



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE  
GOVERNOR

PAUL MERCER  
COMMISSIONER

**Tasman Leather Group, LLC**  
**Somerset County**  
**Hartland, Maine**  
**A-252-77-1-A**

**Departmental**  
**Findings of Fact and Order**  
**New Source Review**  
**NSR License #1**

**FINDINGS OF FACT**

After review of the air emission New Source Review 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 Annotated (M.R.S.A.), Section 344 and Section 590, the Maine Department of Environmental Protection (Department) finds the following facts:

**I. REGISTRATION**

**A. Introduction**

FACILITY	Tasman Leather Group, LLC
LICENSE TYPE	06-096 CMR 115, Minor Modification
NAICS CODES	316110
NATURE OF BUSINESS	Leather Tanning and Finishing
FACILITY LOCATION	Main Street, Hartland, ME

**B. Amendment Description**

Tasman Leather Group, LLC (Tasman) has applied for a New Source Review (NSR) license to add an 18.0 MMBtu/hr natural gas-fired hot water heater. Tasman has not requested a change to the facility-wide fuel limit of 165.1 MMscf/yr of natural gas contained in its Part 70 License, A-252-70-C-R/M issued on March 5, 2015.

This licensing action does not increase the total amount natural gas allowed to be burned by the facility. Thus, no emissions increases are expected by the addition of the Hot Water Heater.

The natural gas annual PM annual emission totals will be corrected as part of this licensing action. The PM/PM<sub>10</sub>/PM<sub>2.5</sub> annual emission totals in the A-252-70-C-R/M were inadvertently entered as 0.1 tons/year instead of 4.3 tons per year.

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C. Emission Equipment

The following equipment is addressed in this NSR license:

**Fuel Burning Equipment**

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Maximum Firing Rate (scf/hr)</u>	<u>Fuel Type</u>	<u>Stack #</u>
Hot Water Heater	18.0	17,143	Natural Gas	L1

D. Application Classification

The application for the installation of a Hot Water Heater does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing or record keeping.

The modification of a major source is considered a major 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 (CMR) 100 (as amended).

The emission increases are based on the Hot Water Heater operating at all times. Annual emissions for the Hot Water Heater were not previously quantified in the facility’s license; therefore, emissions increases are conservatively based on licensed emissions from the proposed unit alone. The results of the calculation are as follows:

<u>Pollutant</u>	<u>Hot Water Heater Emissions (ton/year)</u>	<u>Significant Emissions Increase Levels (ton/year)</u>
PM	3.94	25
PM <sub>10</sub>	3.94	15
PM <sub>2.5</sub>	3.94	10
SO <sub>2</sub>	0.05	40
NO <sub>x</sub>	7.51	40
CO	6.31	100
VOC	0.41	40
CO <sub>2e</sub>	<75,000	75,000

Note: The above numbers are for the Hot Water Heater only. There are no emissions increases from other equipment at the facility as a result of this NSR license.

Because the emissions increases do not exceed the specified emission increase levels, the NSR license is determined to be a minor modification under *Minor and Major Source Air Emission License Regulations* 06-096 CMR 115 (as amended) since the changes being made are not addressed or prohibited in the Part 70 air emission license. An application to incorporate the requirements of this amendment into the Part 70 air emission license shall be submitted no later than 12 months from commencement of the requested operation.

## 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 CMR 100 (as amended). 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 CMR 100. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

### B. Hot Water Heater

Tasman has installed and operates a natural gas-fired, 18.0 MMBtu per hour, Ludell hot water heater, equipped with a Powerflame tangential burner. The hot water heater was manufactured and installed in 2013, and exhausts through stack L1.

### C. BACT Determination

The following is a summary of the BACT determination for the Hot Water Heater, by pollutant.

#### 1. Particulate Matter (PM, PM<sub>10</sub> and PM<sub>2.5</sub>)

The firing of fuels with low ash content in units with high combustion efficiency results in low particulate matter emissions. The most stringent PM/PM<sub>10</sub> control method demonstrated for boilers and heaters is the use of low ash fuel such as natural gas. The Department finds good combustion controls with a limit of 0.05 lb/MMBtu constitute BACT for PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions from the Hot Water Heater firing natural gas.

2. Sulfur Dioxide (SO<sub>2</sub>)

Sulfur dioxide is formed from the oxidation of sulfur in fuel. The options to control SO<sub>2</sub> emissions from fuel combustion include low sulfur fuel and add-on treatment of the combustion exhaust gases.

