November 30, 2018

Brian Jankauskas, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation (DER), Remedial Bureau A
625 Broadway, 12th Floor
Albany, NY 12233-7015

Subject: **2018 Groundwater and Surface Water Monitoring Report**
Pretreatment Plant Area
Former Ciba-Geigy Facility, Glens Falls, New York
EPA ID NYD002069748 / NYSDEC Site No.: 557011

Dear Mr. Jankauskas:

On behalf of Hercules Incorporated (previously acquired by Ashland LLC) and Ciba-Geigy Corporation ("CIBA") (previously acquired by BASF Corporation), EHS Support LLC ("EHS Support") is submitting this Groundwater and Surface Water Monitoring Report (GSMR) for the Pretreatment Plant (PTP) area at the former Ciba-Geigy pigments manufacturing facility located at 89 Lower Warren Street in Queensbury Township, near Glens Falls, NY.

Groundwater and surface water monitoring was conducted at the PTP (also referred to herein as the Site) in June 2018 pursuant to the Groundwater and Surface Water Monitoring Plan (GSMP), submitted in an Appendix to the November 2016 *Remedy Optimization Plan* for the Main Plant Site, which was approved by the New York State Department of Environmental Conservation (NYSDEC). As subsequently approved by the NYSDEC in October 2017, free cyanide was removed from the groundwater analytical program.[1]

Sampling was performed at the locations illustrated on **Figure 1**, following the sampling program presented in **Table 1**. A summary of the sampling activities, laboratory analysis, and results from the monitoring event is presented below. **Figure 1** has been updated to reflect the removal of the aboveground storage tank (tank T-110), which was previously located between MW-OB18 and MW-OB19. Tank T-110 and the former Pretreatment Plant Building were demolished and removed from the Site in March 2018, prior to this sampling event. The *AST & Pretreatment Plant Decommissioning and Demolition Report* was submitted to the NYSDEC on October 19, 2018 and approved on October 25, 2018.

Water Level Gauging

On June 11, 2018, water levels were measured at the locations identified in **Table 1**, including eleven monitoring wells and two surface water gauges (SG-11, located in the Glens Falls Feeder Canal (canal) and SG-7, located in a stream adjacent to the canal).

[1] Phone Conversation - Brian Jankauskas at NYSDEC and Arlene Lillie at EHS Support LLC. October 25, 2017.

Depth-to-water measurements and groundwater elevation data are provided in **Table 2**. Based on the groundwater elevation data, groundwater generally flows to the east across the Site, with localized southerly flow in the southwest corner of the Site. Shallow groundwater on-Site is perched, occurring in the thin saturated zone above the lacustrine clay, and lateral groundwater flow is influenced by the configuration and undulations of the surface of the lacustrine clay beneath the Site. Water accumulated in the wells was limited, with a minimum water column of 0.01 feet observed in well MW-OB20, and a maximum water column of 5.54 feet observed in well MW-OB17. These measurements were consistent with historical gauging data. Groundwater elevations and potentiometric surface lines based on the June 2018 monitoring data are illustrated on **Figure 2**.

Groundwater and Surface Water Sampling and Analysis

Groundwater and surface water sampling were conducted between June 11 and June 13, 2018. Five wells (identified in **Table 1**) were purged and sampled using low-flow sampling methods (i.e., a peristaltic pump) as detailed in the GSMP. MW-OB20 was not sampled because there was insufficient water present (i.e., 0.01 feet).

Wells MW-OB17, MW-OB21 and the two surface water locations were sampled on June 11. Wells MW-OB18 and MW-OB19 purged dry on June 11 and were allowed to recharge overnight. Grab samples were collected from these two wells the next morning. Well MW-OB23 purged dry on June 11. Low-flow sampling was reattempted on June 13, and a sample was collected for analysis. Purge flow rates and volumes removed are summarized in **Table 2**. Water quality parameters, including temperature, pH, conductivity, dissolved oxygen, turbidity, and oxidation-reduction potential were monitored during purging and recorded on field log forms. Barometric pressure was also recorded on the field logs. Copies of the field logs are included in **Attachment 1**. Final field parameter readings (prior to sampling) are summarized in **Table 3**.

Groundwater samples were collected for laboratory analysis using a peristaltic pump and pumped directly into sampling containers provided by the laboratory. Surface water samples were collected as grab samples using clean, laboratory-supplied bottles. Sample water quality parameters were measured in the field (same parameters as those measured for groundwater) and recorded on the field logs (**Attachment 1**).

Laboratory analysis was conducted by TestAmerica and ALS Holland laboratories with applicable New York State Department of Health Environmental Laboratory Approval Program certification for the analyses performed. Clean sample bottles were supplied by the laboratories with preservative. The sample preservation and analysis included:

- Total cyanide by EPA Method 9012B on unfiltered groundwater and surface water samples collected in plastic sample bottles containing sodium hydroxide preservative
- Free cyanide by USEPA Method OIA-1677 on surface water samples. Sample collection and preservation procedures included:
    - Testing sample for presence of sulfide by pouring sample water into a glass vial with a lead acetate test strip. No change in test strip color indicated no excess sulfide was present, thus the sample was collected in a 40-mL vial with sodium hydroxide preservative and subject to a 14-day hold time.

Upon collection, samples were placed in coolers with ice and transported to the laboratories under chain-of-custody documentation. The analytical results for the samples are summarized in **Table 3**. The laboratory analytical reports (in Level 2 deliverable formats) are included in **Attachment 2**. A summary of the laboratory analytical methods and sample containers is included in **Table 4**.

Quality Control Sampling and Analysis

Quality control (QC) samples collected during the monitoring event included the following:

- One duplicate groundwater sample (from MW-OB21 – DUP1_20180611)
- One duplicate surface water sample (from SG-11 – DUP02_20180611)
- Two matrix spike/matrix spike duplicate (MS/MSD) samples, one for groundwater (from MW-OB21) and one for surface water (from SG-11)
- One equipment/field blank (EB_20180611)

QC samples were collected using the same methods employed to collect original samples. Analytical results for the duplicate and equipment blank samples are included in **Table 3**. Results for field duplicate samples showed acceptable levels of precision and accuracy, and the blank sample was clean (no cyanide detected). Results for all QC samples, including MS/MSD and other laboratory method QC samples, are provided in the laboratory reports in **Attachment 2**.

Data Quality Review

Data review and validation were performed by Amy Coats, an EHS Support chemist approved by the NYSDEC for data validation and generation of Data Usability Summary Reports (DUSRs) in accordance with DER-10 guidelines.[2] The laboratory data was evaluated according to the quality assurance / quality control (QA/QC) requirements of the NYSDEC Analytical Services Protocols. The matrix spike recovery for total cyanide was outside of the control limit; therefore, total cyanide results were assigned J qualifiers (i.e., estimated results). The analytical data were deemed usable and technically defensible.

As approved in February 2018 by the NYSDEC for groundwater monitoring at this Site, a Tier II Validation Report was prepared rather than a Tier IV DUSR (as had been prepared for previous sampling rounds). [3] A copy of the Tier II Validation Report is included in **Attachment 3**.

Groundwater and Surface Water Analysis Results

The groundwater and surface water analytical results are provided in **Table 3**. Total cyanide concentrations were below the groundwater GA standard of 200 micrograms per liter (µg/L) except at MW-OB23 (2,000 µg/L). Free cyanide was not detected in surface water.

[2] DER-10/Technical Guidance for Site Investigation and Remediation. New York State Department of Environmental Conservation. May 3, 2010.
[3] Phone Conversation - Brian Jankauskas at NYSDEC and Arlene Lillie at EHS Support LLC. February 13, 2018.

Concentrations at the Site boundary and downgradient have consistently been below the GA standard since 2010. The highest concentrations of cyanide in groundwater were historically detected in the central area of the Site at well MW-OB23 and immediately adjacent to the historical wastewater tank at MW-OB19 (**Table 5**). Concentrations declined following cessation of the historical Site operations and have been stable to declining for more than a decade (**Figures 3A-3G**). This distribution pattern has remained consistent over time, with concentrations declining in these locations and with distance from these areas. Mann-Kendall calculations were performed for the central area well MW-OB23. The calculations confirm a stable to probable decreasing trend in cyanide concentrations over the past 20 years (**Table 6**).

It is noted that comparison of groundwater data to the GA standard is for reference, per DER-10 Guidelines. The GA standard was established for the protection of fresh groundwater use as a drinking water source. However, groundwater on-Site is not in use, and the use of groundwater for any purpose is precluded (pursuant to the Deed Notice filed with Warren County).

Summary and Closing

The last remaining above-grade historical wastewater treatment structures (i.e., the former Pretreatment Plant Building and tank T-110) were demolished and removed from the Site in March 2018. This round of groundwater and surface water sampling was performed in June 2018; therefore, the data are indicative of post-demolition conditions.

The results demonstrate that cyanide concentrations in groundwater on-Site continue to be stable to declining. Furthermore, cyanide concentrations in groundwater above the GA standard are limited in extent (i.e., limited to MW-OB23 area), and concentrations downgradient from MW-OB23 are below the GA standard at the Site boundary (i.e., at MW-OB18). Free cyanide is not detected in surface water, and a Deed Notice is in place precluding the use of groundwater on the Site. On this basis, the residual cyanide in groundwater at the Site does not present a risk to human health or the environment.

As indicated in the last annual *Groundwater and Surface Water Monitoring Report* (submitted to the NYSDEC on November 29, 2017), now that the demolition is complete, the need for future groundwater and surface water sampling at the PTP Area is under evaluation.

I, Cassie R. Reuter, P.E., certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this *Groundwater and Surface Water Monitoring Report* was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the *DER Technical Guidance for Site Investigation and Remediation* (DER-10).

If you have questions or comments regarding this report, please contact Cassie Reuter at (608) 558-6795 for discussion.

Sincerely,

Cassie R. Reuter
EHS Support LLC
Wisconsin Professional Engineer No. E-39526

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cc: James Vondracek, Ashland
Stephen Havlik, BASF Corporation
Arlene Lillie, EHS Support

TABLES

Table 1
Sampling Event Analysis Schedule
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2018

Annual Gauge Only	Annual Gauge & Sample	Field Parameters and Total Cyanide[1]	Free Cyanide[2]
Overburden Wells			
	MW-OB17	1	
	MW-OB18	1	
	MW-OB19	1	
	MW-OB20[3]	1	
	MW-OB21	1	
	MW-OB23	1	
IG-1	Wells to be gauged only		
IG-2			
P-1			
P-11			
P-12			
Surface Water Samples			
	SG-7	1	1
	SG-11	1	1

Notes:

1 - Field parameters to include pH, temperature, dissolved oxygen, redox potential, electrical conductivity and turbidity

2 - As approved by the NYSDEC in October 2017, free cyanide analysis was limited to surface water samples.

3 - MW-OB20 had insuffucient water for sampling during the June 2018 monitoring event.

