



DEPARTMENT ORDER

**Irving Forest Products, Inc.
Oxford County
Dixfield, Maine
A-409-77-2-A**

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

FINDINGS OF FACT

After review of the air emission license amendment 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	Irving Forest Products, Inc.
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	321912, 321113, 321999
NATURE OF BUSINESS	Lumber Manufacturer
FACILITY LOCATION	24 Hall Hill Road, Dixfield, Maine

B. NSR License Description

Irving Forest Products, Inc. (IFP) has requested an amendment to New Source Review (NSR) license A-409-77-1-A (issued 3/14/2008) to reestablish the facility's kiln throughput limit.

Air emission license A-409-77-1-A (NSR #1) relaxed the throughput limit for the facility's drying kilns from 80 million board feet (MMBF) per year to 101.55 MMBF per year. At the time this was determined to be a permitted emission increase of 38.5 ton per year (tpy) of volatile organic compounds (VOC), a level that would ensure the modification remained minor. However, the calculation looked at VOC emissions from all licensed equipment at the facility instead of only the equipment affected by the project. Therefore, IFP has requested amending NSR #1 to reestablish a new kiln throughput limit based on an emission increase of 39.9 tpy of VOC from affected equipment only.

C. Emission Equipment

The following equipment is addressed in this NSR license amendment:

Process Equipment

Equipment	Maximum Production Rate
Drying Kilns #1 - 11	190,000 BF per cycle per kiln

D. Acronym List

BACT	Best Available Control Technology
BF	Board Feet
BPT	Best Practical Treatment
C.F.R.	Code of Federal Regulations
C.M.R.	Code of Maine Rules
CO	Carbon Monoxide
CO _{2e}	Carbon Dioxide equivalent
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutants
lb	pound
MMBF	Million Board Feet
MBF	Thousand Board Feet
M.R.S.	Maine Revised Statutes
NCASI	National Council for Air and Stream Improvement
NO _x	Nitrogen Oxides
NSR	New Source Review
PM	Particulate Matter less than 100 microns in diameter
PM ₁₀	Particulate Matter less than 10 microns in diameter
PM _{2.5}	Particulate Matter less than 2.5 microns in diameter
SO ₂	Sulfur Dioxide
tpy or ton/year	ton per year
VOC	Volatile Organic Compounds *

E. 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 IFP 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. Since IFP is essentially re-licensing the change addressed in NSR #1, the baseline period must be in the ten years prior to the February 2008 license application submittal. IFP has proposed using calendar years 2005/2006 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 (2005-2006 Average)

Equipment	VOC (ton/year)
Drying Kilns #1 – 11	82.2
Total	82.2

The facility's boilers are not considered affected emission units for the purposes of this licensing action. The kilns are batch units with a set volume that operate for the maximum number of cycles per year. The increase in kiln throughput does not appreciably affect steam demand from the boilers as the boilers continue to heat the same kiln volume over the same amount of time. Increases in throughput are realized by changing the configuration of the lumber loaded into the kiln allowing for more efficient use of the existing kiln space, i.e. more board feet are packed into the same volume. Since the available kiln space remains constant, so does the amount of steam required to heat the space. This assumption is borne out by emissions inventory data which shows boiler fuel usage actually declined over the last ten years even as kiln throughput increased.

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. IFP has

conservatively used potential-to-emit emission values (based on a kiln throughput cap) for projected actual emissions.

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

Projected Actual Emissions

Equipment	VOC (ton/year)
Drying Kilns #1 – 11	122.1
Total	122.1

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 2005/2006 (ton/year)	Projected Actual Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
VOC	82.2	122.1	+39.9	40

4. Classification

Since emissions increases do not exceed significant emissions increase levels, this NSR license amendment is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations*, 06-096 C.M.R. ch. 115.

IFP has submitted an application to incorporate the requirements of this NSR license into the facility's Part 70 air emission license.

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 #1 – 11

IFP utilizes eleven kilns for the drying of lumber. Prior to 2008, IFP was limited to a kiln throughput of 80 MMBF per year. This throughput limit was relaxed in 2008 by NSR #1 to 101.55 MMBF per year. IFP has proposed the amendment of NSR #1 to further increase the throughput limit to 108.05 MMBF per year.

The only criteria pollutant emitted from Kilns #1 – 11 is VOC which is driven out of the wood during the drying process. IFP predominantly dries eastern white pine. Emissions from Kilns #1 – 11 were calculated based on an emission factor of 2.26 pounds of VOC for every 1,000 board feet dried. This emission factor was developed by the National Council for Air and Stream Improvement (NCASI) and published in Technical Bulletin No. 718 dated July 1996. NCASI is a research organization for the pulp and paper industry of the United States and Canada.

Add-on controls for emissions of VOC from Kilns #1 – 11, including thermal oxidizers and scrubbers, are not economically feasible because of the low 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, IFP has proposed an annual throughput limit for Kilns #1 – 11 of 108.05 MMBF per year (all kilns combined). Therefore, BACT for VOC emissions from Kilns #1 – 11 shall be a combined throughput limit of 108.05 MMBF per 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 #1 – 11.

C. 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. Although IFP dries pine lumber in their kilns, these are the only emission factors found to be available for species native to the Northeast. To establish appropriate emission factors, 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, the currently licensed kiln throughput limit of 108.05 MMBF per year, and the currently licensed restrictions on the facility's other emissions equipment, IFP is limited to a maximum single HAP emission of less than 9.9 tpy and total HAP emissions of less than 24.9 tpy. Therefore, IFP is classified as an area source of HAP.

D. Annual Emissions

1. Emission Totals

IFP 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:

- Operation of Boilers #1, #2, and #4 at 100% for 8,760 hours per year firing 50% moisture wood.
- 500 hours per year operation for Fire Pump #1.
- Maximum throughput in the kilns of 108.05 MMBF/yr.

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
Boilers #1	15.8	15.8	1.3	21.0	26.3	0.9
Boiler #2	15.8	15.8	1.3	21.0	26.3	0.9
Boiler #4	54.6	54.6	5.1	80.9	101.2	3.4
Fire Pump #1	0.1	0.1	0.1	2.2	0.5	0.2
Wood Drying Kilns	-	-	-	-	-	122.1
Total TPY	86.3	86.3	7.8	125.1	154.3	127.5

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 fuel use limits;
- 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

IFP 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-409-71-O-A, issued on 1/19/01). An additional ambient air quality analysis is not required for this NSR license 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.

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Dixfield, Maine
A-409-77-2-A

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Departmental
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The Department hereby grants New Source Review License Amendment A-409-77-2-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

The following shall replace Condition (1) of Air Emission License A-409-77-1-A:

(1) **Drying Kilns**

- A. IFP shall be limited to drying a total of 108,050,000 BF (108.05 MMBF) of lumber per year in the facility's drying kilns based on a 12-month rolling total.
[06-096 C.M.R. ch. 115, BACT]
- B. IFP shall maintain records indicating the quantity of wood dried (in BF) and VOC emissions. VOC emissions shall be calculated using an emission factor of 2.26 pounds of VOC per 1,000 BF. The kiln record shall be maintained on a monthly and a 12-month rolling total basis. [06-096 C.M.R. ch. 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 18 DAY OF July, 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Come for
PAUL MERCER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 6/11/18

Date of application acceptance: 6/12/18

Date filed with the Board of Environmental Protection:

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

