Rumford Paper Company **Oxford County** **Rumford, Maine** **A-214-77-6-A**	**Departmental** **Findings of Fact and Order** **New Source Review** **Amendment #5**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., § 344 and § 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Rumford Paper Company (The Mill)
LICENSE TYPE	06-096 CMR 115, Minor Modification
NAICS CODES	322121
NATURE OF BUSINESS	Pulp & Paper Manufacturer
FACILITY LOCATION	Rumford, Maine
NSR AMENDMENT ISSUANCE DATE	

B. Amendment Description

Rumford Paper Company (The Mill) plans to make upgrades to their R9 pulp dryer such that production of the pulp dryer will be increased from 350 to 400 tons per day. The following changes to the pulp dryer are proposed:

1. Installing a new vacuum pump for the couch roll that will remove more water from the wet end of the machine;
2. Replacing multiple dryer cans that are presently unused or are not rated to support increased capacity at the pulp dryer;
3. Changing steam supply piping and condensate piping and pumping systems; and
4. Adding dryer section pocket ventilators and upgrading the air fan and air preheater to supply more warm air to remove evaporated moisture at the pulp dryer.

The increase in pulp dryer capacity will lead to an increase of direct air emissions from this source. The pulp dryer, while much smaller in scale, is expected to emit the same types of pollutants that paper machines emit since both units dry pulp. Guidance from the *National Council for Air and Stream Improvement (NCASI) Environmental Resource handbook for Pulp and Paper Mills* states that emissions

from paper machines include PM emissions from the drying process and VOC emissions from the biogenic components of the pulp. It is assumed that the pulp dryer emits these pollutants as well. Unlike the paper machine, the pulp dryer does not add coating or volatile additives to the process that could contribute to VOC emissions. The pulp dryer also has no associated fuel burning equipment so there are no combustion related emissions from this source.

Apart from VOC and PM emissions, the pulp dryer capacity increase will generate releases to the atmosphere as a result of an increased demand for steam generated on-site. Currently, steam is supplied to the pulp dryer from Power Boilers #3 and #5. Thus, an increase in steam demand will result in an increase of combustion related emissions from the boilers.

C. Application Classification

The application for The Mill 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 CMR 100 (last amended December 1, 2005).

The project net emission increase is calculated by comparing the difference between actual emissions from the pulp dryer to future actual emissions as well as associated emissions resulting from the proposed increase in steam demand at the Power Boilers.

Actual emission rates from pulp drying are based on operational data and NCASI emission factors (Technical Bulletin 681, p85 and Technical Bulletin 942, Table 5.1). Past actual annual emissions from the pulp dryer for calendar years 2006 and 2007 are shown in the following table:

	Production (tons pulp/year)	VOC EF (lb/ton pulp)	VOC	PM EF (lb/ton pulp)	PM
Average 2006 & 2007	76,878	0.07	5,381 lb	0.09	6,919 lb
Total			2.69 tons		3.46 tons
Current Actual Emissions			2.69 TPY		3.46 TPY

The Mill estimates that the maximum future production capacity of the pulp dryer will be 144,000 ton pulp/year. Projected maximum future actual emissions from

the pulp dryer are shown in the following table:

Maximum Production Rate (tons pulp/year)	VOC EF (lb/ton pulp)	VOC	PM EF (lb/ton pulp)	PM
144,000	0.07	10,080 lb	0.09	12,960 lb
Total		5.04 tons		6.48 tons
Future Actual Emissions		5.04 TPY		6.48 TPY

Apart from VOC and PM emissions, the pulp dryer capacity increase will generate increased emissions as a result of an increased demand for steam. Currently, steam is supplied to the pulp dryer from Boilers #3 and #5. Thus, an increase in steam demand will result in an increase in combustion related emissions from these boilers.

Each 1,000 lbs of steam generated by the boilers requires an average of 1.2 MMBtu/hr of heat input. The production capacity increase of the pulp dryer was determined by subtracting the average production from 2006 and 2007 (76,878 TPY) from the future maximum production rate (144,000 TPY) for a pulp dryer increase of 67,122 TPY.

