



DEPARTMENT ORDER

**Kennebec Lumber, Co.
Somerset County
Solon, Maine
A-812-71-E-R**

**Departmental
Findings of Fact and Order
Air Emission License
Renewal**

FINDINGS OF FACT

After review of the air emission license renewal 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 (Department) finds the following facts:

I. REGISTRATION

A. Introduction

Kennebec Lumber, Co. (Kennebec Lumber) has applied to renew their Air Emission License for the operation of emission sources associated with their lumber and flooring mill.

The equipment addressed in this license is located at 105 South Main Street, Solon, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Direct-fired Kilns

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Date of Manuf.	Date of Install.
Kiln #1	2.0	22.1 gal/hr	Propane	2003	2003
Kiln #2	2.0	22.1 gal/hr	Propane	2003	2003
Kiln #3	2.0	22.1 gal/hr	Propane	2006	2006
Kiln #4	2.0	22.1 gal/hr	Propane	2006	2006
Kiln #5	2.0	22.1 gal/hr	Propane	2006	2006
Kiln #6	4.8	53.0 gal/hr	Propane	2016	2016
Kiln #7	4.8	53.0 gal/hr	Propane	2016	2016
Kiln #8	4.8	53.0 gal/hr	Propane	2016	2016
Kiln #9	4.8	53.0 gal/hr	Propane	2016	2016
Kiln #10	4.8	53.0 gal/hr	Propane	2016	2016
Kiln #11	4.8	53.0 gal/hr	Propane	2016	2016
Kiln #12	4.8	53.0 gal/hr	Propane	2016	2016
Kiln #13	4.8	53.0 gal/hr	Propane	2016	2016
Kiln #14	4.8	53.0 gal/hr	Propane	2016	2016

Heaters

Equipment	Max. Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Date of Manuf.	Date of Install.
Babfar #1 Heater	1.8	19.9 gal/hr	Propane	1985	2010
<i>Babfar #2 Heater*</i>	<i>1.3</i>	<i>14.4 gal/hr</i>	<i>Propane</i>	<i>1986</i>	<i>2009</i>

*Babfar #2 Heater was removed from the facility and has been removed from this license.

Kennebec Lumber operates an aqueous-based parts washer. Because the cleaning solution contains less than 5% VOC, it does not meet the definition of solvent cleaning machine and is not subject to *Solvent Cleaners*, 06-096 C.M.R. ch. 130. Therefore, it is considered an insignificant activity and mentioned for completeness purposes only.

C. Definitions

Records or Logs mean either hardcopy or electronic records.

D. Application Classification

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

The application for Kennebec Lumber does not include the licensing of increased emissions or the installation of new or modified equipment. Therefore, the license is considered to be a renewal of currently licensed emission units only and has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 Code of Maine Rules (C.M.R.) ch. 115.

E. Facility Classification

With the annual throughput limit for the drying kilns, the facility is licensed as follows:

- As a synthetic minor source of air emissions for criteria pollutants, because Kennebec Lumber is subject to license restrictions to keep facility VOC emissions below the major source threshold level; and
- As an area source of hazardous air pollutants (HAP), because the licensed emissions are below the major source thresholds for HAP.

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.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Kiln Heaters #1-14 and Babfar Heater #1

Kennebec Lumber operates Kilns #1-14 as direct-fired kilns to dry lumber, each equipped with a propane-fired kiln heater. The heaters in Kilns #1-5 are each rated at 2.0 MMBtu/hr, and the heaters in Kilns #6-14 are each rated at 4.8 MMBtu/hr. Kilns #1 and #2 were manufactured and installed in 2003. Kilns #3-5 were manufactured and installed in 2006. Kilns #6-14 were manufactured and installed in 2016. Kennebec Lumber uses the kilns to dry hardwood lumber, primarily red oak and hard maple. Kennebec Lumber may occasionally dry ash, hickory, and soft maple.

Kennebec Lumber operates Babfar Heater #1 for building heat. Babfar Heater #1 is rated at 1.8 MMBtu/hr and fires propane. Babfar Heater #1 was manufactured in 1985 and installed in 2010.