Based on review of the RACT/BACT/LAER Clearinghouse (RBLC), EPA's AP-42 database, and other Maine DEP air licenses, add-on controls for SO<sub>2</sub> emissions from boilers and heaters of similar size firing natural gas were not required. Due to the inherently low sulfur content of natural gas, additional SO<sub>2</sub> control from natural gas combustion is not economically feasible.

The Department finds firing natural gas with a limit of 0.01 lb/hr constitutes BACT for SO<sub>2</sub> emissions from the Hot Water Heater.

3. Nitrogen Oxides (NO<sub>x</sub>)

Formation of nitrogen oxides occurs by three different mechanisms. The formation of thermal NO<sub>x</sub> arises from the thermal dissociation and subsequent reaction of nitrogen (N<sub>2</sub>) and oxygen (O<sub>2</sub>) in the combustion air. Prompt NO<sub>x</sub> is formed through the early reactions of nitrogen molecules in the combustion air and hydrocarbon radicals in the fuel. The third type is fuel-bound NO<sub>x</sub>.

Options for controlling NO<sub>x</sub> emissions from the Hot Water Heater include combustion control, selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), flue gas recirculation (FGR), and low-NO<sub>x</sub> burners.

Additional control technology for the existing boiler is considered economically infeasible. Review of recent, similar projects did not identify any required add-on controls. Tasman has proposed good combustion control to minimize NO<sub>x</sub> emissions as BACT.

The Department finds the use of good combustion controls with a limit of 1.71 lb/hr constitutes BACT for NO<sub>x</sub> emissions from the Hot Water Heater.

4. Carbon Monoxide (CO)

The formation of CO occurs as a result of incomplete combustion of the fuel. Control of CO is accomplished by providing adequate fuel residence time and sufficiently high temperature in the combustion zone to ensure complete combustion. These control factors, however, also tend to result in higher emissions of NO<sub>x</sub>. The firing of natural gas results in low emissions of CO

under full load or ideal conditions, although operation at lower loads generally increases emissions because of inefficient combustion.

The CO emission controls that are technologically feasible include combustion control and use of an oxidation catalyst. Catalytic oxidation reactors for CO control operate in a relatively narrow temperature range of 700°F to 1100°F. If operating within this temperature range, CO emissions could potentially be reduced 65-90%. At lower temperatures, when CO is typically higher due to inefficient combustion, the CO conversion falls off rapidly; at higher temperatures, damage to the catalyst may occur.

Upon review of the RBLC and recent Maine air licenses, Tasman found no boilers of similar size firing natural gas employing a CO control catalyst.

The Department finds that good combustion controls with a limit of 1.44 lb/hr constitutes BACT for CO emissions from the Hot Water Heater.

#### 5. Volatile Organic Compounds (VOC)

As with CO, VOCs are emitted from boilers and heaters firing natural gas as a result of incomplete combustion of fuel in the form of unburned hydrocarbons. An oxidation catalyst is an effective control for VOC emissions, with potential VOC emissions reduction of 85-90%. However, such measures are economically infeasible. Control of VOCs can be accomplished by providing adequate fuel residence time and high temperature in the combustion zone to ensure complete combustion.

The Department finds the use of good combustion controls with a limit of 0.09 lb/hr constitutes BACT for VOC emissions from the Hot Water Heater.

#### D. BACT Emission Limits

The BACT emission limits for the Hot Water Heater were based on the following:

##### Natural Gas

PM/PM <sub>10</sub>	– 0.05 lb/MMBtu based on 06-096 CMR 115, BPT
SO <sub>2</sub>	– 0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
NO <sub>x</sub>	– 100 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
CO	– 84 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
VOC	– 5.5 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
Opacity	– 06-096 CMR 115, BACT

The BACT emission limits for the Hot Water Heater are as follows:

<u>Unit</u>	<u>Pollutant</u>	<u>lb/MMBtu</u>
Hot Water Heater	PM	0.05

<u>Unit</u>	<u>PM (lb/hr)</u>	<u>PM<sub>10</sub> (lb/hr)</u>	<u>SO<sub>2</sub> (lb/hr)</u>	<u>NO<sub>x</sub> (lb/hr)</u>	<u>CO (lb/hr)</u>	<u>VOC (lb/hr)</u>
Hot Water Heater	0.9	0.9	0.01	1.71	1.44	0.09

Visible emissions from the Hot Water Heater shall not exceed 10% opacity on a 6-minute block average.