Table 2
Gauging and Purge Data Summary
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2018

Well Name	Well Diam. (in)	Screen Interval (ft bgs)	6/11/18 Total Well Depth (ft btoc)	6/11/18 DTW (ft btoc)	TOC Elev (ft amsl)	6/11/18 GW Elevation (ft amsl)	6/11/18 Water Column (ft)	Pump Intake Depth (ft btoc)	Pump Rate (mL/min)	Pre-Purge WL (ft btoc)	Post Purge WL (ft btoc)	Post Purge draw down (ft)	Purged Vol (gal)	Pump Type
OVERBURDEN MONITORING WELLS														
MW-OB17	2	5 - 11	13.55	8.01	289.91	281.90	5.54	10.18	150	8.00	8.15	0.15	3.00	P
MW-OB18	2	4 - 9	12.51	9.51	287.69	278.18	3.00	11.46	100	10.41	10.96	0.6	1.75	P
MW-OB19	2	5 - 10	9.35	8.32	287.82	279.50	1.03	8.86	100	8.34	8.76	0.42	0.26	P
MW-OB20	2	4.5 - 8.5	10.18	10.17	290.36	280.19	0.01	ns	ns	ns	ns	ns	ns	ns
MW-OB21	2	4.5 - 14.5	16.62	13.15	284.03	270.88	3.47	14.89	150	13.12	15.77	2.7	2.25	P
MW-OB23	2	3 - 6.5	8.23	6.67	287.05	280.38	1.56	7.20	100	6.08	6.83	0.75	1.68	P
P-1	1	3 - 8	7.91	6.20	287.73	281.53	1.71	ns	ns	ns	ns	ns	ns	ns
P-11	1	6 - 11	12.82	8.71	290.37	281.66	4.11	ns	ns	ns	ns	ns	ns	ns
P-12	1	3 - 8	9.49	7.21	287.91	280.70	2.28	ns	ns	ns	ns	ns	ns	ns
IG-1	-	-	8.61	6.54	288.79	282.25	2.07	ns	ns	ns	ns	ns	ns	ns
IG-2	-	-	11.17	8.20	289.77	281.57	2.97	ns	ns	ns	ns	ns	ns	ns
SURFACE WATER LOCATIONS														
SG-11	-	n/a		2.00	n/a	n/a		grab						
SG-7	-	n/a		1.75	n/a	n/a		grab						

Notes:

"-" indicates data not available
Diam. - diameter
dry - no water column in well
DTW - depth to water
Elev - elevation
ft amsl - feet above mean sea level
ft bgs - feet below ground surface
ft btoc - feet below top of casing
gal - gallons
GW - groundwater
in - inches
min - minute
mL - milliliters
n/a - not applicable
ns- not sampled
P - peristaltic pump
TOC - top of casing
WL - water level

Table 3
Groundwater and Surface Water Analytical and Field Parameter Results
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2018

Well ID	Sample ID	Date	Temp (degC)	pH (s.u.)	Conductivity (mS/cm)	DO (mg/l)	Turbidity (NTU)	ORP (mV)	Cyanide (total) (µg/l)		Cyanide (Free) (µg/l)	
Groundwater Quality Standard (GA)[1]									200		n/a	
MW-OB17	MW-OB17_20150723	07/23/15	18.36	6.97	0.49	3.18	12.7	111	182		2	UJ
MW-OB17	MW-OB17_20160725	07/25/16	22.24	6.46	0.379	0.92	2	185	**370**		2.6	
MW-OB17	MW-OB17_20170619	06/19/17	17.60	7.47	0.213	1.34	0.0	183	70	J	2	U
MW-OB17	MW-OB17_20180611	06/11/18	17.48	7.82	0.195	5.68	0.0	225	87	J	-	-
MW-OB18*	MW-OB18_20150723	07/23/15	16.46	7.12	1.10	6.12	0.5	155	102		2	UJ
MW-OB18	MW-OB18_20160725	07/25/16	19.37	7.42	0.575	0.18	1.8	206	57		3.6	
MW-OB18*	MW-OB18_20170621	06/21/17	14.62	7.50	0.538	0.538	0.0	141	93		3.2	
MW-OB18*	MW-OB18_20180612	06/12/18	15.72	6.78	0.584	4.33	21.3	255	110	J	-	-
MW-OB19*	MW-OB19_20150724	07/24/15	14.45	6.86	0.358	0.91	81	-29	182		2	UJ
MW-OB19*	DUP-P1_20150724	07/24/15	-	-	-	-	-	-	162		2	UJ
MW-OB19	MW-OB19_20160725	07/25/16	20.51	7.09	0.297	4.01	0	-18	140		2	UJ
MW-OB19*	MW-OB19_20170620	06/20/17	19.26	7.24	0.276	2.84	0.0	-72	**250**	J	2	U
MW-OB19*	MW-OB19_20180612	06/12/18	15.48	9.37	0.349	5.71	0.3	269	180	J	-	-
MW-OB20	MW-OB20_20170619	06/19/17	20.97	7.38	0.764	5.00	0.0	142	51	J	2	U
MW-OB21*	MW-OB21_20150723	07/23/15	14.75	6.65	0.380	2.79	17.5	103	119		2	UJ
MW-OB21	MW-OB21_20160725	07/25/16	17.54	6.59	0.528	0.08	1.5	80	96		2	U
MW-OB21	DUP2_20160725	07/25/16	-	-	-	-	-	-	97		2	UJ
MW-OB21	MW-OB21_20170620	06/20/17	12.81	7.00	0.487	0.0	0.0	62	85	J	2	UJ
MW-OB21	DUP1_20170620	06/20/17	-	-	-	-	-	-	110	J	2	U
MW-OB21	MW-OB21_20180611	06/11/18	19.88	7.16	0.292	5.89	0.0	96	140	J	-	-
MW-OB21	DUP01_20180611	06/11/18	-	-	-	-	-	-	110	J	-	-
MW-OB23*	MW-OB23_20150723	07/23/15	20.83	6.73	0.684	0.94	1.6	-23	**1800**		7.8	J
MW-OB23	MW-OB23_20160725	07/25/16	19.24	6.59	0.539	0.07	1.5	-23	**2500**		11	
MW-OB23	MW-OB23_20170620	06/20/17	15.61	7.14	0.638	1.00	0.0	-34	**1400**	J	8.4	
MW-OB23	MW-OB23_20180613	06/13/18	15.15	6.23	0.674	0.68	0.6	23	**2000**		-	-
Blank	EB_20150724PTP	07/24/15	n/a	n/a	n/a	n/a	n/a	n/a	10	U	n/a	
Blank	EB_20160725	07/25/16	n/a	n/a	n/a	n/a	n/a	n/a	10	U	2	U
Blank	EB_20170619	06/19/17	n/a	n/a	n/a	n/a	n/a	n/a	10	U	2	U
Blank	EB_20180611	06/11/18	n/a	n/a	n/a	n/a	n/a	n/a	10	UJ	1.2	U
Surface Water Quality Standards[1]									9000 H(FC)		5.2 A(A) / 22 A(C)	
SG-7**	SG-7_20150729	07/29/15	25.98	7.46	2.46	5.54	8	120	10	UJ	2	UJ
SG-7**	SG-7_20170620	06/20/17	19.36	6.44	0.898	5.43	3.7	174	7.9	J	2	U
SG-7**	SG-7_20180611	06/11/18	22.77	8.82	0.136	7.62	0.3	95	10	UJ	1.2	U
SG-11	SG-11_20150729	07/29/15	26.78	8.02	0.095	68	1.3	12.54	10	UJ	2	UJ
SG-11	DUP-P2_20150729	07/29/15	-	-	-	-	-	-	10	UJ	2	UJ
SG-11	SG-11_20160725	07/25/16	26.35	7.21	0.102	6.07	1.1	153	10	U	2	UJ
SG-11	DUP1_20160725	07/25/16	-	-	-	-	-	-	10	U	2	U
SG-11	SG-11_20170620	06/20/17	20.47	7.01	0.41	5.31	0.0	144	10	U	2	U
SG-11	DUP2_20170620	06/20/17	-	-	-	-	-	-	10	U	2	U
SG-11	SG-11_20180611	06/11/18	22.9	9.05	0.100	8.57	0.2	100	3.2	J	1.2	U
SG-11	DUP02_20180611	06/11/18	-	-	-	-	-	-	10	UJ	1.2	U

Notes:

1) 6 NYCCR 703.5, Table 1 Water Quality Standards Surface Waters and Groundwaters (or Water Quality Guidance Values from NYS Dept. of Water TOGS 1.1.1 as noted). GA = protective of fresh groundwaters for drinking water source; H(FC) = Human Consumption of Fish; A(A) = Fish Survival (acute); A(C) = Fish Propagation (chronic).

* Well purged dry; samples collected next day after sufficient water recharge

** Sample not collected in 2016; stream was dry

Bold value indicates concentration above water quality standard

Temp (degC) - Temperature (degrees Celsius)

s.u. - standard units

mS/cm -milliseimens per centimeter

DO (mg/l) - dissolved oxygen (milligrams per liter)

NTU - nephelometric turbidity units

ORP (mV) - oxidation reduction potential (millivolts)

µg/L - micrograms per liter

U - indicates not detected above laboratory reporting limits

J - indicates result is estimated

n/a - indicates not applicable or not available (where no screening value available)

"-" = field parameter measurements for primary sample applicable to duplicate sample

Table 4
Laboratory Analytical Method Summary
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2018

Analyte	Method Number	Media	Anticipated Reporting Limit (µg/L)	Sample Container Type	Container Volume (each in ml)	No. Containers per sample	Preservation	Holding Time
Test America								
Total Cyanide	SW846 9012B	Water	10	Plastic bottle	250	1	NaOH to pH>12, Cool, < 6 deg. C.	14 Days
ALS Holland								
Free Cyanide	OIA-1677	Water	2	Glass VOA vial	40	1	lead-acetate strip field test for sulfide: 40 mL VOA with NaOH or if sulfide detected 40 mL VOA no preservative	14 Days or 24 hrs

Table 5
Historical Total Cyanide Concentration Data (in mg/L)
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2018

SAMPLE	GROUNDWATER - TOTAL CYANIDE CONCENTRATIONS							SURFACE WATER - TOTAL CYANIDE CONCENTRATIONS						
DATE	MW-OB17	MW-OB18	MW-OB19	MW-OB20	MW-OB21	MW-OB22	MW-OB23	P-1	SG-1	SG-2	SG-6	SG-7	SG-8	SG-11
Jun-93	0.083	0.237	2	-	-	-	-	-	-	-	-	-	-	-
Sep-93	0.928	0.387	1.08	-	-	-	-	-	-	-	-	-	-	-
Sep-96	0.67	0.33	-	-	-	-	-	0.66	-	-	-	-	-	-
Mar-97	0.12	0.34	-	0.062	0.49	0.46	3.1	0.35	-	-	-	-	-	-
Sep-97	0.49	ND	-	0.06	0.48	0.088	2.4	0.51	-	-	0.053 N	0.048 N	0.012 N	-
Mar-98	0.12	0.35	-	0.049	0.51	0.046	1.6	0.26	-	-	0.0066	0.04	0.0074	-
Sep-98	0.52	0.39	-	0.058	0.72	0.14	1.9	0.54	-	-	0.064	0.038	0.027 N	-
Mar-99	0.12	0.28	-	0.027	0.57	0.061	2	0.24	-	-	0.029	0.03	0.015	-
Sep-99	0.419	0.3	-	0.145	0.87	0.12	5	0.36	-	-	0.064	< 0.01	0.06	-
Mar-00	0.1	0.29	-	0.019	0.69	0.07	7.2	0.3	-	-	0.0064	0.023	0.013	-
Sep-00	0.28	0.19	-	0.098	0.47	0.12	2.5	0.2	-	-	0.036	< 0.000005	0.0075	-
Apr-01	0.19	0.24	-	0.021	0.42	0.19	1	0.28	-	-	0.024	0.022	0.023	-
Aug-02	0.14	0.18	0.9	0.1	0.54	0.3	4.5	0.22	-	-	< 5	< 5	< 5	-
May-04	0.11	0.14	0.63	0.046	0.36	0.077	2.2	0.14	-	-	0.024	0.022	0.0088	-
Jan-05	0.15	0.14	0.47	0.094	0.48	0.046	1.5	0.11	-	-	-	-	-	-
Jul-05	0.34	0.15	0.69	0.073	0.41	0.34	2.9	0.14	-	-	-	-	-	-
Jan-06	0.16	0.18	0.096	0.062	0.33		1.1	0.096	-	-	-	-	-	-
Jul-06	0.084	0.086	0.38	0.33	0.36	0.084	0.04	0.12	-	-	-	-	-	-
Dec-06	0.16	0.16	0.089	-	0.36	0.036	1.6	0.077	-	-	-	-	-	-
Sep-07	0.34	0.2	-	0.056	0.29	0.04	2.1	0.18	-	-	-	-	-	-
Sep-08	0.63	-	0.28	0.04	0.28	0.01	4	0.14	-	-	-	-	-	-
Dec-08	0.14	-	0.17	0.05	0.3	ND		0.06	-	-	-	-	-	-
Dec-09	0.09	-	0.17	0.05	0.26	0.03	0.98	0.06	-	-	-	-	-	-
Jun-10	0.066	-	0.25	0.03	0.21	0.017	1.7	0.089	-	-	-	-	-	-
Dec-10	0.21	-	0.041	-	0.19	0.024	2.3	0.073	-	-	-	-	-	-
Dec-11	0.075	0.054	0.054	0.16	0.18	0.019	0.91	0.036	-	-	-	-	-	-
Dec-12	0.2	0.059	0.059	0.17	0.076	0.021	1.9	0.11	-	-	-	-	-	-
Dec-13	0.19	0.083	0.18	NS	0.14	0.017	1.1	0.078	0.014	0.009	0.031	0.031	0.031	0.031
Dec-14	0.2	0.035	0.096	0.087	0.100	0.016	0.69	0.051	-	-	0.019	0.018	0.015	0.015
Jul-15	0.182	0.102	0.182	DRY	0.119	-	1.8	-	-	-	-	<0.010 J	-	<0.010 J
Jul-16	0.370	0.057	0.140	NS	0.097	-	2.5	-	-	-	-	DRY	-	<0.010
Jun-17	0.070 J	0.093	0.250 J	0.051 J	0.110 J	-	1.4 J	-	-	-	-	0.0079 J	-	<0.010
Jun-18	0.087 J	0.110 J	0.180 J	NS	0.140 J	-	2.0	-	-	-	-	<0.010 J	-	0.0032 J

