STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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DEPARTMENT ORDER

Verso Androscoggin LLC
Franklin County
Jay, Maine
A-203-77-26-A

Departmental
Findings of Fact and Order
New Source Review
NSR #26

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	Verso Androscoggin LLC
LICENSE TYPE	06-096 C.M.R. ch. 115, Minor Modification
NAICS CODES	322121
NATURE OF BUSINESS	Pulp & Paper Mill
FACILITY LOCATION	Jay, Maine

B. NSR License Description

Verso Androscoggin LLC (Verso, The Mill) has requested a New Source Review (NSR) license to modify the #4 Paper Machine (PM4) to upgrade the Duo-Former vacuum transfer box and to replace an existing vacuum pump with a larger vacuum pump for improvement of product grades.

C. Emission Equipment

The following equipment is addressed in this NSR license:

Process Equipment

Equipment	Production Rate	Pollution Control Equipment	Stack #
#4 Paper Machine	Varies by paper product grade	None	Multiple vents

D. Project Description

The #4 Paper Machine (PM4) is in the process of converting to specialty paper grades. Verso is proposing to upgrade the Duo-Former vacuum transfer box and replace an existing vacuum pump with a larger vacuum pump. The upgraded Duo-Former vacuum improves product quality and allows the paper machine to speed up when producing release liner grades. This will allow for an increase of approximately 1,960 tons more of release liner product per year.

The project is projected to result in 186,200 tons of finished paper product per year, which requires approximately 184,000 tons of fiber to support the paper production. As specialty grades replace coated paper grades, the tons of paper produced by PM4 is projected to be less than historical production rates due to specialty papers having a lighter basis weight than coated papers. Increased pulp production required to support PM4's projected production for the next ten years was accounted for in NSR A-203-77-22-A (May 15, 2018). No additional changes to pulp mill production are needed to support PM4 fiber needs. Therefore, there are no liquor cycle (pulp mill) affected sources associated with this project. In addition, no changes to PM4's air flotation dryers, infrared dryers, calendar roll process heaters, or trim vac system are needed or will occur as a result of producing specialty papers on PM4. Therefore, these dryers, process heaters, and the trim vac system are not affected units associated with this project.

E. 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 PM4 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. For a major stationary source, the expected emissions increase from each new, modified, or affected unit may be calculated as equal to the difference between the post-modification projected actual emissions and the baseline actual emissions for each NSR regulated pollutant.

1. Baseline Actual Emissions

Baseline actual emissions (BAE) are equal to the average annual emissions from any consecutive 24-month period within the ten years prior to submittal of a complete license application. Verso has proposed using 7/2010 – 6/2012 as the 24-month

baseline period from which to determine baseline actual emissions for all pollutants for emission units affected as part of this project.

BAE for PM4 were calculated using historical emission factors and mill production data. The results of this baseline analysis are presented in the table below.

Baseline Actual Emissions (7/2010 – 6/2012 Average)

Equipment	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	VOC (tpy)
#4 Paper Machine	4.43	8.85	7.53	7.64

2. Projected Actual Emissions

Projected actual emissions (PAE) are the maximum actual annual emissions anticipated to occur in any one of the five years (12-month periods) following the date existing units resume regular operation after the project or any one 12-month period in the ten years following if the project involves increasing the unit's design capacity or its potential to emit of a regulated pollutant.

Affected equipment includes any new or physically modified equipment.

Verso has proposed projected actual emissions calculated based on the Mill's projected annual throughput and the maximum emission factors from the baseline period.

Projected actual emissions from the affected equipment are shown below.

Projected Actual Emissions

Equipment	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	VOC (tpy)
#4 Paper Machine	3.72	7.44	6.32	6.42

3. Emissions Increases

Emissions increases are calculated by subtracting BAE and excludable emissions from the PAE. The emission increase is then compared to the significant emissions increase levels.

Pollutant	Baseline Actual Emissions 7/10 – 6/12 (ton/year)	Projected Actual Emissions (ton/year)	Emissions Increase (ton/year)	Significant Emissions Increase Levels (ton/year)
PM	4.43	3.72	-0.71	25
PM_{10}	8.85	7.44	-1.41	15
$PM_{2.5}$	7.53	6.32	-1.21	10
VOC	7.64	6.42	-1.22	40

4. Classification

Since emissions increases do not exceed significant emissions increase levels, 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. An application to incorporate the requirements of this NSR license into the Part 70 air emission license shall be submitted no later than 12 months from commencement of operations associated with the project.

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. #4 Paper Machine

Verso submitted a BACT analysis for the PM4 project to address PM, PM_{10}, $PM_{2.5}$, and VOC emissions.

1. Particulate Matter (PM, PM_{10}, and $PM_{2.5}$)

The paper making process requires large amounts of air for removing moisture and particulate released during the process. The air utilized is primarily discharged from three locations on the paper machine: the former/wet end, the drying process, and the dry end. The generation of particulate matter is inversely proportional to the moisture content of the web and is highest at the dry end.

Verso identified a fabric filter collector or baghouse, electrostatic precipitator (ESP), or wet scrubbers and cyclones as possible PM control technologies for PM4. Both fabric filters and ESPs were determined to be technically infeasible. For fabric filters, the presence of moisture in the exhaust stream adversely affects the performance of the filtering media and can contribute to material failures due to corrosion. The former and drying process stack exhaust streams contain significant amounts of moisture. A search of EPA's RACT/BACT/LAER Clearinghouse (RBLC) did not identify any fabric filter systems used to control PM emissions from paper machines. Fabric filter systems or baghouses are not technically feasible to control PM, PM_{10}, and $PM_{2.5}$ emissions from PM4.

