



DEPARTMENT ORDER

**Woodland Pulp LLC  
Washington County  
Baileyville, Maine  
A-215-77-14-A**

**Departmental  
Findings of Fact and Order  
New Source Review  
NSR #14**

**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	Woodland Pulp LLC (Woodland Pulp)
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	32211
NATURE OF BUSINESS	Pulp Production
FACILITY LOCATION	144 Main Street, Baileyville, Maine

B. NSR License Description

Woodland Pulp LLC (Woodland Pulp) has applied for a New Source Review (NSR) license to install an additional water bath gas-fired heater to provide heat to the natural gas at the natural gas pressure reducing station at the facility.

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>
Natural Gas Heater	3.0	2,950	Natural gas

D. Application Classification

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

The application for the addition of a 3.0 MMBtu/hour natural gas-fired heater 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.

The emission increases are determined by subtracting the baseline actual emissions of the modified unit for the 24 months preceding the modification (or representative 24 months) from the proposed actual emissions for the modified unit. Because the Natural Gas Heater is a new unit, there are no baseline actual emissions, and no other existing licensed units are affected by this modification. Projected actual emissions are equivalent to the maximum licensed potential to emit for the new unit, in accordance with the definition of *actual emissions* from 06-096 C.M.R. ch. 100. The results are as follows:

<b>Pollutant</b>	<b>Projected Actual Emissions (ton/year)</b>	<b>Net Emissions Increase (ton/year)</b>	<b>Significant Emissions Increase Levels (ton/year)</b>
PM	0.7	0.7	25
PM <sub>10</sub>	0.7	0.7	15
PM <sub>2.5</sub>	0.7	0.7	10
SO <sub>2</sub>	--	0.0	40
NO <sub>x</sub>	1.3	1.3	40
CO	1.1	1.1	100
VOC	0.1	0.1	40
CO <sub>2e</sub>	< 75,000	< 75,000	75,000

Note: The above values are for the Natural Gas Heater only. None of the other equipment at the facility is affected by this NSR license.

Therefore, 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 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 NSR license into the Part 70 air emission license is required to be submitted no later than 12 months from commencement of the requested operation. Woodland Pulp submitted concurrently with this application the request to incorporate the requirements of this NSR license into their Part 70 air emission license. The terms and conditions of this NSR license shall be incorporated into the Part 70 air emission license renewal currently in process.

## 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. Natural Gas Heater Project Description

Woodland Pulp is proposing to install an additional water bath gas heater to provide heat to the natural gas at the natural gas pressure reducing station located at the mill. The unit is to provide sufficient heat to the natural gas to prevent low temperature trips of the gas system so that it may be utilized in multiple units at the facility. The new heater will have a maximum heat input capacity of 3.0 MMBtu/hour firing natural gas at 2,950 scf/hour, and it is to be installed in the fall of 2017. The heater will be located adjacent to the existing pressure reducing station at the mill.

### C. Regulatory Requirements

#### 1. Best Available Control Technology (BACT)

A BACT analysis consists of identification of applicable control technologies; elimination of technically infeasible options; ranking of remaining control technologies by effectiveness; evaluation of energy, environmental, and economic impacts of the ranked control strategies; and, finally, selection of BACT.

A search was conducted to identify various control technologies which have been applied in the recent past to other, similar projects. Reviewed were recent BACT determinations in the U.S., as provided in the U.S. EPA's RACT/BACT/LAER Clearinghouse (RBLC). Possible control technologies and applicability for this unit are presented in the following paragraphs for individual pollutants.

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

Particulate matter from fuel combustion is formed from non-combustible material in the fuel and from incomplete combustion. Add-on pollution control equipment includes baghouses, scrubbers, and electrostatic precipitators. Due to the minimal amount of PM emissions from the combustion of natural gas in a unit this size, the installation of add-on pollution control equipment is not cost effective. The facility proposes using good combustion practices as BACT for PM emissions.

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

This pollutant is formed from the oxidation during combustion of sulfur in the fuel. Pollution control options include flue gas desulfurization by means of wet scrubbing or through restricting the sulfur content of the fuel. The use of add-on equipment for SO<sub>2</sub> control is not economically feasible, given the inherently low sulfur content of natural gas, the size of the unit, and the installation, operational, and energy costs required to operate add-on controls. The facility proposes the firing of natural gas as BACT for SO<sub>2</sub> emissions.