Notes:
Available data obtained from historical monitoring reports; majority of samples analyzed were not field-filtered.
Prior to July 2015, samples were collected using 3-volume purge and sample methods.
Low flow sampling methods were employed beginning July 2015.
mg/L - milligrams per liter

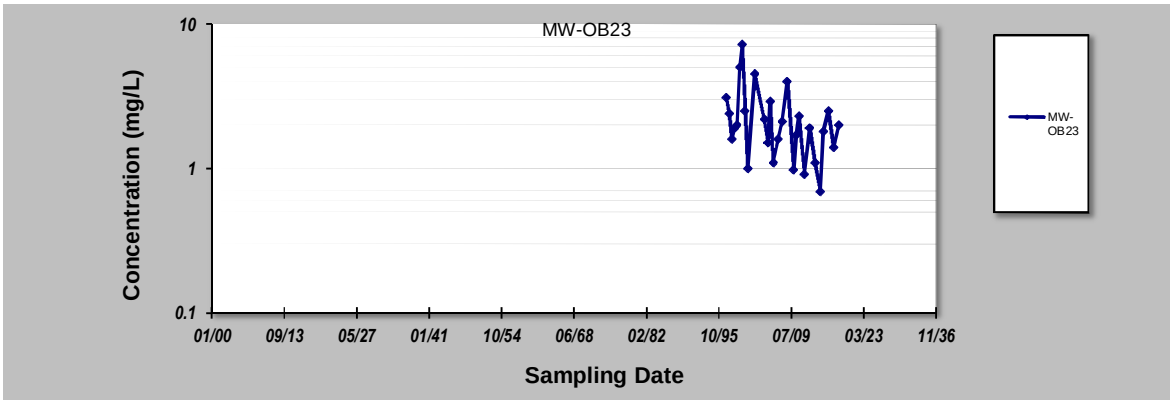
Table 6
Mann-Kendall Calculations – MW-OB23
Pretreatment Plant Annual Groundwater Surface Water Sampling - June 2018

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	11-Nov-18	Job ID:	C16262_2019_400
Facility Name:	Glens Falls - Pretreatment Plant	Constituent:	Total Cyanide
Conducted By:	Leah Krause	Concentration Units:	mg/L

Sampling Point ID: MW-OB23

Sampling Event	Sampling Date	TOTAL CYANIDE CONCENTRATION (mg/L)
1	21-Mar-97	3.1
2	26-Sep-97	2.4
3	25-Mar-98	1.6
4	17-Sep-98	1.9
5	18-Mar-99	2
6	24-Sep-99	5
7	16-Mar-00	7.2
8	21-Sep-00	2.5
9	3-Apr-01	1
10	2-Aug-02	4.5
11	17-May-04	2.2
12	14-Jan-05	1.5
13	5-Jul-05	2.9
14	23-Jan-06	1.1
15	14-Dec-06	1.6
16	20-Sep-07	2.1
17	17-Sep-08	4
18	4-Dec-09	0.98
19	2-Jun-10	1.7
20	7-Dec-10	2.3
21	21-Dec-11	0.91
22	18-Dec-12	1.9
23	16-Dec-13	1.1
24	17-Dec-14	0.69
25	23-Jul-15	1.8
26	1-Jul-16	2.5
27	20-Jun-17	1.4
28	13-Jun-18	2
29		
30		
Coefficient of Variation:		0.65
Mann-Kendall Statistic (S):		-66
Confidence Factor:		92.4%
Concentration Trend:		Prob. Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.
4. July 2006 result (0.04 mg/L) was considered an outlier and excluded from the data set.

FIGURES

693500 E

Legend

- Monitoring Well/Piezometer
- Staff Gauge
- Groundwater Sampling and Gauging Location
- Groundwater Gauging Only Location
- Pretreatment Plant Site Boundary
- Fence

BRUSH

BRUSH

PRETREATMENT PLANT SWMU

P-1

MW-OB23

P-6

P-3

MW-OB18

P-10

SG-7

IG-1

MW-OB17

P-8

P-7

FORMER TANK

MW-OB19

SG-11

MW-OB22

BRUSH

P-14

IG-2

MW-OB21

P-11

P-12

FLOW

GLENS FALLS FEEDER CANAL

IG-3R

MW-OB20

IG-4

BRUSH

B R U S H

RIVER STREET

FEEDER CANAL

BRUSH

Edge Of Woods

N

50 25 0 50

Scale In Feet

EHS Support	ASHLAND FORMER CIBA-GEIGY / HERCULES SITE GLENS FALLS, NY	PRETREATMENT PLANT ANNUAL EVENT MONITORING LOCATIONS	FIGURE 1

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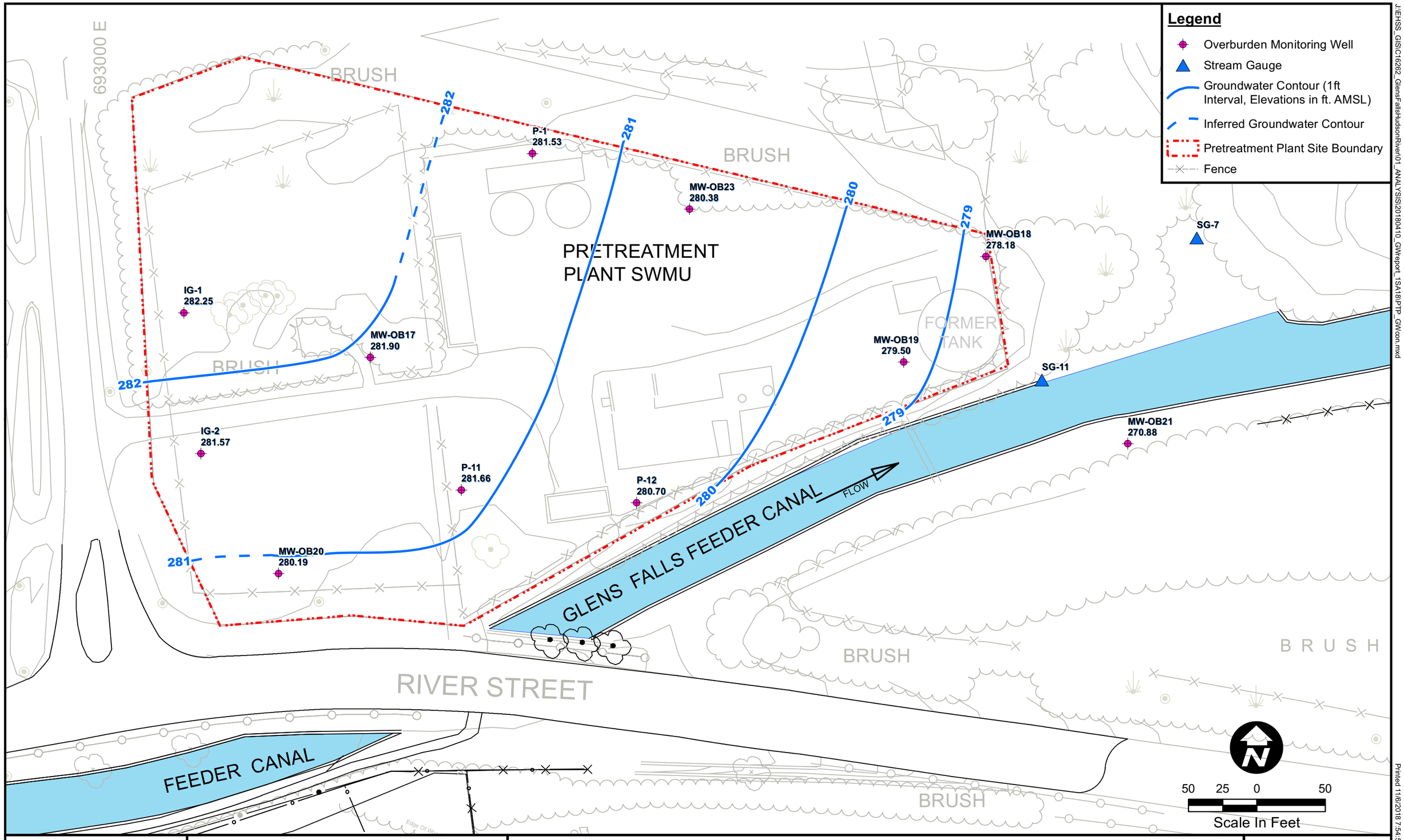

EHS Support	ASHLAND FORMER CIBA-GEIGY / HERCULES SITE GLENS FALLS, NY	GROUNDWATER ELEVATION CONTOUR OVERBURDEN AT PRETREATMENT PLANT JUNE 2018	FIGURE 2

