



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

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ACTING COMMISSIONER

**Verso Androscoggin LLC
Franklin County
Jay, Maine
A-203-77-12-A**

**Departmental
Findings of Fact and Order
New Source Review
Amendment #12**

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., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

FACILITY	Verso Androscoggin LLC
PART 70 LICENSE NUMBER	A-203-70-A-I
LICENSE TYPE	Chapter 115 New Source Review Minor Modification
NAICS CODES	322121
NATURE OF BUSINESS	Pulp & Paper Mill
FACILITY LOCATION	Jay, Maine
NSR AMENDMENT ISSUANCE DATE	September 16, 2011

B. Amendment Description

Verso Androscoggin LLC (Verso Androscoggin) of Jay, Maine has applied to amend their Chapter 115 Air Emission License to allow them to replace the burner in the B Lime Kiln with a new, more fuel efficient burner. The new burner would be capable of firing either on-specification used oil, No. 6 fuel oil, or natural gas, in addition to No. 2 fuel oil, propane, and off-specification used oil. Verso Androscoggin is currently permitted to fire all of these fuels in the B Lime Kiln with the exception of natural gas.

The new B Lime Kiln burner installation is the first part of Verso Androscoggin's phased natural gas conversion project. The overall project will be subject to the Prevention of Significant Deterioration (PSD) air permitting regulations, and a separate license application is being prepared for subsequent submittal. The PSD permit application will request authorization to fire natural gas in the B Lime Kiln and several other combustion units located at the facility. Although Verso Androscoggin is requesting authorization to install and operate the new B Lime Kiln burner in this application as part of the first phase of the natural gas

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conversion project, Verso Androscoggin is not proposing to fire natural gas until the subsequent issuance of the separate PSD license.

C. Emission Equipment

The following equipment is addressed in this air emission license:

Process Equipment

<u>Equipment</u>	<u>Production Rate</u>	<u>Pollution Control Equipment</u>	<u>Stack #</u>
B Lime Kiln	248 TPD of CaO	Low-NO _x Technology; Wet Scrubber	LKB

D. Application Classification

The application for Verso Androscoggin does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing or record keeping. This application does seek to modify a Best Available Control Technology (BACT) analysis performed per New Source Review.

Additionally, 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 (as amended).

The emission increases have been determined by subtracting the average actual emissions of the 24 months preceding the modification (or representative 24 months) from the predicted future actual emissions. The results of this test are as follows:

Pollutant	Average Past Actual Emissions (ton/year)	Future Actual Emissions (ton/year)	Net Change (ton/year)	Significance Level (ton/year)
PM	46.34	55.21	8.87	25
PM ₁₀	46.71	55.65	8.94	15
PM _{2.5}	40.83	48.64	7.81	10
SO ₂	1.03	1.03	0.0	40
NO _x	48.91	52.88	3.98	40
CO	4.49	4.49	0.0	100
VOC	4.58	5.06	0.48	40
TRS	1.87	1.87	0.0	10

H ₂ SO ₄	0.03	0.03	0.0	7
GHG	71,700.4	70,656.34	< 0.0	0
CO ₂ e	71,700.4	70,656.34	< 0.0	75,000

Note: The above numbers are for the B Lime Kiln only. None of the other equipment at the facility is affected by this amendment.

Therefore, this amendment 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 must be submitted no later than 12 months from commencement of the requested operation.

II. BEST PRACTICAL TREATMENT (BPT) & EMISSION STANDARDS

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. A Summary of BACT for the B Lime Kiln

1. Particulate Matter (PM, PM₁₀, & PM_{2.5})

Verso Androscoggin's BACT analysis found that particulate matter emissions from lime kilns are generally controlled with electrostatic precipitators (ESPs) and wet scrubbers. Verso Androscoggin currently uses a wet scrubber to control particulate matter emissions from the B Lime Kiln. The BACT analysis evaluated the installation and operation of an ESP in combination with the wet scrubber and found that the cost would exceed \$12,500 per ton of additional particulate matter that would be removed. Verso Androscoggin's review of the RACT/BACT/LAER Clearinghouse (RBLC) database found that PM emissions limits ranged from 22.8 to 25.6 pounds per hour (lb/hr) and that PM₁₀ emission limits ranged from 21.2 to 39.2 lb/hr. Verso Androscoggin's BACT analysis proposed that BACT for particulate matter emissions from the B Lime Kiln include maintaining the existing wet scrubber

and continuing to meet the existing particulate matter emission limits of 0.13 gr/dscf, corrected to 10% O₂, and the associated emission rate of 25.0 lb/hr.