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

In natural gas combustion, NO<sub>x</sub> is generated via one of three mechanisms: fuel NO<sub>x</sub>, thermal NO<sub>x</sub>, and prompt NO<sub>x</sub>. The first is created by oxidation of nitrogen in the fuel. Due to the characteristically low fuel nitrogen content of natural gas, NO<sub>x</sub> formation through the fuel NO<sub>x</sub> mechanism is insignificant. Thermal NO<sub>x</sub> is formed by the fixation of nitrogen and oxygen at temperatures greater than 3,600 °F. Prompt NO<sub>x</sub> forms from the oxidation of hydrocarbon radicals near the combustion flame and produces an insignificant amount of NO<sub>x</sub>. NO<sub>x</sub> emissions can therefore be predominantly controlled through combustion control techniques or through add-on controls.

Based on review of the RBLC and other technical sources, the potential control technologies for NO<sub>x</sub> emissions from the Natural Gas Heater include the following: selective catalytic reduction (SCR), selective non-catalytic reduction (SNCR), flue gas recirculation (FGR), low NO<sub>x</sub> burners, and good combustion practices.

SCR and SNCR are not considered to be technically feasible for controlling NO<sub>x</sub> emissions from the Natural Gas Heater and have yet to be successfully demonstrated in a commercial natural gas heater operation. Both of these systems would require additional heating of the natural gas, and it is not technically feasible to add a catalyst bed to the system. In addition, reagent storage on-site presents economic and environmental impacts. These factors justify removal of these control options from further consideration as BACT.

Water injection and low NO<sub>x</sub> burners reduce the generation of thermal NO<sub>x</sub> by affecting a cooler flame. FGR uses recycling of a portion of the flue gas back to the burner windbox to affect a lower combustion temperature and lower oxygen concentrations in the primary flame zone. Though technically feasible, the use of these options is not economically justified in a unit of this design and size.

Good combustion practices are technically feasible to control NO<sub>x</sub> emissions from the Natural Gas Heater. The manufacturer/supplier will provide operation and maintenance details of methods to maintain high levels of combustion efficiency. Woodland Pulp proposes the use of good combustion practices in accordance with manufacturer recommendations as BACT for NO<sub>x</sub> emissions.

Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)

CO and VOC emissions result from incomplete combustion of the fuel. Higher emissions of these pollutants result when there is insufficient residence time or oxygen available near the hydrocarbon molecule during combustion to complete the final step in hydrocarbon oxidation. Although catalytic combustion add-on control technology has been used with boilers and engines firing liquid or gaseous fuels, this technology has not been demonstrated on natural gas heaters and is not justified considering the size of the unit. Consistent with findings in the RBLC database, the facility proposes good combustion efficiency and maintenance practices as BACT to control CO and VOC emissions.

The Department finds the firing of natural gas and the use of good combustion practices for maximized combustion efficiency, and following manufacturer specified operation and maintenance practices as BACT for the Natural Gas Heater.

The BACT emission limits for the Natural Gas Heater were based on the following:

Natural Gas

<u>Pollutant</u>	<u>Emission Factor</u>	<u>Source of Emission Factor</u>
PM, PM <sub>10</sub>	0.05 lb/MMBtu	06-096 C.M.R. ch. 115, BACT
SO <sub>2</sub>	0.6 lb/MMScf	AP-42, Table 1.4-2 (7/98)
NO <sub>x</sub>	100 lb/MMscf	AP-42, Table 1.4-1 (7/98)
CO	84 lb/MMscf	AP-42, Table 1.4-1 (7/98)
VOC	5.5 lb/MMscf	AP-42, Table 1.4-2 (7/98)
Visible Emissions	--	06-096 C.M.R. ch. 115, BACT

Emissions from the Natural Gas Heater shall not exceed the following:

<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>
Natural Gas Heater (Natural gas)	0.15	0.15	--	0.3	0.25	0.02

Visible emissions from the Natural Gas Heater shall not exceed 10% opacity on a six-minute block average basis.

2. Periodic Monitoring

Periodic monitoring for the Natural Gas Heater shall include recordkeeping to document fuel use both on a monthly and 12-month rolling total basis.

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

Due to the size, the Natural Gas Heater is 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. [40 C.F.R. § 60.40c]

4. NESHAP: *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT)*, 40 C.F.R. Part 63, Subpart DDDDD

The Natural Gas Heater is subject to this Subpart because it is a process heater located at a major source of hazardous air pollutants (HAP) and is not below the applicability threshold input size. [40 C.F.R. Part 63, § 63.7490] For this unit, a process heater designed to burn gas 1 fuels, Subpart DDDDD requires that a tune-up be conducted every five years in the manner as specified in 40 C.F.R. § 63.7540. [40 C.F.R. § 63.7500(e) and Table 3, #1 of this Subpart]

Process heaters subject to this regulation which are designed to burn gas 1 fuels with a heat input capacity of less than or equal to 5 MMBtu/hour are not subject to emission limits or operating limits of this Subpart. [40 C.F.R. § 63.7500(e)]

Woodland Pulp shall maintain records of all tune-ups conducted in accordance with this Subpart. [40 C.F.R. § 63.7555]

At all times, Woodland Pulp shall operate and maintain the unit in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 C.F.R. § 63.7500 (a)(3)]

D. 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. Woodland Pulp has already applied for this amendment, and the terms and conditions of this NSR license will be incorporated into the Part 70 air emission license renewal currently in process.

