



DEPARTMENT ORDER

ND OTM LLC  
Penobscot County  
Old Town, Maine  
A-180-77-9-A

Departmental  
Findings of Fact and Order  
New Source Review  
NSR #9

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           | ND OTM LLC                                |
| LICENSE TYPE       | 06-096 C.M.R. ch. 115, Minor Modification |
| NAICS CODES        | 322110 Wood Pulp Manufacturing            |
| NATURE OF BUSINESS | Pulp Manufacturing                        |
| FACILITY LOCATION  | 24 Portland Street, Old Town, Maine       |

B. NSR License Description

ND OTM LLC (ND Paper) has requested a New Source Review (NSR) license to modify the #5 Power Boiler to have the capability to fire natural gas in addition to distillate and #6 fuel oils, and to extend the Biomass Boiler CO compliance schedule.

C. Emission Equipment

The following equipment is addressed in this NSR license:

**Fuel Burning Equipment**

| <u>Equipment</u> | <u>Max. Capacity (MMBtu/hr)</u> | <u>Fuel Type, % sulfur</u> |
|------------------|---------------------------------|----------------------------|
| #5 Power Boiler  | 249                             | #6 oil, 0.5%               |
|                  | 249                             | Distillate fuel, 0.0015%   |
|                  | 271                             | Natural gas, negligible    |
| Biomass Boiler   | 265.2                           | Biomass, negligible        |
|                  |                                 | Natural gas, negligible    |

D. 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 modification of the #5 Power Boiler and compliance demonstration extension for the CO limit for the Biomass Boiler 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 preceding the modification from the proposed actual emissions. Baseline actual emissions are equal to the average annual emissions from any consecutive 24-month period within the ten years prior to the submittal of a complete license application. ND Paper has proposed the use of the 2005 and 2006 calendar years. Because the application for this NSR was originally submitted in 2015, these dates fall within the ten-year lookback period. Because the #5 Power Boiler is the only emissions unit affected by this modification, only #5 Power Boiler emissions have been considered in this analysis. The selected baseline actual emissions are presented below:

| Source          | Baseline Actual Emissions 1/2005 – 12/2006 (tpy) |                  |                   |                 |                 |      |     |
|-----------------|--|------------------|-------------------|-----------------|-----------------|------|-----|
|                 | PM   | PM <sub>10</sub> | PM <sub>2.5</sub> | SO <sub>2</sub> | NO <sub>x</sub> | CO   | VOC |
| #5 Power Boiler | 14.6   | 14.6             | 9.6               | 165.8           | 128.0           | 11.0 | 0.6 |

The baseline actual emissions must be compared to the projected actual emissions from #5 Power Boiler following the project to determine the net emissions increase. Projected actual emissions means the maximum annual rate, in tons per year, at which the existing emissions unit is projected to emit a regulated NSR pollutant in any one of the five years following the date the unit resumes regular operation after the project, or in any of the ten years following that date, if the project involves increasing the emission unit’s design capacity or its potential to emit that regulated NSR pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source. In calculating the projected actual emissions, the portion of #5 Power Boiler’s emissions following the project that the unit could have accommodated during the baseline period, and are unrelated to the project, including any increased utilization due to product demand growth, shall be excluded. [40 C.F.R. § 52.21(b)(41)] These emissions increases that the unit could have accommodated are identified in the table below as “Demand Growth Exclusion” totals.

ND Paper's current and future plans are to fully utilize the mill's existing production capacity. Post-project maximum annual emissions were calculated based on full utilization of the #5 Power Boiler and worst-case emission factors established in Air Emission License A-180-70-A-I (December 2, 2009).

The #5 Power Boiler and the existing production equipment are capable of physically handling the maximum production of the pulp mill within existing license limits; therefore, emissions increases from any affected equipment are excluded from this evaluation through the demand growth exclusion.

| <b>Pollutant</b>  | <b>Post-Project<br/>Maximum Annual<br/>Emissions<br/>(ton/year)</b> | <b>Demand Growth<br/>Exclusion<br/>(ton/year)</b> | <b>Net Post-Project<br/>Maximum Annual<br/>Emissions<br/>(ton/year)</b> |
|-------------------|---|---|---|
| PM                | 87.2  | 72.6  | 14.6  |
| PM <sub>10</sub>  | 30.5  | 15.9  | 14.6  |
| PM <sub>2.5</sub> | 29.4  | 19.8  | 9.6   |
| SO <sub>2</sub>   | 556.3   | 390.5   | 165.8   |
| NO <sub>x</sub>   | 305.4   | 177.4   | 128.0   |
| CO                | 120.0   | 109.0   | 11.0  |
| VOC               | 54.5  | 53.9  | 0.6   |