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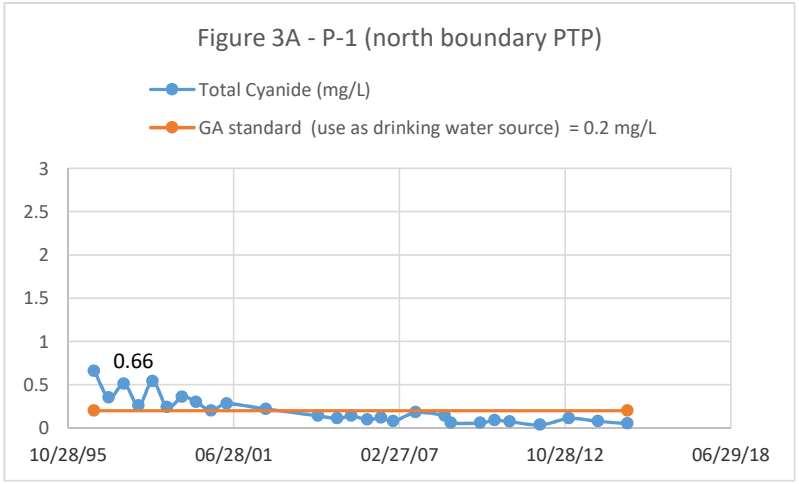
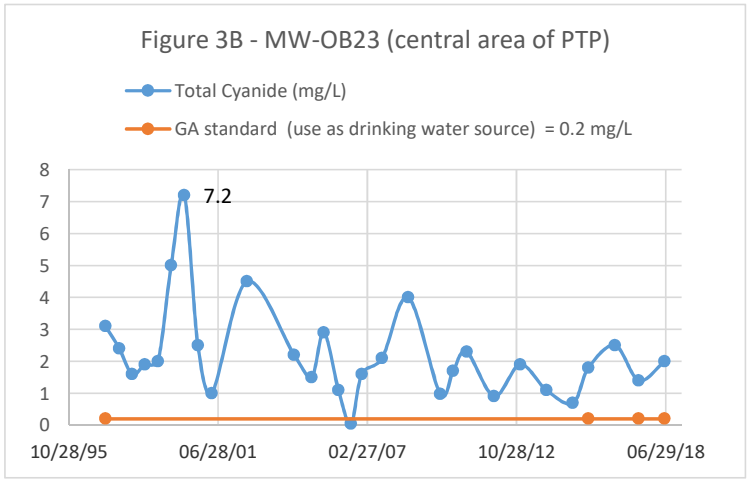
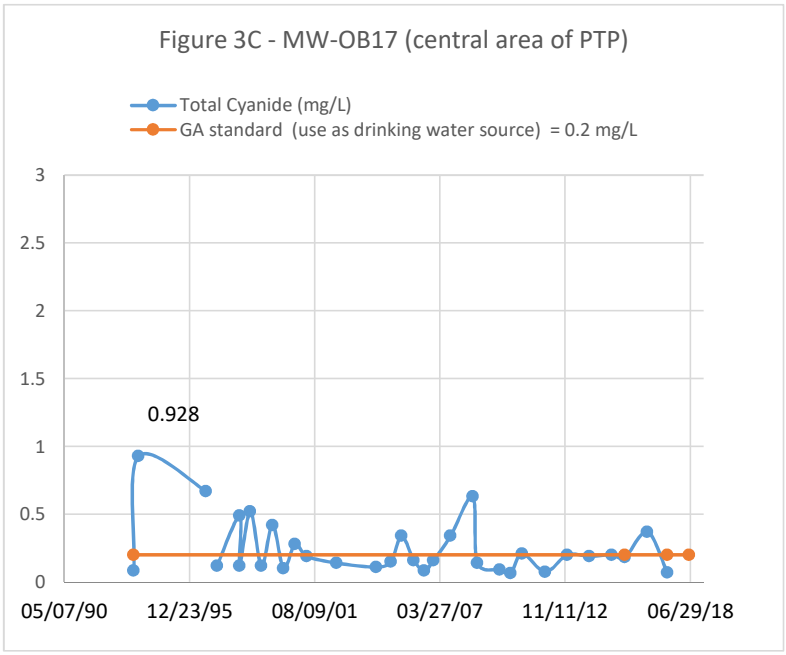
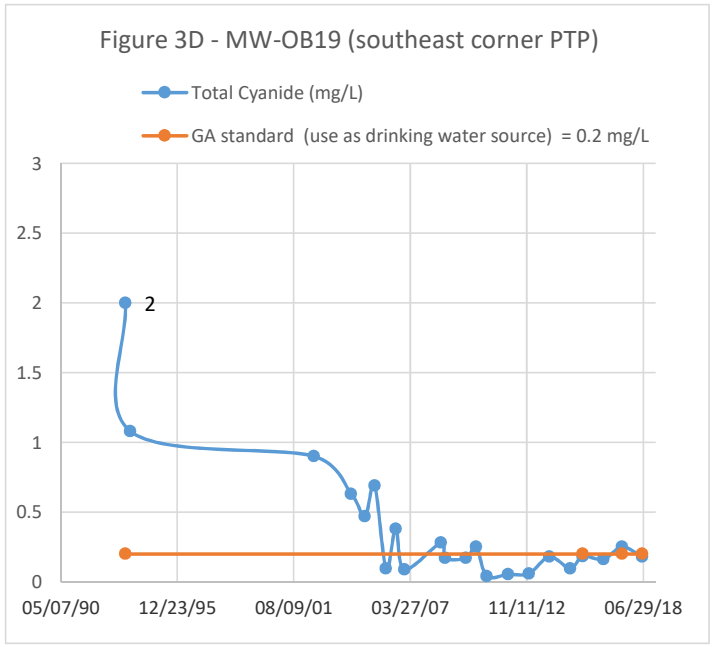
Figures 3A - 3D
Cyanide Concentrations in Groundwater versus Time (mg/L)
Pretreatment Plant Annual Groundwater & Surface Water Sampling - June 2018



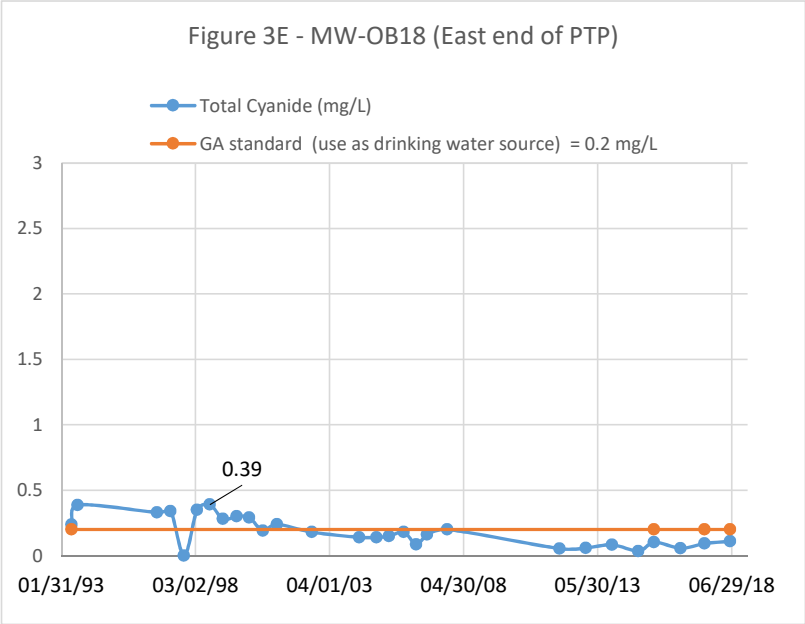


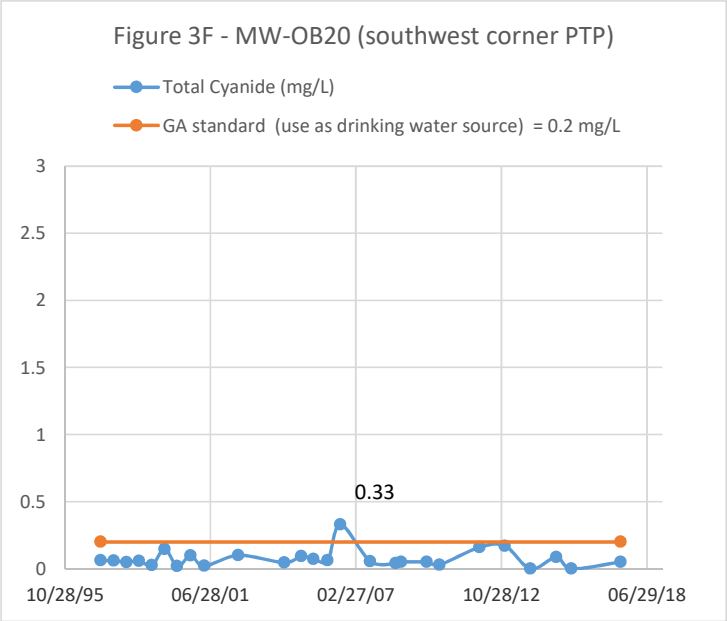


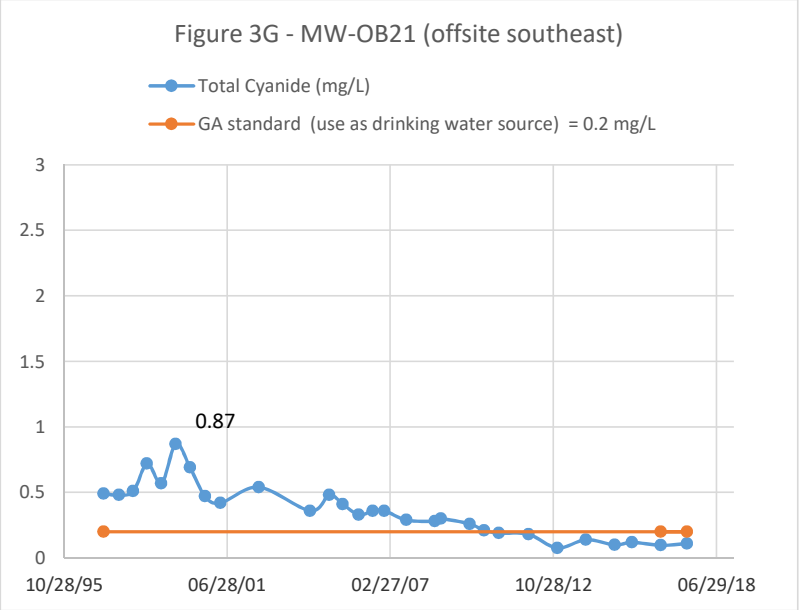


Note: Values indicated on each graph respresent historical maximum detections.

Figures 3E - 3G
Cyanide Concentrations in Groundwater versus Time (mg/L)
Pretreatment Plant Annual Groundwater & Surface Water Sampling - June 2018







Note: Values indicated on each graph respresent historical maximum detections.

Attachment 1 – Purge and Sample Logs

Water Level Measurements
Ashland - Glens Falls, NY

Date 4/11/18 Quarter/Year: 2Q18
Personnel: Kathryn F, Garrett C, Mike F, Paul G., Geoffrey S.

Well Name	Install Depth (ft bgs)	Well Screen Length	Time	DTW (ft btoc)	Total Depth (ft btoc)	Comments
WP-CC-12	21.2	5	1059	DRY	19.71	
SG-12	NA	N/A	1300	18.60	N/A	
REMEDIATION SYSTEM						
Sump A	~31.5	N/A	923	28.62	31.53	
Sump B	~29.2	N/A	918	22.86	28.95	
EW-B5	51.8	15.8	1415	31.18	53.81	
PRE-TREATMENT PLANT						
IG-1	NA	N/A	0852	6.54	8.41	1", no jelly
IG-2	NA	N/A	0855	8.20	11.17	1"
MW-OB17	11.0	10.0	0858	8.01	13.35	2"
MW-OB18	9.0	5.0	0925	9.51	12.51	2"
MW-OB19	10.0	5.0	0930	8.32	9.36	2"
MW-OB20	8.5	4.0	0900	10.17	10.18	2"
MW-OB21	14.5	10.0	0952	13.15	14.62	2"
MW-OB23	6.5	4.0	0912	6.67	8.23	2"
P-1	8	5.0	0910	6.20	7.91	1"
P-11	11	5.0	0915	8.71	12.88	1"
P-12	8	5.0	0920	7.31	9.49	1"
Canal (SG-2)	NA	N/A	0850	4.25	5.21	

Note: MW-9 - No log available, assumed to have 10' screen.
SG-11 Canal gauge no longer in place. Feeder Canal depth to water and total depth to be measured from canal wall by trail near former location of SG-2.