Verso Androscoggin is already utilizing a wet scrubber to control PM emissions. The incremental cost associated with constructing and operating an ESP in addition to the wet scrubber to remove additional PM from a flue gas stream is not economically justifiable. Therefore, the Department finds that the current PM emission limit for the B Lime Kiln of 0.13 gr/dscf @ 10% O₂ and the associated 25.0 lb/hr limit is within the range of PM emission limits contained in the RBLC database and represents BACT for the control of particulate matter emissions from the B Lime Kiln.

2. Sulfur Dioxide (SO₂)

Verso Androscoggin's BACT analysis found that sulfur dioxide (SO₂) emissions from lime kilns are generally controlled by a combination of in-situ removal and wet scrubbing. In-situ removal of SO₂ occurs through the interaction between SO₂ and the lime dust generated in the kiln and additional SO₂ removal occurs in the wet scrubber which is augmented by the alkalinity added to the scrubber solution by the captured lime dust. Verso Androscoggin currently uses the in-situ process and a wet scrubber to control SO₂ emissions from the B Lime Kiln. The BACT analysis did not consider any other control technologies as being technically feasible for removal of SO₂ emissions from lime kilns. Verso Androscoggin's review of the RACT/BACT/LAER Clearinghouse (RBLC) database found that SO₂ emission limits for lime kilns equipped with wet scrubbers range between 2.59 and 23.4 lb/hr. Verso Androscoggin's BACT analysis proposed the BACT limit for SO₂ emissions from the B Lime Kiln include maintaining the existing wet scrubber and continuing to meet the existing SO₂ emission limits of 6.7 lb/hr while operating under a loaded condition and 24 lb/hr when operating in a no load condition.

The Department finds that the current use of in-situ and wet scrubbing control technologies and SO₂ emission limits for the B Lime Kiln of 6.7 lb/hr under loaded conditions and 24 lb/hr under no load conditions are within the range of SO₂ emission limits contained in the RBLC database and represent BACT for the control of SO₂ emissions from the B Lime Kiln.

3. Nitrogen Oxides (NO_x)

Verso Androscoggin evaluated several NO_x control technologies although no add-on control technologies were identified as being utilized by lime kilns in the RBLC database and low-NO_x technology was the only technology that they found to be technically feasible for use on the B Lime Kiln. NO_x emission limits contained in the RBLC database for lime kilns utilizing low-NO_x technology range between 112 and 340 ppmv corrected to 10% O₂ and

between 38.75 and 103.7 lb/hr. Verso Androscoggin proposes that installing the new multiple fuel burners with low-NO_x technology and emission limits of 120 ppmv wet corrected to 10% O₂ and 33.3 lb/hr represents BACT for NO_x emissions from the B Lime Kiln.

The Department finds that the installation and use of low-NO_x technology and NO_x emission limits for the B Lime Kiln of 120 ppmv wet corrected to 10% O₂ and 33.3 lb/hr are within the range of NO_x emission limits contained in the RBLC database and represent BACT for the control of NO_x emissions from the B Lime Kiln.

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

Verso Androscoggin evaluated several CO and VOC control technologies although no add-on control technologies were identified as being utilized by lime kilns in the RBLC database and the use of good combustion practices was the only technology that they found to be technically feasible for use on the B Lime Kiln. CO emission limits contained in the RBLC database for lime kilns utilizing good combustion practices range between 2 and 337 lb/hr. VOC emission limits contained in the RBLC database for lime kilns utilizing good combustion practices range between 4 and 8.3 lb/hr. Verso Androscoggin proposes that utilizing good combustion practices and meeting emission limits of 333.3 lb/hr for CO and 1.4 lb/hr for VOC emissions represents BACT for the B Lime Kiln.

The Department finds that the employment of good combustion practices to meet the current CO and VOC emission limits of 333.3 lb/hr and 1.4 lb/hr, respectively, represents BACT for the B Lime Kiln.

