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Comprehensive Emissions Test Report

Escanaba Mill
Chlorine
Compliance Testing

Testing Date(s): July 7 and 9, 2015

Report Date: August 13, 2015

Revision Date: No revision to date

Subject Facility:

Verso Corporation
Escanaba Mill
7100 County Road 426
Escanaba, MI 49829

Regulatory Permit No.:

MI-ROP-A0884-2008a
SRN: A0884

Subject Emission Sources:

Bleaching System

Test Locations:

Scrubber 1 Exhaust
Scrubber 2 Exhaust

Report Prepared For:

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7100 County Road 426
Escanaba, MI 49829

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Pace Project No. 12-15-0724



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

**RENEWABLE OPERATING PERMIT
REPORT CERTIFICATION**

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Environmental Quality, Air Quality Division upon request.

Source Name Verso Corporaion - Escanaba Paper Company County Delta

Source Address 7100 County Rd 426, PO Box 757 City Escanaba

AQD Source ID (SRN) A0884 ROP No. MI-ROP-A0884a ROP Section No. _____

Please check the appropriate box(es):

Annual Compliance Certification (Pursuant to Rule 213(4)(c))

Reporting period (provide inclusive dates): From _____ To _____

1. During the entire reporting period, this source was in compliance with ALL terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference. The method(s) used to determine compliance is/are the method(s) specified in the ROP.

2. During the entire reporting period this source was in compliance with all terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference, EXCEPT for the deviations identified on the enclosed deviation report(s). The method used to determine compliance for each term and condition is the method specified in the ROP, unless otherwise indicated and described on the enclosed deviation report(s).

Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))

Reporting period (provide inclusive dates): From _____ To _____

1. During the entire reporting period, ALL monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred.

2. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred, EXCEPT for the deviations identified on the enclosed deviation report(s).

Other Report Certification

Reporting period (provide inclusive dates): From _____ To _____

Additional monitoring reports or other applicable documents required by the ROP are attached as described:

40 CFR 63 Subpart S Bleach Plant Performance Test Report, July 2015

40 CFR 63 Subpart S Thermal Oxidizer Test Report, July 2015

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report and the supporting enclosures are true, accurate and complete

<u>Matt Archambeau</u>	<u>Mill Manager</u>	<u>906-233-1660</u>
Name of Responsible Official (print or type)	Title	Phone Number
		<u>8/27/15</u>
Signature of Responsible Official		Date

Regulatory Summary

Subject Facility: Verso Corporation
Plant Address: Escanaba Mill
7100 County Road 426
Escanaba, MI 49829

Air Permit No.: MI-ROP-A0884-2008a
Facility ID No.: SRN: A0884

Emission Unit IDs	Emission Unit Name	Regulated Constituent	Regulatory Citations	Regulatory Limit	Average Test Result
EGB25	Bleaching System No. 1 Scrubber Exhaust	Halogens (Cl ₂) Chlorine	40 CFR Part 63, Subpart S	≤ 10 ppmv	≤1.68 ppmv

EGB25	Bleaching System No. 2 Scrubber Exhaust	Halogens (Cl ₂) Chlorine	40 CFR Part 63, Subpart S	≤ 10 ppmv	<0.50 ppmv
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Executive Summary

Verso Corporation contracted Pace Analytical Services, Inc. to perform chlorine emission compliance testing on the Bleaching System Scrubbers (Scrubber 1 and Scrubber 2) at the Escanaba Mill located in Escanaba, Michigan. Testing was performed on July 7 and 9, 2015. Summary results are highlighted in the following table:

Test Results Summary

<u>Parameter</u>	<u>Run 1</u>	<u>Run 2</u>	<u>Run 3</u>	<u>Average</u>
Bleaching System Scrubber 1 Chlorine, PPMv- Dry	3.06	<0.49	1.50	≤1.68
Bleaching System Scrubber 2 Chlorine, PPMv- Dry	<0.46	<0.52	<0.53	<0.50

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Introduction

Pace Analytical Services, Inc. personnel conducted chlorine emission compliance testing on the Bleaching System Scrubbers (Scrubber 1 and Scrubber 2) at the Verso Corporation - Escanaba Mill located in Escanaba, Michigan. Tom Rehling, Jake Nelson and Dan Luoma performed on-site testing activities. Terry Borgerding provided administrative project management. Paula LaFleur with Verso Corporation coordinated plant activities during testing. Joel Asher and Jeremy Howe from the Michigan Department of Environmental Quality (MDEQ) were on-site to witness the testing event. Pace Analytical Services, Inc. prepared a comprehensive test protocol that was submitted to the MDEQ and approved prior to testing. On-site activities consisted of the following measurements on each scrubber:

- Chlorine, three independent one-hour samplings and on-site analyses by titration per NCASI: Determination of Chlorine & Chlorine Dioxide in Pulp Mill Bleach Plant Vents (Modified EPA Method 26).

The project objectives of this repeat performance test were to demonstrate compliance with 63.445(c)(2) by achieving a control device outlet concentration of 10 ppmvd chlorinated HAP or less and to confirm and/or re-establish an acceptable operating range(s) for the CMS parameters as identified in 63.453(c) or alternate monitors approved under 63.453(m)-(n). Continuous Monitoring System (CMS) monitored parameters include scrubber flow rates, scrubber effluent ORP's, and scrubber fan status. See Appendix F for a copy of the EPA letter approving the use of scrubber fan status as an alternative monitoring method.

The Bleach Plant Scrubber System consists of two scrubbers which operate in series. During typical operation, exhaust gas from the Scrubber 1 continues on to Scrubber 2 for further treatment. For this performance test, the facility opted to conduct testing at the outlet of each scrubber. The scrubber ORP and flow rate set points were adjusted during the performance testing to test under worst-case conditions in order to define the

outer bounds of the parametric monitoring ranges, within the limit specified in the rule for chlorine emissions. Typical operating set points are more conservative than those established during the performance testing. Results of the testing show that when either of the scrubbers operate within the parametric ranges measured during the test runs, the limit of 10 ppm chlorine will be achieved.

The parametric monitoring data and chlorine test results are summarized in the table below.

<u>Operating Scenario</u>	<u>ORP (mV)</u>	<u>Flow Rate (gpm)</u>	<u>Fan Status</u>	<u>Chlorine ppmvd</u>	<u>Averaging time (hrs)</u>
Operation of Scrubber 1 only	-113	216	On	≤1.68	three one-hour test runs
Operation of Scrubber 2 only	-110	213	On	<0.50	three one-hour test runs

These measurements were performed at normal process operating conditions. Quality protocols comply with regulatory compliance testing requirements.

Subsequent sections summarize the test results and provide descriptions of the process and test methods. Supporting information and raw data are in the appendices.

Results Summary

Results of chlorine determinations are summarized in Tables 1 and 2. The chlorine emission concentration from Scrubber 1 averaged ≤ 1.62 PPMv-Dry. The chlorine emission concentration from Scrubber 2 averaged < 0.50 PPMv-Dry. The chlorine emission concentration for this source is ≤ 10 PPMv-Dry. Subsequent tables provide expanded detail of the testing results.

Many of the titration analyses for this test event resulted in a negative value. For these runs a minimum detection limit (MDL) of 0.01 mg was used to report a less than value. This MDL value was calculated from the approximate mg value for a 0.1 ml titration change which is the smallest graduation on the titration burette. 0.01 mg equates to approximately 0.5 PPM depending on the actual standard volume sampled during the run.

The data in this report are indicative of emission characteristics of the measured sources for process conditions at the time of the test. Representations to other sources and test conditions are beyond the scope of this report.