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Via Registered Mail, Return Receipt Requested

November 19, 2019

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Mr. Ronald Paugh
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Cogency Global Inc.
Registered Agent for
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RE: ***Notice of Intent to Sue Verso Corporation for Violations of the Resource Conservation and Recovery Act at the Luke Paper Company facility in Luke, Maryland***

Dear Sirs:

We are writing on behalf of the Potomac Riverkeeper Network and its members ("PRKN" or "Citizens") to provide you with notice of their intent to file suit against Verso Corporation ("Verso") for "imminent and substantial endangerment" pursuant to the Resource Conservation and Recovery Act ("RCRA"),[1] at Verso's Luke Paper Company facility ("Luke Paper Mill" or "Luke Paper"), located in Luke, Allegany County, Maryland.

Upon providing this notice of intent to sue, Sections 7002(a)(1)(B), (b)(2)(A) of RCRA permit PRKN to commence a civil suit in the Northern Division of the United States District Court for the District of Maryland against Verso for past or present handling of any solid waste that may present an imminent and substantial endangerment ("ISE") to health or the environment. The ISE alleged herein is caused by the discharge of solid and/or hazardous waste from Verso's property, which is the location of the now-closed Luke Paper Mill, to the North Branch of the Potomac River (the "River"). This discharge has been ongoing, on information and belief, for at least the

[1] 42 U.S.C. § 6901 et seq.

last five years and with direct knowledge since April 2019. Sampling of the discharged material by the Maryland Department of the Environment ("MDE") and PRKN suggest the presence of "black liquor," possibly mixed with coal ash. Black liquor is a caustic mix of chemicals and wood waste from the paper-making process that, in addition to having a high pH, contains hazardous constituents at concentrations that are harmful to aquatic life and humans. Coal ash contains some of the same harmful constituents detected in sampling of the material, such as arsenic, mercury, and boron. The Luke Paper Mill generated and handled both black liquor and coal ash onsite when the plant was in use and Verso continues to manage waste materials onsite now that the plant is closed.

The segment of the River impacted by the continuing discharge is a designated Use I-P stream pursuant to Code of Maryland Regulations (COMAR) 26.08.02.08R, which provides protection for water contact recreation, fishing, aquatic life, wildlife and the public water supply.[2] The contamination described herein is threatening and will continue to threaten each of these uses. Moreover, recreation, fishing, and use of the water as a public water supply creates a potential pathway for human exposure to the contamination.

As explained more fully below, Verso is violating RCRA by having handled, stored, and/or disposed of solid waste, and continuing to handle, store, and/or dispose of solid waste, that may present an "imminent and substantial endangerment" to health and the environment. By handling solid waste in a manner that creates an ISE, Verso has injured or threatened to injure, and will continue to injure or threaten to injure, the health, environmental, aesthetic, recreational, and economic interests of PRKN and its members. These injuries or risks are traceable to the ISE Verso created at the Luke Paper Mill, and redressing and abating the ISE will redress Citizens' injuries or risks.

Unless the ISE is enjoined and remedied within 90 days of receipt of this letter, PRKN will commence a citizen suit to enjoin and restrain Verso from continuing to discharge contaminated material into surface waters in a manner that may present an ISE to health or the environment, abate pollution and remediate the harm caused, impose civil penalties, recover attorneys' fees and costs of litigation, and obtain other appropriate relief.

I. HISTORY OF THE SITE AND CURRENT CONDITIONS

The Luke Paper Mill, located at 300 Pratt Street, Luke, Maryland 21540, was founded in 1888 and purchased by Verso Corporation in 2015. Plant operations ceased on June 30, 2019. The 228-acre property straddles both sides of the North Branch of the Potomac River; the paper mill structures are on the Maryland side and a lime kiln and a million-gallon storage tank are located on the West Virginia side.[3]

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[2] Verso Corporation, NPDES Permit No. MD0001422, at 1.

[3] Fredrick Kunkle, *Maryland environmental officials investigate leak in Upper Potomac River near shuttered paper mill*, THE WASHINGTON POST (Oct. 25, 2019), https://www.washingtonpost.com/dc-md-va/2019/10/25/maryland-environmental-officials-investigate-leak-upper-potomac-river-near-shuttered-paper-mill/.

A. Historic and Continued Contamination

During operation, Luke Paper generated and stored black liquor, a byproduct in the paper pulping process, in the million-gallon storage tank.[4] According to the Environmental Manager at Verso Luke LLC, Ronald Paugh, the tank is empty and has not contained black liquor in over 15 years.[5]

Former million-gallon black liquor storage tank – Beryl, West Virginia.
From MDE Black Liquid Inspection Report (April 9, 2019) (Attachment A).

According to various Material Safety Data Sheets ("MSDS's") available online, black liquor is a brown to black liquid with a rotten egg odor that has a pH range of 12-14.[6] Impacts of black liquor and other wood pulping liquors on the aquatic environment have been studied extensively.[7] One large spill of black liquor from a kraft mill resulted in "massive fish mortalities."[8] Natural recolonization of the river by native fish, following that spill, was estimated to take several years.[9] At another site, a large release of spent pulping liquor and contaminated condensate caused the site's wastewater treatment plant to fail, resulting in an NPDES permit exceedance and a moderate fish kill.[10]

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[4] Inspector Charles Hatfield, MDE Black Liquid Inspection Report (April 9, 2019) at 1 (Inspection Report and corresponding photos attached as Attachment A).
[5] *Id.*
[6] Kapstone Charleston Kraft LLC, *Material Safety Data Sheet, Black Liquor*, (Sept. 4, 2008) at 4, https://www.atlanticbulk.com/wp-content/uploads/2016/12/BLACK-LIQUOR.pdf; *see also* WestRock, *Safety Data Sheet, Black Liquor* (Jun. 29, 2015) at 5, https://www.westrock.com/-/media/pdf/safety-data-sheets/wr0011black-liquor.pdf?la=en.
[7] U.S. EPA, EPA-821-R-97-011, TECHNICAL SUPPORT DOCUMENT FOR BEST MANAGEMENT PRACTICES FOR SPENT PULPING LIQUOR MANAGEMENT, SPILL PREVENTION AND CONTROL (Oct. 1997), at 5-3; *see* also U.S. EPA, EPA-600/3-79-013, TOXICITY OF PULP AND PAPER MILL EFFLUENT, A LITERATURE REVIEW (Feb. 1979), at 11-13, 16-20.
[8] U.S. EPA, EPA-821-R-97-011, at 5-4.
[9] *Id.*
[10] *Id.*

Sample MSDS's for black liquor also identify several health hazards based on certain forms of contact.[11] Major health hazards include respiratory tract burns, skin burns, eye burns, and mucous membrane burns.[12] Upon short term or long term exposure by inhalation, black liquor may cause upper respiratory tract irritation, burns, or allergic reactions; by skin contact it may cause irritation, reddening, burns, allergic reactions; by eye contact it may cause burns or blindness; and by ingestion it may cause burns.[13] If black liquor comes into contact with acids, it may release potentially deadly concentrations of hydrogen sulfide.[14] Black liquor also causes caustic reactions in water and may be corrosive to plants or animals.[15] The substance shifts the pH of the aquatic environment, which causes local toxic effects.[16]

In addition to the million-gallon black liquor storage tank, there also is a coal ash pond onsite that, upon information and belief, is unlined. When the facility was operational, Luke Paper burned coal to produce energy and used the pond to dispose of the resulting coal combustion wastewater (herein "coal ash").[17] As EPA acknowledged in its October 2009 Steam Electric Power Generating Point Source Category: Final Detailed Study Report, "[m]any of the common pollutants found in coal combustion wastewater (e.g., selenium, mercury, and arsenic) are known to cause environmental harm and can potentially represent a human health risk."[18] According to the report, pollutants in coal ash are of "particular concern because they can occur in large quantities . . . and at high concentrations . . . in discharges and leachate to groundwater and surface waters."[19] In addition, some pollutants in coal ash present an increased ecological threat due to their tendency to persist in the environment and bioaccumulate, which often results in slow ecological recovery of organisms following exposure.[20]

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[11] Kapstone Charleston Kraft LLC, *supra* note 6, at 2; WestRock, *supra* note 6, at 3; Weyerhaeuser, *Safety Data Sheet, Black Liquor* (May 26, 2015), at 3, https://docplayer.net/63403075-Spent-kraft-cooking-liquor-spent-kraft-pulping-liquor.html.

[12] Kapstone Charleston Kraft LLC, *supra* note 6, at 2.

[13] *Id.*

[14] *Id.*

[15] *Id.* at 7.

[16] *Id.*

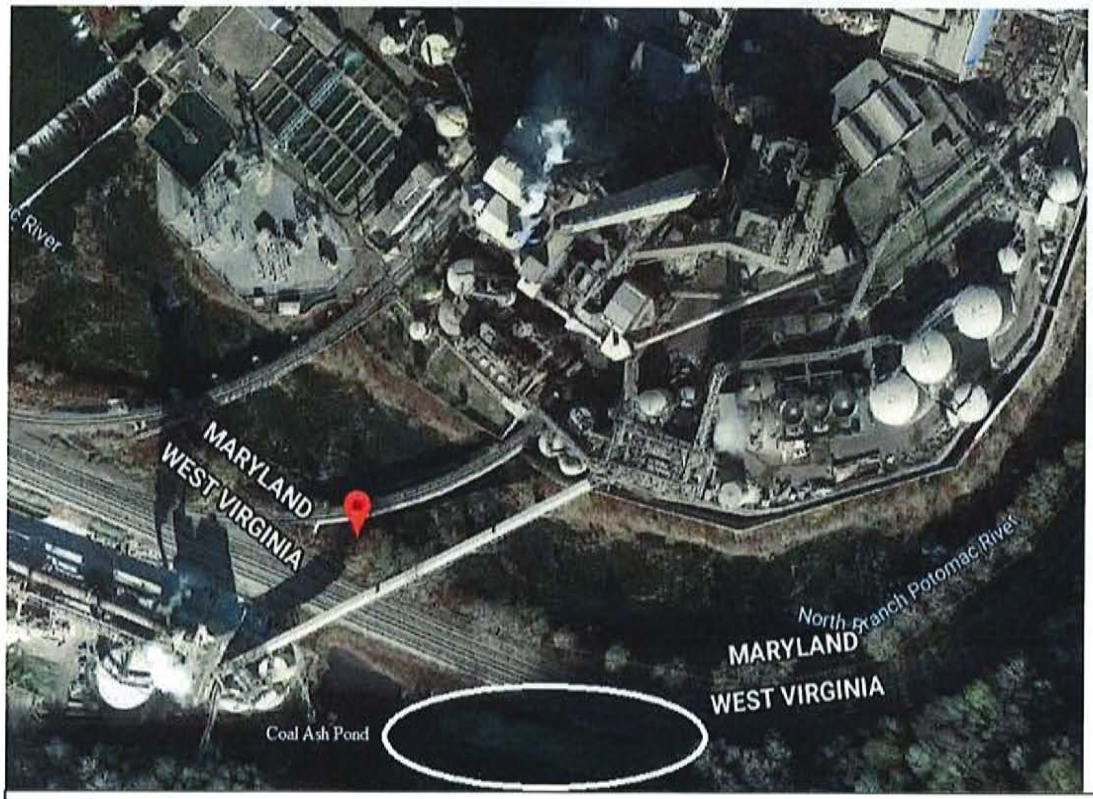
[17] *See* Verso Corporation, NPDES Permit No. MD0001422, at 17 ("The permittee shall maintain proper standards for fly ash handling at the site of the facility . . .")

[18] *See* EPA, *Steam Electric Power Generation Point Source Category: Final Detailed Study Report*, EPA 821-R-09-008 (Oct. 2009), 6-2, available at https://www.epa.gov/sites/production/files/2015-06/documents/steam-electric_detailed_study_report_2009.pdf.

[19] *Id.* at 6-2.

[20] *Id.*

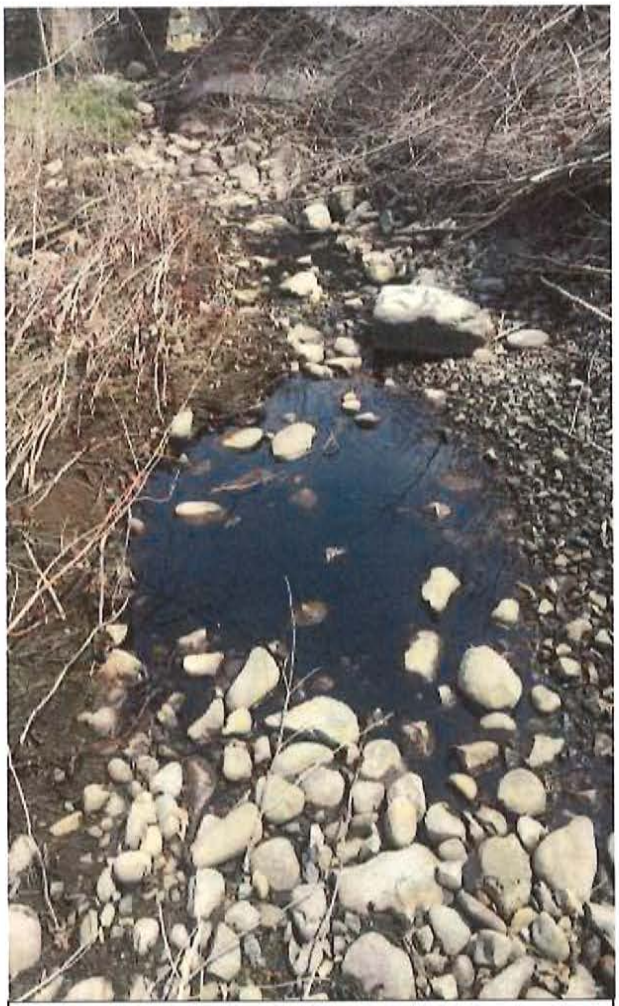
Coal ash pond on West Virginia side of North Branch Potomac River.
Photo taken by Brent Walls, Upper Potomac Riverkeeper, on September 9, 2019 by drone.



Location of discolored water observed (pin) in relation to location of coal ash pond.
Location identified by Brent Walls, Upper Potomac Riverkeeper, on September 10, 2019, 39°28'15.8"N, 79°03'31.6"W, GOOGLE MAPS, http://maps.google.com (enter coordinates into search and change to satellite view).

B. Site Inspections and MDE Follow-up

In response to a citizen complaint of pools of "pure black waste" on the West Virginia side of the River, MDE conducted an inspection on April 9, 2019.[21] The inspector observed that the black substance appeared to be seeping below the railroad mainline that bordered the River and settling in pools between rocks and the River.[22] He observed that some of the liquid was leaking into the River at the furthest downstream pool.[23] In one of the settling pools, the inspector took samples and measured pH and dissolved oxygen: 11.8 S.U. and 1.65 mg/L respectively. This pH measurement is consistent with the pH range of black liquor produced in the pulping process.[24] Below are two of the MDE inspector's photographs from the April 9 site inspection.



Discoloration upstream of Railroad Crossing – West Virginia side of North Branch Potomac River
From MDE Black Liquid Inspection Report (April 9, 2019) (Attachment A).

Discoloration at Railroad Crossing – West Virginia side of North Branch Potomac River
From MDE Black Liquid Inspection Report (April 9, 2019) (Attachment A).

[21] Inspector Charles Hatfield, MDE Black Liquid Inspection Report (April 9, 2019) at 1 (Attachment A.)
[22] *Id.*
[23] *Id.*
[24] *Id.*

Based on the April 9, 2019 inspection, the MDE inspector advised Verso to: investigate the condition of the pipe that was once used to convey black liquor to the storage tank and determine if it had been separated and/or blanked; inspect the million-gallon storage tank for any remaining black liquor; determine the source of the black liquid; sample and test the waters for the presence of black liquor; and submit a follow-up report with findings.[25] Verso has likely been aware of the contamination for years and Environmental Manager Mr. Paugh noted that the contamination levels change based on the level of the River and water table.[26]

On April 25, 2019, the MDE inspector returned to the Luke Paper Mill to collect water samples at the same location as the prior complaint regarding "pure black waste."[27] Together with the Verso Environmental Manager and another Verso employee, the inspector went to the location of the original complaint and collected additional samples.[28] The upstream pools of liquid that the inspector observed during his earlier investigation remained dark and discolored, while two of the downstream pools appeared less dark and discolored than previously.[29] As he observed during his prior investigation, the inspector reported that the dark discolored waters again appeared to be seeping from under the CSX mainline bordering the River.[30] The inspector measured pH and dissolved oxygen of the discolored pool at 10.76 S.U. and .67 mg/L, respectively.[31] The measured pH and dissolved oxygen of the River at another location, farther down the River, were 6.97 S.U. and 9.85 mg/L respectively.[32] The results of the sampling from this inspection further indicates that the unauthorized discharge contains constituents of black liquor.[33] MDE sampling results from the April 25 inspection are attached as Attachment C.

In addition to sampling the discharge, the MDE inspector also visually inspected the former million-gallon black liquor storage tank, which is located on the West Virginia side of the River. This tank is located just upstream of the Lime Kiln, which was part of the pulp and paper production process and was used to convert lime mud to lime, or in chemical terms, calcium carbonate to calcium oxide.[34] The Verso Environmental Manager informed the inspector at the time that the pipeline leading to the storage tank was out of service and had been blanked.[35] The inspector observed that the tank was surrounded by a concrete apron with sloping containment walls and minor stormwater was observed surrounding the tank.[36] The stormwater contained no discoloration.[37]

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[25] *Id.*
[26] Inspector Charles Hatfield, MDE Black Liquid Inspection Report (April 9, 2019) at 1 (Attachment A); Kunkle, *supra* note 3.
[27] Inspector Charles Hatfield, MDE Black Liquid Sampling Inspection Report (April 25, 2019) at 1 (Inspection Report and corresponding photos attached as Attachment B).
[28] *Id.*
[29] *Id.*
[30] *Id.*
[31] *Id.*
[32] *Id.* at 2.
[33] *Id.*
[34] *Id.* at 1.
[35] *Id.* at 2.
[36] *Id.*
[37] *Id.*

Based on the site inspection, the inspector again made several recommendations to Verso: determine the source of the liquid; sample and test the waters for the presence of black liquor and forward the results to MDE; investigate and implement (with MDE approval) a procedure to contain and remove the unauthorized discharge in an environmentally acceptable manner; and within thirty (30) days of receipt of the April 25, 2019 investigation report, submit a follow-up report with findings of Verso's investigation, the source, and a plan of action to address and eliminate the unauthorized discharge.[38]

In response to a notification of a reported fish kill and discoloration of the River at Luke Paper, the MDE inspector again visited the site on July 2, 2019.[39] A citizen had reported seeing a black liquid and white substance covering the rocks below the last downstream trestle bridge while fishing on June 26, 2019. He also reported seeing a dead rainbow trout in the rocks containing the same discoloration and smelling a "sulfuric/rotten egg smell" when wetting his hands with water from the River. According to the citizen's report, he also had received a message from another fisherman indicating that he had seen a dead golden trout in the same area under similar circumstances.[40]

The MDE inspector was unable to access the River that day due to high water flow.[41] The report noted that the inspector would continue the investigation at a later date when River conditions returned to normal.[42] On September 12, 2019, the MDE inspector returned to take pH and dissolved oxygen measurements of the water at the same location where he previously observed the black liquid and recorded measurements of 8.67 S.U. and 9.12 mg/L respectively.[43]

Around August 2019, TRC Environmental Corporation ("TRC") prepared a Hydrogeologic Investigation Work Plan (the "Work Plan") for Verso Luke LLC/Verso Corporation regarding the Luke Paper Mill.[44] The Work Plan identified the former million-gallon black liquor storage tank as the source of the black liquor discharge.[45] The Work Plan was intended to provide "a scope of work to perform a hydrogeological investigation to determine the nature and extent of black liquor in the subsurface."[46] The work outlined in the Work Plan was anticipated to be performed during the late summer/fall of 2019.[47] A Technical Memorandum summarizing the results and conclusions of the hydrogeological investigation and recommendations for additional investigation was required to be submitted to MDE upon the completion of the work.[48] MDE has not indicated that the Work Plan has been implemented or provided the Technical Memorandum

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[38] *Id.*
[39] Inspector Charles Hatfield, MDE Fish Kill Inspection Report (July 2, 2019) at 1 (Inspection Report and corresponding photos attached as Attachment D).
[40] *Id.*
[41] *Id.*
[42] *Id.*
[43] Email from Charles Hatfield, MDE to Charles Poukish, MDE (Sept. 12, 2019) (attached as Attachment E).
[44] TRC Environmental Corporation, *Hydrogeologic Investigation Work Plan*, Luke Paper Mill (Aug. 2019), at 1-1 (attached as Attachment F).
[45] *Id.*
[46] *Id.*
[47] *Id.* at 2-1.
[48] *Id.*

in response to PRKN's Public Information Act request. A site location map from the Work Plan is attached as Attachment G.