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Geoffrey S.	Well ID:	MW-OB19		
Date:	6/11/18	Original Install Depth:	10.0	feet	
Weather:	Sunny	Screen Length:	5	feet	
Time In:	1210 Time Out: 1245	Well Diameter:	2	inches	

WELL INFORMATION

Depth to Water (from TOC):	(feet)	8.32	Well Type:	Flushmount ☐	Stick-Up ☒	
Depth to Water(From TOC) With Pump in place:	(feet)	8.32	Well Locked:	Yes ☒	No ☐	
Total Depth (from TOC):	(feet)	9.35	Measuring Point Marked:	Yes ☒	No ☐	
Length of Water Column :	(feet)	1.03	Well Condition:	Good ☒	Poor ☐	
			Well Condition Comments:	Good		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	.168
Pumping Rate of Pump:	(mL/min)	125
Total Volume Removed:	(mL or gal)	1.0 gallon

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: Geopump S/N#:4052 Pump Size: Depth of Pump Intake: 8.84

Evacuation Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Tubing Used: Teflon ☐ Polyethylene ☒ N/A ☐

Water Quality Meter (type/Serial Number): Horiba U-52 VMD94JVH

Sampling Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Did well go dry? Yes ☒ No ☐

Final Depth to Water (prior to turning off pump): 09.15

Barometric Pressure (At time of sampling) in mm/Hg: —

FIELD PARAMETER READINGS:

				lower pump			
Time	1215	1220	1222	1224	1226	1228	
Rate (ml/min)		150 ml/min	150	125	125	125	
Depth to Water (ft. TOC)	8.32	8.90	8.99	9.12	9.15	09.15	
Temperature (°C)		22.92	21.87	21.03	19.72	19.72	
pH		7.90	7.97	8.00	8.05	8.07	
Conductivity (mS/cm)		0.239	0.242	0.244	0.254	0.250	
Dissolved Oxygen (mg/L)		0.59	0.44	0.42	0.69	0.77	
Turbidity (NTU)		0.0	0.0	0.1	0.0	0.0	
ORP (mV)		-58	-64	-65	-41	-23	

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	NS
Start Time:	
End Time:	
MS/MSD: Yes ☐ No ☒	
Duplicate: Yes ☐ No ☒	
Total Bottles:	NS
Sampled By:	

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.):

Clear water
Well went DRY

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) N/A

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Paul Girafalco	Well ID:	MW-OB19		
Date:	6/12/18	Original Install Depth:	10.0	feet	
Weather:		Screen Length:	5	feet	
Time In:	820 Time Out: 831	Well Diameter:	2	inches	

		6/11	6/12
Depth to Water (from TOC):	(feet)	8.32 ~~6/11~~	~~6/12~~ 8.36
Depth to Water(From TOC) With Pump in place:	(feet)	~~8.32~~	~~8.36~~ 8.34
Total Depth (from TOC):	(feet)	9.35	
Length of Water Column :	(feet)	0.99	

WELL INFORMATION

Well Type:	Flushmount ☐		Stick-Up ☒			
Well Locked:	Yes ☒		No ☐			
Measuring Point Marked:	Yes ☒		No ☐			
Well Condition:	Good ☒		Poor ☐			
Well Condition Comments:	Good					

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	~~1000~~ .16	
Pumping Rate of Pump:	(mL/min)	100	
Total Volume Removed:	(mL or gal)	1000	

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID:	4052 GeoPump	Pump Size:	~~4052~~ 6 1/4"	Depth of Pump Intake:	8.86	
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐		
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐			
Water Quality Meter (type/Serial Number):	Horib. U52 UMD948VIt					
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐		
Did well go dry?	Yes ☐	No ☒				
Final Depth to Water (prior to turning off pump):	8.16					
Barometric Pressure (At time of sampling) in mm/Hg:	760.608					

FIELD PARAMETER READINGS:

Time	830													
Rate (ml/min)	100													
Depth to Water (ft. TOC)	8.74													
Temperature (°C)	15.48													
pH	9.37													
Conductivity (mS/cm)	0.349													
Dissolved Oxygen (mg/L)	5.71													
Turbidity (NTU)	0.3													
ORP (mV)	269													

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	MW-OB19-20180612
Start Time:	824
End Time:	827
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☒
Total Bottles:	1
Sampled By:	PG

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.):

Grab Sample - dry on 6/11/18

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) N/A

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Katelyn Foster		Well ID:	MW-OB18	
Date:	6/19/18		Original Install Depth:	9.0	feet
Weather:	Sunny		Screen Length:	5	feet
Time In:	1040	Time Out: 1137	Well Diameter:	2	inches

Depth to Water (from TOC):	(feet)	9.51
Depth to Water(From TOC) With Pump in place:	(feet)	9.52
Total Depth (from TOC):	(feet)	12.51
Length of Water Column :	(feet)	3.00

WELL INFORMATION

Well Type:	Flushmount ☐		Stick-Up ☒	
Well Locked:	Yes ☒		No ☐	
Measuring Point Marked:	Yes ☒		No ☐	
Well Condition:	Good ☒		Poor ☐	
Well Condition Comments:	Good			

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.49 gal
Pumping Rate of Pump:	(mL/min)	150
Total Volume Removed:	(mL or gal)	1.75

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: Geo Pump S/N#: 4068 Pump Size: 1/4"ID x 3/8"OD Depth of Pump Intake: 11.01

Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐	

Water Quality Meter (type/Serial Number): Horiba U-52 S/N: 538N998T

Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐
Did well go dry?	Yes ☒	No ☐		

Final Depth to Water (prior to turning off pump): 12.41

Barometric Pressure (At time of sampling) in mm/Hg: —

FIELD PARAMETER READINGS:

Time	1050	1052	1054	1056	1058	1100	1105	1110	1115	1120	1125	1130	1135	
Rate (ml/min)	150	150	150	150	150	150	150	150	150	150	150			
Depth to Water (ft. TOC)	9.51	10.22	10.36	10.58	10.77	10.87	11.05	11.45	11.70	12.03	12.41			
Temperature (°C)	18.48	18.65	18.80	18.62	18.65	18.71	17.84	17.96	17.73	17.62	17.43			
pH	7.12	7.10	7.05	7.04	7.03	7.03	7.18	7.14	7.23	7.23	7.22			
Conductivity (mS/cm)	0.343	0.325	0.322	0.337	0.338	0.340	0.355	0.397	0.516	0.504	0.532			
Dissolved Oxygen (mg/L)	10.93	7.60	4.50	2.61	2.80	3.38	7.07	6.03	6.12	5.48	6.28			
Turbidity (NTU)	0.5	0.0	0.0	1.1	0.7	0.3	1.7	3.5	6.3	3.4	3.0			
ORP (mV)	160	176	204	223	225	228	227	223	56	54	69			

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	NS
Start Time:	
End Time:	
MS/MSD: Yes ☐ No ☒	
Duplicate: Yes ☐ No ☒	
Total Bottles:	
Sampled By:	NS

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.):

1128 on 6/11/18 went Dry

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) N/A

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel: Mike Roland	**Well ID:**	MW-OB18		
Date: 6-12-14	**Original Install Depth:**	9.0	feet	
Weather: 75° Sunny	**Screen Length:**	5	feet	
Time In: 836 **Time Out:**	**Well Diameter:**	2	inches	

WELL INFORMATION

		6/11	6/12
Depth to Water (from TOC):	(feet)	9.51	10.44
Depth to Water(From TOC) With Pump in place:	(feet)		10.41
Total Depth (from TOC):	(feet)	12.51	
Length of Water Column :	(feet)	2.10	

Well Type:	Flushmount ☐		Stick-Up ☒	
Well Locked:	Yes ☒		No ☐	
Measuring Point Marked:	Yes ☒		No ☐	
Well Condition:	Good ☒		Poor ☐	
Well Condition Comments:	Good			

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	~~100~~ .34 gal
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal) (mL circled)	GRAB

Volume Measurements	**(gal)**	**(ml)**	**Tubing/Well Size**
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: 4068 Geo Pump	**Pump Size:** .35"	**Depth of Pump Intake:** 11.46		
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐	
Water Quality Meter (type/Serial Number): [illegible] Horiba U-52				
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐
Did well go dry?	Yes ☐	No ☒		
Final Depth to Water (prior to turning off pump): 10.96				
Barometric Pressure (At time of sampling) in mm/Hg: 760.844				

FIELD PARAMETER READINGS:

Time	845												
Rate (ml/min)	100												
Depth to Water (ft. TOC)	10.71												
Temperature (°C)	15.72												
pH	6.79												
Conductivity (mS/cm)	0.544												
Dissolved Oxygen (mg/L)	9.33												
Turbidity (NTU)	21.3												
ORP (mV)	255												

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	MW-OB18-20150612
Start Time:	0840
End Time:	0843
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☒
Total Bottles:	1
Sampled By:	MK

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.):

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) N/A

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Katelyn Foster	Well ID:	MW-OB21		
Date:	6/11/18	Original Install Depth:	14.5	feet	
Weather:	Sunny	Screen Length:	10	feet	
Time In:	1216 Time Out: 1254	Well Diameter:	2	inches	

WELL INFORMATION

Depth to Water (from TOC):	(feet)	13.15	Well Type:	Flushmount ☐	Stick-Up ☒	
Depth to Water(From TOC) With Pump in place:	(feet)	13.12	Well Locked:	Yes ☒	No ☐	
Total Depth (from TOC):	(feet)	16.62	Measuring Point Marked:	Yes ☒	No ☐	
Length of Water Column :	(feet)	3.47	Well Condition:	Good ☒	Poor ☐	
			Well Condition Comments:	Good		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or (gal))	0.57
Pumping Rate of Pump:	(mL/min)	150
Total Volume Removed:	(mL or (gal))	2.25

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: ~~ANT~~ 4068 Geopump Pump Size: 1/4"ID x 3/8"OD Depth of Pump Intake: 14.89

Evacuation Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Tubing Used: Teflon ☐ Polyethylene ☒ N/A ☐

Water Quality Meter (type/Serial Number): U-52, S# S38N998T

Sampling Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Did well go dry? Yes ☐ No ☒

Final Depth to Water (prior to turning off pump): 15.77

Barometric Pressure (At time of sampling) in mm/Hg: 758.592

FIELD PARAMETER READINGS:

Time	1222	1224	1226	1228	1230	1232	1237	1242	1247					
Rate (ml/min)	150	150	150	150	150	150	150	150	150					
Depth to Water (ft. TOC)	13.12	13.74	13.88	14.02	14.18	14.32	14.80	15.02	15.41					
Temperature (°C)	21.16	20.75	20.53	20.36	20.25	20.17	19.99	19.92	19.88					
pH	7.35	7.29	7.27	7.24	7.24	7.22	7.20	7.19	7.16					
Conductivity (mS/cm) .32	~~.50~~	.304	0.297	0.293	0.292	0.290	0.291	0.287	0.292					
Dissolved Oxygen (mg/L)	6.50	6.03	6.02	6.06	5.91	6.06	5.71	6.00	5.89					
Turbidity (NTU)	105	19.8	11.6	5.7	2.7	1.3	0.1	0.0	0.0					
ORP (mV)	49	43	52	62	73	80	89	90	96					

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID: MW-OB21-20180611
Start Time: 1250
End Time: 1254
MS/MSD: Yes ☒ No ☐
Duplicate: Yes ☒ No ☐
Total Bottles: 3 1
Sampled By: KF

Duplicate ID: DUP-20180611
Sample Time: ~~1250~~ KF
Total Bottles: 1
Sampled By: KF

MS/MSD ID: MW-OB21-20180611
Sample Time: 1250
Total Bottles: 1
Sampled By: KF

Observations (water color, clarity, etc.):

Free Cyanide Sulfide Test Strip: NA Positive (Black) / Negative (No change)

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Geoffrey S.		Well ID:	MW-OB17			
Date:	6/11/18		Original Install Depth:	11.0	feet		
Weather:	Sunny		Screen Length:	6.0	feet		
Time In:	1020	Time Out: 1125	Well Diameter:	2	inches		