After applying the demand growth exclusion, the difference between the projected actual emissions and the baseline actual emissions for the #5 Power Boiler after the natural gas project has been completed will be zero. These results are presented below:

| <b>Pollutant</b>  | <b>Baseline Actual<br/>Emissions<br/>1/05 – 12/06<br/>(ton/year)</b> | <b>Projected Actual<br/>Emissions<br/>(ton/year)</b> | <b>Net Emissions<br/>Increase<br/>(ton/year)</b> | <b>Significant<br/>Emissions<br/>Increase Levels<br/>(ton/year)</b> |
|-------------------|--|--|--|---|
| PM                | 14.6   | 14.6   | 0  | 25  |
| PM <sub>10</sub>  | 14.6   | 14.6   | 0  | 15  |
| PM <sub>2.5</sub> | 9.6  | 9.6  | 0  | 10  |
| SO <sub>2</sub>   | 165.8  | 165.8  | 0  | 40  |
| NO <sub>x</sub>   | 128.0  | 128.0  | 0  | 40  |
| CO                | 11.0   | 11.0   | 0  | 100   |
| VOC               | 0.6  | 0.6  | 0  | 40  |
| CO <sub>2e</sub>  | <75,000  | <75,000  | <75,000  | 75,000  |

Note: The above values are for the #5 Power Boiler only.

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. 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 that result in an increase in emissions of regulated pollutants 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. #5 Power Boiler

The #5 Power Boiler is rated at 249 MMBtu/hr and fires #6 fuel oil and distillate fuel. The boiler is also licensed to fire natural gas but requires a physical modification to do so. The combustion efficiency for natural gas is 82% which is slightly lower than the combustion efficiency for fuel oil of 86%. Therefore, in order to achieve the equivalent steam output when firing 249 MMBtu/hr of fuel oil, the boiler must fire 259 MMBtu/hr of natural gas. The natural gas burners are being sized slightly larger at 271 MMBtu/hr; however, the emissions calculations and net emissions increase remain unchanged. The proposed project will include the installation of natural gas burners, a natural gas valve train, and associated piping.

For a modified emission unit, BACT shall be applied to the regulated pollutants that will be emitted in greater amounts as a result of the modification, and BPT shall apply to other regulated pollutants from the modified unit [06-096 C.M.R. Ch. 115 § 4(A)(4)(d)]. The modification to the #5 Power Boiler will not result in any emission increases. Therefore, a BACT analysis is not required and BPT shall apply. BPT for other licensed fuels are unchanged by this NSR license.

BPT Findings for Natural Gas

The BPT emission limits for the boiler were based on the following:

Natural Gas

- PM/PM<sub>10</sub>/PM<sub>2.5</sub> – 0.01 lb/MMBtu based on manufacturer warranty
- SO<sub>2</sub> – 0.6 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
- NO<sub>x</sub> – 0.080 lb/MMBtu based on manufacturer warranty
- CO – 0.08 lb/MMBtu based on manufacturer warranty
- VOC – 5.5 lb/MMscf based on AP-42 Table 1.4-2 dated 7/98
- Visible Emissions – 06-096 C.M.R. ch. 115, BACT

The BPT emission limits for the #5 Power Boiler firing natural gas are the following:

| Unit            | Pollutant | lb/MMBtu |
|-----------------|-----------|----------|
| #5 Power Boiler | PM        | 0.01     |

| Unit                                  | PM<br>(lb/hr) | PM <sub>10</sub><br>(lb/hr) | SO <sub>2</sub><br>(lb/hr) | NO <sub>x</sub><br>(lb/hr) | CO<br>(lb/hr) | VOC<br>(lb/hr) |
|---------------------------------------|---------------|-----------------------------|----------------------------|----------------------------|---------------|----------------|
| #5 Power Boiler<br><i>Natural gas</i> | 2.7           | 2.7                         | 0.16                       | 21.7                       | 21.7          | 1.45           |

Visible emissions from the #5 Power Boiler shall not exceed 10% opacity on a six-minute block average basis while firing natural gas.

C. Biomass Boiler CO Compliance Schedule

Air Emission License A-180-77-4-A was issued to Red Shield Acquisition, LLC, the owner of the Old Town Mill at the time, on October 12, 2012. This license established a CO emission limit for the Biomass Boiler of 0.45 lb/MMBtu and provided approximately 38 months for the mill to demonstrate compliance with this limit per C.M.R. Ch. 115, BPT. Expera Old Town, LLC acquired the mill in late 2014, and invested in bringing the Biomass Boiler into compliance with the CO limit. Expera requested a similar 38-month extension as that granted to Red Shield, extending the compliance schedule from January 2016 to March 2019.