1. BPT Findings

The BPT emission limits for propane combustion in Kilns #1-14 and Babfar Heater #1 were based on the following:

Propane

PM/PM ₁₀ /PM _{2.5}	– 0.05 lb/MMBtu based on 06-096 C.M.R. ch. 115, BPT
SO ₂	– 1.8 x 10 ⁻² lb/1,000 gal based on AP-42 Table 1.5-1 dated 7/08
NO _x	– 13 lb/1,000 gal based on AP-42 Table 1.5-1 dated 7/08
CO	– 7.5 lb/1,000 gal based on AP-42 Table 1.5-1 dated 7/08
VOC	– 1 lb/1,000 gal based on AP-42 Table 1.5-1 dated 7/08
Visible Emissions	– 06-096 C.M.R. ch. 101

The BPT emission limits for propane combustion in Kilns #1-14 and Babfar Heater #1 are the following:

Unit	Pollutant	lb/MMBtu
Kilns #6-14 (each)	PM	0.05

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	PM _{2.5} (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Kilns #1-5 (each)	0.10	0.10	0.10	--	0.29	0.17	0.02
Kilns #6-14 (each)	0.24	0.24	0.24	0.001	0.69	0.40	0.05
Babfar Heater #1	0.09	0.09	0.09	--	0.26	0.15	0.02

Kennebec Lumber shall be limited to a facility-wide total of 1,300,000 gallons of propane on a calendar year total basis.

2. Visible Emissions

Visible emissions from each of the kilns and Babfar Heater #1 shall not exceed 10% opacity on a six-minute block average basis.

3. Periodic Monitoring

Periodic monitoring for Kilns #1-14 and Babfar Heater #1 shall include recordkeeping to document fuel use both on a monthly and calendar year total basis. Documentation shall include the type of fuel used.

4. New Source Performance Standards (NSPS): 40 C.F.R. Part 60, Subpart Dc

Kilns #1-14 and Babfar Heater #1 do not heat water. They do not meet the definition of a “steam generating unit” and are therefore not subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* 40 C.F.R. Part 60 Subpart Dc for units greater than 10 MMBtu/hr manufactured after June 9, 1989. Additionally, the units are not subject to this subpart because they are each rated less than 10 MMBtu/hr. [40 C.F.R § 60.40c]

5. National Emission Standards for Hazardous Air Pollutants (NESHAP): 40 C.F.R. Part 63, Subpart JJJJJ

Kilns #1-14 and Babfar Heater #1 do not heat water. They do not meet the definition of a “boiler” and therefore are not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, 40 C.F.R. Part 63, Subpart JJJJJ. Additionally, Kilns #1-14 and Babfar Heater #1 are not subject because they are gas-fired units, which are specifically exempted from the regulation. [40 C.F.R. §§ 63.11193, 63.11195, and 63.11237]

C. Volatile Organic Compounds (VOC) and Hazardous Air Pollutants (HAP) from Lumber Drying Process (Kilns #1-14)

Besides water, the primary constituent of emissions from the drying of wood in Kilns #1-14 is volatile organic compounds (VOC). VOC emissions released during kiln drying of lumber are comprised of pinenes, terpenes, aldehydes, ketones, and methanol released from the tannins, resins, fats, waxes, oils, gums, and other aromatic compounds which naturally occur in the wood (*Estimated VOC Losses During the Drying of Five Northeastern Species*, dated December 1999¹). These emissions are emitted along with the moisture (water vapor) from the drying lumber through roof vents in the kilns.

1. Criteria Pollutants

An emission factor of 1.283 lb of VOC per thousand board feet (MBF) was used based on Forest Products Journal article *Estimated VOC Losses during the Drying of Five Northeastern Species*, dated 1999. This emission factor was based on a study for spruce and is therefore conservative for hardwood since literature and industry data show VOC emissions from hardwood lumber drying are consistently lower than from the drying of spruce. The previous license used an emission factor of 2.26 lb/MBF from *NCASI Technical Bulletin No. 718*, dated July 1996. This emission factor was overly conservative because it is based on the drying of white pine.

Kennebec Lumber is limited to the drying of no more than 30.0 million board feet (MMBF) per year in all 14 kilns combined based on a calendar year total and shall not dry any pine in the kilns. Emissions of VOC from lumber drying in the kilns are expected to be no greater than 19.2 tons/yr.