The performance of an ESP depends largely on the electrical conductivity of the particles that are being collected, and similar to a fabric filter system, moisture in the gas stream can affect the performance of an ESP. Based on an RBLC search, ESP systems are not currently used to control PM emissions from paper machines. Electrical conductivity and moisture issues make the ESP technology infeasible to control PM, PM_{10}, and $PM_{2.5}$ emissions from PM4.

For Verso's application, the emission rate of particulate matter from PM4 does not support the application of wet scrubbing or cyclone add-on controls. There are no PM emission increases projected for this project. The installation and operation of a wet scrubber or cyclone, as well as the additional ductwork to connect the multiple emission points, would not be economically feasible for this project.

Since none of the add-on PM emission control technologies are justified according to BACT determination criteria for PM4, BACT for $PM/PM_{10}/PM_{2.5}$ for PM4 shall be good operating practices. Good operating practices for PM4 includes measures such as operating and maintaining the unit in accordance with manufacturer's recommendations.

2. Volatile Organic Compounds (VOC)

Paper machines can potentially emit VOC from several operations within the paper machine itself. VOC can be emitted from the addition of VOC-containing chemical additives to the paper forming process. Additionally, other VOC, primarily methanol, are carried over from the pulp manufacturing process in the paper machine whitewater and can be released during paper forming. Verso identified VOC limits on raw materials, adsorption, biofiltration, thermal oxidation, good operating practices, and use of market pulp as possible VOC control strategies for PM4.

The majority of VOC emissions from Verso's paper machines result from methanol and other trace amounts of HAPs carried over in the pulp. The additives that will be used to form the paper products sheet on the paper machine contain inherently low-to-no VOC and will collectively contribute little to the VOC emissions from the paper machine. The additives used at Verso are carefully selected and optimized specifically for the mill's products. Since Verso must carefully select the additives used by PM4, the approach for taking mandated VOC limits on raw materials is not considered technically feasible as it could negatively impact the characteristics and quality of the final product.

Adsorption of VOC from the paper making process onto an activated carbon bed would be impeded by the moisture and PM/PM_{10} content of the gas stream. Moisture and PM/PM_{10} would clog the pores of the activated carbon and reduce the VOC removal efficiency. PM controls would be required prior to implementing a carbon adsorption control technology, which would be both technically challenging and cost prohibitive for the reasons already outlined. Therefore, adsorption is considered technically infeasible as a control of VOC emissions from PM4.

Biofiltration has no known applications on paper machine emissions in the pulp and paper industry and is typically used for odor control. This technology takes a substantial amount of space and, due to the layout of PM4, a biofiltration system would be too large to install. In addition, the presence of PM in the PM4 exhaust stream could impact the performance of the biofilter medium. For these reasons, biofiltration is considered to be a technically infeasible control technology for VOC emissions from PM4.

The remaining technically feasible control options have been ranked by control effectiveness in the below table:

Control Technology Option	Control Efficiency	Ranking
Thermal Oxidation	95-99%	1
Good Operating Practices	Varies	2
Use of Market Pulp	Varies	3

Verso conservatively estimates that the equipment and installation cost of a regenerative thermal oxidizer (RTO) to be $33,950,000. Assuming a 10-year life expectancy for the RTO at a 7% interest rate, the annual capital recovery cost amounts to approximately $4,800,000. Without including any of the additional costs associated with operating the RTO, the cost effectiveness for controlling 99% of the projected 7 tpy of VOC from PM4 amounts to over $685,714 per ton. The cost effectiveness of an RTO is well above that which would be considered economically feasible.

Verso currently uses good operating practices for PM4. Good operating practices for PM4 includes preventative maintenance on all of the associated PM4 equipment and systems, and maintaining records of production and purchasing records of the additives used on the paper machine. Verso does not anticipate any additional economic, environmental, and energy impacts associated with this control technique.

Using purchased market pulp can potentially lower VOC emissions if there is less methanol and other VOC in the purchased pulp than in the pulp that is produced by Verso. However, there is no guarantee that the VOC content will be lower. It is also not economically feasible or environmentally beneficial for Verso to purchase market pulp and ship it to the mill in the quantities that are needed for PM4 production rates.

Verso has proposed that BACT for VOC emissions from PM4 is good operating practices to minimize VOC emissions. Good operating practices include regularly scheduled preventative maintenance on all of the associated PM4 equipment and systems and maintenance of purchasing records of the additives used on the paper machine.

C. Incorporation Into the Part 70 Air Emission License

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.

D. Annual Emissions

No changes to Verso's licensed annual emissions are occurring as a result of this NSR license.

III. AMBIENT AIR QUALITY ANALYSIS

Verso 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. NO_2 modeling was conducted in association with air emission license

A-203-77-13-A (January 19, 2012), and SO_2, PM_{10}, and CO modeling was conducted in association with air emission license A-203-71-E-R (September 3, 1996). 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-203-77-26-A pursuant to the preconstruction licensing requirements of 06-096 C.M.R. ch. 115 and subject to the standard and 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) Verso is authorized to complete the PM4 project as described in this NSR license.

(2) Verso shall submit an application to incorporate this NSR license into the facility's Part 70 air emission license no later than 12 months from commencement of the requested operation. [06-096 C.M.R. ch. 140 § 1(C)(8)]

DONE AND DATED IN AUGUSTA, MAINE THIS 1st DAY OF August, 2019.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ for
GERALD D. REID, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: February 19, 2019
Date of application acceptance: February 20, 2019

Date filed with the Board of Environmental Protection:

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

Filed
AUG 1 2019
State of Maine
Board of Environmental Protection