The mill was shut down in September of 2015 and acquired by ND Paper on October 19, 2018. It is ND Paper's intention to resume normal operation of the full existing pulping capacity of the mill. ND Paper intends to fully evaluate how the Biomass Boiler fits into the mill's current and long-term plans. To this end, ND Paper has requested an extension similar to but less than that granted to Red Shield Acquisition, LLC. Specifically, ND Paper requests a compliance extension for demonstrating compliance with the

0.45 lb/MMBtu CO emission limits to October 31, 2020, which is 24 months from the date of ND Paper's request.

The Biomass Boiler shall not exceed the following CO emission limits when firing biomass:

| Pollutant | lb/MMBtu                             | Averaging Time                                 | Compliance Method |
|-----------|--------------------------------------|--|-------------------|
| CO        | 0.8<br>(Prior to November 1, 2020)   | 30 day rolling average, at all operating times | CEMS              |
|           | 0.45<br>(Beginning November 1, 2020) |  |                   |

| Pollutant | lb/hr                                 | Compliance Method             |
|-----------|---------------------------------------|-------------------------------|
| CO        | 212.2<br>(Prior to November 1, 2020)  | 40 C.F.R. Part 60, Appendix A |
|           | 119.3<br>(Beginning November 1, 2020) |                               |

ND Paper shall develop and submit a CO emissions progress report and a boiler startup and shutdown CO minimization procedure to the Department. The CO emissions progress report shall be submitted within nine months of issuance of this NSR license, and shall include progress-to-date on CO emission minimization and the expected plan to meet future license requirements. The startup and shutdown procedure shall be submitted by November 1, 2020, and shall include startup and shutdown definitions and other information such as specific startup and shutdown timeframe ranges (including warm and cold startups), operating parameter measurements (i.e. boiler temperature, definition of first fire, oxygen levels), and any additional information as appropriate.

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. The permittee submitted such an application on September 24, 2015.

E. Annual Emissions

This NSR license does not seek to modify the facility's annual emission limits.

III. AMBIENT AIR QUALITY ANALYSIS

The permittee 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. 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-180-77-9-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) **#5 Power Boiler**

- A. ND Paper is authorized to perform the necessary modifications to the #5 Power Boiler to allow the unit to fire natural gas.
- B. Emissions shall not exceed the following when firing natural gas:

| <b>Emission Unit</b> | <b>Pollutant</b> | <b>lb/MMBtu</b> | <b>Origin and Authority</b> |
|----------------------|------------------|-----------------|-----------------------------|
| #5 Power Boiler      | PM               | 0.01            | 06-096 C.M.R. ch. 115, BPT  |

C. Emissions shall not exceed the following when firing natural gas [06-096 C.M.R. ch. 115, BPT]:

| Emission Unit   | 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) |
|-----------------|------------|--------------------------|-------------------------|-------------------------|------------|-------------|
| #5 Power Boiler | 2.7        | 2.7                      | 0.16                    | 21.7                    | 21.7       | 1.45        |

D. When firing natural gas, visible emissions from the boiler shall not exceed 10% opacity on a six-minute block average basis. [06-096 C.M.R. ch. 115, BPT]

The following shall replace Condition (1) of NSR license A-180-77-4-A (issued October 12, 2012):

(2) **Biomass Boiler CO**

A. CO emissions from the Biomass Boiler when firing biomass shall not exceed the following [06-096 C.M.R. ch. 115, BACT]:

| Pollutant | lb/MMBtu                             | Averaging Time                                 | Compliance Method |
|-----------|--------------------------------------|--|-------------------|
| CO        | 0.8<br>(Prior to November 1, 2020)   | 30 day rolling average, at all operating times | CEMS              |
|           | 0.45<br>(Beginning November 1, 2020) |  |                   |

| Pollutant | lb/hr                                 | Compliance Method             |
|-----------|---------------------------------------|-------------------------------|
| CO        | 212.2<br>(Prior to November 1, 2020)  | 40 C.F.R. Part 60, Appendix A |
|           | 119.3<br>(Beginning November 1, 2020) |                               |

B. Within nine months of issuance of this NSR license, ND Paper shall submit a Biomass Boiler CO emissions progress report to the Department. The report shall include progress-to-date on CO emission minimization and the expected plan to meet the future license requirements. [06-096 C.M.R. Ch. 115, BPT]



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C. By November 1, 2020, ND Paper shall develop and submit to the Department a Biomass Boiler a startup and shutdown procedure for the minimization of CO. The procedure shall include startup and shutdown definitions and other information such as specific startup and shutdown timeframe ranges (including warm and cold startups), operating parameter measurements (i.e. boiler temperature, definition of first fire, oxygen levels), and any additional information as appropriate. [06-096 C.M.R. Ch. 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 24 DAY OF April, 2019.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:

  
GERALD D. REID, COMMISSIONER

for

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: September 24, 2015

Date of application acceptance: September 24, 2015

Date filed with the Board of Environmental Protection:

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