C. Laboratory Analysis Results

In addition to the MDE inspector's sampling, the Upper Potomac Riverkeeper for PRKN also conducted sampling in the area and identified high levels of arsenic, boron, and mercury, chemical compounds consistent with coal ash.[49] MDE also found elevated levels of sulfates and high pH, which are consistent with pulping liquors, such as black liquor, and can be harmful to aquatic life.[50] High pH creates a caustic environment, while low dissolved oxygen samples indicate insufficient oxygen for fish and other aquatic life. **Table 1**, below, provides a summary of the pH and dissolved oxygen results from the site inspections and data collection on April 9, April 25, and September 12, in comparison to the Water Quality (WQ) standards for each parameter.

Table 1:

Parameter	**Federal WQ Criteria** (aquatic life)		**Federal WQ Criteria** (human health)	**Maryland WQ Criteria**[51] (aquatic life)	**PRKN Testing**	**MDE 4/9/19 Testing**[52]	**MDE 4/25/19 Testing**	**MDE 9/12/19 Testing**[53]
pH (s.u.)	6.5-9 (chronic)		5-9	6.5-8.5	12.54	11.8	10.76	8.67
Dissolved oxygen (contaminated pool/mixing zone)[54] (mg/L)	Warm Water Criteria[55]		NA	Not less than 5 at any time	NA	1.65/12.6	0.67/9.42	9.12
	30 day mean	5.5						
	7 day min	4.0						
	1 day min	3.0						

[49] Reliance Laboratories, Laboratory Report (Sept. 26, 2019) (attached as Attachment H); Kunkle, *supra* note 3.
[50] ALS Environmental, Certificate of Analysis, Black Liquor Sampling Results (May 9, 2019), at 10-13 (attached as Attachment C); Kunkle, *supra* note 3.
[51] COMAR 26.08.02.03-3(A)(2), (4) Water Quality Criteria Specific to Designated Uses, Criterial for Class I Waters – Water Contact Recreation and Protection of Nontidal Warmwater Aquatic Life, http://www.dsd.state.md.us/comar/comarhtml/26/26.08.02.03-3.htm.
[52] In both the April 9, 2019 and April 25, 2019 site inspections, the MDE inspector measured pH and dissolved oxygen in one of the pools of discolored liquid that had settled between rocks and the River.
[53] The MDE inspector's September 12, 2019 measurements of pH and dissolved oxygen were again taken from the location where black liquid has been observed, in discolored pools that feed into the River. *See* Email from Charles Hatfield, MDE, to Charles Poukish, MDE (Sept. 12, 2019) (Attachment E).
[54] During the April 9 and April 25 inspections, the MDE inspector also measured dissolved oxygen content at the "mixing zone," where the liquid from the pools entered and mixed with the River. In the dissolved oxygen row, for April 9 and 25, the table displays first the values measured in the pool (number before slash) and second the values measured in the mixing zone (number after slash).
[55] The North Branch Potomac is designated as a warm water fishery, therefore the criteria for warm water are provided here. Additionally, these values are using the Other Life Stages criteria, rather than the Early Life Stages criteria. EPA, *Quality Criteria for Water 1986*, EPA 440/5-86-001 (May 1, 1986) at 216, https://www.epa.gov/sites/production/files/2018-10/documents/quality-criteria-water-1986.pdf.

As **Table 1** shows, the measured pH from PRKN and MDE testing is significantly higher than the range that is acceptable for aquatic life and human health in Maryland. Most results also indicated higher pH than the federal WQ criteria range for aquatic life and human health. Dissolved oxygen in the discolored pool was also found at levels significantly below what is considered healthy for aquatic life. Whereas the Maryland WQ criteria provides that the dissolved oxygen should not be below 5 mg/L at any time, MDE testing on April 9 and April 25 showed dissolved oxygen levels in the contaminated pools at 1.65 mg/L and 0.67 mg/L respectively.

Table 2, below, provides the sampling results from the April 25 MDE inspection and PRKN sampling on September 10, in comparison to the federal and state WQ Criteria for each of the parameters.[56] Because the designated uses for the receiving water body include growth and propagation of fish, other aquatic life and wildlife, water contact sports, leisure activities involving direct contact with surface water, fishing, and public water supply, the WQ criteria for aquatic life and drinking water standards are each important standards, where they exist. MDE collected samples from one of the contaminated pools and from an upstream location unaffected by the discharge. Sampling results from this upstream location are included in the table below for comparison.

Table 2:

Parameter[57]	**WQ Criteria** (aquatic life) (ug/L)		**Drinking Water Standards** (ug/L)	**PRKN Sampling of Contaminated Pool(s)** (ug/L)	**MDE Sampling of Contaminated Pool** (ug/L)	**MDE Upstream Sampling for Background Comparison** (ug/L)
	(acute)	(chronic)				
Arsenic	340	150	10	1330	400	ND
Boron	NA		3,000[58]	2,160	NA	NA
Mercury	1.4	.77	2	4	10	ND
Sulfate	NA		500,000[59]	NA	2,610,000	97,100

Table 2 shows that the levels of arsenic, mercury, and sulfates identified in the samples exceed WQ criteria and/or drinking water standards. Moreover, levels of these pollutants are significantly higher in the contaminated pool than in the upstream location. As discussed in

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[56] For the parameters presented here, Maryland uses the same WQ criteria as the federal criteria. U.S. EPA, *National Recommended Water Quality Criteria – Aquatic Life Criteria Table*, https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table#main-content; U.S. EPA, *National Primary Drinking Water Regulations*, https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations#Organic; COMAR 26.08.02.03-2 Numerical Criteria for Toxic Substances in Surface Waters, Table 1 Toxic Substances Criteria for Ambient Surface Waters – Inorganic Substances, http://www.dsd.state.md.us/comar/comarhtml/26/26.08.02.03-2.htm.

[57] All units are in micrograms per liter (µ/L), except for pH, which is measured in standard units (s.u.)

[58] Because there is no maximum contaminant level for boron, this standard relies on the Child Health Advisories (CHAs). *See* Ashtracker, *Glossary of Terms*, https://ashtracker.org/glossary.

[59] This level is based on the World Health Organization guidelines for drinking-water quality. *See* World Health Organization, *Sulfate in Drinking-water, Background Document for development of WHO Guidelines for Drinking-water Quality*, https://www.who.int/water_sanitation_health/dwq/chemicals/sulfate.pdf. EPA has also established a health-based drinking water advisory for sulfate at the same level (500 mg/L or 500,000 µ/L). U.S. EPA, *Drinking Water Advisory: Consumer Acceptability Advice and Health Effects Analysis on Sulfate* (Feb. 2003).

section III, arsenic, mercury, and sulfates at levels that exceed WQ criteria can be harmful to aquatic life and human health. Though the boron levels found did not exceed drinking water standards, boron is a typical coal ash constituent that may indicate the presence of other coal ash constituents in groundwater and surface water.

D. Receiving Water Body

The North Branch Potomac River is the receiving water body of Luke Paper's discharges. It is a designated Use Class I-P water pursuant to COMAR 26.08.02.08R. Class I-P provides protection for water contact recreation, fishing, aquatic life, wildlife and the public water supply.[60] Specifically, Use Class I-P includes the following designated uses: growth and propagation of fish, other aquatic life and wildlife, water contact sports, leisure activities involving direct contact with surface water, fishing, agricultural water supply, industrial water supply, and public water supply.[61]

The Upper North Branch Potomac River watershed is impaired for sediment, and a Total Maximum Daily Load (TMDL) was finalized on May 15, 2007 to address the impairment.[62] Luke Paper is not subject to an allocation pursuant to the TMDL with regard to its permitted NPDES discharges, because its five current permitted outfalls discharge directly into the mainstem rather than smaller contributing tributaries that are the focus of the localized sediment TMDL.[63]

The River also is subject to the Chesapeake Bay TMDL for Sediments, Nitrogen and Phosphorus.[64] This TMDL establishes pollution loads for nitrogen, phosphorus and sediment that reach the Chesapeake Bay.[65]

The Upper North Branch Potomac River watershed was listed in 2012 with a localized impairment for sulfates, but a TMDL has not yet been completed for sulfates.[66] Though the impairment was identified as relevant specifically for tributaries, and not applicable to the mainstem Potomac,[67] the contribution of sulfates at Luke Paper may still contribute to furthering the impairment of the Upper North Branch Potomac River.

II. RCRA VIOLATIONS

The site inspection reports in response to the reported discolored liquid and fish kills at the Luke Paper Mill indicate that the black substance discharging into the River may present an ISE to health and the environment pursuant to RCRA.[68] Based on sampling conducted by both MDE and PRKN, and given the proximity of the discharge to the location where historically large

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[60] Verso Corporation, NPDES Permit No. MD0001422, at 1.
[61] MDE, *Maryland's Designated Uses for Surface Waters – What are Maryland's Water Body Use Classes*, https://mde.maryland.gov/programs/Water/TMDL/WaterQualityStandards/Pages/wqs_designated_uses.aspx.
[62] MDE, Final Fact Sheet for NPDES Permit No. 15-DP-0300, at 8.
[63] *Id.*; Verso Corporation, NPDES Permit No. MD0001422, at 3.
[64] *Id.*
[65] *Id.*
[66] *Id.* at 7-8.
[67] *Id.*
[68] 42 U.S.C. § 6972(a)(1)(B).

quantities of black liquor were stored on site in a million-gallon storage tank, MDE and Verso have concluded that the discharge is likely black liquor.[69] Additionally, several of the pollutants PRKN identified in its sampling are also constituents of coal ash. Given the proximity of the coal ash pond at Luke Paper to the site where the discolored liquid was observed, it is possible that the discolored water discharging to the River also contains coal ash. Sampling further establishes that the source of the ISE is Luke Paper: the ongoing discharge includes constituents such as pH, arsenic, mercury, and sulfates at concentrations above U.S. EPA and Maryland WQ criteria.

Verso has been the owner and operator of Luke Paper since 2015, and is therefore a person who can be restrained from continuing to create an ISE as per Section 7002(a)(1)(B) of RCRA. Black liquor and/or coal ash are solid wastes under RCRA because they are discarded materials from Luke Paper's industrial processes.[70] In developing the Work Plan, submitted August 2019, Verso's consultants concluded that "[t]he source area for the black liquor discharge appears to be a former million-gallon black liquor aboveground storage tank (AST) located in Beryl, West Virginia, which is across the North Branch Potomac River from the main manufacturing facility."[71] Spills or discharges of black liquor and/or coal ash constituents, as are occurring from or at the Luke Paper site, constitute disposal of solid waste pursuant to RCRA.[72] Through such spills or discharges, Verso is contributing to the present disposal of solid waste.[73]

As discussed in more detail below, the solid waste may present an ISE to health or the environment, due to the toxic characteristics of the substances and their constituents and their potential impact on health and the environment. Each day that black liquor or other waste discharged, and continues to discharge, from the site of the former Luke Paper Mill into the River creates an ISE under RCRA and subjects Verso Corporation to injunctive relief, civil penalties, and the costs of litigation, including attorney fees and expert witness fees as per Sections 7002(a) and 7002(e) of RCRA.[74]

III. IMPACTS OF POLLUTANTS TO HUMAN HEALTH AND THE ENVIRONMENT

The contaminants identified from sampling at the Luke Paper site may present an ISE to health or the environment. Several pollutants are associated with human health and aquatic life impacts and were found at levels in excess of the WQ criteria that EPA and Maryland have determined to

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[69] *See* Kunkle, *supra* note 3 ("State officials suspect the seepage contains 'black liquor,' a byproduct of paper manufacturing that is about as caustic as lye..."); TRC Environmental Corporation, Hydrogeologic Investigation Work Plan, Luke Paper Mill (Aug. 2019), at 1-1–2-1 (attached as Attachment F).

[70] Solid waste is defined as "any garbage, refuse . . . and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities . . ." 42 U.S.C. § 6903(27); *see* 42 C.F.R. § 261.4 (exempting only pulping liquors that are reclaimed, no other exemption for black liquor).

[71] TRC Environmental Corporation, Hydrogeologic Investigation Work Plan, Luke Paper Mill (Aug. 2019), at 1-1 (attached as Attachment F).

[72] Disposal is defined as "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters." 42 U.S.C. § 6903(3).

[73] *See* 42 U.S.C. §§ 6903(3), (27).

[74] *See* 42 U.S.C. §§ 6972(a)(1)(B), (e).

be safe. Because the designated uses for the North Branch Potomac River include water contact sports, leisure activities involving direct contact with surface water, fishing, and public water supply, there is an exposure pathway to humans for each contaminant.

A. Verso's disposal of black liquor may present an ISE to health or the environment.

The black liquor leaking from the Luke Paper Mill into the River may present an ISE to health and the environment. Multiple forms of contact with black liquor are hazardous to both health and the environment. Exposure to black liquor can cause upper respiratory tract irritation, burns, allergic reactions, reddening or burns to the skin, and burns or blindness in the eyes.[75] Humans may come into contact with the contaminated water due to the use of the area for recreation, fishing, or public water supply.[76] Indeed, the citizens who reported observing the black liquid and fish kills had been fishing in the area, evidencing the likelihood that others would come into contact with the substance and potentially be exposed to its toxic characteristics.[77]

Apart from the potential health impacts to humans through exposure to black liquor, the substance also changes the pH of the aquatic environment. The sampling data show high pH levels in the discolored pools, which feed directly into the River. The pools had pH levels of 11.8 S.U. (April 9, 2019), 10.76 S.U. (April 25, 2019), and 8.67 S.U. (Sept. 12, 2019), compared with an area of the River unaffected by the discharge, where pH was 6.97 S.U (April 25, 2019).[78] A pH range of 6.5 to 9.0 has been found to provide adequate protection for freshwater fish, but above this level fish have been found to suffer adverse physiological effects that increase in severity the farther the deviation from the normal range.[79] Given that the pH levels from multiple sampling results were found to be significantly above the normal pH range, the discharges may present an ISE to the environment. Low dissolved oxygen levels in and near the discharge area are also harmful to the aquatic environment, as there may be insufficient oxygen for fish and other aquatic life to survive.

Additionally, black liquor and other pulping liquors have been associated with fish kills and sublethal respiratory, circulatory, metabolic and other effects on fish such as Rainbow trout, Sockeye salmon, and Coho salmon.[80]

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[75] Kapstone Charleston Kraft LLC, *supra* note 6, at 2; WestRock, *supra* note 6, at 3; Weyerhaeuser, *supra* note 11, at 3.

[76] Verso Corporation, NPDES Permit No. MD0001422 (The North Branch of the Potomac River is "a designated Use I-P water body under COMAR 26.08.02.02 protected for water contact recreation, fishing, aquatic life, wildlife, and the public water supply . . .")

[77] *See* Inspector Charles Hatfield, MDE Black Liquid Sampling Inspection Report (April 25, 2019) at 1 (Attachment B) (investigating a complaint filed by a citizen who had been fishing in the River); Inspector Charles Hatfield, MDE Fish Kill Inspection Report (July 2, 2019) at 1 (Attachment D) (investigating a fish kill and discoloration of the River reported by citizen who had been fishing the West Virginia side of the River).

[78] Inspector Charles Hatfield, MDE Fish Kill Inspection Report (July 2, 2019) at 1 (Attachment D); Email from Charles Hatfield, MDE, to Charles Poukish, MDE (Sept. 12, 2019) (Attachment E).

[79] EPA, *Quality Criteria for Water 1986*, *supra* note 55, at 237.

[80] EPA, TOXICITY OF PULP AND PAPER MILL EFFLUENT, A LITERATURE Review, *supra* note 7, at 11-13, 16-20.

B. Verso's disposal of coal ash may present an ISE to health or the environment.

In addition to the black liquor, toxic constituents consistent with coal ash waste have been identified onsite, including boron, arsenic, and mercury.[81] The presence of these constituents may indicate that Verso is discharging coal ash to the River, creating additional potential environmental and health risks. If this is the case, additional coal ash pollutants may be present though they have not yet been detected.

In its October 2009 Steam Electric Power Generating point Source Category: Final Detailed Study Report, EPA noted that "[m]any of the common pollutants found in coal combustion wastewater (e.g., selenium, mercury, and arsenic) are known to cause environmental harm and can potentially represent a human health risk."[82] EPA reported that "some pollutants in coal combustion wastewater present an increased ecological threat due to their tendency to persist in the environment and bioaccumulate in organisms, which often results in slow ecological recovery times following exposure."[83] Humans and aquatic life will likely be exposed to these contaminants through the same process as exposure to the black liquor contamination.

C. Verso's disposal of solid waste contaminants, including arsenic, mercury, boron, and sulfates may present an ISE to health or the environment.

Even in the event that the contaminants are determined not to be black liquor or coal ash, the pollutants identified from sampling at the Luke Paper site may themselves present an ISE to health or the environment. As shown in **Table 2**, above, arsenic, mercury, and sulfates were present at levels that exceeded WQ criteria standards, and boron was present at a high level, nearing the Child Health Advisory level.

Arsenic is associated with an increased risk of cancer in humans in the liver and the bladder and also poisons the liver in fish and causes developmental abnormalities.[84] Inhalation of inorganic arsenic can cause a sore throat or irritated lungs and increased risk of lung cancer.[85] The arsenic sampling showed levels over three times the WQ criteria for acute exposure for aquatic life and over 130 times the drinking water standard. This could cause significant harm to human health. Additionally, harm to the environment is likely to result from such high levels because they exceed the standard for aquatic life as well.

Human exposure to mercury levels above the EPA Maximum Contaminant Level for relatively short periods of time can cause kidney damage.[86] Mercury also causes metabolic changes, central nervous system abnormalities, and abnormalities in the liver and kidneys of biota with elevated

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[81] Reliance Laboratories, Laboratory Report (Sept. 26, 2019) (Attachment H).
[82] EPA, *Steam Electric Power Generation Point Source Category: Final Detailed Study Report*, *supra* note 18, at 6-2.
[83] *Id.* at 6-2–6-3.
[84] *Id.* at 6-3.
[85] ATSDR, *Arsenic – ToxFAQs*, CAS # 7440-38-2, (Aug. 2007) 1-2, *available at* https://www.atsdr.cdc.gov/toxfaqs/tfacts2.pdf.
[86] EPA, *Steam Electric Power Generation Point Source Category: Final Detailed Study Report*, *supra* note 18, at 6-4.

levels.[87] The mercury level in the discolored pools at Luke Paper was as high as five times the drinking water standard. At such high levels, there is a substantial risk of endangerment to both human health and the environment.

Sulfates at levels above 500 mg/L (500,000 μ/L) have been associated with a laxative response in humans and above 2,000 mg/L (2,000,000 μ/L) "is almost certain to produce discernible physiological effects."[88] At the Luke Paper site, MDE measured levels over 2,000 mg/L, which would likely cause some negative effect on humans.

Finally, because the substance has already significantly discolored the water and changed the turbidity, as evident in the photo below, the environment has been and continues to be damaged aesthetically by the pollutants. Harm to the environment's aesthetic value can be considered when determining whether activities constitute ISE.[89]

Photo taken by Brent Walls, Upper Potomac Riverkeeper, September 10, 2019.

IV. PERSONS RESPONSIBLE FOR VIOLATIONS

Luke Paper is owned and operated by Verso, a corporation with headquarters in Miamisburg, Ohio. Verso is the legal owner and former/current operator of Luke Paper Mill and a past

[87] *Id.*; ATSDR, *Mercury – ToxFAQs*, CAS # 7439-97-6, (Apr. 1999) 1, *available at* https://www.atsdr.cdc.gov/toxfaqs/tfacts46.pdf.

[88] EPA, *Drinking Water Advisory: Consumer Acceptability Advice and Health Effects Analysis on Sulfate*, EPA 822-R-03-007, 15-16, 20 (Feb. 2003), https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_sulfate_healtheffects.pdf.

[89] *See 307 Campostella, LLC v. Mullane*, 143 F. Supp. 3d 407, 414 (E.D. Va. 2015).

generator of RCRA solid waste,[90] and is therefore a "person" under the RCRA ISE citizen suit provision.[91]

V. PERSONS GIVING NOTICE

Potomac Riverkeeper Network is located at 3070 M Street NW, Washington, DC 20007 at phone number (202) 888-2037. PRKN is a 501(c)(3) non-profit organization with three regional Waterkeeper branches: Potomac Riverkeeper, Upper Potomac Riverkeeper, and Shenandoah Riverkeeper. PRKN's mission is to protect the public's right to clean water in our rivers and streams and to stop pollution to promote safe drinking water, protect healthy river habitats, and enhance public use and enjoyment. Many members of the PRKN are avid kayakers, anglers, bird-watchers, business owners, and other users of the Potomac and Shenandoah Rivers and their tributaries. These members have been injured and continue to be injured by Verso's discharges into the River that may have created and may continue to create an ISE, as described herein, as the ISE threatens members' use and enjoyment of the River and the groundwater and tributaries that flow into it.