5. Total Reduced Sulfur Compounds (TRS)

Total reduced sulfur compounds (TRS), the most common of which are hydrogen sulfide (H₂S), methyl mercaptan, dimethyl sulfide, and dimethyl disulfide are emitted from lime kilns. Verso Androscoggin's review of potential control technologies to reduce TRS emissions resulted in finding wet scrubbing and good combustion and operating practices to be technologically feasible technologies. Verso Androscoggin currently uses all of these control technologies to minimize TRS emissions from the B Lime Kiln. TRS emission limits contained in the RBLC database for lime kilns utilizing wet scrubbing and good combustion and operating practices range between 6.5 and 20 ppmvd corrected to 10% O₂. Verso Androscoggin proposes that utilizing wet scrubbing in conjunction with good combustion and operating practices and meeting the current TRS emission limit of 20 ppmvd corrected to 10% O₂ represents BACT for the B Lime Kiln.

The Department believes that the B Lime Kiln may be capable of meeting a lower TRS emission limit than proposed by Verso Androscoggin, however more data is needed to make such a determination. Therefore, the Department finds that TRS emissions should be monitored for a period of six months following startup of the B Lime Kiln while firing natural gas and the data submitted so that the Department may determine if a lower TRS emission limit is appropriate. Until the Department issues a license with a different BACT finding based on review of the data, the Department finds that the use of wet scrubbing in conjunction with good combustion and operating practices to meet the current TRS emission limit of 20 ppm_{dv} on a 12-hour block average basis, corrected to 10% O₂, represents BACT for TRS emissions from the B Lime Kiln.

C. New Source Performance Standards (NSPS)

U.S. EPA has promulgated standards of performance for specific sources of air pollution at 40 CFR Part 60, Subparts A through M. The proposed project involves physical changes to Verso Androscoggin's B Lime Kiln. As a result, the following NSPS Subparts potentially apply to the proposed project:

- Subpart A – General Provisions
- Subpart BB – Standards of Performance for Kraft Pulp Mills

NSPS apply to new sources that are constructed after the effective date as specified in each standard, or to units that are modified or reconstructed after the effective date. The concept of modification under NSPS is detailed in Subpart A, §60.14. The concept of reconstruction under NSPS is detailed in Subpart A, §60.15. The provisions of 40 CFR Part 60, Subpart A apply to the owner or operator of a stationary source that is subject to any of the NSPS.

In order for the proposed project to qualify as reconstruction of any of the affected sources, the fixed capital cost of the new components necessary for the gas conversion would need to exceed 50% of the fixed capital cost required to replace the existing affected source. Since the costs for the new B Lime Kiln burner is only a small fraction of the cost of replacing the entire kiln, the project does not constitute reconstruction under NSPS.

Under §60.14, a physical change or change in the method of operation of an existing source such as a lime kiln qualifies as a modification only if it results in an increase in the emission rate of a pollutant regulated by the standard. Furthermore, §60.14 specifies that the increase is determined on a short-term basis (e.g., lb/hr) based on emissions factors, mass balance, test data, or other representative information. The installation of the new burner in the B Lime Kiln will not result in any emissions increases on a short-term basis since the Mill will

continue to fire the same fuels currently fired in the kiln and future lime production rates will not exceed historic baseline production rates. Since the proposed B Lime Kiln Burner Upgrade project will not result in a short-term emissions increase of either PM or TRS, the project will not qualify as a modification under NSPS, and Subpart BB will not apply to the B Lime Kiln as a result of this project.

D. National Emission Standards for Hazardous Air Pollutants (NESHAP)

Pursuant to the CAAA of 1990, process-specific NESHAPs are included in 40 CFR Part 63. NESHAPs promulgated under 40 CFR Part 63, also referred to as Maximum Achievable Control Technology (MACT) standards, apply to certain identified source categories that are considered area sources or major sources of hazardous air pollutants (HAP). A major source of HAP is defined as a source with a facility-wide potential-to-emit (PTE) of 10 tons per year or more of any single HAP, or a facility-wide PTE of 25 tons per year or more of total HAP. The Androscoggin Mill qualifies as a major source of HAP. The following 40 CFR Part 63 Subparts are potentially applicable to the proposed B Lime Kiln Burner Upgrade project:

- Subpart A – General Provisions
- Subpart S – National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry
- Subpart MM – National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills

The provisions of 40 CFR Part 63, Subpart S apply to all major HAP sources that produce pulp, paper, or paperboard and use the Kraft, soda, sulfite, or semi-chemical pulping process. This MACT rule already applies to the Androscoggin Mill and the Mill is currently in compliance with all of the applicable provisions. The individual Mill sources subject to Subpart S standards are classified as being part of one of three possible control systems:

- The LVHC system;
- The HVLC system; or
- The condensate collection/treatment system.