WELL INFORMATION

Depth to Water (from TOC):	(feet)	8.01	Well Type:	Flushmount ☐	Stick-Up ☑	
Depth to Water(From TOC) With Pump in place:	(feet)	8.00	Well Locked:	Yes ☑	No ☐	
Total Depth (from TOC):	(feet)	13.55	Measuring Point Marked:	Yes ☑	No ☐	
Length of Water Column :	(feet)	5.54	Well Condition:	Good ☑	Poor ☐	
			Well Condition Comments:	Good		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	.90
Pumping Rate of Pump:	(mL/min)	~150ml/min
Total Volume Removed:	(mL or gal)	3.0 gal

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: S/N#.4052 Geopump Pump Size: 1/4"ID x 3/8"D Depth of Pump Intake: 10.78

Evacuation Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Tubing Used: Teflon ☐ Polyethylene ☒ N/A ☐

Water Quality Meter (type/Serial Number): Horiba U-52 UMD748VH

Sampling Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Did well go dry? Yes ☐ No ☒

Final Depth to Water (prior to turning off pump): ~~10~~(68) 8.15

Barometric Pressure (At time of sampling) in mm/Hg: 758.773

FIELD PARAMETER READINGS:

Time	1030	1040	1042	~~1044~~ 05 1044	1046	1048	1050	1055	1100	1105	1110			
Rate (ml/min)		150ml/m	150ml/min	150ml/m	150	150	150	150	150	150	150			
Depth to Water (ft. TOC)	8.00	8.10	8.12	8.13	8.14	8.14	8.14	8.14	8.15	8.15	8.16			
Temperature (°C)		20.11	1942	1886	1811	17.85	1796	1787	17.81	17.82	~~17.85~~ 5.48			
pH		7.70	7.72	7.80	7.85	7.85	7.84	7.84	7.82	7.82	7.82			
Conductivity (mS/cm)		0.190	0.193	0.194	0.197	0.198	0.198	0.197	0.196	0.196	0.195			
Dissolved Oxygen (mg/L)		2.80	7.79	7.80	7.52	7.18	7.04	6.78	6.28	5.96	5.68			
Turbidity (NTU)		16.14	15.0	0.8	0.9	7.6	4.7	0.4	0.2	0.1	0.0			
ORP (mV)		222	221	218	218	219	219	221	222	223	225			

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	MWOB17_20180611
Start Time:	~~1115~~ 05 1115
End Time:	~~1118~~ 05 1118
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☒
Total Bottles:	1
Sampled By:	GS

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.): Clear

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) N/A

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Paul Girafalco	Well ID:	SG-11	SG-11	
Date:	6/11/18	Original Install Depth:	N/A	feet	
Weather:	Sunny	Screen Length:	N/A	feet	
Time In:	~~1434~~ PG 1458 Time Out: 1508	Well Diameter:	N/A	inches	

WELL INFORMATION

Depth to Water (from TOC):	(feet)	NA	Well Type:	Flushmount ☐ Stick-Up ☐
Depth to Water(From TOC) With Pump in place:	(feet)	NA	Well Locked:	Yes ☐ No ☐
Total Depth (from TOC):	(feet)	2ft	Measuring Point Marked:	Yes ☐ No ☐
Length of Water Column :	(feet)	2ft	Well Condition:	Good ☐ Poor ☐
			Well Condition Comments:	~~Lock~~ PG

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	NA
Pumping Rate of Pump:	(mL/min)	NA
Total Volume Removed:	(mL or gal)	NA

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: NA Pump Size: NA Depth of Pump Intake: NA

Evacuation Method: Bailer ☒ Peristaltic ☐ Bladder ☐ Other ☐

Tubing Used: Teflon ☐ Polyethylene ☐ N/A ☒

Water Quality Meter (type/Serial Number): UMID948VH Horiba U52

Sampling Method: Bailer ☒ Peristaltic ☐ Bladder ☐ Other ☐

Did well go dry? Yes ☐ No ☒

Final Depth to Water (prior to turning off pump): 2ft

Barometric Pressure (At time of sampling) in mm/Hg: 758.272

FIELD PARAMETER READINGS:

Time	1459													
Rate (ml/min)	NA													
Depth to Water (ft. TOC)	NA													
Temperature (°C)	22.9													
pH	9.05													
Conductivity (mS/cm)	0.100													
Dissolved Oxygen (mg/L)	8.57													
Turbidity (NTU)	0.2													
ORP (mV)	100													

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☒
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	SG-11-20180611
Start Time:	1500
End Time:	1504
MS/MSD:	Yes ☒ No ☐
Duplicate:	Yes ☒ No ☐
Total Bottles:	2
Sampled By:	PG

Duplicate ID:	DUP02-20180611
Sample Time:	—
Total Bottles:	2
Sampled By:	PG
MS/MSD ID:	SG-11-20180611
Sample Time:	1500
Total Bottles:	2
Sampled By:	PG

Observations (water color, clarity, etc.):

Not well / Grab sample

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change)

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Paul Girafalco	Well ID:	SG-7		
Date:	6/11/18	Original Install Depth:	N/A	feet	
Weather:	Sunny	Screen Length:	N/A	feet	
Time In:	1440 Time Out: 1448	Well Diameter:	N/A	inches	

WELL INFORMATION

Depth to Water (from TOC):	(feet)	NA	Well Type:	Flushmount ☐	Stick-Up ☐
Depth to Water(From TOC) With Pump in place:	(feet)	NA	Well Locked:	Yes ☐	No ☐
Total Depth (from TOC):	(feet)	1.76	Measuring Point Marked:	Yes ☐	No ☐
Length of Water Column :	(feet)	1.75	Well Condition:	Good ☐	Poor ☐
			Well Condition Comments:		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	NA
Pumping Rate of Pump:	(mL/min)	NA
Total Volume Removed:	(mL or gal)	NA

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: NA Pump Size: NA Depth of Pump Intake: NA

Evacuation Method: Bailer ☒ Peristaltic ☐ Bladder ☐ Other ~~☒~~ GC

Tubing Used: Teflon ☐ Polyethylene ☐ N/A ☒

Water Quality Meter (type/Serial Number): UMD948VH Horiba U-52

Sampling Method: Bailer ☒ Peristaltic ☐ Bladder ☐ Other ☐

Did well go dry? Yes ☐ No ☒

Final Depth to Water (prior to turning off pump): NA

Barometric Pressure (At time of sampling) in mm/Hg: 758.117

FIELD PARAMETER READINGS:

Time	1442													
Rate (ml/min)	NA													
Depth to Water (ft. TOC)	NA													
Temperature (°C)	22.77													
pH	8.82													
Conductivity (mS/cm)	0.136													
Dissolved Oxygen (mg/L)	7.62													
Turbidity (NTU)	0.3													
ORP (mV)	95													

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☒
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID: SG-7_20180611

Start Time: 1445

End Time: 1446

MS/MSD: Yes ~~☒~~ No ☒

Duplicate: Yes ☐ No ☒

Total Bottles: 2

Sampled By: PG

Duplicate ID:

Sample Time:

Total Bottles:

Sampled By:

MS/MSD ID:

Sample Time:

Total Bottles:

Sampled By:

Observations (water color, clarity, etc.):

Not a well
Grab sample

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change)

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Katelyn Foster	Well ID:	MW-OB23		
Date:	6/11/18	Original Install Depth:	6.5	feet	
Weather:	Sunny	Screen Length:	4.0	feet	
Time In:	1413 Time Out: 1645	Well Diameter:	2	inches	

WELL INFORMATION

Depth to Water (from TOC):	(feet)	6.67	Well Type:	Flushmount ☐	Stick-Up ☒	
Depth to Water(From TOC) With Pump in place:	(feet)	6.45	Well Locked:	Yes ☒	No ☐	
Total Depth (from TOC):	(feet)	8.23	Measuring Point Marked:	Yes ☒	No ☐	
Length of Water Column :	(feet)	~~1.62~~ RF 1.56	Well Condition:	Good ☒	Poor ☐	
			Well Condition Comments:	2" Good		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.26 gallons
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	8

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: Geo Pump S/N # 4068 Pump Size: 1/4 ID x 3/8 OD Depth of Pump Intake: 7.45

Evacuation Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Tubing Used: Teflon ☐ Polyethylene ☒ N/A ☐

Water Quality Meter (type/Serial Number): Horiba U-52 5538N998T

Sampling Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Did well go dry? Yes ☒ No ~~☐~~

Final Depth to Water (prior to turning off pump): 8.21

Barometric Pressure (At time of sampling) in mm/Hg: —

FIELD PARAMETER READINGS:

Time	1417	1419	1421	1423	1425	1427	1432	1437	1442	1447	1452	1457	1502	1507
Rate (ml/min)	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Depth to Water (ft. TOC)	6.45	6.46	6.45	6.51	6.55	6.66	6.91	7.00	7.10	7.20	7.32	7.46	7.75	7.82
Temperature (°C)	17.71	17.67	17.34	17.26	17.19	17.07	16.68	16.52	16.48	16.45	16.33	16.16	16.36	16.47
pH	7.07	7.05	7.02	7.00	6.99	6.98	6.95	6.96	6.88	7.06	6.92	6.92	6.98	7.02
Conductivity (mS/cm)	0.474	0.470	0.471	0.467	0.472	0.475	0.464	0.465	0.466	0.456	0.457	0.463	0.461	0.461
Dissolved Oxygen (mg/L)	0.07	0.04	0.00	0.04	0.04	0.05	0.00	0.36	0.50	0.71	1.17	1.05	2.56	3.39
Turbidity (NTU)	5.5	5.4	3.3	2.6	2.7	3.6	7.6	6.5	6.5	8.4	16.3	29.9	40.3	19.3
ORP (mV)	-90	-102	-106	-109	-108	-104	-87	-78	-64	-60	-52	-51	-33	-21

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID: NS
Start Time:
End Time:
MS/MSD: Yes ☐ No ~~☒~~
Duplicate: Yes ☐ No ~~☒~~
Total Bottles: NS
Sampled By:

Duplicate ID:
Sample Time:
Total Bottles:
Sampled By:
MS/MSD ID:
Sample Time:
Total Bottles:
Sampled By:

Observations (water color, clarity, etc.):

1635 well went DRY

Not Sampled

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) N/A

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Katelyn Foster		Well ID:	MW-0823	
Date:	6/11/18		Original Install Depth:	6.5	feet
Weather:	Sunny		Screen Length:	4.0	feet
Time In:	1413	Time Out: 1645	Well Diameter:	2	inches

WELL INFORMATION

Depth to Water (from TOC):	(feet)	6.67	Well Type:	Flushmount ☐	Stick-Up ☒
Depth to Water(From TOC) With Pump in place:	(feet)	6.45	Well Locked:	Yes ☒	No ☐
Total Depth (from TOC):	(feet)	8.23	Measuring Point Marked:	Yes ☒	No ☐
Length of Water Column :	(feet)	~~1.62~~ KF 1.56	Well Condition:	Good ☒	Poor ☐
			Well Condition Comments:	2" Good	

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.26 gallons
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	8

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: 6 eco pump S/N# 4068 Pump Size: 1/4ID x 3/8OD Depth of Pump Intake: 7.45 (7.95 @ 15:32)

Evacuation Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Tubing Used: Teflon ☐ Polyethylene ☒ N/A ☐

Water Quality Meter (type/Serial Number): Horiba U-52 SS38N998T

Sampling Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Did well go dry? Yes ☒ No ~~☒~~ KF

Final Depth to Water (prior to turning off pump): 8.21

Barometric Pressure (At time of sampling) in mm/Hg: —

FIELD PARAMETER READINGS:

Time	1512	1517	1522	1527	1532	1537	1542	1547	1552	1557	1602	1607	1612	1617
Rate (ml/min)	100	✱	100	100	100	✱	100	100	100	100	100	✱	100	100
Depth to Water (ft. TOC)	7.80	|	7.25	7.44	7.62	|	7.58	7.70	7.94	8.03	8.07	|	7.75	7.81
Temperature (°C)	16.52	|	17.63	17.48	17.38	|	16.23	15.93	15.67	15.42	15.49	|	16.93	17.00
pH	7.01	|	7.10	7.05	7.04	|	7.12	7.04	7.09	7.04	7.05	|	7.11	7.09
Conductivity (mS/cm)	0.459	|	0.449	0.448	0.444	|	0.448	0.453	0.456	0.451	0.449	|	0.452	0.440
Dissolved Oxygen (mg/L)	3.36	|	2.77	6.50	6.33	|	4.21	6.98	6.56	6.23	5.92	|	3.42	7.21
Turbidity (NTU)	24.7	|	46.1	19.2	83.0	|	130	39.1	23.1	24.0	25.6	|	88.0	732
ORP (mV)	-15	|	-30	-9	-14	|	-2	-4	-20	-20	-18	|	5.0	21

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	
Start Time:	NS
End Time:	
MS/MSD: Yes ☐ No ☒	
Duplicate: Yes ☐ No ☒	
Total Bottles:	NS
Sampled By:	

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.):

✱ Pause to Clean horiba

1635 well went DRY

Not Sampled

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) N/A

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Katelyn Foster		Well ID:	MW-08D3	
Date:	6/11/18		Original Install Depth:	6.5	feet
Weather:	Sunny		Screen Length:	4.0	feet
Time In:	1413	Time Out: 1645	Well Diameter:	2	inches

WELL INFORMATION

Depth to Water (from TOC):	(feet)	6.67	Well Type:	Flushmount ☐	Stick-Up	☒
Depth to Water(From TOC) With Pump in place:	(feet)	6.45	Well Locked:	Yes ☒	No	☐
Total Depth (from TOC):	(feet)	~~6.2~~ KF 8.23	Measuring Point Marked:	Yes ☒	No	☐
Length of Water Column :	(feet)	1.66	Well Condition:	Good ☒	Poor	☐
			Well Condition Comments:	2" Load		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.26
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	8

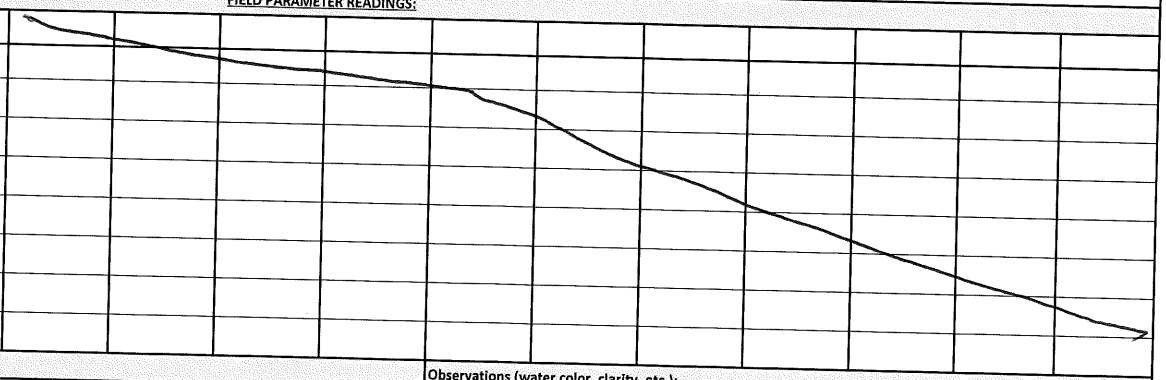
Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID:	Geo pump S/N# 4068	Pump Size:	1/4 x 3/8 OD	Depth of Pump Intake:	7.45		
Evacuation Method:	Bailer ☐	Peristaltic	☒	Bladder	☐	Other	☐
Tubing Used:	Teflon ☐	Polyethylene	☒	N/A	☐		
Water Quality Meter (type/Serial Number):	Horiba U-52 5538N998T						
Sampling Method:	Bailer ☐	Peristaltic	☒	Bladder	☐	Other	☐
Did well go dry?	Yes ☒	No	☐				
Final Depth to Water (prior to turning off pump):	8.21						
Barometric Pressure (At time of sampling) in mm/Hg:	—						

FIELD PARAMETER READINGS:

Time	1622	1627	1632
Rate (ml/min)	100	100	100
Depth to Water (ft. TOC)	8.02	8.02	821
Temperature (°C)	17.02	16.94	16.82
pH	7.09	7.09	7.10
Conductivity (mS/cm)	0.441	0.432	0.430
Dissolved Oxygen (mg/L)	4.16	6.98	6.88
Turbidity (NTU)	27.2	19.9	134
ORP (mV)	21	31	28



SAMPLE INFORMATION

Sample List:			
Diss. Chromium & Vanadium	☐	Sample ID:	NS
Diss. Hexavalent Chromium	☐	Start Time:	
Total Cyanide	☒	End Time:	
Free Cyanide	☐	MS/MSD: Yes ☐	No ☒
Total Dissolved Solids	☐	Duplicate: Yes ☐	No ☒
Hardness	☐	Total Bottles:	NS
VOCs (Dichlorobenzenes)	☐	Sampled By:	

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.):

1635 well went dry

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change)

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Paul Girafalco	Well ID:	MW-0B23		
Date:	6/13/18	Original Install Depth:	6.5	feet	
Weather:	Sunny 70's	Screen Length:	4	feet	
Time In:	736 Time Out: 400	Well Diameter:	2	inches	

WELL INFORMATION

		6/11	6/13
Depth to Water (from TOC):	(feet)	6.67	6.10
Depth to Water(From TOC) With Pump in place:	(feet)	6.08	
Total Depth (from TOC):	(feet)	8.23	
Length of Water Column :	(feet)	2.13	

Well Type:	Flushmount ☐		Stick-Up ☒		
Well Locked:	Yes ☒		No ☐		
Measuring Point Marked:	Yes ☒		No ☐		
Well Condition:	Good ☒		Poor ☐		
Well Condition Comments:	Good				

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	1,314	
Pumping Rate of Pump:	(mL/min)	100	
Total Volume Removed:	(mL or gal)	6,363.6	

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: GeoPump 4068	Pump Size: 1/4 x 3/8		Depth of Pump Intake: 7.26		
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐		
Water Quality Meter (type/Serial Number):	Horiba U52 UMD948VH				
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Did well go dry?	Yes ☐	No ☒			
Final Depth to Water (prior to turning off pump):	6.83				
Barometric Pressure (At time of sampling) in mm/Hg:	753.704				

FIELD PARAMETER READINGS:

Time	747	749	751	753	755	757	802	807	812	817	822	827	832	837
Rate (ml/min)	125	125	125	125	125	125	100	100	100	100	100	100	100	100
Depth to Water (ft. TOC)	6.45	6.46	6.47	6.51	6.55	6.57	6.59	6.61	6.63	6.65	6.66	6.68	6.72	6.74
Temperature (°C)	19.39	16.30	15.88	15.61	15.54	15.48	15.48	15.47	15.47	15.46	15.50	15.30	15.33	15.37
pH	5.55	5.80	5.82	5.72	5.62	5.64	5.68	5.75	5.79	5.81	5.84	6.05	6.12	6.20
Conductivity (mS/cm)	0.708	0.709	0.701	0.696	0.693	0.693	0.694	0.690	0.690	0.688	0.688	0.681	0.678	0.677
Dissolved Oxygen (mg/L)	5.27	3.72	3.30	2.93	2.83	2.67	2.41	1.92	1.72	1.52	1.52	0.86	0.84	0.75
Turbidity (NTU)	0.8	0.8	0.9	1.3	0.9	0.9	0.9	0.9	0.8	0.6	0.6	0.7	0.7	0.6
ORP (mV)	261	278	293	281	264	247	218	196	185	188	186	161	100	71

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	MW-0B23_20180613
Start Time:	833
End Time:	856
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☒
Total Bottles:	1
Sampled By:	PG

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.): Clear

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) N/A

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Paul Girgenti	Well ID:	MW-0B23		
Date:	6/13/18	Original Install Depth:	6.5	feet	
Weather:	Sunny 70's	Screen Length:	4	feet	
Time In:	738 Time Out: 857	Well Diameter:	2	inches	

		6/11	6/13
Depth to Water (from TOC):	(feet)	6.67	6.10
Depth to Water(From TOC) With Pump in place:	(feet)	6.08	
Total Depth (from TOC):	(feet)	8.23	
Length of Water Column :	(feet)	2.13	

WELL INFORMATION

Well Type:	Flushmount ☐	Stick-Up ☒		
Well Locked:	Yes ☒	No ☐		
Measuring Point Marked:	Yes ☒	No ☐		
Well Condition:	Good ☑	Poor ☐		
Well Condition Comments:				

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	1,314
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	6,363.6

Volume Measurements	(gal)	(ml)	Tubing/Well Size
Tubing Volume per foot	0.003	11.36	1/4" ID tubing
Well Volume per foot	0.041	155.18	1" diam. well
	0.163	616.95	2" diam. well
	0.653	2,471.60	4" diam. well

EVACUATION INFORMATION

Pump ID: Geo. Pump 4065	Pump Size: 1/4 x 3/8	Depth of Pump Intake: 7.20		
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐	
Water Quality Meter (type/Serial Number):	Horiba U52 UM0948VH			
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐
Did well go dry?	Yes ☐	No ☒		
Final Depth to Water (prior to turning off pump):	6.53			
Barometric Pressure (At time of sampling) in mm/Hg:	753.704			

FIELD PARAMETER READINGS:

Time	842	847	852											
Rate (ml/min)	100	100	100											
Depth to Water (ft. TOC)	6.77	6.79	6.82											
Temperature (°C)	15.23	15.17	15.15											
pH	6.19	6.19	6.23											
Conductivity (mS/cm)	0.676	0.675	0.674											
Dissolved Oxygen (mg/L)	0.67	0.68	0.68											
Turbidity (NTU)	0.6	0.7	0.6											
ORP (mV)	25	27	23											

SAMPLE INFORMATION

Sample List:

- Diss. Chromium & Vanadium ☐
- Diss. Hexavalent Chromium ☐
- Total Cyanide ☒
- Free Cyanide ☐
- Total Dissolved Solids ☐
- Hardness ☐
- VOCs (Dichlorobenzenes) ☐

Sample ID:	MW-0B23_2018
Start Time:	~~855~~ 853
End Time:	856
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☑
Total Bottles:	1
Sampled By:	PG

Duplicate ID:	
Sample Time:	
Total Bottles:	
Sampled By:	
MS/MSD ID:	
Sample Time:	
Total Bottles:	
Sampled By:	

Observations (water color, clarity, etc.): Clear

Free Cyanide Sulfide Test Strip: Positive (Black) / Negative (No change) NA

UNIT STABILITY

pH	DO	Turb.	Cond	ORP
± 0.1	± 10%	± 10%, <10NTU	± 3%	± 10 mV

Attachment 2 – Laboratory Analytical Reports

27-Jun-2018

Cassie Reuter
EHS Support LLC
316 Grandview Ave
Argyle, WI 53504

Re: **Ashland Glens Falls, NY** Work Order: **18061180**

Dear Cassie,

ALS Environmental received 10 samples on 19-Jun-2018 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Tom Beamish

Tom Beamish
Senior Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

ALS Group, USA

Date: 27-Jun-18

Client: EHS Support LLC
Project: Ashland Glens Falls, NY
Work Order: **18061180**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18061180-01	DUP02_20180611	Water		06/11/18	06/19/18 09:30	☐
18061180-02	DUP02_20180612	Water		06/12/18	06/19/18 09:30	☐
18061180-03	SG-11_20180611	Water		06/11/18 15:00	06/19/18 09:30	☐
18061180-04	SW-04_20180612	Water		06/12/18 14:55	06/19/18 09:30	☐
18061180-05	SW-03_20180612	Water		06/12/18 13:00	06/19/18 09:30	☐
18061180-06	SW-02_20180612	Water		06/12/18 11:20	06/19/18 09:30	☐
18061180-07	SW-01_20180612	Water		06/12/18 10:10	06/19/18 09:30	☐
18061180-08	EB20180611	Water		06/11/18 09:05	06/19/18 09:30	☐
18061180-09	EB20180612	Water		06/12/18 10:37	06/19/18 09:30	☐
18061180-10	SG-7_20180611	Water		06/11/18 14:45	06/19/18 09:30	☐

ALS Group, USA

Date: 27-Jun-18

Client: EHS Support LLC
Project: Ashland Glens Falls, NY
WorkOrder: **18061180**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter

Client: EHS Support LLC
Project: Ashland Glens Falls, NY
Work Order: 18061180

Case Narrative

Samples for the above noted Work Order were received on 06/19/18. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting. A copy of the laboratory's scope of accreditation is available upon request.