VI. CONCLUSION

The discharge of toxic material to the River from Luke Paper, which on information and belief is black liquor or a mixture of wastes that contain black liquor, may present an ISE to health or the environment pursuant to Section 7002(a)(1)(B) of RCRA. As the owner, operator, handler, and generator of the waste, Verso Corporation immediately must cease discharging black liquor and/or other solid waste from Luke Paper to the River, take all reasonable steps to abate the continued release of these materials, and minimize and remediate the impact of these discharges on human health and the environment. If unable to reach an enforceable settlement agreement within the 90-day notice period, PRKN, through its counsel, is prepared to file suit in the Northern Division of the United States District Court for the District of Maryland pursuant to Section 7002(a)(1)(B) after 90 days from the receipt of this letter. This lawsuit will seek injunctive relief, appropriate monetary penalties, up to a maximum statutory penalty amount of $74,552 per day per violation, as per 42 U.S.C. §§ 6972(a) and 6928(g),[92] fees and costs of litigation, including the use of experts, and such other relief as the court deems appropriate.

If you have any questions regarding the allegations in this notice or believe any of the foregoing information may be in error, please contact Mary E. Greene, Deputy Director, as per below, or Natalia M. Cabrera, Staff Attorney, at (202) 469-3151 or ncabrera@environmentalintegrity.org. In the absence of any questions, we also would welcome an opportunity to discuss a resolution of

[90] Email from Brian Coblentz, MDE, to Scott Boylan, MDE, (Oct. 8, 2019) (attached as Attachment I).
[91] 42 U.S.C. § 6972(a)(1)(B)
[92] 42 U.S.C. § 6972(a) provides for any appropriate civil penalties under section 6928(a) and (g). RCRA Section 3008(g), 42 U.S.C. § 6928(g), provides for civil penalties of up to $25,000 for each violation, and each day of such violation constitutes a separate violation. 42 U.S.C. § 6928(g). EPA promulgated its annual update to the statutory civil penalties, as adjusted for inflation, on February 6, 2019 at 40 C.F.R. § 19.4. The updated civil penalty for RCRA Section 3008(g) is $74,552 per day for violations that occurred after November 2, 2015, where penalties are assessed on or after February 6, 2019. 40 C.F.R. § 19.4.

this matter prior to the initiation of litigation if you are prepared to remedy the violations discussed above.

Sincerely,

Mary E. Greene
Deputy Director
Environmental Integrity Project
1000 Vermont Ave NW, Ste 1100
Washington, DC 20005
mgreene@environmentalintegrity.org
(202) 263-4449

Counsel for Citizen Group:
Potomac Riverkeeper Network, 3070 M. Street NW, Washington, DC 20007

cc:

Phillip Musegaas
Potomac Riverkeeper Network
Via Electronic Mail

Andrew Wheeler
Administrator
U.S. Environmental Protection Agency
Office of the Administrator, Mail Code 1101A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
Via Certified Mail, Return Receipt Requested

Cosmo Servidio
Regional Administrator
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Benjamin H. Grumbles
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ATTACHMENT A

Maryland Department of Environment

Water and Science Administration
Compliance Program - Western Division
160 S Water Street, Frostburg, Maryland 21532
301-689-1480(Fax 6543)

AI ID: 1873 **Inspector:** Charles Hatfield charles.hatfield@maryland.gov

Site Name: **Luke Paper Company**
Facility Address: 300 Pratt Street, Luke, Maryland 21540
County: Allegany County

Inspection Date: April 9, 2019 **Start Date/Time:** April 9, 2019, 02:00 PM
End Date /Time: April 9, 2019, 03:00 PM

Media Type(s): NPDES Industrial Major Surface Water

Contact(s): Ron Paugh, Environmental Manager(301.359.3311, x3262) ronald.paugh@versoco.com

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NPDES Industrial Major Surface Water

Permit / Approval Numbers: 05-DP-0300, MD0000001422, 12SW2519, MDR002519 Effective: September 1, 2010
Expiration: August 31, 2015

PAF Number: 19-1143

Site Status: Active

Site Condition: Noncompliance

Recommended Action: Additional Investigation Required, Refer to Others (See Findings)

Inspection Reason: Initial Quarterly, Initial Yearly, PAF

Evidence Collected: Photos/Videos Taken, Visual Observation

Weather: Clear, 72°F, 0" precipitation

Inspection Findings:

On Tuesday, April 9, 2019, I investigated a complaint filed by a citizen while fishing the North Branch of the Potomac River near Beryl, West Virginia. The citizen reported seeing pools of what he described as a "pure black waste" on the West Virginia side of the River near the Verso Paper Mill. I arrived at the Verso Mill after contacting Verso's Environmental Manager, Ron Paugh. Together we traveled to the West Virginia side of the River where two railroad spur tracks cross the River from Luke Maryland. A Lime Kiln operated by the Company is located on the west Virginia sided of the River nearby. During my investigation below the downstream bridge, I was able to observe several pools of water containing the "black waste" identified by the citizen. The discolored liquid appeared to be seeping below the CSX mainline bordering the River and settling in pools between the rocks and the River. Some of the liquid was observed leaking into the River at the furthest downstream pool. The measured pH of one of those pools was 11.8 S.U. Its dissolved oxygen content was measured at 1.65 mg/L. The dissolved oxygen content at the mixing zone to the River was 12.6 mg/L.

Mr. Paugh told me it was common procedure to pump and store black liquor from the pulping process to a Million Gallon storage tank located upriver of the Lime Kiln. Mr. Paugh also said the Company no longer stores black liquor on the West Virginia side of the River and has not done so for over fifteen years. The storage tank which remains at the same location was drained and remains open. Black liquor produced in the pulping process generally has a pH in the range measured. Mr. Paugh has been aware of the matter for some time and says it comes and goes based on the level of the River and water table. Although the Company no longer stores black liquor on that side of the River, I have asked him to determine if the old pipe running to the storage tank had been blanked of separated. Pictures taken at the time of the investigation are attached.

Recommendations

The Permittee is advised at this time to:

1. Investigate the condition of the pipe once used to transfer black liquor to the storage tank located in Beryl, West Virginia.
2. Inspect the Million Gallon storage tank for any remaining black liquor.
3. Determine the source of the liquid observed during today's investigation.
4. Determine if the pipe used to transfer black liquor has been separated and/or blanked.
5. Sample and test the waters observed during this investigation for the presence of black liquor. Testing should be performed by a qualified and certified independent laboratory.
6. Submit a follow-up report with findings of your investigation.

STATE LAW PROVIDES FOR PENALITIES FOR VIOLATION OF MARYLAND ENVIRONMENTAL ARTICLE TITLE IX FOR EACH DAY THE VIOLATION CONTINUES. THE MARYLAND DEPARTMENT OF THE ENVIRONMENT MAY SEEK PENALTIES FOR THE AFOREMENTIONED VIOLATIONS OF TITLE IV ON THIS SITE FOR EACH DAY THE VIOLATION CONTINUES.

NPDES Industrial Major Surface Water- Inspection Checklist

Inspection Item	*Status*	*Comments*
1. Does the facility have a discharge permit? [Environment Article §9-323a(1-3)]	No Violations Observed	05-DP-0300, MD0001422
2. Is the discharge permit current? Has facility applied for renewal? [Environment Article §9-328a(1)]	No Violations Observed	The Discharge Permit expired on August 31, 2015. Application for Renewal was submitted timely and remains under Department review at this time. The conditions of the expired Permit remain "administratively extended at this time."

NPDES Industrial Stormwater

Permit / Approval Numbers: 12-SW-2519, MDR002519

Effective: February 5, 2014
Expiration: December 31, 2018

PAF Number: 19-1143

Inspection Date: April 9, 2019
Site Name: Luke Paper Company
Facility Address: 300 Pratt St, Luke, MD 21540

Site Status: Active

Site Condition: Noncompliance

Recommended Action: Additional Investigation Required, Refer to Others (See Findings)

Inspection Reason: Initial Quarterly, Initial Yearly, PAF

Evidence Collected: Photos/Videos Taken, Visual Observation

Inspection Findings:

The Verso Luke Paper Company has obtained Maryland's Industrial Stormwater Coverage effective February 5, 2014. The Company has developed and implemented a Stormwater Pollution Prevention Plan. The Plan was last inspected during my inspection on September 13, 2017. At the time of the inspection, I found the Plan to be complete with the necessary essentials including a Table of Contents, Pollution Prevention Committee, Potential Sources of Pollutants, Good Housekeeping, Employee Training, Erosion & Sediment Controls, and Site Map including Stormwater Outfalls, Spill Reporting Guidelines, and provisions for monthly, quarterly and annual inspections.

NPDES Industrial Stormwater- Inspection Checklist

Inspection Item	*Status*	*Comments*
1. Does the facility have a discharge permit? [Environment Article §9-323(a)(1-3)]	No Violations Observed	05-DP-0300, MD0001422
2. Has a Stormwater Pollution Prevention Plan (SWPPP) been implemented as required? [40 CFR Part 122 Subpart B Section 122.26.(c)(1)(i)(A-B)]	No Violations Observed	12-SW-2519, MDR002519 A Stormwater Pollution Prevention Plan has been developed and implemented.
3. Is the number and location of discharge outfalls as described within the Stormwater Pollution Prevention Plan (SWPPP)? [40 CFR Part 122 Subpart B Section 122.26.(c)(1)(i)(A-B)]	No Violations Observed	Stormwater Outfalls discharge to the Savage River & North Branch of the Potomac River
4. Are identified outfalls representative of stormwater discharges from the site? [40 CFR Part 122 Subpart B Section 122.26.(c)(1)(i)(A-B)]	Not Evaluated	
5. Does the Stormwater Pollution Prevention Plan (SWPPP) require modifications to prevent runoff of pollutants? [40 CFR Part 122 Subpart C Section 122.42.(b)(1-3)]	Not Evaluated	
6. Are adequate records being maintained for the quarterly routine facility inspections? [Environment Article §9-261(a)(2)]	Not Evaluated	
7. Are adequate records being maintained for the quarterly visual monitoring? [Environment Article §9-261(a)(2)]	Not Evaluated	
8. Are adequate records being maintained for the annual comprehensive evaluation? [Environment Article §9-261(a)(2)]	No Violations Observed	

Inspection Date: April 9, 2019
Site Name: Luke Paper Company
Facility Address: 300 Pratt St, Luke, MD 21540

NPDES Industrial Stormwater- Inspection Checklist

Inspection Item	*Status*	*Comments*
9. Are adequate records being maintained for the employee training who are implementing activities necessary to meet the conditions of the permit? [Environment Article §9-261(a)(2)]	No Violations Observed	
10. If monitoring of benchmark parameters is required, has the permittee performed the required quarterly monitoring? [COMAR 26.08.04.03A(2)]	No Violations Observed	
11. If monitoring of benchmark parameters is required, has the permittee submitted quarterly benchmark monitoring results electronically within the allotted time? [COMAR 26.08.04.03C(2), 40 CFR Part 127.16]	No Violations Observed	
12. Were visible pollutants observed in the receiving waters or in a position likely to pollute water of the State? [Environment Article §9-322]	Out of Compliance	See report findings !
13. If discharges were observed, were samples of the discharge taken? [Environment Article §9-261(c)(1)]	No Violations Observed	

CR Hatfield

Inspector: _____
Charles Hatfield(4/9/2019)
charles.hatfield@maryland.gov

Received by: e-mailed

Stream Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

Stream Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

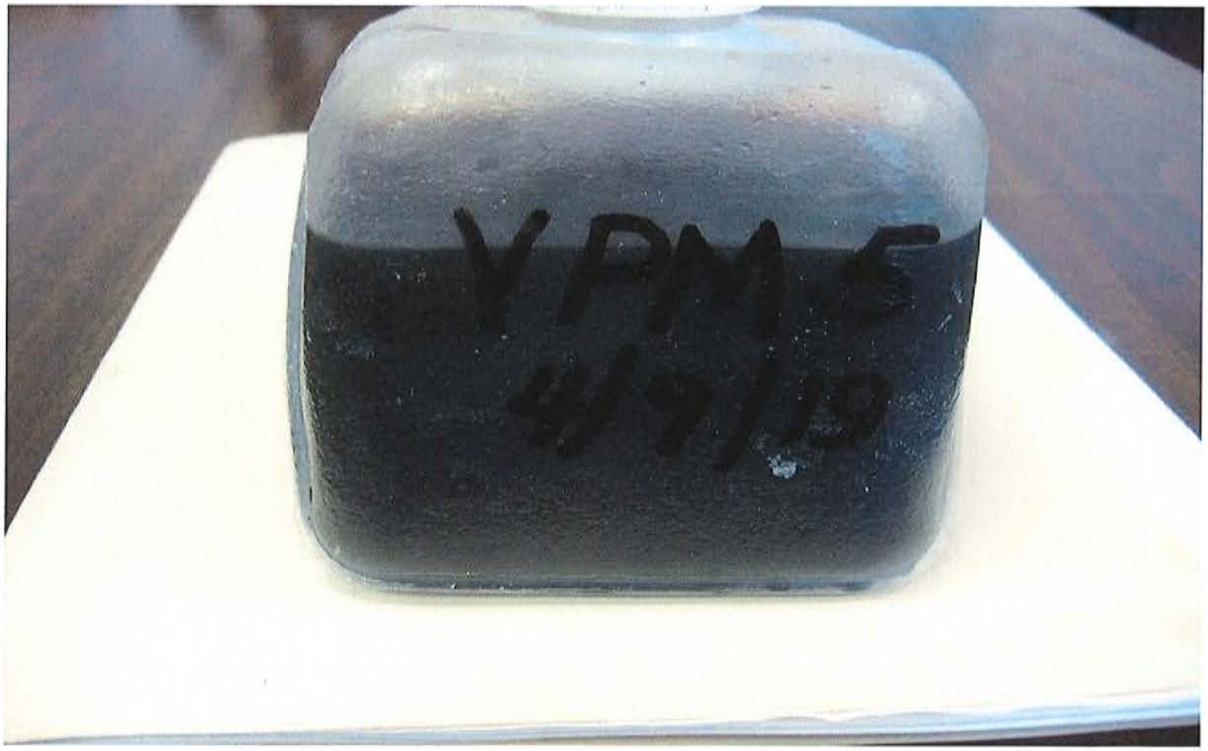
Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

Discoloration Upstream of Railroad Crossing – West Virginia side of North Branch Potomac River

Discoloration looking downstream at Railroad Crossing – West Virginia side of Potomac River

Discoloration at Railroad Crossing – West Virginia side of North Branch Potomac River

Former Million Gallon Black Liquor Storage Tank – Beryl, West Virginia



Samples Collected from Potomac River @ Beryl, West Virginia

ATTACHMENT B

Maryland Department of Environment

Water and Science Administration
Compliance Program - Western Division
160 S Water Street, Frostburg, Maryland 21532
301-689-1480(Fax 6543)

AI ID: 1873 **Inspector:** Charles Hatfield charles.hatfield@maryland.gov

Site Name: **Luke Paper Company**
Facility Address: 300 Pratt Street, Luke, Maryland 21540
County: Allegany County

Inspection Date: April 25, 2019 **Start Date/Time:** April 25, 2019, 09:50 AM
End Date /Time: April 25, 2019, 11:30 AM

Media Type(s): NPDES Industrial Major Surface Water

Contact(s): Ron Paugh, Environmental Manager(301.359.3311, x3262) ronald.paugh@versoco.com
Larry Johnson, Environmental Engineer, 301.359.3311x3766 larry.johnson@versoco.com

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NPDES Industrial Major Surface Water

Permit / Approval Numbers: 05-DP-0300, MD0000001422, 12SW2519, MDR002519 Effective: September 1, 2010
Expiration: August 31, 2015

PAF Number: 19-1143

Site Status: Active

Site Condition: Noncompliance

Recommended Action: Additional Investigation Required, Refer to Others (See Findings)

Inspection Reason: PAF Follow-up

Evidence Collected: Photos/Videos Taken, Visual Observation

Weather: Cloudy, 54°F, Light Rain

Inspection Findings:

On Thursday, April 25, 2019, I conducted an investigation to collect water samples at the location of a complaint filed earlier in the month. The citizen filing the original complaint reported seeing pools of what he described as a "pure black waste" on the West Virginia side of the River near the Verso Paper Mill. During my earlier investigation of the incident, I was able to locate the same black waters described by the fisherman. The location is next to a railroad bridge's abutment on the West Virginia side of the River near the Verso Luke Mill's Lime Kiln.

I arrived at the Verso Mill after contacting Verso's Environmental Manager, Ron Paugh. Together Mr. Paugh and Larry Johnson of the Verso Mill traveled to the location along the River in West Virginia to collect samples. Samples were collected in bottles prepared by MDE's contract laboratory and transferred to a cooler in ice. Although two of the furthest downstream pools appeared to be clearing, the remaining upstream pools remained dark and discolored as was observed during my earlier investigation. Again the dark discolored waters appeared to be seeping from under the

CSX mainline bordering the River. The measured pH of the pool on the day of this investigation was 10.76 S.U. The Dissolved Oxygen of the same pool was measured to be .67 mg/L. The dissolved oxygen of the River near the sampling location was 9.42 mg/L.

Immediately thereafter, Mr. Paugh, Mr. Johnson, and I traveled to the location of the Company's former one million gallon black liquor storage tank. The tank is located on the West Virginia side of the River just upstream of the Company's Lime Kiln operation. The storage tank has not been in used for many years and remains drained and open for inspection. Pictures of the tank taking at the time of the inspection are attached as part of this report. Mr. Paugh believes the tank is setting on a concrete slap and will refer to Company blueprints for further comment. Mr. Paugh further clarified that the pipeline leading to the storage tank remains out of sevice and blanked. The Company no longer and hasn't for many years stored black and/or green liquor on the West Virginia side of the River. The tank is surrounded by a concrete apron with sloping containment walls. Minor stormwater was observed surrounding the tank and contained no discoloration.

We next traveled to a location along the North Branch of the Potomac River near where the bridge crosses the River from West Virginia into Maryland. At this location along the River, Mr. Johnson and I collected three more samples. The measured pH and Dissolved Oxygen of the River at this location was 6.97 S.U. and 9.85 mg/L. As before the samples were immediately transferred to a cooler containing ice. A Chain of Custody for the samples was completed and remains on record. The Laboratory results for the samples taken at the time of this inspection are attached. The results of that sampling indicates the unauthorized discharge contains constituents of black liquor.

Recommendations

The Permittee is advised at this time to:

1. Determine the source of the liquid observed during today's investigation.
2. Sample and test the waters observed during this investigation for the presence of black liquor. Testing should be performed by a qualified and certified independent laboratory. The results need to be forwarded to MDE.
3. As soon as possible, investigate and implement with MDE's approval, a procedure to contain and remove the unauthorized discharge in an environmental acceptable manner.
4. Within thirty(30) days following receipt of this report, submit a follow-up report with findings of your investigation, the source, and a plan of action to address and eliminate the unauthorized discharge.

STATE LAW PROVIDES FOR PENALITIES FOR VIOLATION OF MARYLAND ENVIRONMENTAL ARTICLE TITLE IX FOR EACH DAY THE VIOLATION CONTINUES. THE MARYLAND DEPARTMENT OF THE ENVIRONMENT MAY SEEK PENALTIES FOR THE AFOREMENTIONED VIOLATIONS OF TITLE IV ON THIS SITE FOR EACH DAY THE VIOLATION CONTINUES.

NPDES Industrial Major Surface Water- Inspection Checklist

Inspection Item	*Status*	*Comments*
1. Does the facility have a discharge permit? [Environment Article §9-323a(1-3)]	No Violations Observed	05-DP-0300, MD0001422
2. Is the discharge permit current? Has facility applied for renewal? [Environment Article §9-328a(1)]	No Violations Observed	The Discharge Permit expired on August 31, 2015. Application for Renewal was submitted timely and remains under Department review at this time. The conditions of the expired Permit remain "administratively extended at this time."

Inspection Date: April 25, 2019
Site Name: Luke Paper Company
Facility Address: 300 Pratt St, Luke, MD 21540

NPDES Industrial Stormwater

Permit / Approval Numbers: 12-SW-2519, MDR002519

Effective: February 5, 2014
Expiration: December 31, 2018

PAF Number: 19-1143

Site Status: Active

Site Condition: Noncompliance

Recommended Action: Additional Investigation Required, Refer to Others (See Findings)

Inspection Reason: PAF Follow-up

Evidence Collected: Photos/Videos Taken, Visual Observation

Inspection Findings:

The Verso Luke Paper Company has obtained Maryland's Industrial Stormwater Coverage effective February 5, 2014. The Company has developed and implemented a Stormwater Pollution Prevention Plan. The Plan was last inspected during my inspection on September 13, 2017. At the time of the inspection, I found the Plan to be complete with the necessary essentials including a Table of Contents, Pollution Prevention Committee, Potential Sources of Pollutants, Good Housekeeping, Employee Training, Erosion & Sediment Controls, and Site Map including Stormwater Outfalls, Spill Reporting Guidelines, and provisions for monthly, quarterly and annual inspections. The unauthorized discharge to "waters of the State" is also violation of the Industrial Stormwater Permit.