The B Lime Kiln serves as the control device for ensuring compliance for the LVHC system with the Subpart S standards. Installing a new burner in the B Lime Kiln will not change the applicability of any of the current Subpart S requirements, nor will it impact the Mill's ability to comply with the standards.

Subpart MM sets forth various PM emission limits, testing requirements, monitoring requirements, and recordkeeping/reporting requirements for chemical recovery combustion sources. Subpart MM codifies the NESHAPs for both new and existing Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills. Under the provisions of Subpart MM, the Androscoggin Mill's B Lime Kiln is subject to a PM emission limit of 0.13 grains per dry standard cubic foot (gr/dscf) at 10% oxygen (O₂). This PM limit was established using the MACT Bubble option.

Under the Part 63 MACT standards, the affected sources are either existing units or new units. There are no provisions for modifications under these regulations. However, if a unit is reconstructed as defined in the standards it becomes subject to the requirements for new units. Reconstruction under the NESHAP MACT standards is defined similarly to the NSPS in that the fixed capital costs of the new components would need to exceed 50% of the fixed capital cost for constructing a comparable new source. Since the cost of modifying the B Lime Kiln to install a new burner is only a small fraction of the costs for replacing the kiln, the proposed project will not qualify as reconstruction under the Part 63 standards. As a result, the current Subpart MM standards for PM will continue to apply to the B Lime Kiln.

E. 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 2(J)(2)(c), 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(a)(1)(ii).

III. AMBIENT AIR QUALITY ANALYSIS

Verso Androscoggin 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 amendment.

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-203-77-12-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.

SPECIFIC CONDITIONS

(1) B Lime Kiln

Emissions from the B Lime Kiln shall not exceed the following:

Pollutant	Emission Limit	Units	Origin and Authority
PM	0.13	gr/dscf @ 10% O ₂	06-096 CMR 115, BACT
PM/PM _{2.5} /PM ₁₀	25.0	lb/hr	06-096 CMR 115, BACT
SO ₂	6.7 (loaded condition)	lb/hr	06-096 CMR 115, BACT
	24 (no load condition ^(a))	lb/hr	06-096 CMR 115, BACT
NO _x	120	ppmdv wet @ 10% O ₂	06-096 CMR 115, BACT
	33.3	lb/hr	06-096 CMR 115, BACT
CO	333.3	lb/hr	06-096 CMR 115, BACT
VOC	1.4	lb/hr	06-096 CMR 115, BACT
TRS	20	ppmdv @ 10% O ₂ on a 12-hour block average basis	06-096 CMR 115, BACT

(a) No load condition means the lime kiln is in operation when NCGs are being combusted in the kiln in the absence of lime and the lime mud feed to the kilns has stopped without interruption for a period greater than one hour.

(2) **Review of TRS Emission Limit**

Verso Androscoggin shall monitor TRS emissions from the B Lime Kiln for a period of six months following startup of the kiln while firing natural gas and shall submit the data to the Department for its review and determination as to whether a lower TRS emission limit is appropriate.

(3) **Incorporation into the Part 70 License**

Verso Androscoggin shall apply for an amendment to the Part 70 license in accordance with 40 CFR Part 70.5(a)(1)(ii) within one year of commencing operation of the B Lime Kiln after having replaced the burners as described in this license amendment. [40 CFR Part 70]

DONE AND DATED IN AUGUSTA, MAINE THIS 16th DAY OF September, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Melanie L. G. For*
PATRICIA W. ALLO, ACTING COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: August 10, 2011

Date of application acceptance: August 17, 2011

Date filed with the Board of Environmental Protection:

This Order prepared by Eric Kennedy, Bureau of Air Quality.

