



DEPARTMENT ORDER

Daaquam Lumber Maine Inc.
Aroostook County
Masardis, Maine
A-165-77-5-A

Departmental
Findings of Fact and Order
New Source Review
NSR #5

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	Daaquam Lumber Maine Inc.
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	321113
NATURE OF BUSINESS	Lumber Manufacturer
FACILITY LOCATION	Rt 11, Masardis, Maine

B. NSR License Description

Daaquam Lumber Maine Inc. (Daaquam) has requested a New Source Review (NSR) license to replace six existing lumber drying kilns (Kilns #5-#10) with four new larger capacity lumber drying kilns.

C. Emission Equipment

The following equipment is addressed in this NSR license:

Process Equipment

Equipment	Production Rate
<i>Drying Kilns (6)*</i>	<i>101.4 million board feet/year</i>
Drying Kilns (4)	120.0 million board feet/year

* Removed from license.

D. Definitions

Records or Logs mean either hardcopy or electronic records.

E. Project Description

Daaquam has proposed a two-phase dry kiln replacement project that will replace six existing lumber drying kilns manufactured and installed in 1979 with four new, larger-capacity lumber drying kilns. This upgrade is expected to increase Daaquam's annual lumber kiln drying capacity by 20%, improve drying efficiency, and reduce maintenance costs and energy consumption.

The project will be carried out in two phases. Phase one will involve the installation of two rail-loading lumber drying kilns, each with a holding capacity of 250,000 board feet (BF), which will replace two of Daaquam's existing kilns. Phase two will replace the four remaining existing kilns with two additional rail-loading lumber drying kilns. This second pair of new kilns will have a holding capacity of 150,000 BF each. Phases one and two are expected to be completed in 2023 and 2024, respectively.

This kiln replacement project does not seek to change Daaquam's existing kiln throughput limit of 152 million board feet (MMBF) per year, based on a 12-month rolling total. This limit was established in Air Emission License A-165-70-C-A (issued 1/10/2007) as an upper limit to kiln throughput at which Daaquam could remain an area source of HAP emissions. The actual physical throughput capabilities of the existing kilns are below this limit at 101.4 MMBF/yr. The throughput capabilities of the new kilns will also be below this limit at 120 MMBF/yr.

F. 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 the kiln replacement project 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 new, 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 (BAE) 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. Daaquam has proposed using 1/2020 – 12/2021 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.

BAE for existing modified and affected equipment are based on actual annual emissions reported to the Department through *Emissions Statements*, 06-096 C.M.R. ch. 137. Baseline emissions for the kilns were calculated using the reported kiln throughput in the baseline period and an emission factor developed by the University of Maine¹ of 1.283 pounds of VOC for every 1,000 board feet of lumber dried (lb/MBF).

BAE for new equipment are considered to be zero for all pollutants.

The results of this baseline analysis are presented in the table below.

Baseline Actual Emissions (1/2020 – 12/2021 Average)

Equipment	PM (tpy)	PM₁₀ (tpy)	PM_{2.5} (tpy)	SO₂ (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)
Drying Kilns (6)*	0.0	0.0	0.0	0.0	0.0	0.0	52.44
Total	0.0	0.0	0.0	0.0	0.0	0.0	52.44

*Existing kilns – to be removed.

2. Projected Actual Emissions

Projected actual emissions (PAE) are the maximum actual annual emissions anticipated to occur in any one of the five years (12-month periods) following the date existing units resume regular operation after the project or any one 12-month period in the ten years following if the project involves increasing the unit's design capacity or its potential to emit of a regulated pollutant.

New emission units must use potential to emit emissions for projected actual emissions.

This project includes the installation of four new drying kilns. PAE from the kilns is based on the maximum combined production rate of 120 MMBF/yr and a VOC emission factor of 1.283 lb/MBF.

¹ R.W. Rice and L Zibilske, "Estimated VOC Losses During the Drying of Five Northeastern Species," Forest Products Journal 49, no. 11/12 (1999).

Affected equipment includes any new or physically modified equipment as well as upstream or downstream activities. Although this project will increase the board feet holding capacity of Daaquam’s kiln infrastructure, an increase in steam demand from the boiler house is not anticipated. The existing kilns are worn and have evidence of deterioration on the walls, roof, and foundations, where steam/heat loss is beginning to play a factor in drying times and steam consumption. Replacing this old infrastructure with new, more efficient kilns, will result in an increase in drying capacity without the need for a higher fuel demand on the boiler house. Therefore, the boilers are not considered affected equipment for this project.

Projected actual emissions from the new lumber drying kilns are shown below.

Projected Actual Emissions

Equipment	PM (tpy)	PM₁₀ (tpy)	PM_{2.5} (tpy)	SO₂ (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)
Drying Kilns (4)	0.0	0.0	0.0	0.0	0.0	0.0	76.86
Total	0.0	0.0	0.0	0.0	0.0	0.0	76.98

3. Emissions Increases

Emissions increases are calculated by subtracting BAE and excludable emissions from the PAE. The emission increase is then compared to the significant emissions increase levels.