NPDES Industrial Stormwater- Inspection Checklist

Inspection Item	*Status*	*Comments*
1. Does the facility have a discharge permit? [Environment Article §9-323(a)(1-3)]	No Violations Observed	05-DP-0300, MD0001422
2. Has a Stormwater Pollution Prevention Plan (SWPPP) been implemented as required? [40 CFR Part 122 Subpart B Section 122.26.(c)(1)(i)(A-B)]	No Violations Observed	12-SW-2519, MDR002519 A Stormwater Pollution Prevention Plan has been developed and implemented.
3. Is the number and location of discharge outfalls as described within the Stormwater Pollution Prevention Plan (SWPPP)? [40 CFR Part 122 Subpart B Section 122.26.(c)(1)(i)(A-B)]	No Violations Observed	Stormwater Outfalls discharge to the Savage River & North Branch of the Potomac River
4. Are identified outfalls representative of stormwater discharges from the site? [40 CFR Part 122 Subpart B Section 122.26.(c)(1)(i)(A-B)]	Not Evaluated	
5. Does the Stormwater Pollution Prevention Plan (SWPPP) require modifications to prevent runoff of pollutants? [40 CFR Part 122 Subpart C Section 122.42.(b)(1-3)]	Not Evaluated	

Inspection Date: April 25, 2019
Site Name: Luke Paper Company
Facility Address: 300 Pratt St, Luke, MD 21540

NPDES Industrial Stormwater- Inspection Checklist

Inspection Item	*Status*	*Comments*
6. Are adequate records being maintained for the quarterly routine facility inspections? [Environment Article §9-261(a)(2)]	Not Evaluated	
7. Are adequate records being maintained for the quarterly visual monitoring? [Environment Article §9-261(a)(2)]	Not Evaluated	
8. Are adequate records being maintained for the annual comprehensive evaluation? [Environment Article §9-261(a)(2)]	No Violations Observed	
9. Are adequate records being maintained for the employee training who are implementing activities necessary to meet the conditions of the permit? [Environment Article §9-261(a)(2)]	No Violations Observed	
10. If monitoring of benchmark parameters is required, has the permittee performed the required quarterly monitoring? [COMAR 26.08.04.03A(2)]	No Violations Observed	
11. If monitoring of benchmark parameters is required, has the permittee submitted quarterly benchmark monitoring results electronically within the allotted time? [COMAR 26.08.04.03C(2), 40 CFR Part 127.16]	No Violations Observed	
12. Were visible pollutants observed in the receiving waters or in a position likely to pollute water of the State? [Environment Article §9-322]	Out of Compliance	See report findings !
13. If discharges were observed, were samples of the discharge taken? [Environment Article §9-261(c)(1)]	No Violations Observed	

CR Hatfield

Inspector: _____
Charles Hatfield(4/25/2019)
charles.hatfield@maryland.gov

Received by: mailed

Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

Sampling Location @ Railroad Crossing – West Virginia side of North Branch Potomac River

Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

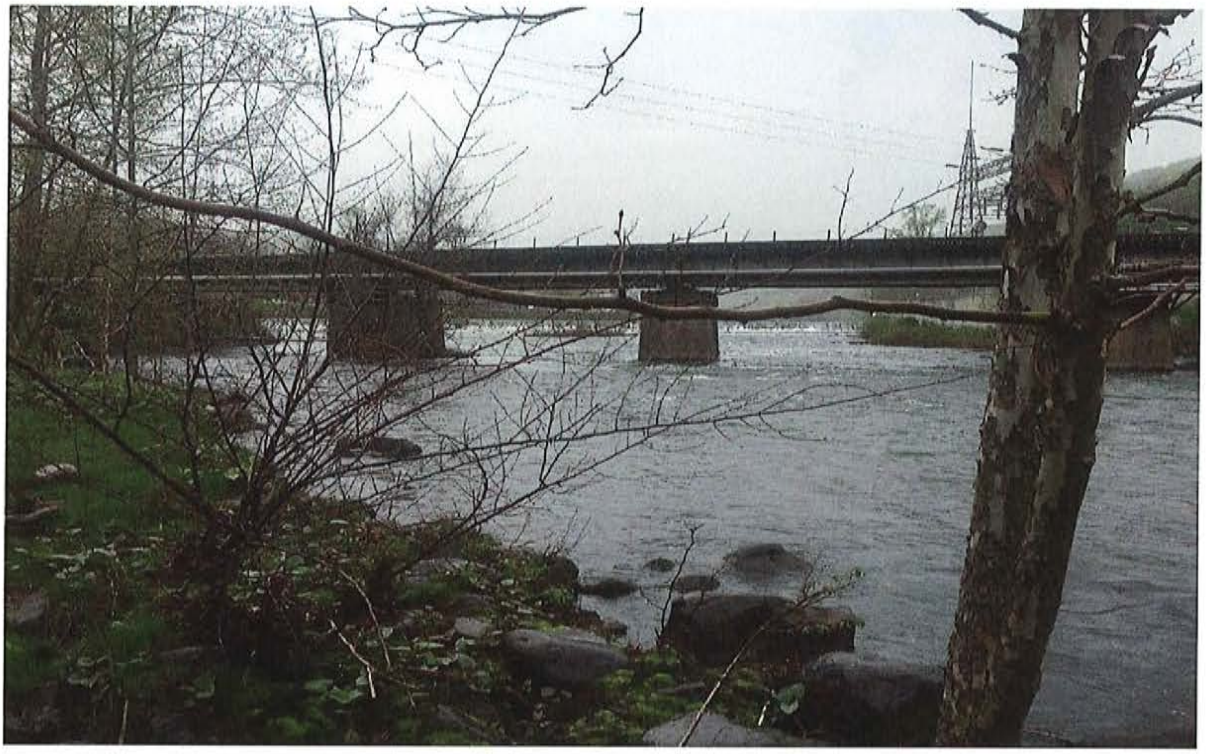
Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

Discoloration @ Railroad Crossing – West Virginia side of North Branch Potomac River

Discoloration @ River's Edge – West Virginia side of North Branch Potomac River

Discoloration @ River's Edge – West Virginia side of North Branch Potomac River

Samples Collected



Sampling Location West Virginia Side North Branch Potomac River Looking Upstream

Former Million Gallon Storage Tank with Containment

Former Million Gallon Storage Tank

Breached Million Gallon Storage Tank

ATTACHMENT C

ALS Environmental

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

May 9, 2019

Mr. Brad Metzger
MDE-Western Divison
160 S. Water Street
Frostburg, MD 21532

Certificate of Analysis

Revised Report - 5/9/2019 11:25:31 AM - See workorder comment section for explanation

Project Name:	**2019-BLACK LIQUOR ANALYSIS-SPECIAL**	Workorder:	**3030296**
Purchase Order:		Workorder ID:	**Verso Paper Company 04/25/19**

Dear Mr. Metzger:

Enclosed are the analytical results for samples received by the laboratory on Friday, April 26, 2019.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vanessa N Badman (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Ms. Sharon Talley , Ms. Kathy Mohan , Mr. Scott Boylan

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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SAMPLE SUMMARY

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3030296001	VPM1 @ Potomac River Pool	Liquid Waste	4/25/2019 10:05	4/26/2019 13:34	Collected by Client
3030296002	VPM2 @ Potomac River Upstream	Liquid Waste	4/25/2019 11:20	4/26/2019 13:34	Collected by Client
3030296003	VPM3 @ Potomac River Pool	Liquid Waste	4/25/2019 10:05	4/26/2019 13:34	Collected by Client
3030296004	VPM4 @ Potomac River Upstream	Liquid Waste	4/25/2019 11:20	4/26/2019 13:34	Collected by Client
3030296005	VPM5 @ Potomac River Pool	Liquid Waste	4/25/2019 10:05	4/26/2019 13:34	Collected by Client
3030296006	VPM6 @ Potomac River Upstream	Liquid Waste	4/25/2019 11:20	4/26/2019 13:34	Collected by Client

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SAMPLE SUMMARY

Workorder: 3030296 Verso Paper Company 04/25/19

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
-- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
-- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296001** Date Collected: 4/25/2019 10:05 Matrix: Liquid Waste

Sample ID: **VPM1 @ Potomac River Pool** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
SEMIVOLATILES										
Acenaphthene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Acenaphthylene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Acetophenone	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Anthracene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Atrazine	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Benzaldehyde	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Benzo(a)anthracene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Benzo(a)pyrene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Benzo(b)fluoranthene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Benzo(g,h,i)perylene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Benzo(k)fluoranthene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Biphenyl	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
4-Bromophenyl-phenylether	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Butylbenzylphthalate	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Caprolactam	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Carbazole	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
4-Chloro-3-methylphenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
4-Chloroaniline	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
bis(2-Chloroethoxy)methane	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
bis(2-Chloroethyl)ether	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
bis(2-Chloroisopropyl)ether	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2-Chloronaphthalene	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2-Chlorophenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
4-Chlorophenyl-phenylether	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Chrysene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
mp-Cresol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
o-Cresol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Di-n-Butylphthalate	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Di-n-Octylphthalate	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Dibenzo(a,h)anthracene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Dibenzofuran	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
3,3-Dichlorobenzidine	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2,4-Dichlorophenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Diethylphthalate	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2,4-Dimethylphenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Dimethylphthalate	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2,4-Dinitrophenol	ND		ug/L	30.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296001** Date Collected: 4/25/2019 10:05 Matrix: Liquid Waste

Sample ID: **VPM1 @ Potomac River Pool** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2,4-Dinitrotoluene	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2,6-Dinitrotoluene	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
1,4-Dioxane	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
bis(2-Ethylhexyl)phthalate	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Fluoranthene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Fluorene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Hexachlorobenzene	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Hexachlorobutadiene	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Hexachlorocyclopentadiene	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Hexachloroethane	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Indeno(1,2,3-cd)pyrene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Isophorone	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2-Methyl-4,6-dinitrophenol	ND		ug/L	30.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2-Methylnaphthalene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Naphthalene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2-Nitroaniline	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
3-Nitroaniline	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
4-Nitroaniline	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Nitrobenzene	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2-Nitrophenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
4-Nitrophenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
N-Nitroso-di-n-propylamine	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
N-Nitrosodiphenylamine	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Pentachlorophenol	ND		ug/L	30.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Phenanthrene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Phenol	ND		ug/L	40.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Pyrene	ND		ug/L	7.5	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
1,2,4,5-Tetrachlorobenzene	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2,3,4,6-Tetrachlorophenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2,4,5-Trichlorophenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2,4,6-Trichlorophenol	ND		ug/L	15.0	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	91.1		%	47 - 128	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2-Fluorobiphenyl (S)	79.4		%	52 - 118	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
2-Fluorophenol (S)	56.7		%	20 - 87	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Nitrobenzene-d5 (S)	76		%	27 - 139	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Phenol-d5 (S)	35.8		%	10 - 81	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Terphenyl-d14 (S)	94.7		%	46 - 133	SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296001** Date Collected: 4/25/2019 10:05 Matrix: Liquid Waste

Sample ID: **VPM1 @ Potomac River Pool** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Library Search - SemiVolatiles										
Butane, 2-methoxy-2-methyl-	32.7	J N	ug/L		SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Unknown	92.7	J	ug/L		SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Unknown	74.4	J	ug/L		SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Benzeneacetic acid	27.6	J N	ug/L		SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Sulfur, mol. (S8)	62.6	J N	ug/L		SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A
Heptadecanoic acid	37.9	J N	ug/L		SW846 8270D	4/29/19 08:50	MXL	4/30/19 02:52	DHF	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296002** Date Collected: 4/25/2019 11:20 Matrix: Liquid Waste

Sample ID: **VPM2 @ Potomac River Upstream** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
SEMIVOLATILES										
Acenaphthene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Acenaphthylene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Acetophenone	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Anthracene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Atrazine	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Benzaldehyde	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Benzo(a)anthracene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Benzo(a)pyrene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Benzo(b)fluoranthene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Benzo(g,h,i)perylene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Benzo(k)fluoranthene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Biphenyl	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
4-Bromophenyl-phenylether	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Butylbenzylphthalate	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Caprolactam	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Carbazole	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
4-Chloro-3-methylphenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
4-Chloroaniline	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
bis(2-Chloroethoxy)methane	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
bis(2-Chloroethyl)ether	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
bis(2-Chloroisopropyl)ether	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2-Chloronaphthalene	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2-Chlorophenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
4-Chlorophenyl-phenylether	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Chrysene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
mp-Cresol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
o-Cresol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Di-n-Butylphthalate	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Di-n-Octylphthalate	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Dibenzo(a,h)anthracene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Dibenzofuran	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
3,3-Dichlorobenzidine	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2,4-Dichlorophenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Diethylphthalate	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2,4-Dimethylphenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Dimethylphthalate	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2,4-Dinitrophenol	ND		ug/L	6.3	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296002** Date Collected: 4/25/2019 11:20 Matrix: Liquid Waste

Sample ID: **VPM2 @ Potomac River Upstream** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
2,4-Dinitrotoluene	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2,6-Dinitrotoluene	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
1,4-Dioxane	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
bis(2-Ethylhexyl)phthalate	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Fluoranthene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Fluorene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Hexachlorobenzene	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Hexachlorobutadiene	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Hexachlorocyclopentadiene	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Hexachloroethane	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Indeno(1,2,3-cd)pyrene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Isophorone	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2-Methyl-4,6-dinitrophenol	ND		ug/L	6.3	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2-Methylnaphthalene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Naphthalene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2-Nitroaniline	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
3-Nitroaniline	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
4-Nitroaniline	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Nitrobenzene	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2-Nitrophenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
4-Nitrophenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
N-Nitroso-di-n-propylamine	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
N-Nitrosodiphenylamine	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Pentachlorophenol	ND		ug/L	6.3	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Phenanthrene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Phenol	ND		ug/L	8.3	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Pyrene	ND		ug/L	1.6	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
1,2,4,5-Tetrachlorobenzene	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2,3,4,6-Tetrachlorophenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2,4,5-Trichlorophenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2,4,6-Trichlorophenol	ND		ug/L	3.1	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	84.7		%	47 - 128	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2-Fluorobiphenyl (S)	85.2		%	52 - 118	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
2-Fluorophenol (S)	54.7		%	20 - 87	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Nitrobenzene-d5 (S)	84.1		%	27 - 139	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Phenol-d5 (S)	34.3		%	10 - 81	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A
Terphenyl-d14 (S)	112		%	46 - 133	SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296002** Date Collected: 4/25/2019 11:20 Matrix: Liquid Waste

Sample ID: **VPM2 @ Potomac River Upstream** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Library Search - SemiVolatiles										
Butane, 2-methoxy-2-methyl-	8.0	J N	ug/L		SW846 8270D	4/29/19 08:50	MXL	4/30/19 03:16	DHF	A

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296003** Date Collected: 4/25/2019 10:05 Matrix: Liquid Waste

Sample ID: **VPM3 @ Potomac River Pool** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Aluminum, Total	0.24		mg/L	0.20	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Antimony, Total	ND		mg/L	0.040	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Arsenic, Total	0.40		mg/L	0.016	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Barium, Total	0.059		mg/L	0.020	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Beryllium, Total	ND		mg/L	0.0079	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Cadmium, Total	ND		mg/L	0.0040	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Calcium, Total	5.2		mg/L	0.20	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Chromium, Total	ND		mg/L	0.010	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Cobalt, Total	ND		mg/L	0.010	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Copper, Total	ND		mg/L	0.020	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Iron, Total	0.85		mg/L	0.12	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Lead, Total	0.015		mg/L	0.012	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Magnesium, Total	0.23		mg/L	0.20	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Manganese, Total	0.10		mg/L	0.010	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Mercury, Total	0.010		mg/L	0.00050	SW846 7470A	4/29/19 01:37	MSA	4/29/19 08:20	MSA	A
Nickel, Total	ND		mg/L	0.040	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Potassium, Total	90.6		mg/L	1.0	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Selenium, Total	ND		mg/L	0.040	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Silver, Total	ND		mg/L	0.0079	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Sodium, Total	1330		mg/L	1.0	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Thallium, Total	ND		mg/L	0.040	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Vanadium, Total	0.088		mg/L	0.010	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	
Zinc, Total	ND		mg/L	0.040	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:23	SRT	

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296004** Date Collected: 4/25/2019 11:20 Matrix: Liquid Waste

Sample ID: **VPM4 @ Potomac River Upstream** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Aluminum, Total	0.58		mg/L	0.11	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Antimony, Total	ND		mg/L	0.022	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Barium, Total	0.029		mg/L	0.011	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Beryllium, Total	ND		mg/L	0.0044	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Calcium, Total	32.0		mg/L	0.11	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Chromium, Total	ND		mg/L	0.0056	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Cobalt, Total	ND		mg/L	0.0056	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Copper, Total	ND		mg/L	0.011	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Iron, Total	0.25		mg/L	0.067	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Lead, Total	ND		mg/L	0.0067	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Magnesium, Total	8.6		mg/L	0.11	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Manganese, Total	0.11		mg/L	0.0056	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	4/29/19 01:37	MSA	4/29/19 08:21	MSA	A
Nickel, Total	ND		mg/L	0.022	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Potassium, Total	1.6		mg/L	0.56	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Selenium, Total	ND		mg/L	0.022	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Silver, Total	ND		mg/L	0.0044	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Sodium, Total	5.8		mg/L	0.56	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Thallium, Total	ND		mg/L	0.022	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Vanadium, Total	ND		mg/L	0.0056	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	
Zinc, Total	ND		mg/L	0.022	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:27	SRT	

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296005** Date Collected: 4/25/2019 10:05 Matrix: Liquid Waste

Sample ID: **VPM5 @ Potomac River Pool** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Sulfate	2610		mg/L	50.0	EPA 300.0			5/1/19 09:09	CHW	A
METALS										
Sulfur	201		mg/L	0.20	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:31	SRT	B1

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ANALYTICAL RESULTS

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID: **3030296006** Date Collected: 4/25/2019 11:20 Matrix: Liquid Waste

Sample ID: **VPM6 @ Potomac River Upstream** Date Received: 4/26/2019 13:34

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Sulfate	97.1		mg/L	5.0	EPA 300.0			4/27/19 09:41	CHW	A
METALS										
Sulfur	29.1		mg/L	0.11	SW846 6010C	4/28/19 09:45	DXC	4/29/19 18:34	SRT	B1

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID	Sample ID	Analysis Method	Prep Method
3030296001	VPM1 @ Potomac River Pool	Lib Search SV	
3030296001	VPM1 @ Potomac River Pool	SW846 8270D	SW846 3510C
3030296002	VPM2 @ Potomac River Upstream	Lib Search SV	
3030296002	VPM2 @ Potomac River Upstream	SW846 8270D	SW846 3510C
3030296003	VPM3 @ Potomac River Pool	SW846 6010C	SW846 3015
3030296003	VPM3 @ Potomac River Pool	SW846 7470A	SW846 7470A
3030296004	VPM4 @ Potomac River Upstream	SW846 6010C	SW846 3015
3030296004	VPM4 @ Potomac River Upstream	SW846 7470A	SW846 7470A
3030296005	VPM5 @ Potomac River Pool	EPA 300.0	
3030296005	VPM5 @ Potomac River Pool	SW846 6010C	SW846 3015
3030296006	VPM6 @ Potomac River Upstream	EPA 300.0	
3030296006	VPM6 @ Potomac River Upstream	SW846 6010C	SW846 3015

QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

QC Batch: EXTR/56242 **Analysis Method:** SW846 8270D

QC Batch Method: SW846 3510C

Associated Lab Samples: 3030296001, 3030296002

METHOD BLANK: 2935028

Parameter	Blank Result	Units	Reporting Limit
Acenaphthene	ND	ug/L	1.5
Acenaphthylene	ND	ug/L	1.5
Acetophenone	ND	ug/L	3.0
Anthracene	ND	ug/L	1.5
Atrazine	ND	ug/L	3.0
Benzaldehyde	ND	ug/L	3.0
Benzo(a)anthracene	ND	ug/L	1.5
Benzo(a)pyrene	ND	ug/L	1.5
Benzo(b)fluoranthene	ND	ug/L	1.5
Benzo(g,h,i)perylene	ND	ug/L	1.5
Benzo(k)fluoranthene	ND	ug/L	1.5
Biphenyl	ND	ug/L	3.0
4-Bromophenyl-phenylether	ND	ug/L	3.0
Butylbenzylphthalate	ND	ug/L	3.0
Caprolactam	ND	ug/L	3.0
Carbazole	ND	ug/L	3.0
4-Chloro-3-methylphenol	ND	ug/L	3.0
4-Chloroaniline	ND	ug/L	3.0
bis(2-Chloroethoxy)methane	ND	ug/L	3.0
bis(2-Chloroethyl)ether	ND	ug/L	3.0
bis(2-Chloroisopropyl)ether	ND	ug/L	3.0
2-Chloronaphthalene	ND	ug/L	3.0
2-Chlorophenol	ND	ug/L	3.0
4-Chlorophenyl-phenylether	ND	ug/L	3.0
Chrysene	ND	ug/L	1.5
mp-Cresol	ND	ug/L	3.0
o-Cresol	ND	ug/L	3.0
Di-n-Butylphthalate	ND	ug/L	3.0
Di-n-Octylphthalate	ND	ug/L	3.0
Dibenzo(a,h)anthracene	ND	ug/L	1.5
Dibenzofuran	ND	ug/L	3.0
3,3-Dichlorobenzidine	ND	ug/L	3.0
2,4-Dichlorophenol	ND	ug/L	3.0
Diethylphthalate	ND	ug/L	3.0
2,4-Dimethylphenol	ND	ug/L	3.0
Dimethylphthalate	ND	ug/L	3.0
2,4-Dinitrophenol	ND	ug/L	6.0

QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

2,4-Dinitrotoluene	ND	ug/L	3.0
2,6-Dinitrotoluene	ND	ug/L	3.0
1,4-Dioxane	ND	ug/L	3.0
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0
Fluoranthene	ND	ug/L	1.5
Fluorene	ND	ug/L	1.5
Hexachlorobenzene	ND	ug/L	3.0
Hexachlorobutadiene	ND	ug/L	3.0
Hexachlorocyclopentadiene	ND	ug/L	3.0
Hexachloroethane	ND	ug/L	3.0
Indeno(1,2,3-cd)pyrene	ND	ug/L	1.5
Isophorone	ND	ug/L	3.0
2-Methyl-4,6-dinitrophenol	ND	ug/L	6.0
2-Methylnaphthalene	ND	ug/L	1.5
Naphthalene	ND	ug/L	1.5
2-Nitroaniline	ND	ug/L	3.0
3-Nitroaniline	ND	ug/L	3.0
4-Nitroaniline	ND	ug/L	3.0
Nitrobenzene	ND	ug/L	3.0
2-Nitrophenol	ND	ug/L	3.0
4-Nitrophenol	ND	ug/L	3.0
N-Nitroso-di-n-propylamine	ND	ug/L	3.0
N-Nitrosodiphenylamine	ND	ug/L	3.0
Pentachlorophenol	ND	ug/L	6.0
Phenanthrene	ND	ug/L	1.5
Phenol	ND	ug/L	8.0
Pyrene	ND	ug/L	1.5
1,2,4,5-Tetrachlorobenzene	ND	ug/L	3.0
2,3,4,6-Tetrachlorophenol	ND	ug/L	3.0
2,4,5-Trichlorophenol	ND	ug/L	3.0
2,4,6-Trichlorophenol	ND	ug/L	3.0
2,4,6-Tribromophenol (S)	94.8	%	47 - 128
2-Fluorobiphenyl (S)	87.4	%	52 - 118
2-Fluorophenol (S)	59.2	%	20 - 87
Nitrobenzene-d5 (S)	88.7	%	27 - 139
Phenol-d5 (S)	37.7	%	10 - 81
Terphenyl-d14 (S)	113	%	46 - 133

LABORATORY CONTROL SAMPLE: 2935029

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Acenaphthene	92.2	ug/L	50	46.1	36 - 130
Acenaphthylene	95	ug/L	50	47.5	39 - 130
Acetophenone	79.6	ug/L	50	39.8	49 - 117
Anthracene	94.6	ug/L	50	47.3	48 - 133

QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

Atrazine	0*	ug/L	50	ND	44 - 149
Benzaldehyde	0*	ug/L	50	ND	38 - 145
Benzo(a)anthracene	102	ug/L	50	50.9	51 - 127
Benzo(a)pyrene	93.2	ug/L	50	46.6	53 - 127
Benzo(b)fluoranthene	98.4	ug/L	50	49.2	53 - 131
Benzo(g,h,i)perylene	104	ug/L	50	51.9	54 - 131
Benzo(k)fluoranthene	95.7	ug/L	50	47.8	52 - 130
Biphenyl	81.4	ug/L	50	40.7	30 - 132
4-Bromophenyl-phenylether	96.4	ug/L	50	48.2	46 - 128
Butylbenzylphthalate	115	ug/L	50	57.3	50 - 137
Caprolactam	28.6	ug/L	50	14.3	5 - 118
Carbazole	93.1	ug/L	50	46.6	52 - 139
4-Chloro-3-methylphenol	88.7	ug/L	100	88.7	46 - 144
4-Chloroaniline	91.6	ug/L	50	45.8	44 - 113
bis(2-Chloroethoxy)methane	97.1	ug/L	50	48.5	43 - 132
bis(2-Chloroethyl)ether	93.3	ug/L	50	46.7	41 - 128
bis(2-Chloroisopropyl)ether	85.4	ug/L	50	42.7	32 - 128
2-Chloronaphthalene	86.9	ug/L	50	43.4	27 - 125
2-Chlorophenol	83.6	ug/L	100	83.6	42 - 137
4-Chlorophenyl-phenylether	92.7	ug/L	50	46.3	38 - 128
Chrysene	107	ug/L	50	53.3	50 - 131
mp-Cresol	73.5	ug/L	100	73.5	28 - 128
o-Cresol	79.7	ug/L	100	79.7	34 - 136
Di-n-Butylphthalate	101	ug/L	50	50.3	47 - 135
Di-n-Octylphthalate	119	ug/L	50	59.4	35 - 141
Dibenzo(a,h)anthracene	107	ug/L	50	53.4	56 - 130
Dibenzofuran	92.1	ug/L	50	46.0	39 - 133
3,3-Dichlorobenzidine	103	ug/L	100	103	38 - 115
2,4-Dichlorophenol	85.5	ug/L	100	85.5	44 - 142
Diethylphthalate	103	ug/L	50	51.5	45 - 132
2,4-Dimethylphenol	89	ug/L	100	89.0	46 - 141
Dimethylphthalate	103	ug/L	50	51.3	44 - 131
2,4-Dinitrophenol	47.7	ug/L	100	47.7	21 - 140
2,4-Dinitrotoluene	107	ug/L	50	53.6	49 - 138
2,6-Dinitrotoluene	107	ug/L	50	53.3	49 - 136
1,4-Dioxane	54.8	ug/L	50	27.4	5 - 129
bis(2-Ethylhexyl)phthalate	120	ug/L	50	60.1	41 - 145
Fluoranthene	90.9	ug/L	50	45.5	49 - 132
Fluorene	97.3	ug/L	50	48.7	42 - 131
Hexachlorobenzene	98.2	ug/L	50	49.1	59 - 109
Hexachlorobutadiene	66.2	ug/L	50	33.1	5 - 126
Hexachlorocyclopentadiene	31.3	ug/L	50	15.7	5 - 97
Hexachloroethane	55.7	ug/L	50	27.8	5 - 111
Indeno(1,2,3-cd)pyrene	99.5	ug/L	50	49.7	55 - 126
Isophorone	90.6	ug/L	50	45.3	45 - 129
2-Methyl-4,6-dinitrophenol	55.7	ug/L	100	55.7	46 - 133

QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

2-Methylnaphthalene	72.1	ug/L	50	36.1	22 - 124
Naphthalene	77.8	ug/L	50	38.9	21 - 123
2-Nitroaniline	106	ug/L	50	52.9	55 - 138
3-Nitroaniline	104	ug/L	50	52.1	60 - 123
4-Nitroaniline	89.8	ug/L	50	44.9	53 - 124
Nitrobenzene	92.4	ug/L	50	46.2	41 - 128
2-Nitrophenol	83.3	ug/L	100	83.3	46 - 140
4-Nitrophenol	27.6	ug/L	100	27.6	5 - 108
N-Nitroso-di-n-propylamine	86.5	ug/L	50	43.3	46 - 133
N-Nitrosodiphenylamine	108	ug/L	50	54.1	58 - 125
Pentachlorophenol	66.7	ug/L	100	66.7	41 - 149
Phenanthrene	92	ug/L	50	46.0	46 - 131
Phenol	41.4	ug/L	100	41.4	5 - 111
Pyrene	108	ug/L	50	53.8	48 - 134
1,2,4,5-Tetrachlorobenzene	71.8	ug/L	50	35.9	18 - 124
2,3,4,6-Tetrachlorophenol	70.3	ug/L	100	70.3	36 - 133
2,4,5-Trichlorophenol	87.7	ug/L	100	87.7	44 - 148
2,4,6-Trichlorophenol	77.1	ug/L	100	77.1	41 - 148
2,4,6-Tribromophenol (S)	82.9	%			47 - 128
2-Fluorobiphenyl (S)	90.6	%			52 - 118
2-Fluorophenol (S)	51.7	%			20 - 87
Nitrobenzene-d5 (S)	88.2	%			27 - 139
Phenol-d5 (S)	36.4	%			10 - 81
Terphenyl-d14 (S)	111	%			46 - 133

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QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

QC Batch: MDIG/77464 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3030296003, 3030296004, 3030296005, 3030296006

METHOD BLANK: 2934745

Parameter	Blank Result	Units	Reporting Limit
Aluminum, Total	ND	mg/L	0.11
Antimony, Total	ND	mg/L	0.022
Arsenic, Total	ND	mg/L	0.0090
Sulfur	ND	mg/L	0.11
Barium, Total	ND	mg/L	0.011
Beryllium, Total	ND	mg/L	0.0044
Cadmium, Total	ND	mg/L	0.0022
Calcium, Total	ND	mg/L	0.11
Chromium, Total	ND	mg/L	0.0056
Cobalt, Total	ND	mg/L	0.0056
Copper, Total	ND	mg/L	0.011
Iron, Total	ND	mg/L	0.067
Lead, Total	ND	mg/L	0.0067
Magnesium, Total	ND	mg/L	0.11
Manganese, Total	ND	mg/L	0.0056
Nickel, Total	ND	mg/L	0.022
Potassium, Total	ND	mg/L	0.56
Selenium, Total	ND	mg/L	0.022
Silver, Total	ND	mg/L	0.0044
Sodium, Total	ND	mg/L	0.56
Thallium, Total	ND	mg/L	0.022
Vanadium, Total	ND	mg/L	0.0056
Zinc, Total	ND	mg/L	0.022

LABORATORY CONTROL SAMPLE: 2934746

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Aluminum, Total	116	mg/L	1.1	1.3	80 - 120
Antimony, Total	89.6	mg/L	.22	0.20	80 - 120
Arsenic, Total	93.9	mg/L	.11	0.10	80 - 120
Sulfur	93.8	mg/L	11.1	10.4	80 - 120
Barium, Total	99.1	mg/L	1.1	1.1	80 - 120
Beryllium, Total	94.1	mg/L	.22	0.21	80 - 120
Cadmium, Total	94	mg/L	.11	0.10	80 - 120
Calcium, Total	99.8	mg/L	1.1	1.1	80 - 120

QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

Chromium, Total	97.1	mg/L	.11	0.11	80 - 120
Cobalt, Total	92.6	mg/L	1.1	1.0	80 - 120
Copper, Total	88.9	mg/L	1.1	0.99	80 - 120
Iron, Total	97.3	mg/L	1.1	1.1	80 - 120
Lead, Total	99	mg/L	.11	0.11	80 - 120
Magnesium, Total	96.1	mg/L	1.1	1.1	80 - 120
Manganese, Total	93.3	mg/L	.11	0.10	80 - 120
Nickel, Total	91.5	mg/L	1.1	1.0	80 - 120
Potassium, Total	99	mg/L	22.2	22.0	80 - 120
Selenium, Total	96	mg/L	1.1	1.1	80 - 120
Silver, Total	88.4	mg/L	.11	0.098	80 - 120
Sodium, Total	103	mg/L	22.2	22.8	80 - 120
Thallium, Total	100	mg/L	.11	0.11	80 - 120
Vanadium, Total	90.8	mg/L	.056	0.050	80 - 120
Zinc, Total	91.8	mg/L	.56	0.51	80 - 120

MATRIX SPIKE: 2934747 DUPLICATE: 2934748 ORIGINAL: 3030112007

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Aluminum, Total	2.27998	mg/L	2	3.30797	3.44197	51.4*	58.1*	75 - 125	3.97	20
Barium, Total	.0482	mg/L	2	2.03398	2.03198	99.3	99.2	75 - 125	.1	20
Iron, Total	1.17779	mg/L	2	3.27197	3.43397	105	113	75 - 125	4.83	20
Manganese, Total	.0266	mg/L	.2	.2138	.216	93.6	94.7	75 - 125	1.02	20
Selenium, Total	.0124	mg/L	2	1.91958	1.92658	95.4	95.7	75 - 125	.36	20
Sodium, Total	10.3999	mg/L	40	50.63949	50.95949	101	101	75 - 125	.63	20
Vanadium, Total	.0004	mg/L	.1	.0946	.094	94.2	93.6	75 - 125	.64	20
Zinc, Total	.0052	mg/L	1	.90759	.91899	90.2	91.4	75 - 125	1.25	20

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QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

QC Batch: MDIG/77478 **Analysis Method:** SW846 7470A

QC Batch Method: SW846 7470A

Associated Lab Samples: 3030296003, 3030296004

METHOD BLANK: 2934792

Parameter	Blank Result	Units	Reporting Limit
Mercury, Total	ND	mg/L	0.00050

LABORATORY CONTROL SAMPLE: 2934793

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Mercury, Total	102	mg/L	.002	0.0020	85 - 115

MATRIX SPIKE: 2934794 DUPLICATE: 2934795 ORIGINAL: 3029862001

***NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Mercury, Total	.00003	mg/L	.005	.00597	.0057	119	114	70 - 130	4.63	20

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QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

QC Batch: WETC/220874 **Analysis Method:** EPA 300.0

QC Batch Method: 300.0/9056A

Associated Lab Samples: 3030296005, 3030296006

METHOD BLANK: 2934577

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2934579

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Sulfate	97.3	mg/L	20	19.5	90 - 110

MATRIX SPIKE: 2935563 DUPLICATE: 2935564 ORIGINAL: 3030112006

***NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Sulfate	6.18	mg/L	40	45.56	45.78	98.5	99	80 - 120	.48	20

METHOD BLANK: 2935566

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2935569

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Sulfate	97.3	mg/L	20	19.5	90 - 110

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QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

METHOD BLANK: 2935570

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

METHOD BLANK: 2935572

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

METHOD BLANK: 2935574

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2935575

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Sulfate	97.2	mg/L	20	19.4	90 - 110

METHOD BLANK: 2935579

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

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QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

QC Batch: WETC/221042 **Analysis Method:** EPA 300.0

QC Batch Method: 300.0/9056A

Associated Lab Samples: 3030296005

METHOD BLANK: 2936735

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2936737

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Sulfate	98.9	mg/L	20	19.8	90 - 110

METHOD BLANK: 2937426

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

LABORATORY CONTROL SAMPLE: 2937429

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Sulfate	99.3	mg/L	20	19.9	90 - 110

METHOD BLANK: 2937430

Parameter	Blank Result	Units	Reporting Limit
Sulfate	ND	mg/L	1.0

METHOD BLANK: 2937434

Parameter	Blank Result	Units	Reporting Limit

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QUALITY CONTROL DATA

Workorder: 3030296 Verso Paper Company 04/25/19

Sulfate	ND	mg/L	1.0

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3030296 Verso Paper Company 04/25/19

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3030296006	VPM6 @ Potomac River Upstream			EPA 300.0	WETC/220874
3030296005	VPM5 @ Potomac River Pool	SW846 3015	MDIG/77464	SW846 6010C	META/67294
3030296006	VPM6 @ Potomac River Upstream	SW846 3015	MDIG/77464	SW846 6010C	META/67294
3030296003	VPM3 @ Potomac River Pool	SW846 3015	MDIG/77464	SW846 6010C	META/0
3030296004	VPM4 @ Potomac River Upstream	SW846 3015	MDIG/77464	SW846 6010C	META/0
3030296003	VPM3 @ Potomac River Pool	SW846 7470A	MDIG/77478	SW846 7470A	META/67300
3030296004	VPM4 @ Potomac River Upstream	SW846 7470A	MDIG/77478	SW846 7470A	META/67300
3030296001	VPM1 @ Potomac River Pool	SW846 3510C	EXTR/56242	SW846 8270D	SVMS/32970
3030296002	VPM2 @ Potomac River Upstream	SW846 3510C	EXTR/56242	SW846 8270D	SVMS/32970
3030296005	VPM5 @ Potomac River Pool			EPA 300.0	WETC/221042

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F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

COC ALS

30302968

1 of 1

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Client Name: MDE/WSA/Western
Address: 106 South Water Street
Frostburg, Maryland 21532
Contact: Brad Metzger
Phone#: 301.876.5711
Project Name/#: Verso Paper Company
Bill To: MDE/WSA

TAT [x] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: _____ Approved By: _____
Email? [y] -Y charles.hatfield@maryland.gov
Fax? [y] -Y No.: 301.689.6543

Container Type	Plastic Analyte	Plastic	Plastic
Container Size	1L	.25L	.25L
Preservative	Cool	HNO3	Cool

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Semi-volatiles	Metals	Sulfur, Sulfate
1 VPM1 @ Potomac River Pool	4/25/2019	10:05	G	WW	1		
2 VPM2 @ Potomac River Upstream	4/25/2019	11:20	G	WW	1		
3 VPM3 @ Potomac River Pool	4/25/2019	10:05	G	WW		1	
4 VPM4 @ Potomac River Upstream	4/25/2019	11:20	G	WW		1	
5 VPM5 @ Potomac River Pool	4/25/2019	10:05	G	WW			1
6 VPM6 @ Potomac River Upstream	4/25/2019	11:20	G	WW			1
8							
9							
10							

Enter Number of Containers Per Sample or Field Results Below.

Receipt Information (completed by receiving Lab)
Cooler Temp: 1.1 Therm ID: 401
No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

Sample/COC Comments

ALS Field Services: _Pickup _Labor _Composite Sampling _Rental Equipment _Other: _____

Project Comments:

LOGGED BY(signature): DATE: TIME:
REVIEWED BY(signature): DATE: TIME:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Charles Hatfield/MDE/WSA CRH	4/26/19	10:27	2 ALS Bill Duke	4/26/19	1027
3 ALS Bill Duke	4/26/19	1334	4 Courtney Lynn ALS	4/26/19	1334
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [ ]
Reportable to PADEP? Yes [ ]
PWSID # _____
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type- _____

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

Rev 10/11

301 Fulling Mill Road
Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client: MDE/WSA/Western Work Order #: 3030296 Initials: CD Date: 4/26/19

1. Were airbills / tracking numbers present and recorded?	(NONE)	YES	NO
Tracking number: _____			
2. Are Custody Seals on shipping containers intact?	(NONE)	YES	NO
3. Are Custody Seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present?		(YES)	NO
5. Are the COC and bottle labels complete, legible and in agreement?		(YES)	NO
5a. Does the COC contain sample locations?		(YES)	NO
5b. Does the COC contain date and time of sample collection for all samples?		(YES)	NO
5c. Does the COC contain sample collectors name?		(YES)	NO
5d. Does the COC note the type(s) of preservation for all bottles?		(YES)	NO
5e. Does the COC note the number of bottles submitted for each sample?		(YES)	NO
5f. Does the COC note the type of sample, composite or grab?		(YES)	NO
5g. Does the COC note the matrix of the sample(s)?		(YES)	NO
6. Are all aqueous samples requiring preservation preserved correctly?	N/A	(YES)	(NO)
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	(N/A)	YES	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	(N/A)	YES	NO
13b. Did the client provide a SDWA PWS ID#?	(N/A)	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	(N/A)	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	(N/A)	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	(N/A)	YES	NO

SOS 4/27/19

Cooler #: _____

Temperature (°C): 1.1 °C

Thermometer ID: TH-201

COMMENTS (Required for all NO responses above and any sample non-conformance):

NO preserved volume for sulfur ~~recei~~ received. SAB/ARS 4/27/19

Rev. 1/10/2019

ATTACHMENT D

Maryland Department of Environment
Water and Science Administration
Compliance Program - Western Division
160 S Water Street, Frostburg, MD 21532
301-689-1480(Fax 6534)

AI ID: 1873 **Inspector:** Charles Hatfield charles.hatfield@maryland.gov

Site Name: **Luke Paper Company**
Facility Address: 300 Pratt Street, Luke, Maryland 21540
County: Allegany County

Inspection Date: July 2, 2019 **Start Date/Time:** July 2, 2019, 09:30 AM
End Date /Time: July 2, 2019, 10:30 AM

Media Type(s): NPDES Industrial Major Surface Water

Contact(s): Ron Paugh, Environmental Manager(301.359.3311x3262) ronald.paugh@versoco.com

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NPDES Industrial Major Surface Water

Permit / Approval Numbers: 05-DP-0300,

PAF Number: 20-1002

Site Status: Active

Site Condition: Additional Investigation Required

Recommended Action: Additional Investigation Required, Continue Routine Investigation

Inspection Reason: PAF Follow-up

Evidence Collected: Photos/Videos Taken, Visual Observation

Weather: Clear, 76°F, Extremely heavy rain over the weekend, 4-5"

Findings:

On Saturday, June 29, 2019, I received notification of a reported fish kill and discoloration of the North Branch of the Potomac River behind Verso's Luke Paper Mill. While fishing the West Virginia side of the River on Wednesday, June 26, 2019, a citizen reported seeing a black liquid and white substance covering the rocks below the last downstream trestle bridge. He further reported seeing a dead rainbow trout in the rocks containing the same discoloration.(Picture included with this report.) In addition, he reported smelling a "sulfuric/rotten egg smell" when wetting his hands with water from the River. The fisherman further reported receiving a message from another fisherman who reported seeing a dead golden trout in the same area under similar circumstances. (Picture not available.)

