



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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**Verso Bucksport, LLC  
Hancock County  
Bucksport, Maine  
A-22-77-8-M**

**Departmental  
Findings of Fact and Order  
New Source Review  
NSR #6**

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 Boiler 8 sulfur dioxide (SO<sub>2</sub>) compliance demonstration method in New Source Review amendments A-22-77-4-A, issued November 29, 2010, and A-22-77-6-M, issued June 30, 2011. Boiler 8 has a continuous emission monitor (CEM) requirement for SO<sub>2</sub>; however the allowable fuels fired in the unit were revised such that the firing of coal and tires no longer occurs. As allowed in *Standards of Performance for Fossil-Fuel-Fired Steam Generators for which Construction is Commenced after August 17, 1971*, 40 CFR Part 60, Subpart D, compliance with SO<sub>2</sub> emissions may be demonstrated by fuel sampling and analysis for the remaining licensed fuels. Verso Bucksport will continue to monitor SO<sub>2</sub> emissions from Boiler 8, but will use the alternative compliance methods.

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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 (including 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 and the revision request has been processed through *Major and Minor Source Air Emission License Regulations*, 06-096 CMR 115 (as amended).

In addition to this minor revision processed under 09-096 CMR 115 to address new source review, Verso Bucksport has also submitted a separate Part 70 Minor License Modification to adjust the Boiler 8 SO<sub>2</sub> compliance demonstration requirement in the Part 70 license from a CEM to fuel sampling and analysis.

## II. MINOR REVISION

Boiler 8 is an 814 MMBtu/hr multi-fuel boiler subject to 40 CFR Part 60, Subpart D. Verso Bucksport has requested a revision to the currently licensed SO<sub>2</sub> compliance demonstration, as allowed through 40 CFR Part 60, Subpart D due to changes to the types of fuels licensed for the boiler made in the New Source Review biomass project amendment.

In New Source Review amendment, A-22-77-4-A, Verso Bucksport was allowed to increase the biomass capacity of the boiler. In that licensing action, the allowance of coal and tires as fuels was removed, but the requirement to use an SO<sub>2</sub> CEM to demonstrate compliance with the SO<sub>2</sub> lb/MMBtu limit did not change.

Condition 2(I) in air emission license A-22-77-4-A, as amended in air emission license A-22-77-6-M states:

2(I) 'Compliance with the SO<sub>2</sub> lb/MMBtu emission limits for Boiler 8 shall be on a 3-hr rolling average, demonstrated by an SO<sub>2</sub> CEMS. [40 CFR Part 60.45]. Verso Bucksport shall maintain the SO<sub>2</sub> CEMS in accordance with Chapter 117, and 40 CFR Part 60, Section 60.45. [MEDEP Chapter 117 and 40 CFR §60.45]'

Verso Bucksport has submitted a request to use the alternative SO<sub>2</sub> compliance demonstration allowed in 40 CFR Part 60, Sections 60.45(b)(1) and (2). The following is the federal language, emphasis added:

§60.45 Emissions and Fuel Monitoring

- (a) Each owner or operator of an affected facility subject to the applicable emissions standard shall install, calibrate, maintain, and operate continuous opacity monitoring system (COMS) for measuring opacity and a continuous emissions monitoring system (CEMS) for measuring SO<sub>2</sub> emissions, NO<sub>x</sub> emissions, and either oxygen (O<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>) except as provided in paragraph (b) of this section.
- (b) Certain of the CEMS and COMS requirements under paragraph (a) of this section do not apply to owners or operators under the following conditions:
  - (1) For a fossil-fuel-fired steam generator that combusts only *gaseous* or liquid fossil fuel (excluding residual oil) with potential SO<sub>2</sub> emissions rates of 26 ng/J (0.060 lb/MMBtu) or less and that does not use post-combustion technology to reduce emissions of SO<sub>2</sub> or PM, COMS for measuring the opacity of emissions and CEMS for measuring SO<sub>2</sub> emissions are not required if the owner or operator monitors SO<sub>2</sub> emissions by fuel sampling and analysis or fuel receipts.
  - (2) For a fossil-fuel-fired steam generator that does not use a flue gas desulfurization device, a CEMS for measuring SO<sub>2</sub> emissions is not required if the owner or operator monitors SO<sub>2</sub> emissions by fuel sampling and analysis.

The natural gas fired at Verso Bucksport is pipeline quality which calculates to 0.00135 lb/MMBtu SO<sub>2</sub>. The gas turbine at the facility is subject to 40 CFR Part 75 which includes a requirement to annually perform a fuel analysis on the natural gas. The results of the natural gas fuel analyses have ranged from 0.000135 to 0.00097 lb/MMBtu, which is well below the 0.06 lb/MMBtu in the 40 CFR Part 60, Section 60.45(b)(1) monitoring exemption.

The fuel oil fired in Boiler 8 has a maximum sulfur content limit of 0.7%. This sulfur content limit ensures compliance with the 0.8 lb/MMBtu SO<sub>2</sub> emission standard in 40 CFR Part 60, Subpart D and meets the requirements of the 40 CFR Part 60, Section 60.45(b)(2) monitoring exemption.

In addition to fuel oil and natural gas, Verso Bucksport fires biomass, including wood waste, wood chips, bark, paper mill sludge, waste papers, and fiber core ends, in Boiler 8. In support of the removal of the SO<sub>2</sub> CEM requirement, Verso Bucksport submitted data on the sulfur content of non-sludge biomass and the sludge biomass. Past fuel sampling for required particulate matter stack testing and in-house sampling from various years from 1994 – 2012 shows the non-sludge biomass sulfur content ranged from 0.01% to 0.05% and the sludge biomass sulfur content ranged from 0.08% to 0.47%.

