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COMMISSIONER

MEMORANDUM

DATE: August 13, 2012  
TO: Board of Environmental Protection  
FROM: Marc A. R. Cone P.E., Bureau of Air Quality  
SUBJECT: Verso Androscoggin LLC, Offsets for Major Modification (air emission license application A-203-77-15-A) Informational Purposes Only



**Summary**

Verso Androscoggin, LLC of Jay, Maine has submitted an air emission application to allow the conversion of the A Digester at their pulp and paper facility to Lo-Solids<sup>®</sup> Cooking technology. Lo-Solids Cooking is a technology that provides higher digester cooking capacity with minimized chemical consumption, the use of which will increase both process efficiency and pulp production. Conversion of the A Digester to Lo-Solids Cooking technology will result in changes in emissions from the modified equipment and from ancillary equipment, directly related to the production increase. The application is classified as a major modification.

As part of the licensing process, Verso Androscoggin must obtain offset credits for a VOC emissions increase of 240.2 tons/year resulting from the Lo-Solids conversion project. The Department's regulation 06-096 CMR 113 stipulates that 'all trades involving VOC offset credits or an increase in VOC emissions requiring offsets pursuant to this Chapter must be presented to the Board of Environmental Protection prior to Department approval.' [*Growth Offset Regulation*, 06-096 CMR 113 Section 2(F)] There is no action required by the Board.

**Project Background**

Verso Androscoggin is an integrated pulp and paper manufacturing facility with equipment, operations, and supporting activities to produce bleached kraft pulp (from a chemical pulping process) and groundwood pulp (from a mechanical pulping process). The pulp is used to make a wide variety of pulp and paper products. Bleached kraft pulp is produced in two separate lines, designated Pulp Mill A and Pulp Mill B. This conversion project is being applied to the A Digester only. In this chemical pulping operation, screened wood chips from the wood processing area are reacted with white liquor in the digester to form pulp, then washed, screened, and chemically whitened in a series of reaction towers and washers. Pulp produced at the facility is either processed further in the paper mill or dried for storage and/or sale.

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Power Boilers #1 and #2 are each rated with a heat input capacity of 680 MMBtu/hour. Power Boiler #1 was installed in 1965, and Power Boiler #2 was installed in 1967. Power Boilers #1 and #2 are licensed to fire #6 fuel oil, #2 fuel oil, and used oil. These boilers are each equipped with retrofit low NO<sub>x</sub> burner systems utilizing low NO<sub>x</sub> nozzle caps and NO<sub>x</sub> continuous emission monitoring systems. Opacity from the Power Boilers is also continuously monitored. Emissions exhaust through a common 300-foot stack.

### VOC Offsets

Per 06-096 CMR 113, major air emission sources located within the geographical bounds of an area which is designated as nonattainment under the former one-hour federal ozone standard or under the eight-hour federal ozone standard, whichever is in effect, or in the Ozone Transport Region must obtain offset credits. This includes sources proposing a modification that would result in a significant emissions increase of the nonattainment pollutant after the application of Lowest Achievable Emission Rate (LAER). The offset credit must be permanent, enforceable, surplus, real, and a quantifiable reduction.

For the proposed Lo-Solids conversion project, Verso Androscoggin must obtain offset credits for the proposed VOC increase of 240.2 tons/year but not for increases in NO<sub>x</sub>. The facility is located within the Clean Air Act Section 182(f) 'NO<sub>x</sub> waiver' area and is therefore exempt from obtaining offsets for NO<sub>x</sub> emissions. Since Verso Androscoggin is in the NO<sub>x</sub> waiver area, NO<sub>x</sub> credits may be used to offset VOC emissions to the extent allowed under the Clean Air Act. The same number of offset credits must be obtained whether NO<sub>x</sub> or VOC credits are used. All trades involving VOC offset credits must be presented to the Board for informational purposes prior to Department approval, and the offset credit reductions must be federally enforceable by the time the air emission license for the user is issued.

Verso Androscoggin has proposed to implement a federally enforceable 10% combined annual capacity factor limit on Power Boilers #1 and #2 to obtain offsets for the Lo-Solids Cooking project. In order for reduced emissions resulting from curtailments of plant production to qualify as offset credits, according to 06-096 CMR 113(4)(I), the source must demonstrate to the satisfaction of the Department that demand for the services or products affected by the curtailment will not shift to other similar sources in the state that are not required to offset new emissions, such that the expected decrease in emissions would fail to occur. After limiting the capacity of the Power Boilers, the Mill will operate with supplemental steam provided by a separate commercial entity located on the Mill site.

The other entity, a cogeneration plant, supplies energy in the form of steam to the Mill and electricity that is sold to the power grid. The cogeneration plant is a source of lower NO<sub>x</sub> emissions than Power Boilers #1 and #2 for the same amount of steam generated. Steam from the cogeneration plant is produced from combustion turbines that fire natural gas and are equipped with selective catalytic reduction (SCR) for emission control. Based on emission data from both facilities, the cogeneration plant turbines generate steam with

approximately 96% lower NO<sub>x</sub> emissions levels than Power Boilers #1 and #2, on a lb NO<sub>x</sub> per lb steam comparison basis.

Furthermore, since 2009, the Androscoggin Mill has successfully initiated several energy efficiency projects to reduce the overall energy use throughout the mill. The Lo-Solids<sup>®</sup> Cooking technology project will also improve energy efficiency and result in substantial steam and energy savings at the mill. Based on detailed information provided by Verso Androscoggin, the emission reductions satisfy the requirement outlined in 06-096 CMR 113(4)(I).

Using the established VOC offset ratio of 1.15 to 1, Verso Androscoggin must obtain 276 tons/year of VOC credits to offset the 240.2 tons/year VOC increase:

Offset Ratio	Proposed Increase	VOC Credits Needed
1:1.15	240.2 tpy	276 tpy

Offset credits may be generated based on reductions from actual emissions for any consecutive 24-month period after May 31, 1994. Baseline NO<sub>x</sub> emissions of 766 tons/year total from Power Boilers #1 and #2 were based on actual emissions from December 2004 to November 2006 using measured emission rates from continuous emission monitor (CEM) data. The future potential to emit (PTE), with a 10% Capacity Factor limit and based on a factor from stack test data and No. 6 fuel oil usage in the boilers of 7,833,600 gallons/year, is 260 tons/year from the combined power boilers. Thus, the base credit is 506 tons/year.

06-096 CMR 113, section 5(D) requires an adjustment to the base credit by applying a compliance assurance multiplier reflecting the method of measurement. Use of stack test data has a compliance assurance multiplier of 0.85; therefore, the available NO<sub>x</sub> credit is 430 tons/year.

Actual NO <sub>x</sub> Emissions	Power Boilers #1 and #2 Future PTE with 10% Capacity Factor Limit	Base Credit	Compliance Assurance Multiplier	Available VOC Credits
from Power Boiler #1 and #2 CEM (12/2004–11/2006, avg.)		(column 1) – (column 2)		Generated from Power Boilers #1 and #2 10% Capacity Factor Limit
766 tpy	260 tpy	506 tpy	0.85	430 tpy

The Department certifies that the emissions reduction from the 10% capacity factor limit on Power Boilers #1 and #2 can be used to offset VOC emissions increases from the Digester A Lo-Solids Cooking technology conversion. Issuance of the air emission license will certify both the generation of the credit offsets and the use of 276 tons/year of those credit offsets for this proposed project.

