



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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COMMISSIONER

**Verso Bucksport, LLC
Hancock County
Bucksport, Maine
A-22-77-9-M**

**Departmental
Findings of Fact and Order
New Source Review
NSR #7**

FINDINGS OF FACT

After review of the Minor Revision 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 Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

Facility	Verso Bucksport, LLC (Verso Bucksport)
License Amendment Type	06-096 CMR 115 Minor Revision
NAICS Code	322121 (pulp mill that produces paper)
Nature of Business	Groundwood and thermomechanical pulp; papermaking
Facility Location	2 River Road, Bucksport, Maine

Verso Bucksport LLC (Verso Bucksport) operates a pulp and paper mill and is licensed as a major source through its Part 70 Air Emission License (A-22-70-A-I, December 30, 2004) with various Part 70 amendments and New Source Review amendments.

Verso Bucksport submitted a New Source Review minor revision request to revise the start-up and shake-down period for Boiler 8's biomass capacity upgrade project from 6 months to 9 months and to extend the stack testing deadlines for ammonia, particulate matter (PM), and PM_{2.5} to allow for fine-tuning of the boiler at full capacity prior to testing. This minor revision proposes to adjust the language in air emission license A-22-77-4-A (November 29, 2010), as amended in air emission license A-22-77-6-M (June 30, 2011). To date, the facility has encountered various issues while attempting to fire the upgraded Boiler 8 at full biomass capacity for a sustained period. The Boiler 8 biomass capacity upgrade project included licensing an increased boiler biomass firing rate and the addition of a steam turbine generator.

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B. Emission Equipment

The emission unit addressed in this amendment is Boiler 8 (814 MMBtu/hr). The licensed allowed fuels include biomass (wood waste, wood chips, bark, paper mill sludge, waste papers, and fiber core ends), fuel oil (specification waste oil, off-specification waste oil, and fuel oil), and natural gas.

C. Application Classification

This amendment will not increase emissions of any pollutant. Therefore, the Department has classified the application as a minor revision to New Source Review licenses A-22-77-4-A and A-22-77-6-M and the revision request has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended).

II. MINOR REVISION

Due to operational issues affecting the progress of the Boiler 8 biomass capacity upgrade project, Verso Bucksport has requested extensions of the lb/MMBtu emission limits compliance date and stack test dates. The request does not change the requirements to meet the upgraded Boiler 8's lb/hr emission limits.

A. Background

Verso Bucksport's 814 MMBtu/hr multi-fuel Boiler 8 was licensed in amendment A-22-77-4-A for an increase in the biomass feed rate of the unit (from 26 tons/hour to approximately 80 tons/hour) to allow for the production of additional energy from a new 25 MW steam turbine generator. Subsequent amendment A-22-77-6-M was issued to clarify when the new lb/MMBtu boiler emission limits would take effect. The lb/MMBtu limits were to take effect 6 months from the installation and check-out of the new steam turbine generator. This timeframe took into account the following facts: consistent operation of Boiler 8 at full capacity would not occur until the extra steam produced could be used in the generator and the boiler would need to undergo final tuning at the normal, near-full capacity operating scenario.

Various combustion boiler modifications occurred to allow for the additional biomass firing capacity, including upgrades to the air system for suspension fuel firing. On November 15, 2012 the final testing on the steam generator turbine took place, triggering the 6 month shake-down period. However, as the load of Boiler 8 increased and the suspension fuel firing system was utilized, operational complications have arisen. The most serious of these difficulties is char carryover. Bulky, unburnt pieces of ash in large amounts are exiting the boiler

and causing serious issues in the ash handling and collection systems. Verso Bucksport has been forced to operate the boiler at much-reduced steam loads (between approximately 200,000 lb/hr to 280,000 lb/hr steam versus approximately 400,000 lb/hr steam).

Throughout the startup, Verso Bucksport has been continuously working towards finding solutions to get Boiler 8 up and running at the full steam loads predicted by the modification design specifications. During the second week in January 2013, Verso Bucksport completely shut down the boiler and implemented many corrective actions in an attempt to correct the problems. The measures taken have improved overall boiler operations, but the char carryover issue has yet to be fully resolved and the boiler cannot be operated at full load for any extended period. The original boiler design firm (Alstom) continues to investigate and implement further design changes focused on improving the boiler's air circulation and combustion patterns. A number of changes that have occurred and will continue to be explored include reducing air leakage, making changes to the fuel distribution on the grate, and reconfiguring the air ports.