On Tuesday, July 2, 2019, I arrived at the Luke Paper Mill and met with Ron Paugh to begin my investigation. Together, Mr. Paugh and I traveled to the Beryl, West Virginia side of the River where the Company maintains a Lime Kiln. The trestle bridges are located nearby and have been the subject of previous investigations for a "black liquid" that the Company is aware of and remains under investigation at this time. However, on the day of this investigation,

the flow of the North Branch of the Potomac River was unusually high making access to the River's edge impossible and dangerous. The pools containing the black liquid visible during my earlier investigations were absent when viewed from the trestle above. Only the high flow of the River's water was observed on the day of this investigation. The rocks containing the pools of black liquid were absent and submerged under water. Although there were no dead fish to observe, it is certainly possibly they may have been washed downstream. There were also no dead fish observed during my earlier investigations. Mr. Paugh reported that the River's flow on the day of this investigation was around 3,000 cfs compared to a normal daily flow of 500 cfs.

I will continue my investigation at a later date when River conditions return to normal.

NPDES Industrial Major Surface Water- Inspection Checklist

Inspection Item	*Status*	*Comments*
1. Does the facility have a discharge permit? [Environment Article §9-323(a)(1-3)]	No Violations Observed	05-DP-0300, MD0001422
2. Is the discharge permit current? [Environment Article §9-328(a)(1)]	No Violations Observed	The Discharge Permit expired on August 31, 2015. Application for Renewal was submitted timely and remains under Department review at this time. The conditions of the expired Permit remain "administratively extended at this time."

Inspector: _____ Received by: _____

Charles Hatfield(7/2/2019)
charles.hatfield@maryland.gov

CRH, 7/2/19, North Branch Potomac River Fish Kill

Dead Fish(Trout) North Branch Potomac River – June 29, 2019 @ Beryl, West Virginia

North Branch Potomac River @ Beryl, West Virginia Bridge(Downstream) – July 2, 2019 - ~4,000 cfs

CRH, 7/2/19, North Branch Potomac River Fish Kill

Confluence North Branch Potomac River(Left) & Savage River(Right) @ Beryl, WV – Upstream ~4,000cfs

North Branch Potomac River Upstream Piedmont, WV Bridge – July 2, 2019 - ~4,000 cfs

ATTACHMENT E

Maryland

Scott Boylan -MDE- <scott.boylan@maryland.gov>

North Branch Potomac River - Algae Sample

Charles Hatfield -MDE- <charles.hatfield@maryland.gov> Thu, Sep 12, 2019 at 4:15 PM
To: Charles Poukish -MDE- <charles.poukish@maryland.gov>
Cc: Brad Metzger -MDE- <brad.metzger@maryland.gov>, Scott Boylan -MDE- <scott.boylan@maryland.gov>, Alan Klotz - DNR- <alan.klotz@maryland.gov>

Charlie,

Ron Holt will be delivering the sample that I collected this a.m from the Potomac River near the Verso Paper Mill. It is the same location where we have observed a black liquid seeping from the bank of the River. I am also including the pictures I took the day before the sampling at the same location. The pH and D.O. of the river at this location this morning were 8.67 s.u. and 9.12 mg/L respectfully. Since we have received complaints of a white deposit on rocks at the River, I am also sending you one of those too. Remember the Company operated a Lime Kiln at the same location probably less than 300 yards away. The Company no longer operates at Luke.

Charles Hatfield

Click here to complete a three question customer experience survey.

5 attachments

IMG_3977.JPG
974K

IMG_3980.JPG
932K

IMG_3978.JPG
1154K

IMG_3979.JPG
1042K

IMG_3981.JPG
1280K

ATTACHMENT F

Verso Corporation
Luke Mill
300 Pratt Street
Luke, MD 21540

T 301 359 3311
W versoco.com

ES-19-97

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

August 15, 2019

Scott F. Boylan, Division Chief
Compliance Program
Water Management Administration
Maryland Department of the Environment
160 South Water Street
Frostburg, Maryland 21532

Subject: Work Plan for Subsurface Hydrogeological Investigation of the dark liquid pooling on the North Branch of the Potomac River

Dear Mr. Boylan:

Enclosed please find the Work Plan prepared by TRC for the subsurface hydrogeological investigation of the dark liquid pooling on the North Branch of the Potomac River. This work plan is being submitted as committed in Verso's incident response letter to the Maryland Department of Environment (MDE) dated July 14, 2019.

Verso will initiate this work plan upon approval from MDE and WVDEP at their discretion. If you have any questions, please contact me or Ron Paugh at (301) 359-3311, extensions 3305 and 3262 respectively.

Sincerely

Glen Gilbert
Operations Manager

RP:rp
Enclosure

ES-19-97

CC: Robin Dolly
Environmental Inspector Supervisor
Water& Waste Group
West Virginia Department of Environmental Protection
Northeast Regional Office
22288 Northwestern Pike, Romney, WV 26757-8005

Hydrogeologic Investigation Work Plan

Luke Paper Mill

Luke, Maryland & Beryl, West Virginia

August 2019

Prepared For
Verso Luke LLC/Verso Corp.
Luke Mill
300 Pratt Street
Luke, MD 21540

Submitted by
TRC Environmental Corporation
1 Kenton Drive, Suite 200
Charleston, West Virginia 25311

Gregory E. Tjeman, P.G.
Senior Hydrogeologist

Daniel A. Curry
Senior Project Manager

1 KENTON DRIVE, SUITE 200, CHARLESTON, WV 25311 • 304.346.2599 PHONE • 304.346.2591 FAX • WWW.TRCCOMPANIES.COM

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Section 1
Introduction

TRC Environmental Corporation (TRC) has prepared this Hydrogeologic Investigation Work Plan (work plan) on behalf of Verso Luke LLC / Verso Corporation (Verso) to describe the proposed hydrogeologic investigation of a black liquor discharge to the North Branch Potomac River from the Luke Paper Mill facility, which is located at 300 Pratt Street, Luke, Maryland.

The source area for the black liquor discharge appears to be a former million-gallon black liquor aboveground storage tank (AST) located in Beryl, West Virginia, which is across the North Branch Potomac River from the main manufacturing facility. The location of the Luke Paper Mill is shown in **Figure 1**.

The Maryland Department of Environment (MDE) issued Verso an inspection report dated April 9, 2019 in response to a citizen complaint that a "black substance" was observed to be pooling and entering the North Branch Potomac River adjacent to Verso's lime kiln facility in Beryl, West Virginia. The MDE performed a follow-up inspection and confirmed the presence of the pools of black material observed by the citizen. In addition, the MDE observed the pooled liquid discharging from the riverbank into the North Branch Potomac River. On April 25, 2019, the MDE returned to the Site to collect water samples for laboratory analyses from the location previously inspected. MDE also observed the presence of the out of service former million-gallon black liquor AST on the West Virginia side of the facility. On June 24, 2019, Verso received a second MDE inspection report, which included the analytical results from the water samples previously collected by MDE. Both inspection reports identified Verso as being non-compliant with its NPDES permit (Permit No MD0001422) and recommended additional actions. In response to this second inspection report Verso committed to submitting a work plan to MDE to undertake a subsurface hydrogeological investigation.

This work plan provides a scope of work to perform a hydrogeological investigation to determine the nature and extent of black liquor in the subsurface. A description of the study area, field investigation locations, investigation methodologies, schedule, and reporting are provided.

Section 2
Project Objectives and Scope of Work

A hydrogeological investigation of the former million-gallon black liquor AST area (study area) will be performed to evaluate the nature and extent of black liquor in the subsurface which has been observed to be discharging to the North Branch Potomac River. The study area and key features are depicted on **Figure 2.**

This hydrogeological investigation described in this work plan is anticipated to be performed during the late summer/fall of 2019. Work will be conducted during low flow conditions in the North Branch Potomac River for safety considerations and to expose more of the embankment to perform the proposed scope of work.

This work plan provides Investigation Methodologies (Section 3.0) that will be employed during the hydrogeological investigation. A Technical Memorandum will be submitted to MDE summarizing the results and conclusions of the hydrogeological investigation, as well as to provide any recommendations for additional investigation. The Technical Memorandum will reference methods and controls prescribed herein unless otherwise noted.

The objectives of the investigative activities described in this work plan are as follows:

- Assess the nature and extent of the unauthorized discharge in the subsurface by conducting the following types of activities:
  - Installation of soil borings and temporary monitoring wells;
  - Collection of groundwater, surface water, seep, and AST secondary containment area field screening samples;
  - Further assessment of facility infrastructure;
  - Development of a Conceptual Site Model to guide remedial selection; and
  - Generate a report for MDE review and comment.
- Evaluate the interaction between groundwater and North Branch Potomac River hydraulic systems.
- Identify preliminary remedial options that will lead to containing and/or removing the unauthorized discharge into the North Branch Potomac River.

The number of locations proposed in the scope of work below is an estimate of what may be needed to fully assess the extent of the black liquor in the subsurface. These numbers may change based on observed field conditions while performing the work. The scope of work includes:

- Permit coordination, if required;
- The advancement of approximately 11 direct push technology (DPT) soil borings to identify lithology, field screen soil cores, and identify the water table;
- The installation of one temporary 1-inch diameter monitoring well (TMW) in each of the DPT borings;
- The collection and field screening of approximately 5 water samples from the former one million-gallon black liquor AST concrete secondary containment system and apparent underdrain system;
- The collection and field screening of approximately 5 surface water samples from the North Branch Potomac River;
- The collection and field screening of approximately 7 black liquor seep samples from along the riverbank of the North Branch Potomac River;
- The advancement of approximately 7 shallow temporary points along the riverbank. These locations will be installed on the embankment upslope of the seep locations;
- The installation of, 1-inch diameter TMW in each of the temporary point boreholes;
- Field screening of groundwater from each installed TMW location;
- Measuring depths to water in each TMW; and
- Surveying of the TMWs for horizontal and vertical control and for preparation of a groundwater potentiometric surface map.

The locations of the DPT borings, TMWs, surface waters, seeps, secondary containment system and underdrain, and temporary point monitoring wells are discussed in Sections 2.2 through 2.6 and installation and sample methodologies are detailed in Section 3.0.

2.1 Study Area Description

The study area (**Figure 2**) covers portions of the North Branch Potomac River and Beryl, West Virginia. Most of the manufacturing facility structures and operations, including the North Branch Potomac River, are located within the Luke, Maryland portion of the facility. The former million-gallon black liquor AST, lime kiln, and areas south of the North Branch Potomac River are located within Beryl, West Virginia. Additionally, CSX operates a rail line and rail yard in Beryl, West Virginia.

The study area is located within the Appalachian Plateau physiographic province which is underlain mainly by folded and faulted sedimentary rocks. The bedrock in this region consists of gently folded shale, siltstone, and sandstone. The unconsolidated material at the study area is anticipated to consist of fluvial deposits from the North Branch Potomac River.

Anticipated groundwater flow at the study area is to the northeast towards the North Branch Potomac River.

2.2 Direct Push Technology (DPT) Screening Locations

Locations for the proposed DPT borings are shown on **Figure 3**. The locations and number of borings may be adjusted in the field based on the presence of underground utilities, presence/absence of black liquor, and/or Site geology. The DPT borings will be advanced into the subsurface to collect soil cores for field screening soil and locating the water table. Once the water table is identified, a 1-inch diameter TMW will be installed in the DPT borehole to screen groundwater and measure depths to water.

The TMWs will be allowed to equilibrate for a minimum of 12 hours following installation. Following this equilibration period, groundwater samples will be collected from each of the TMWs using disposable bailers. All groundwater samples collected will be screened in the field for pH, color, and specific conductivity. Field screening methodologies are described in detail in Section 3.5.

The rationale for the selected DPT locations is included in **Table 1** below, along with the proposed list of field screening parameters.

Table 1
Proposed DPT Screening Location Description

Location ID	Media	Rationale	Field Screening Parameters
DPT-1	Soil and Groundwater	Upgradient location south/southwest of the former black liquor AST	pH, Color, and Specific Conductivity
DPT-2	Soil and Groundwater	To evaluate potential impacts northwest of the former black liquor AST	pH, Color, and Specific Conductivity
DPT-3	Soil and Groundwater	To evaluate potential impacts north of the former black liquor AST	pH, Color, and Specific Conductivity
DPT-4	Soil and Groundwater	To evaluate potential impacts northeast of the former black liquor AST	pH, Color, and Specific Conductivity
DPT-5	Soil and Groundwater	To evaluate potential impacts east/northeast of the former black liquor AST	pH, Color, and Specific Conductivity
DPT-6	Soil and Groundwater	To evaluate potential impacts southeast of the former black liquor AST	pH, Color, and Specific Conductivity
DPT-7	Soil and Groundwater	To evaluate potential downgradient impacts associated with the former black liquor AST	pH, Color, and Specific Conductivity
DPT-8	Soil and Groundwater	To evaluate potential downgradient impacts associated with the former black liquor AST	pH, Color, and Specific Conductivity
DPT-9	Soil and Groundwater	To evaluate potential downgradient impacts associated with the former black liquor AST	pH, Color, and Specific Conductivity
DPT-10	Soil and Groundwater	To evaluate potential downgradient impacts associated with the former black liquor AST	pH, Color, and Specific Conductivity

Location ID	Media	Rationale	Field Screening Parameters
DPT-11	Soil and Groundwater	To evaluate potential sidegradient/downgradient impacts associated with the former black liquor AST	pH, Color, and Specific Conductivity

2.3 Surface Water Screening Locations

The proposed surface water screening locations are shown on **Figure 3**. The surface water screening locations have been selected to screen both upstream and downstream surface water quality in the North Branch Potomac River, as well as surface water quality adjoining the portion of the riverbank where seeps have been observed. Surface water collected from the North Branch Potomac River will be collected in at least one foot of water at a mid-depth location to be representative of flowing water.

The rationale for the selected surface water screening locations is included in **Table 2** below, along with the proposed list of field screening parameters.

Table 2
Proposed Surface Water Screening Location Description

Location ID	Media	Rationale	Field Screening Parameters
SW-1	Surface Water	To evaluate upstream surface water conditions in the North Branch Potomac River	pH, Color, and Specific Conductivity
SW-2	Surface Water	To evaluate downstream surface water conditions in the North Branch Potomac River	pH, Color, and Specific Conductivity
SW-3	Surface Water	To evaluate downstream surface water conditions in the North Branch Potomac River	pH, Color, and Specific Conductivity
SW-4	Surface Water	To evaluate downstream surface water conditions in the North Branch Potomac River	pH, Color, and Specific Conductivity
SW-5	Surface Water	To evaluate downstream surface water conditions in the North Branch Potomac River	pH, Color, and Specific Conductivity

2.4 Seep Screening Locations

SEEP screening locations are defined as those locations along the riverbank where groundwater and/or black liquor is observed to be pooled and/or discharging from the riverbank to the North Branch Potomac River. Approximately 7 screening locations have been proposed and will be field located based on visual identification at the time of the investigation.

It is important to note that field identification of the seep locations and collection of the seep samples will be dependent on river flow conditions. If flow is too high to safely access the river and collect the samples, the sampling will be postponed until field personnel can safely do so. Additionally, if the stage of the river is too high, the seep locations may not be exposed or visible. The discharge and stage condition of the North Branch Potomac River will be monitored using the United States Geological

Survey (USGS) Luke, MD gauging station (#01598500) located upstream of the study area prior to mobilization for seep sampling activities.

The rationale for the selected SEEP screening locations is included in **Table 3** below, along with the proposed list of field screening parameters.

Table 3
Proposed Seep Screening Location Description

Location ID	Media	Rationale	Field Screening Parameters
SEEP-1	Groundwater	Grab seep screening location to evaluate potential black liquor discharge into the North Branch Potomac River	pH, Color, and Specific Conductivity
SEEP-2	Groundwater	Grab seep screening location to evaluate potential black liquor discharge into the North Branch Potomac River	pH, Color, and Specific Conductivity
SEEP-3	Groundwater	Grab seep screening location to evaluate potential black liquor discharge into the North Branch Potomac River	pH, Color, and Specific Conductivity
SEEP-4	Groundwater	Grab seep screening location to evaluate potential black liquor discharge into the North Branch Potomac River	pH, Color, and Specific Conductivity
SEEP-5	Groundwater	Grab seep screening location to evaluate potential black liquor discharge into the North Branch Potomac River	pH, Color, and Specific Conductivity
SEEP-6	Groundwater	Grab seep screening location to evaluate potential black liquor discharge into the North Branch Potomac River	pH, Color, and Specific Conductivity
SEEP-7	Groundwater	Grab seep screening location to evaluate potential black liquor discharge into the North Branch Potomac River	pH, Color, and Specific Conductivity

2.5 Temporary Point Screening Locations

The proposed temporary point (TP) screening locations are shown on **Figure 3**. A temporary point screening location is defined as a shallow boring location that will be advanced using a hand auger or similar manual method for the purpose of screening soil and groundwater/black liquor along the riverbank. At the water table, a temporary 1-inch diameter well will be installed in the borehole to screen groundwater/black liquor and measuring water level elevations. Approximately 7 temporary point screening locations have been proposed to be collected based on field observations. Once the water table is identified, a 1-inch diameter TMW will be installed in the temporary point to screen groundwater and measure depths to water.

The TMWs will be allowed to equilibrate for a minimum of 12 hours following installation. Following this equilibration period, groundwater samples will be collected from each of the TMWs using disposable bailers. All groundwater samples collected will be screened in the field for pH, color, and specific conductivity.

The rationale for the selected temporary point screening locations is included in **Table 4** below, along with the proposed list of field screening parameters.

Table 4
Proposed Temporary Point Screening Location Description

Location ID	Media	Rationale	Field Screening Parameters
TP-1	Soil and Groundwater	Temporary point installed in embankment to evaluate soil and groundwater conditions upgradient of the North Branch Potomac River	pH, Color, and Specific Conductivity
TP-2	Soil and Groundwater	Temporary point installed in embankment to evaluate soil and groundwater conditions upgradient of the North Branch Potomac River	pH, Color, and Specific Conductivity
TP-3	Soil and Groundwater	Temporary point installed in embankment to evaluate soil and groundwater conditions upgradient of the North Branch Potomac River	pH, Color, and Specific Conductivity
TP-4	Soil and Groundwater	Temporary point installed in embankment to evaluate soil and groundwater conditions upgradient of the North Branch Potomac River	pH, Color, and Specific Conductivity
TP-5	Soil and Groundwater	Temporary point installed in embankment to evaluate soil and groundwater conditions upgradient of the North Branch Potomac River	pH, Color, and Specific Conductivity
TP-6	Soil and Groundwater	Temporary point installed in embankment to evaluate soil and groundwater conditions upgradient of the North Branch Potomac River	pH, Color, and Specific Conductivity
TP-7	Soil and Groundwater	Temporary point installed in embankment to evaluate soil and groundwater conditions upgradient of the North Branch Potomac River	pH, Color, and Specific Conductivity

2.6 Tank Containment Screening

A concrete secondary containment structure is present surrounding the former million-gallon black liquor AST. Four water check valves are located in the bottom concrete slab of the secondary containment system that can be accessed for field screening. If water is observed in the check valves, the standing liquid will be screened for the presence of black liquor. Additionally, there appears to be an underdrain system located beneath the secondary concrete containment which includes at least one access point. Water present within the underdrain system will be screened for the presence of black liquor. Approximately four secondary containment check valve locations and one underdrain system location have been proposed for field screening for black liquor. The rationale for the selected secondary containment screening locations is included in **Table 5** below, along with the proposed list of field screening parameters.