2. Hazardous Air Pollutants

Potential emissions of total HAPs are conservatively estimated to be 3.43 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)². This total is predominantly comprised of acetaldehyde (1.30 tpy) and methanol (1.94 tpy), based on the following emission factors:

¹ Rice RW, Zibilske L. Estimated VOC losses during the drying of five northeastern species. *Forest Products Journal*. 1999; 49(11/12):67-70.

² Government of Canada. 2023, March 1. *Wood Products Operations*. [Wood products operations - Canada.ca](https://www2.gov.gc.ca/eng/11335/info-detail/11335.html)

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}

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, Kennebec Lumber is licensed as an area source of HAP.

D. Fugitive Emissions

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity on a five-minute block average basis.

E. General Process Emissions

Visible emissions from any general process source shall not exceed 20% opacity on a six-minute block average basis.

F. Annual Emissions

The table below provides an estimate of facility-wide annual emissions for the purposes of calculating the facility's annual air license fee and establishing the facility's potential to emit (PTE). Only licensed equipment is included, i.e., emissions from insignificant activities are excluded. Similarly, unquantifiable fugitive particulate matter emissions are not included except when required by state or federal regulations. Maximum potential emissions were calculated based on a facility-wide propane limit of 1,300,000 gal/yr and a facility-wide kiln throughput limit of 30.0 MMBF/yr. This information does not represent a comprehensive list of license restrictions or permissions. That information is provided in the Order section of this license.

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

	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	CO	VOC
Kilns #1-14 and Babfar Heater #1 (combustion emissions)	3.0	3.0	3.0	--	8.5	4.9	0.7
Kiln drying of lumber	--	--	--	--	--	--	19.2
Total TPY	3.0	3.0	3.0	--	8.5	4.9	19.9

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source is determined by the Department on a case-by case basis. In accordance with 06-096 C.M.R. ch. 115, an ambient air quality impact analysis is not required for a minor source if the total licensed annual emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM ₁₀	25
PM _{2.5}	15
SO ₂	50
NO _x	50
CO	250

The total licensed annual emissions for the facility are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

This determination is based on information provided by the applicant regarding licensed emission units. If the Department determines that any parameter (e.g., stack size, configuration, flow rate, emission rates, nearby structures, etc.) deviates from what was included in the application, the Department may require Kennebec Lumber to submit additional information and may require an ambient air quality impact analysis at that time.

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 Air Emission License A-812-71-E-R subject to the following conditions.

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.

STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions (38 M.R.S. § 347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 115. [06-096 C.M.R. ch. 115]
- (3) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both. [06-096 C.M.R. ch. 115]
- (4) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 C.M.R. ch. 115]
- (5) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to Title 38 M.R.S. § 353-A. [06-096 C.M.R. ch. 115]
- (6) The license does not convey any property rights of any sort, or any exclusive privilege. [06-096 C.M.R. ch. 115]

- (7) The licensee shall maintain and operate all emission units and air pollution systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 C.M.R. ch. 115]
- (8) The licensee shall maintain sufficient records to accurately document compliance with emission standards and license conditions and shall maintain such records for a minimum of six (6) years. The records shall be submitted to the Department upon written request. [06-096 C.M.R. ch. 115]
- (9) The licensee shall comply with all terms and conditions of the air emission license. The filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for a renewal of a license or amendment shall not stay any condition of the license. [06-096 C.M.R. ch. 115]
- (10) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license. [06-096 C.M.R. ch. 115]
- (11) In accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department, the licensee shall:
 - A. Perform stack testing to demonstrate compliance with the applicable emission standards under circumstances representative of the facility's normal process and operating conditions:
 1. Within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions; or
 2. Pursuant to any other requirement of this license to perform stack testing.
 - B. Install or make provisions to install test ports that meet the criteria of 40 C.F.R. Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
 - C. Submit a written report to the Department within thirty (30) days from date of test completion. [06-096 C.M.R. ch. 115]
- (12) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicate emissions in excess of the applicable standards, then:

- A. Within thirty (30) days following receipt of the written test report by the Department, or another alternative timeframe approved by the Department, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 C.F.R. Part 60 or other method approved or required by the Department; and
- B. The days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
- C. The licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.
[06-096 C.M.R. ch. 115]
- (13) Notwithstanding any other provisions in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or license requirement. [06-096 C.M.R. ch. 115]
- (14) The licensee shall maintain records of malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emissions unit itself that would affect emissions and that is not consistent with the terms and conditions of the air emission license. The licensee shall notify the Department within two (2) days or the next state working day, whichever is later, of such occasions where such changes result in an increase of emissions. The licensee shall report all excess emissions in the units of the applicable emission limitation. [06-096 C.M.R. ch. 115]
- (15) Upon written request from the Department, the licensee shall establish and maintain such records, make such reports, install, use and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such a manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status.
[06-096 C.M.R. ch. 115]
- (16) The licensee shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (38 M.R.S. § 605). [06-096 C.M.R. ch. 115]

SPECIFIC CONDITIONS

(17) Kiln Heaters #1-14 and Babfar Heater #1

A. Fuel

1. Facility-wide use of propane at Kennebec Lumber shall not exceed 1,300,000 gal/yr on a calendar year total basis. [06-096 C.M.R. ch. 115, BPT]
2. Compliance shall be demonstrated by fuel records showing the quantity and type of the fuel delivered or fuel used. Records of annual fuel use shall be kept on a monthly and calendar year basis. [06-096 C.M.R. ch. 115, BPT]

B. Emissions from fuel combustion shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Kilns #6-14	PM	0.05	06-096 C.M.R. ch. 115, BPT

C. Emissions from fuel combustion shall not exceed the following [06-096 C.M.R. ch. 115, BPT]:

Emission Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	PM _{2.5} (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Kilns #1-5	0.10	0.10	0.10	--	0.29	0.17	0.02
Kilns #6-14	0.24	0.24	0.24	0.001	0.69	0.40	0.05
Babfar Heater #1	0.09	0.09	0.09	--	0.26	0.15	0.02

D. Visible emissions from each of the kilns and Babfar Heater #1 shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(A)(3)]

(18) Kilns

- A. Kennebec Lumber shall not exceed a yearly throughput of 30.0 million board feet per year based on a calendar year total for Kilns #1-14 combined. [06-096 C.M.R. ch. 115, BPT]
- B. Kennebec Lumber shall not dry any pine in the kilns. [06-096 C.M.R. ch. 115, BPT]
- C. Kennebec Lumber shall keep monthly records of board feet of each species processed. [06-096 C.M.R. ch. 115, BPT]

(19) Fugitive Emissions

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed 20% opacity on a five-minute block average basis. [06-096 C.M.R. ch. 101, § 3(C)]

(20) **General Process Sources**

Visible emissions from any general process source shall not exceed 20% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 101, § 3(B)(4)]

- (21) If the Department determines that any parameter value pertaining to construction and operation of the emissions units, including but not limited to stack size, configuration, flow rate, emission rates, nearby structures, etc., deviates from what was submitted in the application or ambient air quality impact analysis for this air emission license, Kennebec Lumber may be required to submit additional information. Upon written request from the Department, Kennebec Lumber shall provide information necessary to demonstrate ambient air quality standards (AAQS) will not be exceeded, potentially including submission of an ambient air quality impact analysis or an application to amend this air emission license to resolve any deficiencies and ensure compliance with AAQS. Submission of this information is due within 60 days of the Department's written request unless otherwise stated in the Department's letter. [06-096 C.M.R. ch. 115, § 2(O)]

DONE AND DATED IN AUGUSTA, MAINE THIS 25th DAY OF OCTOBER, 2023.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:  for
MELANIE LOYZIM, COMMISSIONER

The term of this license shall be ten (10) years from the signature date above.

[Note: If a renewal application, determined as complete by the Department, is submitted prior to expiration of this license, then pursuant to Title 5 M.R.S. § 10002, all terms and conditions of the license shall remain in effect until the Department takes final action on the license renewal application.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: March 31, 2023

Date of application acceptance: March 31, 2023

Date filed with the Board of Environmental Protection:

This Order prepared by Kendra Nash, Bureau of Air Quality.