Verso Bucksport performed diagnostic emissions testing on Boiler 8 on February 19, 2013 to evaluate emissions. Boiler 8 was operated at an average steam production rate of 404,000 lb/hr for the time of the stack testing. The diagnostic test resulted in an emission rate of 0.024 lb/MMBtu which is below both the current particulate matter license limit of 0.06 lb/MMBtu and future license limit of 0.03 lb/MMBtu. However, Boiler 8 is only able to be operated for short portions of time at the higher steam load.

B. Request for lb/MMBtu Timeframe Extension

Although Verso Bucksport is working towards operating Boiler 8 and the associated steam turbine generator to meet their production goals in the shortest time possible, the current 6 month deadline (ending May 15) may not allow enough time to troubleshoot, engineer, and implement all of the necessary corrective actions. Verso Bucksport has requested an additional three months, until August 15, to resolve the remaining boiler project issues prior to the new lb/MMBtu emissions limits taking effect. The short term lb/hr emission limits continue to be in effect during the shake-down period.

The Department approves revising condition (2)(D) in air emission license amendments A-22-77-4-A and A-22-77-6-M to allow for the Boiler 8 lb/MMBtu emission limits to take effect 9 months after the new steam turbine generator is in full operation. The 9 month deadline is August 15, 2013. This additional amount of time is expected to allow for the operational issues at high steam load to be resolved and for the boiler to be fine-tuned at full load. The timeframe revision

does not change any other facility requirements, including the lb/hr emission limits which were effective at the startup of the upgraded boiler.

C. Request for Stack Test Deadline Revisions

Verso Bucksport has also requested additional time to perform the stack testing required in air emission license amendments A-22-77-4-A and A-22-77-6-M due to the startup/shake-down issues with Boiler 8. Without the unit operating at full load consistently, Verso Bucksport has not been able to tune Boiler 8 at its normal operating scenario. The current stack testing language requires a stack test every other year for PM to determine compliance with the lb/MMBtu and lb/hr emission limits, with the first stack test to occur within 12 months of the start of operation of the upgraded boiler. Two PM_{2.5} stack tests are currently required within a 16 month period after the start of operation of the upgraded boiler. Ammonia stack testing is currently required within 12 months of the start of operation of the SNCR system and again within 24 months of the initial test.

Verso Bucksport has requested that the PM and PM_{2.5} stack tests be aligned together with revised timing for the first tests to occur at 6 months from attaining a sustainable full load and the second tests to occur at 12 months after the first. For ammonia, Verso Bucksport has proposed a timeline for the initial ammonia stack test to occur within 12 months after the boiler reaches a sustainable full load and the second test to occur within 24 months after the initial test. Sustainable full load would be defined for stack test timeframe as operating at an average steam load equal to or greater than 390,000 lb/hr for a 30 consecutive day period.

The Department approves revising conditions (2)(F) and (2)(H) in air emission license amendments A-22-77-4-A and A-22-77-6-M to allow for the timing of the Boiler 8 PM, PM_{2.5}, and ammonia stack testing to be based on achieving a sustainable full load, defined as operating at an average steam load equal to or greater than 390,000 lb/hr for a 30 consecutive day period. However, in order to prevent an open-ended stack test timeframe, if sustainable full load has not been obtained by August 15, 2013, this August date will be the start of the 6 month and 12 month clock for stack testing. For PM, PM_{2.5}, and ammonia Verso Bucksport shall perform scheduled stack tests on Boiler 8 as follows:

Boiler 8 Stack Test Requirements

Pollutant	Initial Test	Second Test	Subsequent Tests
PM	Within 6 months of achieving sustainable full load* or 6 months from August 15, 2013, whichever is earlier	Within 12 month after initial test	Every other year
PM _{2.5}	Within 6 months of achieving sustainable full load* or 6 months from August 15, 2013, whichever is earlier	Within 12 months after initial test	Upon request
Ammonia	Within 12 months of achieving sustainable full load* or 6 months from August 15, 2013, whichever is earlier	Within 24 months after initial test	Upon request

* For the purposes of stack testing timeframes, sustainable full load shall be defined as operating at an average steam load equal to or greater than 390,000 lb/hr for a 30 consecutive day period.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that emissions from this source:

- will receive Best Practical Treatment;
- will not violate applicable emissions standards
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-22-77-9-M, subject to the following conditions.