Table 5
Proposed Tank Containment Screening Location Description

Location ID	Media	Rationale	Field Screening Parameters
Contain-1	Water	Check valves in the former black liquor AST containment to evaluate for the presence of black liquor	pH, Color, and Specific Conductivity
Contain-2	Water	Check valves in the former black liquor AST containment to evaluate for the presence of black liquor	pH, Color, and Specific Conductivity
Contain-3	Water	Check valves in the former black liquor AST containment to evaluate for the presence of black liquor	pH, Color, and Specific Conductivity
Contain-4	Water	Check valves in the former black liquor AST containment to evaluate for the presence of black liquor	pH, Color, and Specific Conductivity
Contain-5	Water	Containment underdrain system screening to evaluate for the presence of black liquor beneath the former black liquor AST	pH, Color, and Specific Conductivity

Section 3
Investigation Methodolgy

Black liquor is an aqueous solution that consists mostly of lignin residues and has a unique set of physical properties. Some of these properties include appearance, which is black to dark brown in color. Another physical attribute is the caustic nature of black liquor which has relatively high pH and specific conductivity levels. The pH and specific conductivity of soil, groundwater, and surface water where black liquor is not present is anticipated to be significantly less than impacted media. As such, this investigation intends to rely on pH, color, and specific conductivity as field screening parameters to identify the extent of black liquor in the subsurface, surface water, and seeps. The planned field activities include the following:

- Collection of continuous soil cores in the DPT soil borings to an estimated maximum depth of between 20 to 40 feet below ground surface (bgs) for field screening of pH, color, and specific conductivity, and geologic logging.
- Installation of TMWs in the DPT soil borings. The TMWs will be installed to intersect the upper 5 to 10 feet of the water table.
- Measurement of depths to groundwater in the TMWs.
- Collection of groundwater samples using disposable bailers from the TMWs for field screening of pH, color, and specific conductivity.
- Collection of surface water samples from the North Branch Potomac River for field screening of pH, color, and specific conductivity.
- Collection of seep samples from the riverbank next to the North Branch Potomac River for field screening of pH, color, and specific conductivity.
- Installation of temporary soil points in the embankment of the North Branch Potomac River.
- Installation of TMWs in the temporary points for field screening of pH, color, and specific conductivity .
- Measurement of depths to groundwater in the temporary points TMWs.
- Handling and disposal of investigation derived waste (IDW) in accordance with local, state, and federal regulations.
- Surveying of top of pipe elevations at the DPT and temporary point TMW locations.

3.1 Soil Borings

Prior to soil boring installation, the soil boing locations will be checked for buried utilities. Utility locating will be completed by utilizing the West Virginia 811 Utility Notification Center in addition to locations services provided by a private utility locating service. Information provided by on-site facility personnel will also be used.

Continuous soil cores will be collected at each DPT and temporary point location. As the soil cores are brought to the surface, they will be placed on plastic so that they can be logged and photographed by the onsite TRC geologist. Each soil core will be described including sample recovery and lithology description using the Unified Soil Classification System (USCS).

Signs of impact (staining and odor), moisture content, and other notable observations/information will be noted. Photographs will be taken of the soil cores in their entirety and close-up photographs will be taken where essential information requires greater detail (lithologic contacts, staining, grain size differences, etc.). The photographs will include a scale and written details to convey the important aspects of the soil cores. All this information will be used to identify target depths for the TMWs.

3.1.1 DPT Borings

DPT borings will be advanced using a track-mounted Geoprobe® drilling rig equipped with a Dual-tube soil sampling system. The Dual-tube 21 soil sampling system is a direct push system used for collecting continuous core samples of unconsolidated materials from within a sealed outer casing of 2.125-inch outside diameter probe rod. The samples are collected within a liner that is threaded onto the leading end of a string of 1-inch diameter probe rod. Collected samples are in the form of a 1.125-inch by 48-inch core. Use of this method allows for collection of a continuous core inside a cased hole, minimizing or preventing cross contamination between different intervals during sample collection. The outer casing is advanced, one core length at a time, with only the inner probe rod and core being removed and replaced between samples.

It is anticipated that the DPT soil borings will be advanced to a depth ranging from 20 feet to 40 feet bgs, 5 to 10 feet below the water table contact, or until probe refusal is encountered, whichever comes first. The exact depth will be determined based on field observations. Soil from each boring will be observed for visual indications of black liquor (color) and screened in one-foot intervals for pH and specific conductivity. The procedure for field screening soil from the DPT borings is included in Section 3.1.3.

All depths will be measured as depth below ground surface (bgs). A location identifier will be assigned to each DPT boring shown in **Figure 3**. The location identifier will have the form DPT-ID (# - #) where ID is a unique two-character sequence to identify the location and (# - #)

represents the interval screened. For example, DPT-01 (1 – 2) represents DPT boring location number 1 from the interval 1 to 2 feet below ground surface.

3.1.2 Temporary Point Borings

Temporary point borings will be advanced using a hand auger equipped with 4-inch diameter stainless steel auger buckets with cutting heads. The auger will be advanced by simultaneously pushing and turning using an attached T-handle with extensions (if needed). Auger holes will be advanced one bucket at a time until the appropriate sample depth is achieved. When the sample depth is reached, the bucket used to advance the hole is removed and decontaminated or a clean bucket is attached. The clean auger bucket is then placed in the hole and filled with soil to make up the sample and then carefully removed.

It is anticipated that the temporary point borings will be advanced in the embankment upslope of the seep locations to an estimated depth of between 3 and 5 feet bgs to reach the shallow groundwater. Multiple attempts may be needed at each proposed location to reach the shallow groundwater due to the lithology of the riverbed and embankment (cobbles, gravel, shallow bedrock). The locations will be field located based on observations of where seeps are noted along the edge of the riverbank. Soil from each boring will be observed for visual indications of black liquor (color) and screened in one-foot intervals for pH, color and specific conductivity. The procedure for field screening soil from the DPT borings is included in Section 3.1.3.

All depths will be measured as depth bgs. A location identifier will be assigned to each temporary point boring shown in **Figure 3**. The location identifier will have the form TP-ID (# - #) where ID is a unique two-character sequence to identify the location and (# - #) represents the interval screened. For example, TP-01 (1 – 2) represents temporary point boring location number 1 from the interval 1 to 2 feet below ground surface.

3.1.3 Soil Field Screening

Soil field screening for color, pH, and specific conductivity will be performed using a 1:1 soil to water extraction method (similar to USEPA Method 9045D). For this method, color, pH, and specific conductivity will be obtained by mixing distilled water and a soil sample at a 1:1 ratio (10 ounces of soil and 10 ounces of distilled water). The soil-water mixture will be allowed to stand for approximately 1-hour to allow the soil particles to settle. After this settling period, the supernatant will be screened to determine the pH, color and specific conductivity values. Screening for pH and specific conductivity will be measured with a Horiba® U52 multi-parameter water quality meter or equivalent. Color will be measured with a Hach® DR 900 Multiparameter Portable Colorimeter or equivalent. The instruments will be calibrated according to the

manufacturer's specifications prior to sampling and will be documented daily in the field notebook.

3.2 Temporary Monitoring Well Installations

Upon completion of soil borings, a TMW will be installed into the DPT and temporary point boreholes. Groundwater will be collected from the TMWs for field screening and to obtain depths to water measurements. The depths to water data will be used to prepare a groundwater potentiometric surface map and to determine apparent groundwater flow direction. Well construction and development will be performed as per the following applicable West Virginia monitoring well driller and construction standards:

- Monitoring Well Rules (47CSR59); and
- Monitoring Well Design Standards (47CSR60).

Each TMW will be constructed of 1-inch diameter schedule 40 PVC, 0.01" slotted screen and solid riser. If possible, the well screen will be positioned so the surface of the saturated zone bisects the slotted screen portion. However, depths to water at the Site are anticipated to range from between 2 to 30 feet bgs; therefore, final length and depths of the well screen will be field determined.

The top of the 1-inch diameter pipe for each of the temporary monitoring wells at the DPT and TP locations will be surveyed to an accuracy of 0.01-foot. Once surveying is complete, the TMWs will be abandoned per West Virginia regulations.

3.3 Seep Collection

The procedure for sampling is designed to ensure that the samples are representative of the groundwater/black liquor discharging from the subsurface at the seep locations. Samples will be obtained from a location close to an observed emergence point. Ideally, groundwater/black liquor is drawn into a syringe from a depth approximately 1 to 2 inches below the surface of the pool associated with the seep and injected into the sample container(s). The seep samples will be placed into clean laboratory grade containers and inspected for color. The samples will then be screened for pH and specific conductivity using a multimeter equipped with a pH and specific conductivity electrode. Additionally, the samples will be screening for color using a colorimeter.

A location identifier will be assigned to each seep location. The location identifier will have the form SEEP-ID where ID is a unique two-character sequence to identify the location. For example, SEEP-01 represents seep screening location number 1. Specific seep collection methods are described further in Sections 3.3.1 through 3.3.5 below.

3.3.1 Seep Observations

Detailed observations will be recorded on field report forms throughout the sampling event. Before collecting a sample, the TRC geologist will assess and record observations regarding:

- Spatial extent of the seep pool, if present (i.e., length, width, depth);
- Water flow into the pool from sources other than the seep. It is especially important to note if a seep is located in a drainage in which there is flow upstream from the seep into the pool. If possible, the nearest upstream rock outcrop crossing the drainage will be identified and observed to see if there is water flow over the top of that outcrop and if there is continuous flow from that point down the drainage and into the pool. Generally, when such upstream flow is present the water in the seep pool would not be expected to be representative of the water emerging from the seep, and the sample would not be analyzed.

After the sample has been collected, the sampler will mark the location for surveying and note the following:

- Time;
- Volume collected;
- Sampling methods used; and
- Any conditions potentially affecting the representativeness of the sample.

3.3.2 Seep Screening

The method described in Section 3.3.3 is the preferred method for collecting all samples from seeps with a pool that encompasses the seep emergence point. An alternative procedure for collecting samples for non-volatile analytes is outlined in Section 3.3.4, and should be used only when it is impractical to collect large sample volumes using a syringe. Section 3.3.5 describes methods that may be required if the seep location or flow rate is such that a pool of water is not present or does not encompass the seep emergence point.

It is important to note that the seep samples will be dependent on river flow conditions. If flow is too high to safely access the river and collect the samples, the sampling will be postponed until field personnel can safely do so. Additionally, if the stage of the river is too high, the seep locations may not be exposed or visible. The discharge and stage condition of the North Branch Potomac River will be monitored from the USGS Luke, MD gauging station (#01598500) located upstream of the study area prior to mobilization for seep sampling activities.

3.3.3 Primary Seep Screening Procedure

- Put on a clean pair of unpowdered nitrile gloves.

- Remove a clean syringe from its package.
- Remove the lid from the collection container.
- Place the syringe tip at least one inch below the surface of the water at the designated screening location and fill it slowly by pulling back on the plunger. Avoid drawing sediment or other foreign materials into the syringe.
- Tilt the collection bottle at an angle and fill it slowly using the syringe until it is nearly full.
- Turn the bottle upright and continue filling it until enough water is collected to immerse the probe tip of the multimeter.
- Measure the pH, color and specific conductivity using the multimeter and record measurement in the field notebook.
- Mark the location for surveying.
- Decontaminate equipment.

3.3.4 Alternative Seep Screening Procedure for Seeps with Pools

Although the preferred method for sample collection is by syringe, it may be impractical to obtain large sample volumes in this manner. If a pool is present at the established sampling location, it may be possible to collect the sample by submerging a stainless-steel collection vessel and then transferring the contents to the appropriate container. When collecting a sample using this method, the sampler will take extra care to ensure that foreign materials do not enter the collection vessel.

The following procedure is only to be used when sampling for analytes other than VOCs, and for which the required sample volume is impractical to obtain using a syringe:

- Put on a clean pair of unpowdered nitrile gloves.
- Invert and submerge a clean, stainless steel pouring beaker at the desired sampling location.
- Slowly rotate the beaker upright so that water flows in.
- Lift the beaker out of the water and pour the sample into the appropriate container.
- Repeat until the required volume is obtained.
- Measure the pH and specific conductivity using the multimeter and record measurement in the field notebook.
- Mark the location for surveying.
- Decontaminate equipment.

3.3.5 Alternative Seep Screening Procedure for Seeps Without Pools

A seep may emerge from a fracture in a near-vertical rock face, a hillside, the side of a natural drainage, or other such non-horizontal surface. Under these conditions, the water emerging from the seep may flow across the surface downward toward a pool that accumulates beneath the emergence point, or there may be no pool at all. In these circumstances, it is preferable to collect the sample directly from the fracture or the surface flow as close to the emergence point as possible rather than sampling from the pool if one is present. This may be accomplished by collecting water directly from the fracture or surface with a syringe, by placing a sample bottle or collection vessel directly below the fracture or in the sheet flow, or by using a clean tool (hand trowel, stainless steel wire or rod, etc.) to direct water flow into a sample bottle or collection vessel. A seep may also be present as an area of moist sediment without a pool of standing water. In these circumstances, it is permissible to use a clean hand trowel to dig out a depression in the sediment where groundwater can accumulate and from where a sample can be collected. The TRC geologist will note the size of the hole and the rate that groundwater/black liquor flows into it.

3.4 Depths to Water Measurements

Depth to water at all TMWs will be measured to 0.01-foot, using an electronic water level meter. To have contemporaneous water level data, a round of water level measurement at all TMWs will be obtained on a single day prior to collecting groundwater samples. Depth to water will be relative to the top of pipe elevations determined by survey.

3.5 Groundwater Screening

Groundwater samples will be collected for field screening after the TMW installations are completed at the DPT and TP locations. Groundwater samples will be collected using disposable bailers. A new disposable bailer will be used for each monitoring well to avoid cross-contamination between wells.

Groundwater screening for pH and specific conductivity will be measured with a Horiba® U52 multi-parameter water quality meter or equivalent. Color will be measured with a Hach® DR 900 Multiparameter Portable Colorimeter or equivalent. The instruments will be calibrated according to the manufacturer's specifications prior to sampling and will be documented daily in the field notebook.

A location identifier will be assigned to each groundwater screening location. The location identifier will have the form TMW-ID where ID is a unique two-character sequence to identify the location. For example, TMW-01 represents groundwater screening location number 1.

3.6 Surface Water Screening

Surface water samples will be collected from 5 locations depicted in **Figure 3**. The surface water samples will be dependent on river flow conditions. If flow is too high to safely access the river and collect the samples, the sampling will be postponed until field personnel can safely do so. The discharge and stage condition of the North Branch Potomac River will be monitored from the USGS Luke, MD gauging station (#01598500) located upstream of the study area prior to mobilization for surface water sampling activities.

The surface water samples will be collected with disposable HDPE dipper samplers. A new dipper sampler will be used at each sample location. The surface water sample will be collected from the southern-side half of North Branch Potomac River from a location that has at least one foot of water at the mid depth of the water column to be representative of flowing water. To avoid sample dilution, surface water samples will be collected at least 72 hours after any rain event. Water collected in the dipper will be poured directly into a clean, laboratory-grade container for field screening for color, pH, and specific conductivity.

A location identifier will be assigned to each surface water location shown in **Figure 3**. The location identifier will have the form SW-ID where ID is a unique two-character sequence to identify the location. For example, SW-01 represents surface water location number 1.

3.7 Tank Containment Screening

Water samples (if present) will be collected from check valve access points from the bottom concrete slab of the secondary containment system for the former black liquor AST. If liquid is present, field screening will be performed at approximately 4 check valve locations. Additionally, there appears to be an accessible underdrain located beneath the concrete secondary containment system which includes at least one access point. Liquid from these locations will be obtained using a peristaltic pump equipped with polyethylene tubing. The samples will be collected from lowering the tubing into the check valve port and pumping water into a clean, laboratory-grade container for field screening for color, pH, and specific conductivity.

A location identifier will be assigned to each tank containment location. The location identifier will have the form CONTAIN-ID where ID is a unique two-character sequence to identify the location. For example, CONTAIN-01 represents tank containment location number 1.

3.8 Investigative Derived Waste (IDW)

Investigative derived waste (IDW) will be placed into 55-gallon steel drums or other suitable containers and stored on-site in a secure location. Final disposal of IDW will be managed by TRC, assuming IDW will

be managed as a non-hazardous waste material. TRC anticipates that Eco-First, Inc., Lesage, West Virginia will provide transport and disposal services under contract to TRC.

3.9 Field Documentation

3.9.1 Field Log Book

The TRC geologist will be responsible for maintaining a log book that documents field activities. Criteria for the log book include:

- Bound notebook; numbered pages
- Indelible ink used for entries; and
- Entries will be factual, detailed, and objective.

The TRC geologist will document daily on-site personnel and activities. Information to be recorded will include, at a minimum:

- Date and time of entry;
- Purpose of sampling;
- Type of sample, e.g., groundwater, sediment, etc.;
- Description of samples;
- Number and size of samples taken;
- Description and location of the sampling point;
- Date and time of sample collection;
- Difficulties experience in obtaining sample;
- Visual references, such as maps or photographs of the sampling site;
- Field observation, such as weather conditions during sampling periods; and
- Field measurements of the materials, e.g., specific conductivity, pH, and temperature.

3.10 Field Quality Control Requirements

3.10.1 Documentation and Records

The TRC geologist will maintain a daily log book that records all on-site personnel and activities. The information to be recorded is summarized in Section 3.8.1. In addition to this information, the TRC geologist will prepare geologic logs for soil borings which will include depths of samples, sample numbers, material descriptions, notations of groundwater encountered, notations of any waste material (or evidence thereof) encountered, and any field instrument readings.

3.10.2 Decontamination and Personal Protective Equipment

Personal protective equipment (PPE) and field sampling equipment will be decontaminated or disposed to prevent or reduce the potential for cross-contamination. In general, the following guidelines will be followed:

- PPE in direct contact with the sample material will be decontaminated or replaced between samples;
- Outer gloves will be replaced at each new boring location; and
- Contaminated PPE will be placed into drums or other suitable containers located at the Site, and disposed of as IDW, which will be performed as per the approved work plan.
- Field sampling equipment will be decontaminated between samples using the following procedure:
    - Initially remove physical contamination by any or all of the following abrasive cleaning methods: washing, brushing, and air/water blasting;
    - Wash equipment with a non-phosphate detergent;
    - Rinse with potable water; and
    - Rinse with distilled/deionized water.

Section 4
Health and Safety Plan

TRC will develop a site-specific health and safety plan (HASP) for TRC field personnel that outlines the potential hazards associated with the proposed work plan, as well as mitigation procedures, personal protective equipment (PPE), and emergency response contact information and procedures.

Section 5
Schedule

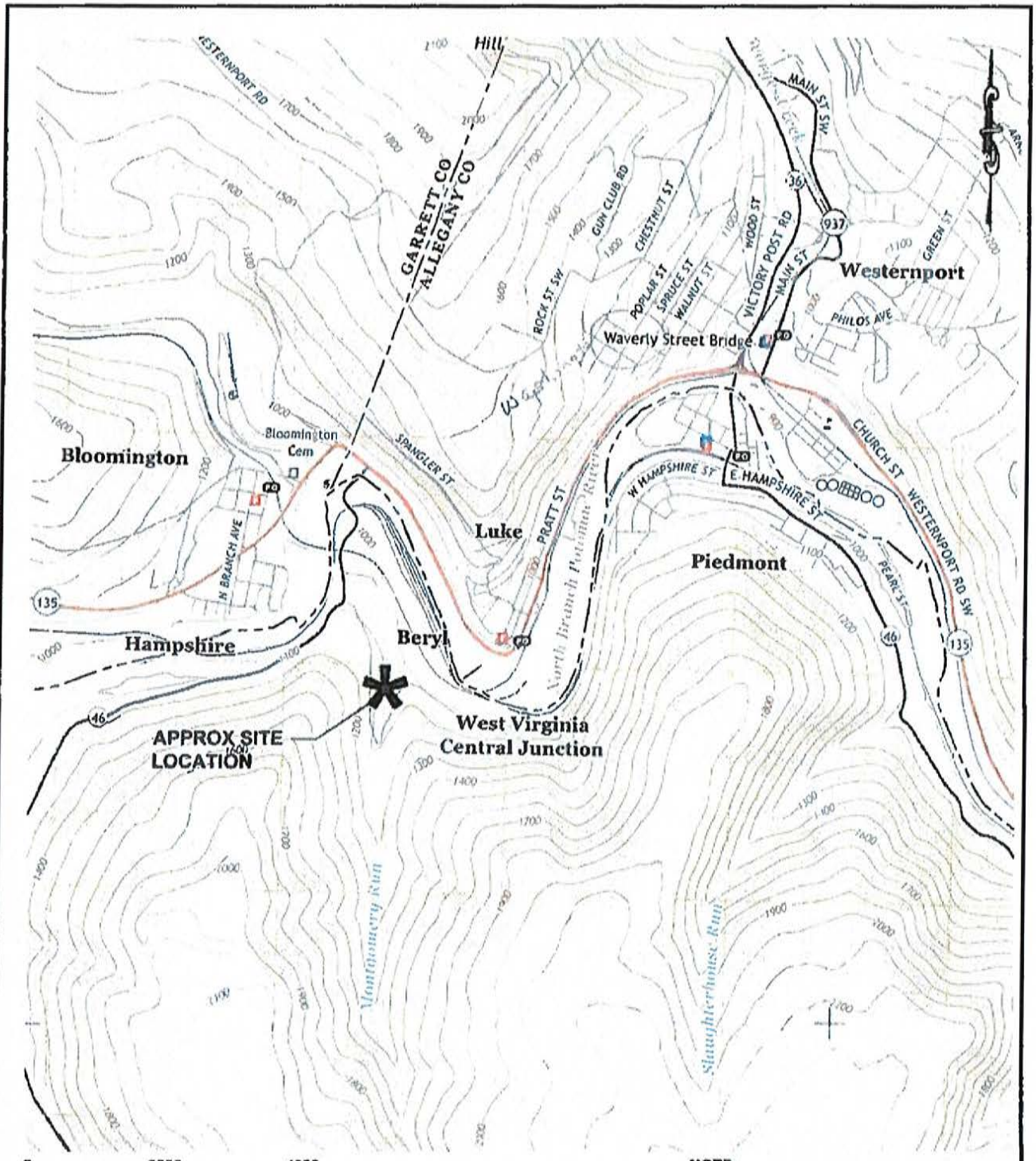
This hydrogeological investigation described in this work plan is anticipated to be performed during the late summer/fall of 2019. It is estimated that the fieldwork will require between two to three weeks to complete. The goal is to collect all the field screening data concurrently; however, this may not be practical if delays are experienced due to weather conditions and/or changes in river flow conditions. Work will be conducted during low flow conditions for the North Branch Potomac River for safety considerations and to expose more of the embankment to perform the proposed scope of work. In particular the seep screening scope of work as they are only visible during low flow conditions.