Tasman shall be limited to a total of 165.1 million standard cubic feet of natural gas per year fired Boiler #1 and the Hot Water Heater.

E. Periodic Monitoring

Periodic monitoring for the boiler shall include recordkeeping to document fuel use both on a monthly and 12- month rolling total basis. Documentation shall include the type of fuel used and sulfur content of the fuel.

F. 40 CFR Part 60, Subpart Dc

The Hot Water Heater does not meet the definition of a steam generating unit, therefore, the heater is not subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*.

G. 40 CFR Part 63, Subpart JJJJJ

The Hot Water Heater is not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63, Subpart JJJJJ) because the unit is considered a gas-fired boiler. Subpart JJJJJ does not apply to gas-fired boilers.  
[40 CFR §63.11195(e)]

H. Incorporation into the Part 70 Air Emission License

The requirements in this 06-096 CMR 115 New Source Review amendment shall apply to the facility upon amendment issuance. Per *Part 70 Air Emission License Regulations*, 06-096 CMR 140 (as amended), Section 1(C)(8), for a modification that has undergone NSR requirements or been processed through 06-096 CMR 115, the source must then apply for an amendment to the Part 70 license within

one year of commencing the proposed operations as provided in 40 CFR Part 70.5.

I. Annual Emissions

Tasman shall be restricted to the following annual emissions, based on a 12-month rolling total. The tons per year limits were calculated based on:

- 1,200,000 gallons of #4 fuel oil based on a 12-month rolling total, fired in Boilers #1 and #2
- 165.1 million standard cubic feet of natural gas fired in Boiler #1 and the Hot Water Heater, combined
- 25,000 gallons of distillate fuel per year, based on a 12-month rolling total, fired in Boiler #1H
- 260.0 tons of VOC from the tanning processes, based on a 12-month rolling total.

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

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>
#4 Fuel Oil	18.0	18.0	18.0	189.1	45.0	3.0	0.8
Natural Gas	*4.3	*4.3	*4.3	0.1	8.3	6.9	0.5
#2 Fuel Oil	0.2	0.2	0.2	0.9	0.9	0.1	0.1
Process Emissions	-	-	-	-	-	-	260
<b>Total TPY</b>	<b>22.5</b>	<b>22.5</b>	<b>22.5</b>	<b>*190.1</b>	<b>54.2</b>	<b>10.0</b>	<b>261.4</b>

\*Updated numbers

**AMBIENT AIR QUALITY ANALYSIS**

Tasman previously submitted an ambient air quality analysis, in license A-252-71-A-R, 1/9/1996, which included modelling results demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards. 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-252-77-1-A pursuant to the preconstruction licensing requirements of 06-096 CMR 115 and subject to the standard and special conditions below.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this NSR License shall not affect the remainder of the provision or any other provisions. This NSR 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) Hot Water Heater

A. Fuel

1. The Hot Water Heater is licensed to fire natural gas. Total fuel use for the Hot Water Heater and Boiler #1 combined shall not exceed 165.1 million scf/yr natural gas based on a 12 month rolling total basis.
2. Compliance shall be demonstrated by fuel records from the supplier showing the quantity and type of the fuel delivered. Records of annual fuel use shall be kept on a monthly and 12-month rolling total basis.  
[06-096 CMR 115, BACT]

B. Emissions from the Hot Water Heater shall not exceed the following:

<b>Emission Unit</b>	<b>Pollutant</b>	<b>lb/MMBtu</b>	<b>Origin and Authority</b>
Hot Water Heater	PM	0.05	06-096 CMR 115, BACT

C. Emissions from the Hot Water Heater shall not exceed the following [06-096 CMR 115, BACT]:

Emission Unit	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	PM <sub>2.5</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Hot Water Heater	0.90	0.90	0.90	0.01	1.71	1.44	0.09

D. Visible emissions from the Hot Water Heater shall not exceed 10% opacity on a six (6) minute block average basis. [06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 27 DAY OF June, 2016.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Corne for  
PAUL MERCER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: February 22, 2015

Date of application acceptance: April 21, 2015

Date filed with the Board of Environmental Protection:

This Order prepared by Lisa P. Higgins, Bureau of Air Quality.