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.

SPECIAL CONDITIONS

The following shall replace Condition 2(D) in Air Emission Licenses A-22-77-4-A and A-22-77-6-M:

- (2) D. Emissions from Boiler 8 shall not exceed the following, with the lb/MMBtu limits becoming effective on August 15, 2013 (9 months from when the new steam turbine installation and check-out was completed) and the lb/hr limits effective at startup of the upgraded boiler. The existing lb/MMBtu license limits shall apply until August 15, 2013.

	lb/MMBtu	Origin and Authority
PM	0.03	06-096 CMR 115, BACT
SO ₂	0.80 (3-hr rolling ave)	40 CFR §60.43
NO _x	0.15 (30 day rolling ave)	06-096 CMR 115, BACT
CO	0.30 (30 day rolling ave)	06-096 CMR 115, BACT

Pollutant	lb/hr	Origin and Authority
PM	24.4	06-096 CMR 115, BACT
PM ₁₀	24.4	06-096 CMR 115, BACT
SO ₂	651.2	06-096 CMR 115, BACT
NO _x	244.2	06-096 CMR 115, BACT
CO	435 (24-hr block ave)	06-096 CMR 115, BACT
VOC	40.7	06-096 CMR 115, BACT

The following shall replace Condition 2(F) in Air Emission Licenses A-22-77-4-A and A-22-77-6-M:

- (2) F. Ammonia emissions shall not exceed 40 ppm from startup of the upgraded boiler until 24 months later when the limit shall be 20 ppm. Compliance with the ammonia limit shall be demonstrated by a stack test conducted within 12 months of Boiler 8 achieving sustainable full load or within 12 months of August 15, 2013, whichever date is earlier. For the purposes of stack testing timeframes, sustainable load shall be defined as operating at an average steam load equal to or greater than 390,000 lb/hr for a 30 consecutive day period. A subsequent ammonia stack test shall be performed again within 24 months of the initial test and by request thereafter. The stack test shall be performed in accordance with the appropriate 40 CFR Part 60, Appendix A Method or other method as approved by EPA and the Department. [06-096 CMR 115, BACT]

The following shall replace Condition 2(H) in Air Emission Licenses A-22-77-4-A and A-22-77-6-M:

(2) H. Verso Bucksport shall perform stack tests on Boiler 8 to determine compliance with the PM emission limits (lb/MMBtu and lb/hr). A PM stack test shall be performed within 6 months of Boiler 8 achieving sustainable full load or within 6 months of August 15, 2013, whichever date is earlier. A subsequent PM stack test shall be performed again within 12 months of the initial test and every other year thereafter. The stack tests shall be performed in accordance with 40 CFR Part 60, Appendix A, Method 1-5 or other method as approved by EPA and the Department.

Verso Bucksport shall perform PM_{2.5} stack tests on Boiler 8. A PM_{2.5} stack test shall be performed within 6 months of Boiler 8 achieving sustainable full load or within 6 months of August 15, 2013, whichever date is earlier. A subsequent PM_{2.5} stack test shall be performed again within 12 months of the initial test and by request thereafter. The stack tests shall be performed in accordance with the appropriate EPA method or other method as approved by EPA and the Department. Verso Bucksport shall submit an amendment application to the Department which shall include a proposed PM_{2.5} limit for the boiler within 6 months of the second test date.

For the purposes of stack testing timeframes, sustainable load shall be defined as operating at an average steam load equal to or greater than 390,000 lb/hr for a 30 consecutive day period.

[06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 9 DAY OF April, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Core for
PATRICIA W. AHO, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: February 15, 2013

Date of application acceptance: February 19, 2013

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.