Pollutant	Baseline Actual Emissions 01/20 – 12/21 (ton/year)	Projected Actual Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	0.0	0.0	0.0	25
PM ₁₀	0.0	0.0	0.0	15
PM _{2.5}	0.0	0.0	0.0	10
SO ₂	0.0	0.0	0.0	40
NO _x	0.0	0.0	0.0	40
CO	0.0	0.0	0.0	100
VOC	52.44	76.86	24.42	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. Daaquam 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

Daaquam will be installing four new kilns to replace the existing six kilns. The kilns are used to dry lumber before sale. Heat for the kilns is provided by Boiler #1. The new kilns will be installed in 2023 and 2024, and will have a combined holding capacity of approximately 800,000 BF. The species of wood dried is primarily spruce and fir.

1. Criteria Pollutants

The criteria pollutant emitted by drying kilns is VOC. Daaquam has proposed an emission factor of 1.283 lb/MBF, based on the University of Maine study referenced in section I.F.1. above. The existing annual throughput and VOC limits shall continue to apply. Daaquam shall continue to be limited to the drying of no more than 152 MMBF/yr with resulting VOC emissions from the kilns of no more than 97.5 ton/yr, both based on a 12-month rolling total.

2. Hazardous Air Pollutants

Potential emissions of total HAP are estimated to be less than 24.9 tpy based on averaging the emission factors for white and black spruce contained in the *Handbook of Substance-Specific Information for National Pollutant Release Inventory Reporting*, also known as the NPRI Handbook published by the National Council for Air and Stream Improvement (NCASI). This total is predominantly comprised of acetaldehyde (6.6 tpy) and methanol (9.8 tpy). When reporting actual HAP emissions pursuant to 06-096 C.M.R. ch. 137, Daaquam shall use the following emission factors (or other methods approved by the Department).

Pollutant	lb/MBF
Acetaldehyde	8.65 x 10 ⁻²
Acrolein	1.15 x 10 ⁻³
Benzene	1.55 x 10 ⁻⁵
Formaldehyde	8.00 x 10 ⁻³
Methanol	0.129
Methyl Isobutyl Ketone	2.55 x 10 ⁻³
Toluene	2.50 x 10 ⁻⁴

3. National Emission Standards for Hazardous Air Pollutants

The facility's kilns are not subject to *National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Product*, 40 C.F.R. Part 63, Subpart DDDD. This subpart applies to lumber kilns at plywood and composite wood products (PCWP) manufacturing facilities and any other kind of facility. [40 C.F.R. §§ 63.2231(a) and 63.2232(b)] However, the subpart only applies if the facility is a major source of HAP. [40 C.F.R. § 63.2231(b)] With the annual throughput limit on the kilns, Daaquam is licensed as an area source of HAP.

4. Periodic Monitoring

Daaquam shall monitor and record values for the kilns as indicated in the following table whenever the equipment is operating.

Kilns #1-#4			
Value	Units of Measure	Monitoring Tool/Method	Frequency
Quantity of wood dried	BF	Production Records	Monthly and 12-month rolling total

C. Incorporation Into the Part 70 Air Emission License

Pursuant to *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. An application to incorporate the requirements of this NSR license into the Part 70 air emission license has been submitted to the Department.

D. Annual Emissions

This license will not change the facility's licensed annual emissions.

III. AMBIENT AIR QUALITY ANALYSIS

Daaquam previously submitted an ambient air quality impact analysis outlined in air emission license A-165-70-A-I (dated March 15, 2001) demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards (AAQS). An additional ambient air quality impact 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-165-77-5-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) Kilns

- A. Daaquam is licensed to install and operate four new Kilns as described in this license.
- B. Daaquam shall not exceed a yearly throughput of 152 MMBF/yr based on a 12-month rolling total. [06-096 C.M.R. ch. 115, BACT]
- C. Daaquam shall keep monthly records of board feet processed. These records shall include the species of wood processed. [06-096 C.M.R. ch. 115, BACT]

D. When reporting actual HAP emissions pursuant to 06-096 C.M.R. ch. 137, Daaquam shall use the following emission factors (or other methods approved by the Department). [06-096 C.M.R. ch. 115, BACT]

Pollutant	lb/MBF
Acetaldehyde	8.65×10^{-2}
Acrolein	1.15×10^{-3}
Benzene	1.55×10^{-5}
Formaldehyde	8.00×10^{-3}
Methanol	0.129
Methyl Isobutyl Ketone	2.55×10^{-3}
Toluene	2.50×10^{-4}

E. When reporting actual VOC emissions pursuant to 06-096 C.M.R. ch. 137, Daaquam shall use an emission factor of 1.283 lb/MBF. [06-096 C.M.R. ch. 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 17th DAY OF NOVEMBER, 2023.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for
MELANIE LOYZIM, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: April 19, 2023

Date of application acceptance: April 27, 2023

Date filed with the Board of Environmental Protection:

This Order prepared by Benjamin Goundie, Bureau of Air Quality.

FILED
NOV 17, 2023
State of Maine
Board of Environmental Protection