Boilers #3 and #5 are only required to produce steam for the pulp dryer during the winter months (approximately 25% of the year). During the remainder of the year, steam demand is accommodated by using left over steam from the steam turbine and power production. For this reason, the increase in steam demand was multiplied by 0.25 to indicate that an increase in firing rate from Boilers #3 and #5 will only occur during the winter months. Accordingly, the following table shows the maximum quantity of additional combustion pollutants that will be generated as a result of the proposed project:

Increase in pulp dryer production (TPY)		67,122	
Increase in steam demand (1,000 lbs/yr)		224,321	
Fraction of time additional steam needed		0.25	
Increase in heat input (MMBtu)		67,297	
Pollutant	EF (lb/MMMBtu)	EF Origin	TPY Increase
PM	0.0057	2005 Stack Test	0.19
PM_{10}	0.0057	assumed from stack test	0.19
SO_2	0.013	CEMS data	0.43
NO_x	0.19	CEMS data	6.40
CO	0.0754	AP-42	2.54
VOC	0.0051	AP-42	0.17

The net emission increases for this project (pulp dryer and boilers combined) are as follows:

Pollutant	Net Emission Increase (ton/year)	Significance Level (ton/year)
PM	3.21	25
PM_{10}	3.21	15
SO_2	0.43	40
NO_x	6.40	40
CO	2.54	100
VOC	2.52	40

Therefore, this amendment is determined to be a minor modification under *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (last amended December 1, 2005) and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. BACT for the R9 Pulp Dryer

In order to receive a license The Mill must control emissions from the modified unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in 06-096 CMR 100.

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. VOC

Control techniques for control of VOCs from pulp drying vents are considered impractical because of the high moisture content and high volume of the vent exhaust gases and the minimal pollutant concentrations. However, consideration has been given to the control of VOC emissions from the pulp dryer through capture and venting to a device such as a thermal oxidizer, adsorber, absorber, condenser, or biofilter. The concentration of organics in the gas stream is a key characteristic that affects the applicability of a particular control technology.

1. Thermal Oxidizer

The additional emission reductions achieved when using a thermal oxidizer for this type of application are typically not considered worth the environmental costs associated with it. Any type of thermal oxidizer employed would generate substantial additional air emissions as a result of the

need to burn fuel to sustain combustion such that effective thermal oxidation of the emission stream is achieved. In addition, thermal oxidizers are not considered technically feasible given the substantial moisture present in this emission stream and the highly variable nature of the stream in terms of flow rate, temperature, and VOC concentration.

2. Adsorbtion/Absorption
   Adsorbtion and Absorption (wet scrubbing) are considered not technically feasible for this application primarily because there are no available types of adsorption or absorption media that are capable of achieving effective control of the mixture of VOC compounds that are considered likely to be present in emissions from the pulp dryer.

3. Condensation
   The employment of a condenser is not technically feasible for this application because the concentration of VOC in the emissions stream would likely be too low and the moisture content of the emissions stream would be too high to permit effective control by a condenser.

4. Biofiltration
   Biofiltration is not considered technically feasible for this application based on the fact that such a system is not feasible for control of an emission stream containing the types of pollutant compounds considered likely to be present in the emissions from the pulp dryer.

Because there are no existing control strategies that can be considered technically feasible for the control of VOC emissions from the pulp dryer, the Department finds that no additional controls are required to meet BACT.

C. PM

Exhaust gases from paper making and pulp drying operations typically contain trace amounts of PM. The quantity of PM is difficult to measure due to the low PM concentrations and high exhaust gas flow rates. Because of the high volume and high moisture content of pulp dryer vent exhaust gases, control techniques for these vents are considered impractical. However, consideration may be given to the control of PM emissions from the pulp dryer through capture and venting to a wet scrubber, a wet ESP, or a baghouse.

1. Absorption (Wet Scrubber)

   Wet scrubbers have been employed to control PM emissions from tissue creping operations on Yankee dryers. However, this operation has greater PM emissions and is vastly different from the pulp drying operation. The low concentration of PM in the exhaust stream from the pulp dryer compared to the high cost of installing a wet scrubbing system render this option not economically feasible.

2. Wet ESP

   The moisture content found in the pulp dryer exhaust is very high. Due to this, a wet ESP would have a substantially lowered efficiency. Again, the high cost of installation of this type of equipment compared to the relatively low amounts of PM controlled render this option not economically feasible.

3. Baghouse

   Because of the high moisture content of the exhaust stream, a baghouse is considered not technically feasible for this exhaust stream. Excessive moisture would likely lead to blinding of the bags.

Because there are no existing control strategies that can be considered both technically and economically feasible for the control of PM emissions from the pulp dryer, the Department finds that no additional controls are required to meet BACT.

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 Air Emission License A-214-77-6-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 License 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.

The following are New Conditions:

(8) The Department approves of the proposed upgrades to the R9 pulp dryer as stated in Section I.B of this license.

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2008.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
DAVID P. LITTELL, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 4/11/08
Date of application acceptance: 4/24/08

Date filed with the Board of Environmental Protection: _____

This Order prepared by Lynn Ross, Bureau of Air Quality.