E. Annual Emissions

Woodland Pulp shall be restricted to the following annual emissions, based on a 12-month rolling total.

**Total Licensed Annual Emissions for the Facility <sup>a</sup>**  
**Tons/year**  
 (used to calculate the annual license fee <sup>b</sup>)

	<b>PM</b>	<b>PM<sub>10</sub></b>	<b>SO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>	<b>TRS</b>
Tissue Machines	--	--	0.6	39.6	43.6	--	--
Tissue Machines and #9 Power Boiler Combined	213.6	213.6	--	--	--	59.5	--
No. 9 Power Boiler	--	--	676	780	5,008	--	--
#3 Recovery Boiler	189	189	1,567	601	1,966	176	--
Smelt Dissolving Tank	50	50	--	--	--	--	13.6
Lime Kiln	87	87	35	175	1,750	--	--
Package Boiler	56	56	9.9	5.6	1.4	0.1	--
NCG Incinerator	8.4	8.4	12.7	39.6	2.8	0.2	--
Natural Gas Heater	0.7	0.7	--	1.3	1.1	0.1	--
<b>TOTALS</b>	<b>604.7</b>	<b>604.7</b>	<b>2,301.2</b>	<b>1,178.0 <sup>c</sup></b>	<b>8,772.9</b>	<b>235.9</b>	<b>13.6</b>

- <sup>a</sup> Emissions limits in the table do not include insignificant activities and process units (e.g. the woodyard) with no licensed emission limits, and do not include emergency engines whose possible emissions provide little or no noticeable contribution to the totals represented in this table.
- <sup>b</sup> PM<sub>10</sub>, CO, and TRS are not used in the calculation of the annual fee but are included in this table for completeness.
- <sup>c</sup> Note that the total NO<sub>x</sub> limit for the mill is less than total allowable emissions from individual units. Woodland Pulp may emit up to each required limit for any one individual unit, provided that the total of all units does not exceed the mill wide total of 1,178.0 ton/year on a 12-month rolling total basis. See License A-215-70-I-R/A, Condition (17), issued November 18, 2011.

### III. AMBIENT AIR QUALITY ANALYSIS

Woodland Pulp 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. Given the results of the previous modeling and the magnitude of the proposed emissions increases for this project, the Department has determined that the proposed increases will not cause or contribute to a violation of any NAAQS. Therefore, 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-215-77-14-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) Natural Gas Heater

A. Emissions from the Natural Gas Heater shall not exceed the following [06-096 C.M.R. ch. 115, BACT]:

Unit	PM (lb/MMBtu)	PM (lb/hr)	PM <sub>10</sub> (lb/hr)	SO <sub>2</sub> (lb/hr)	NO <sub>x</sub> (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Natural Gas Heater (Natural gas)	0.05	0.15	0.15	--	0.3	0.25	0.02

Visible emissions from the Natural Gas Heater shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BACT]



B. Periodic Monitoring

Periodic monitoring for the Natural Gas Heater shall include recordkeeping to document fuel use both on a monthly and 12-month rolling total basis. [06-096 C.M.R. ch. 115, BACT]

C. NESHAP: 40 C.F.R. Part 63, Subpart DDDDD

1. Woodland Pulp shall conduct a tune-up of the Natural Gas Heater every five years in the manner as specified in 40 C.F.R. § 63.7540, or as amended in the rule. [40 C.F.R. § 63.7500(e) and Table 3, #1 of Subpart DDDDD]
2. Woodland Pulp shall maintain records of all tune-ups conducted in accordance with this Subpart. [40 C.F.R. § 63.7555]
3. At all times, Woodland Pulp shall operate and maintain the unit in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 C.F.R. § 63.7500 (a)(3)]

DONE AND DATED IN AUGUSTA, MAINE THIS 8 DAY OF September, 2017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Carr for  
PAUL MERCER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 5/1/2017

Date of application acceptance: 5/3/2017

Date filed with the Board of Environmental Protection:

This Order prepared by Jane E. Gilbert, Bureau of Air Quality.