To avoid potential delays, the discharge and stage condition of the North Branch Potomac River will be monitored from the USGS Luke, MD gauging station (#01598500) located upstream of the study area prior to mobilization activities. Additionally, coordination will be made with the two flood control dams upstream of the study are for scheduled water releases.

Section 6
Reporting

A Technical Memorandum will be prepared following review of data collected pursuant to this work plan. The Technical Memorandum will provide a summary of field activities performed that will include soil boring logs and well installation details. Soil, groundwater, and surface water screening results will be summarized in table format. Figures consisting of surveyed well locations and a potentiometric surface map will be provided. The Technical Memorandum will also include a conclusion regarding whether the extent of black liquor in the subsurface has been completed and recommendations, as necessary, for additional hydrogeological investigation.

Figures



NOTE:
LOCATION MAP FROM USGS TOPO QUAD, WESTMORELAND MARYLAND MAP.

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT
LUKE PAPER COMPANY
LUKE, MARYLAND

TITLE
SITE LOCATION MAP

DRAWN BY	A PEEBLES
CHECKED BY	R MAYER
APPROVED BY	G TIEMAN
DATE	AUGUST 2019
PROJ NO	343089.0001.0000
FILE	Luke-paper-sitelocation.dwg

FIGURE 1

LEGEND

STATE LINE BOUNDARY

0 300 600

SCALE IN FEET

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone 864.331 0030

PROJECT

LUKE PAPER COMPANY
LUKE, MARYLAND

TITLE

SITE LAYOUT

DRAWN BY	A PEEBLES
CHECKED BY	R MAYER
APPROVED BY	CI TIEMAN
DATE	AUGUST 2019
PROJ. NO	343089.0001.0000
FILE	Luke-paper-sitelayout.dwg

FIGURE 2

LEGEND

- APPROXIMATE PROPOSED SURFACE WATER SCREENING LOCATION
- APPROXIMATE PROPOSED DIRECT PUSH TECHNOLOGY (DPT) SCREENING LOCATION
- APPROXIMATE PROPOSED TEMPORARY POINT SCREENING LOCATION

TRC
50 International Drive
Patewood Plaza Three Suite 150
Greenville, SC 29615
Phone 864.281.0030

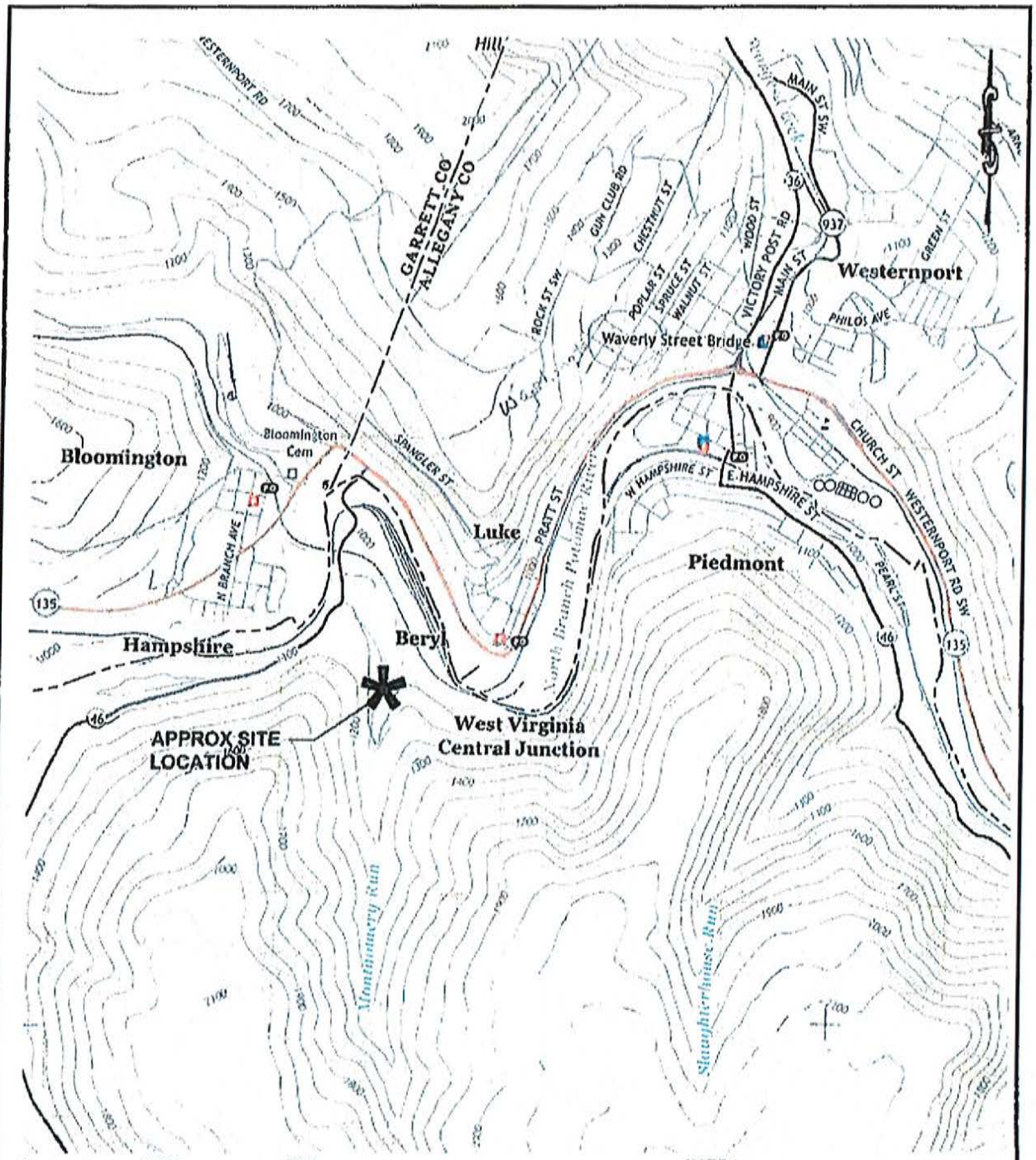
PROJECT: LUKE PAPER COMPANY
LUKE, MARYLAND

TITLE: PROPOSED SCREENING LOCATIONS

DRAWN BY	A PEEBLES
CHECKED BY	R MAYER
APPROVED BY	S TIEMAN
DATE	AUGUST 2019
PROJECT NO	343088.0001.0000
FILE	Luke-paper-establayout.dwg

FIGURE 3

ATTACHMENT G



NOTE:
LOCATION MAP FROM USGS TOPO QUAD, WESTMORELAND MARYLAND MAP.

TRC
50 International Drive
Patewood Plaza Three, Suite 150
Greenville, SC 29615
Phone: 864.281.0030

PROJECT
LUKE PAPER COMPANY
LUKE, MARYLAND

TITLE
SITE LOCATION MAP

DRAWN BY	A PEEBLES
CHECKED BY	R MAYER
APPROVED BY	G TIEMAN
DATE	AUGUST 2019
PROJ NO	343089.0001.0000
FILE	Luke-paper-sitelocation.dwg

FIGURE 1

ATTACHMENT H

Reliance LABORATORIES

Chapel Brook Business Park
PO Box 4657
Bridgeport, WV 26330
TEL: 304-842-5285 FAX: 304-842-5351

CHAIN OF CUSTODY RECORD

reliancelabs@wvdsl.net
www.reliancelabs.net

Ridgefield Business Center
25 Crimson Circle
Martinsburg, WV 25403
TEL: 304-596-2084 FAX: 304-596-2086

CLIENT: Potomac Riverkeeper CONTACT: Brent Walls

ADDRESS: 15307 Dellinger Rd. CITY: Williamsport STATE: MD ZIP: 21795

TELEPHONE: (443) 480-8970 FAX: CELL:

CUSTOMER #: C06411 SAMPLER: Brent Walls

__1__ OF __1__ PAGE NO.

LABORATORY #	DATE	TIME	COMP	GRAB	MATRIX W,DW,S,SL,O,M	TEMP °C YES / NO	# OF CONTAINERS	HNO3 <2	H2SO4 <2	HCL <2	NaOH >10	BACT	NO PRES.	OTHER	B, Se, As	Hg, Co, Tl	Sb	Hg					*PROJECT/REMARKS
31220391	9/10/19	1230	✓		W	8.2	1	*1					1		✓	✓	✓	✓					Luke Mill

Samples DO ✓ DO NOT ____ meet USEPA guidelines for HOLDING TIMES.
Samples DO ✓ DO NOT ____ meet USEPA guidelines for CHEMICAL PRESERVATIVES.
Samples DO ✓ DO NOT ____ meet USEPA guidelines for SAMPLE CONTAINERS.
Samples ARE ____ ARE NOT ✓ for REGULATORY COMPLIANCE purposes.

RELINQUISHED BY:	DATE & TIME	RECEIVED BY:
PRINT Brent Walls	DATE 9-10-19	PRINT Meagan Ramirez
SIGN	TIME 1503	SIGN
PRINT Meagan Ramirez	DATE 9-10-19	PRINT Fedex
SIGN	TIME 1703	SIGN
PRINT Fedex	DATE 9-18-19	PRINT
SIGN	TIME 900	SIGN Olivia Facemire

____ FAX X EMAIL brent@potomacriverkeeper.org

REMARKS: * preserved @ lab

WEATHER/TEMP:

____ **RUSH STATUS** _____

ADDITIONAL LABORATORY FEES MAY APPLY

EXTENT OF LIABILITY Should Reliance Laboratories, Inc. be at fault and any dispute arise regarding analytical data generated by the laboratory, the extent of the liability to Reliance will be a duplicate analysis of the sample (providing adequate sample remains) or a refund of the analytical fee. In no event will Reliance Laboratories, Inc. be liable for damages including but not limited to direct, indirect, or consequential damages arising from such dispute.
NOTE: Typical sample turn around for routine samples is 7 to 10 business days. This is not a guarantee that sample will be completed in this time frame, however. Non-routine samples may require additional time.

Reliance Laboratories, Inc.
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Martinsburg Laboratory
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Martinsburg, WV 25403
Phone: 304.596.2084 | Fax: 304.596.2086

Certifications: WV Department of Health #: 00354, 00443 | WV Department of Environmental Protection #: 158, 181
MD Department of Environment #: 336, 337 | US Environmental Protection Agency #: WV00042, WV00901

LABORATORY REPORT SUMMARY

Client: C06411

Thursday, September 26, 2019

Potomac Riverkeeper
15307 Dellinger Rd.
Williamsport MD 21795-

Total Number of Pages: 3
(Not Including C.O.C.)
Page 1 of 3

Lab ID	Sample ID	Sample ID 2	Sample Date
312203-2019-W	Luke Mill		9/10/2019

The enclosed results have been analyzed according to the referenced method and SOP. Any deviations to the method have been noted on the report. Unless otherwise noted, all results have been verified to meet quality control requirements of the method. All analysis performed by Reliance Laboratories, Bridgeport, WV or Reliance Laboratories, Martinsburg, WV, as noted on laboratory report. This report may not be reproduced, except in full, without written approval of Reliance Laboratories, Inc.

Report Reviewed By Tenley Miller

Digitally signed by Tenley Miller
Date: 2019.10.02 13:17:37 -04'00'

Reliance Laboratories, Inc.
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Martinsburg Laboratory
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Phone: 304.596.2084 | Fax: 304.596.2086

Certifications: WV Department of Health #: 00354, 00443 | WV Department of Environmental Protection #: 158, 181
MD Department of Environment #: 336, 337 | US Environmental Protection Agency #: WV00042, WV00901

Potomac Riverkeeper
15307 Dellinger Rd.

Williamsport, MD 21795-

Thursday, September 26, 2019

Lab Number: 312203-2019-W **Sample ID:** Luke Mill

Parameter	Value	Units	Method	Date/Time Analyzed	Analyst	MDL	MRL
Analyte Group: Inorganics							
pH	# 12.54	S.U.	SM4500H+B-11	9/10/2019 15:20	AJB		

Remarks:

Analysis performed by Reliance Laboratories Martinsburg, WV

Date Sample Collected:	9/10/2019	12:30
Sample Submitted By:	B. Walls	
Date Sample Received:	9/10/2019	15:03
Sample temp. upon receipt:	8.2 Deg C	

ND = Not Detected at the MDL or MRL
MDL - Minimum Detectable Limit
MRL - Minimum Reporting Limit
MCL - Maximum Contaminant Level, USEPA Regulated
J = Reported value is an estimate because concentration is less than the MRL

***Method Code: STANDARD METHODS ONLINE ED; US EPA METHODS FOR THE CHEMICAL ANALYSIS OF WATER AND WASTES, Rev. 83; US EPA METHODS FOR THE DETERMINATION OF METALS IN ENVIRONMENTAL SAMPLES, May 1994; TEST METHODS FOR EVALUATING SOLID WASTE, SW-846, 3rd ED; USEPA Manual for Certification of Laboratories Analyzing Drinking Water, 5th ED. In accordance with EPA Regulations, all reports, including raw data and quality control data, are maintained by the laboratory for a minimum of 5 years.**

NOTE: #Holding time exceeded for this analysis. This falls outside criteria set by 40CFR136.

NOTE: 40CFR136 sets criteria for sample temperature and preservation. This sample fell outside of this criteria.

Reliance Laboratories, Inc.
2044 Meadowbrook Road | P.O. Box 4657
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Martinsburg Laboratory
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Martinsburg, WV 25403
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Certifications: WV Department of Health #: 00354, 00443 | WV Department of Environmental Protection #: 158, 181
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Potomac Riverkeeper
15307 Dellinger Rd.

Williamsport, MD 21795-

Thursday, September 26, 2019

Lab Number: 312203-2019-W **Sample ID:** Luke Mill

Parameter	Value	Units	Method	Date/Time Analyzed	Analyst	MDL	MRL
Analyte Group: Inorganics							
Total Mercury	0.004	mg/l	EPA 245.1 R3.0	9/26/2019 10:04	TH	0.0001	0.001
Total Lead	ND	mg/l	EPA 200.8 R5.4	9/19/2019 11:43	TH	0.0005	0.001
Total Arsenic	1.33	mg/l	EPA 200.8 R5.4	9/19/2019 11:43	TH	0.001	0.005
Total Selenium	0.0029	mg/l	EPA 200.8 R5.4	9/19/2019 11:43	TH	0.001	0.002
Total Boron	2.16	mg/l	EPA 200.8 R5.4	9/19/2019 11:43	TH	0.006	0.01
Total Thallium	ND	mg/l	EPA 200.8 R5.4	9/19/2019 11:43	TH	0.0005	0.001
Total Cobalt	ND	mg/l	EPA 200.8 R5.4	9/19/2019 11:43	TH	0.002	0.005

Remarks:

Analysis performed by Reliance Laboratories Bridgeport, WV

Date Sample Collected: 9/10/2019 12:30
Sample Submitted By: B. Walls
Date Sample Received: 9/10/2019 15:03
Sample temp. upon receipt: 8.2 Deg C

ND = Not Detected at the MDL or MRL
MDL - Minimum Detectable Limit
MRL - Minimum Reporting Limit
MCL - Maximum Contaminant Level, USEPA Regulated
J = Reported value is an estimate because concentration is less than the MRL

***Method Code: STANDARD METHODS ONLINE ED; US EPA METHODS FOR THE CHEMICAL ANALYSIS OF WATER AND WASTES, Rev. 83; US EPA METHODS FOR THE DETERMINATION OF METALS IN ENVIRONMENTAL SAMPLES, May 1994; TEST METHODS FOR EVALUATING SOLID WASTE, SW-846, 3rd ED; USEPA Manual for Certification of Laboratories Analyzing Drinking Water, 5th ED. In accordance with EPA Regulations, all reports, including raw data and quality control data, are maintained by the laboratory for a minimum of 5 years.**

NOTE: #Holding time exceeded for this analysis. This falls outside criteria set by 40CFR136.

NOTE: 40CFR136 sets criteria for sample temperature and preservation. This sample fell outside of this criteria.

ATTACHMENT I

Gmail by Google

Upper Potomac Riverkeeper <brent@potomacriverkeeper.org>

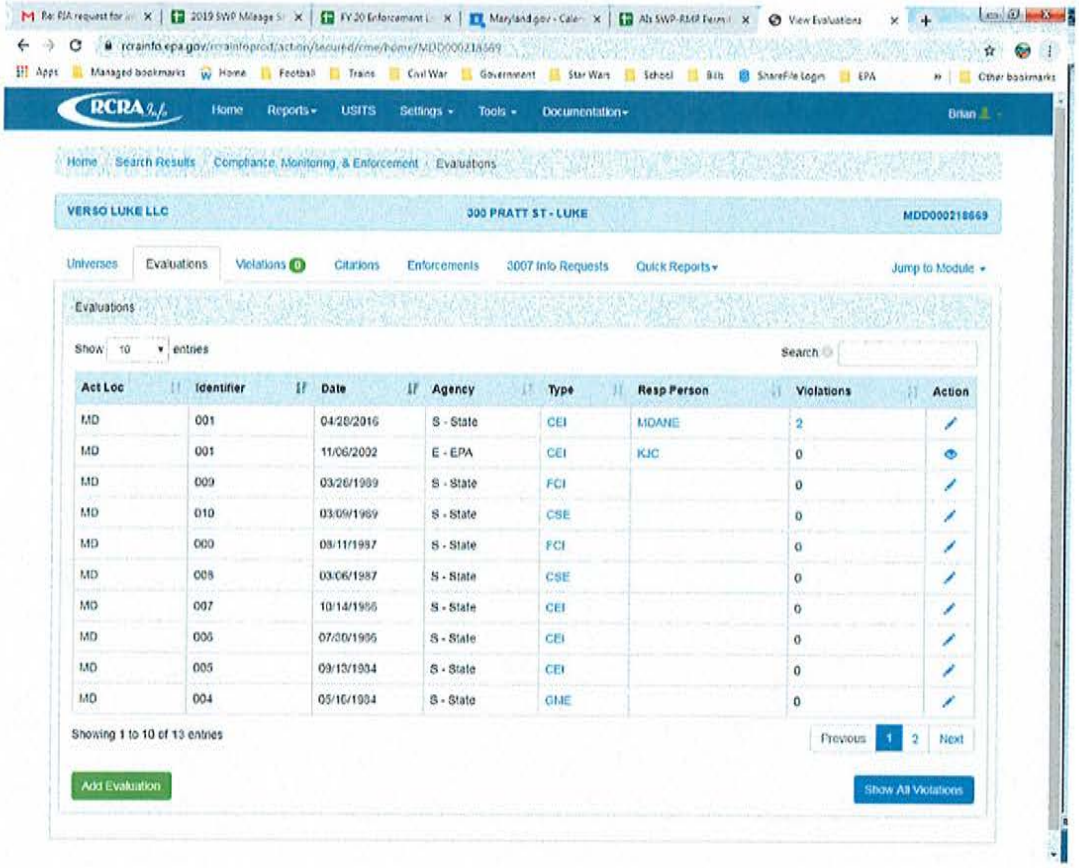
PIA request for information on Verso Black Liquor issue

Coblentz, Brian <brian.coblentz@maryland.gov> Tue, Oct 8, 2019 at 2:23 PM
To: Scott Boylan -MDE- <scott.boylan@maryland.gov>
Cc: Upper Potomac Riverkeeper <brent@potomacriverkeeper.org>, Paul Sudano -MDE- <paul.sudano@maryland.gov>

Good Afternoon,

VERSO/Luke Paper Mill is a listed RCRA hazardous waste generator and at one time also had a scrap tire hauler's license. VERSO went from a large quantity generator (generating over 2,200 pounds of hazardous waste) to now listed as a small quantity generator (under 2,200 pounds) in 2018. Routine inspections were conducted over the years and copies of the files may be obtained through Ms. Maria Stephens at 410-537-3422.

Here is a snap shot of RCRA Info database...



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Brian W. Coblentz
Chief, Compliance Division
Solid Waste Program/Land and Materials Administration
Maryland Department of the Environment (MDE)
410 537 4175

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