140 § 1(C)(8)]

DONE AND DATED IN AUGUSTA, MAINE THIS 30 DAY OF November, 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: 9/28/17

Date of application acceptance: 10/2/17

Date filed with the Board of Environmental Protection:

This Order prepared by Lynn Muzzey, Bureau of Air Quality.