**% Sulfur in Non-Sludge Biomass and Sludge Biomass Based on Ultimate Analyses  
(years in 1994-2012)**

	1994	1995	1996	1997	1998	1999	2000	2002	2004	2006	2007	2008	2011	2012	Ave
Non-Sludge Biomass % sulfur	0.02	0.02	0.05	0.02	0.03	0.02	0.01	0.05	0.02	0.03	0.05	0.02	0.01	0.01	0.03
Sludge Biomass % sulfur	0.09	0.21	0.33	0.19	0.47	0.09	0.16	0.12	0.09	0.15	-	0.18	0.17	0.08	0.18

A conservative estimate is a firing rate ratio of 90% non-sludge biomass and 10% sludge biomass, resulting in calculated SO<sub>2</sub> emissions of 0.1 - 0.2 lb/MMBtu. The actual firing ratio is more likely to be 95% non-sludge biomass and 5% sludge biomass, based on higher suspension firing and an ongoing effort to reduce sewer losses. These estimated calculated emissions were found to be higher than actual emissions. A review of the CEM data for SO<sub>2</sub> while firing natural gas, oil, and/or biomass (no coal or tires) in the June through October 2012 timeframe shows the majority of CEM hourly readings were 0.0 lb/MMBtu for SO<sub>2</sub>, with no hourly readings above 0.1 lb/MMBtu. Monthly SO<sub>2</sub> averages ranged from 0.01 to 0.04 lb/MMBtu.

Based on low SO<sub>2</sub> emissions occurring from firing the main fuel mix of biomass in Boiler 8, the 40 CFR Part 60, Subpart D, Section 60.45(b)(1) SO<sub>2</sub> CEM exemption when firing natural gas, and the 40 CFR Part 60, Subpart D, Section 60.45(b)(2) SO<sub>2</sub> CEM exemption when documenting fuel oil sulfur content; the Department shall reword condition 2(I) to state that the SO<sub>2</sub> limit from Boiler 8 will be demonstrated by fuel sampling and analysis rather than by use of an SO<sub>2</sub> CEM. The 3-hr averaging period basis in condition 2(D) for the SO<sub>2</sub> lb/MMBtu limit shall be removed, as noted:

	lb/MMBtu	Origin and Authority
SO <sub>2</sub>	0.80 (3-hr rolling ave)	40 CFR §60.43

Condition 2(N) shall be reworded to include the fuel sampling and analysis requirements. The sampling for non-sludge biomass and sludge biomass sulfur content shall be performed during particulate matter testing required by the air emission license, the pipeline natural gas sulfur content shall be obtained annually per the 40 CFR Part 75 requirements for the gas turbine, and the fuel oil sulfur content documentation shall be obtained through the supplier analysis per delivery batch. Condition 2(N) already includes the requirement for fuel oil sulfur content. The requirements for non-sludge biomass, sludge biomass, and natural gas shall be added.

**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-22-77-8-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 3-hr rolling average basis shall be removed from the SO<sub>2</sub> lb/MMBtu emission limit in Condition 2(D) in Air Emission Licenses A-22-77-4-A and A-22-77-6-M:**

2(D) *[Only the SO<sub>2</sub> lb/MMBtu averaging period is being revised]*

	<b>lb/MMBtu</b>	<b>Origin and Authority</b>
SO <sub>2</sub>	0.80	40 CFR §60.43

**The following shall replace Conditions 2(I) and 2(N) in Air Emission Licenses A-22-77-4-A and A-22-77-6-M:**

**(2) Boiler 8 Requirements**

I. Compliance with the SO<sub>2</sub> lb/MMBtu emission limits for Boiler 8 shall be demonstrated by fuel sampling and analysis requirements as set forth in the Boiler 8 periodic monitoring requirements under Condition 2(N). [40 CFR §60.45]

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**N. Boiler 8 Periodic Monitoring**

1. Verso Bucksport shall maintain monthly records of the fuel use for Boiler 8. The fuel oil use records shall include sulfur content, demonstrated by fuel analysis(es) from the supplier for each delivery. The waste oil use records may be on a monthly mill total basis and not a per boiler basis.

2. Verso Bucksport shall keep records of the results of the analysis(es) of representative waste oil sample(s) and shall test representative samples annually or more frequently if changes occur in the process that may affect the composition of the waste oil collected. The results of the analyses shall be kept on-site.
3. Verso Bucksport shall maintain a log of the ESP secondary T/R voltage and current meter reading and record the voltage and current meter reading once per day. The periodic monitoring in this license relating to the Boiler 8 ESP will be superseded by the continuous monitoring system requirements of 40 CFR Part 63, Subpart DDDDD once the CMS is approved.
4. Verso Bucksport shall maintain a log detailing all routine and non-routine maintenance on the ESP. Verso Bucksport shall keep a log documenting the date and nature of all ESP failures.
5. Verso Bucksport shall keep a log(s) and maintain the Boiler 8 multiclones according to the plan previously submitted to the Department.
6. Verso Bucksport shall perform analyses to document non-sludge biomass and sludge biomass sulfur contents during particulate matter testing required by the air emission license.
7. Verso Bucksport shall document the pipeline natural gas sulfur content per the 40 CFR Part 75 requirements for the gas turbine.

[06-096 CMR 115, BPT]

DONE AND DATED IN AUGUSTA, MAINE THIS 12 DAY OF March, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: January 10, 2013

Date of application acceptance: January 11, 2013

Date filed with the Board of Environmental Protection:

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