Wet Chemistry:
No deviations or anomalies were noted.

ALS Group, USA

Date: *27-Jun-18*

Client: EHS Support LLC
Project: Ashland Glens Falls, NY

Work Order: 18061180

Lab ID: 18061180-01A
Client Sample ID: DUP02_20180611
Collection Date: 06/11/18
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Lab ID: 18061180-02A
Client Sample ID: DUP02_20180612
Collection Date: 06/12/18
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Lab ID: 18061180-03A
Client Sample ID: SG-11_20180611
Collection Date: 06/11/18 3:00:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Lab ID: 18061180-04A
Client Sample ID: SW-04_20180612
Collection Date: 06/12/18 2:55:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Lab ID: 18061180-05A
Client Sample ID: SW-03_20180612
Collection Date: 06/12/18 1:00:00 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: EHS Support LLC **Work Order:** 18061180
Project: Ashland Glens Falls, NY

Lab ID: 18061180-06A **Collection Date:** 06/12/18 11:20:00 AM
Client Sample ID: SW-02_20180612 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Lab ID: 18061180-07A **Collection Date:** 06/12/18 10:10:00 AM
Client Sample ID: SW-01_20180612 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Lab ID: 18061180-08A **Collection Date:** 06/11/18 9:05:00 AM
Client Sample ID: EB20180611 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Lab ID: 18061180-09A **Collection Date:** 06/12/18 10:37:00 AM
Client Sample ID: EB20180612 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Lab ID: 18061180-10A **Collection Date:** 06/11/18 2:45:00 PM
Client Sample ID: SG-7_20180611 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	ND		2.0	µg/L	1	06/22/18 01:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 27-Jun-18

Client: EHS Support LLC

Work Order: 18061180

Project: Ashland Glens Falls, NY

QC BATCH REPORT

Batch ID: **R238706** Instrument ID **FS3100** Method: **OIA 1677**

MBLK Sample ID: **MB-R238706-R238706** Units: **µg/L** Analysis Date: **06/22/18 01:00 PM**

Client ID: Run ID: **FS3100_180622B** SeqNo: **5108338** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	ND	2.0								

LCS Sample ID: **LCS-R238706-R238706** Units: **µg/L** Analysis Date: **06/22/18 01:00 PM**

Client ID: Run ID: **FS3100_180622B** SeqNo: **5108339** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	50.48	2.0	50	0	101	82-132	0			

MS Sample ID: **18061180-03AMS** Units: **µg/L** Analysis Date: **06/22/18 01:00 PM**

Client ID: **SG-11_20180611** Run ID: **FS3100_180622B** SeqNo: **5108343** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	44.2	2.0	50	-0.11	88.6	82-130	0			

MS Sample ID: **18061180-05AMS** Units: **µg/L** Analysis Date: **06/22/18 01:00 PM**

Client ID: **SW-03_20180612** Run ID: **FS3100_180622B** SeqNo: **5108347** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	48.99	2.0	50	0.25	97.5	82-130	0			

MSD Sample ID: **18061180-03AMSD** Units: **µg/L** Analysis Date: **06/22/18 01:00 PM**

Client ID: **SG-11_20180611** Run ID: **FS3100_180622B** SeqNo: **5108344** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	46.48	2.0	50	-0.11	93.2	82-130	44.2	5.03	11	

MSD Sample ID: **18061180-05AMSD** Units: **µg/L** Analysis Date: **06/22/18 01:00 PM**

Client ID: **SW-03_20180612** Run ID: **FS3100_180622B** SeqNo: **5108348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	49.06	2.0	50	0.25	97.6	82-130	48.99	0.143	11	

The following samples were analyzed in this batch:

18061180-01A	18061180-02A	18061180-03A
18061180-04A	18061180-05A	18061180-06A
18061180-07A	18061180-08A	18061180-09A
18061180-10A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

~~18061178~~
18061180

ALS Environmental
3352 128th Ave, Holland, MI 49424   Phone: 616 399 6070 FAX: 616 399 6185

Shipping Number# ____
PAGE 1 OF 1

Project Name: Glens Falls, NY **Project Number:** GLENSFA181-6400
Site Project Manager: Cassie Reuter **Company:** EHS Support LLC
Email: Cassie.Reuter@ehs-support.com **Phone:** 608-851-0626
Project Manager (Billing): James Vondracek **Company:** Ashland
Company/Address: Ashland Inc. - EHS&RC - DA5, 5200 Blazer Parkway **Phone:** 614-790-6146
City, State, Zip: Dublin, OH 43017
Email: jevondracek@ashland.com

Analysis Requested

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Free Cyanide (OIA-1677) 250 mL												REMARKS
DUP02_20180611	6/11/18	—	water	GW	1	X												Run as DUP
DUP02_20180612	6/12/18	—	Water	GW	1	X												Run as DUP
SG-11_20180611	6/11/18	1500	Surface water	GW	2	X												Run extra bottle as ms/msd
SW-04_20180612	6/12/18	1455	↑	GW	1	X												
SW-03_20180612	6/12/18	1300		GW	2	X												Run extra bottle as ms/msd
SW-02_20180612	6/12/18	1120	↓	GW	1	X												
SW-01_20180612	6/12/18	1010	Surface water	GW	1	X												
EB_20180611	6/11/18	905		Water	1	X												Rinnas Equipment blank
EB_20180612	6/12/18	1037		Water	1	X												Rinnas Equipment blank
SG-~~1~~_20180611	6/11/18	1445	Surface	Water	1	X												

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr ___ 5 BD
X Standard (15 BD)
___ Provide FAX Preliminary Results
Requested Report Date:

Invoice Information
P.O. # ____
Bill to: ____

REPORT REQUIREMENTS
___ I. Routine Report: Results and Method Blank (Surrogate, as required)
___ II. Results w/ QC (Dup., MS, MSD as req)
___ III. Results (with QC and Calibration Summaries)
X IV. ASP-B
___ V. CLP
___ EDD?:

Comments/Special Instructions:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: [signature]	Signature: [signature]	Signature: [signature]
Printed Name: Mike Foland	Printed Name: Brian McGuirk	Printed Name: DINA Ayers	Printed Name: Kevin Wierenga
Firm: Aurea Group	Firm: ALS	Firm: ALS	Firm: ALS
Date/Time: 6-15-18 1525	Date/Time: 6/15/18 1525	Date/Time: 6/18/18 1600	Date/Time: 6/19/18 0930

SR2 4.0°C

ORIGIN ID:SCHA
SHIPPING
ALS ENVIRONMENTAL
23 A WALKER WAY
SECTION 2
ALBANY, NY 12205
UNITED STATES US

SHIP DATE: 18JUN18
ACTWGT: 18.90 LB
CAD: 5286485/CAFE3111
DIMS: 14x14x10 IN

BILL RECIPIENT

TO **SAMPLE RECEIVING**
ALS ENVIRONMENTAL
3352 128TH AVENUE

HOLLAND MI 49424

(616) 399-6070 REF:
INV:
PO:
DEPT:

FedEx Express

FedEx TRK# 0201 6470 8310 4308

TUE - 19 JUN 10:30A
PRIORITY OVERNIGHT

49424
MI-US
GRR

XX HLMA

FID 5286430 18JUN18 ALBA 646C1/48E6/0C0A

CUSTODY SEAL

ALS Environmental

ALS Group, USA

Sample Receipt Checklist

Client Name: **EHS SUPPORT-ARGYLE** Date/Time Received: **19-Jun-18 09:30**

Work Order: **18061180** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 19-Jun-18 (Date) Reviewed by: Tom Bramish (eSignature) 19-Jun-18 (Date)

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	6/19/2018 1:32:13 PM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-137307-1
Client Project/Site: Hercules Glens Falls 2Q18
Revision: 1

For:
Ashland LLC
5200 Blazer Parkway
DS-4
Dublin, Ohio 43017

Attn: Mr. Jim Vondracek

Authorized for release by:
8/7/2018 9:35:21 AM

Eddie Barnett, Project Manager I
(912)250-0280
eddie.barnett@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
U	Indicates the analyte was analyzed for but not detected.
F2	MS/MSD RPD exceeds control limits

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-137307-1

Laboratory: TestAmerica Buffalo

Narrative

CASE NARRATIVE
Client: Ashland LLC
Project: Hercules Glens Falls 2Q18

Report Number: 480-137307-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report has been revised on 08/07/18 per client request to report laboratory samples MW-OB17_20180611 (480-137307-1), MW-OB21_20180611 (480-137307-2), MW-OB18_20180612 (480-137307-8), and MW-OB19_20180612 (480-137307-9) separately.

RECEIPT

The samples were received on 06/13/2018; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.7º C and 0.8º C.

VOLATILE ORGANIC COMPOUNDS

Samples MW-36D_20180612 (480-137307-10), DUP01_20180612 (480-137307-11), TRIP BLANK (480-137307-19), EB_20180612 (480-137307-20) and AW-B18_20180612 (480-137307-21) were analyzed for Volatile Organic Compounds in accordance with EPA SW846 Method 8260C. The samples were analyzed on 06/19/2018 and 06/20/2018.

The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: MW-36D_20180612 (480-137307-10), DUP01_20180612 (480-137307-11), (480-137307-A-10 MS) and (480-137307-A-10 MSD). Elevated reporting limits (RLs) are provided.

The following samples were diluted due to the abundance of non-target analytes: AW-B18_20180612 (480-137307-21), AW-B18_20180612 (480-137307-21[MS]) and AW-B18_20180612 (480-137307-21[MSD]). Elevated reporting limits (RLs) are provided.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICPMS) - DISSOLVED

Samples AW-C2_20180612 (480-137307-12), MW-26_20180612 (480-137307-13), SW-01_20180612 (480-137307-14), SW-02_20180612 (480-137307-15), SW-03_20180612 (480-137307-16), DUP02_20180612 (480-137307-17), SW-04_20180612 (480-137307-18), EB_20180612 (480-137307-20) and AW-B18_20180612 (480-137307-21) were analyzed for Metals (ICPMS) - Dissolved in accordance with EPA SW-846 Method 6020A. The samples were prepared on 06/14/2018 and 06/28/2018 and analyzed on 06/23/2018 and 06/28/2018.

Dissolved Vanadium recovered high for the MSD of sample MW-26_20180612MSD (480-137307-13) in batch 480-422306. Dissolved Chromium exceeded the RPD limit for the MSD of sample AW-B18_20180612MSD (480-137307-21) in batch 480-421372. Refer to the QC report for details.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HARDNESS

Samples SW-01_20180612 (480-137307-14), SW-02_20180612 (480-137307-15), SW-03_20180612 (480-137307-16), DUP02_20180612 (480-137307-17), SW-04_20180612 (480-137307-18) and EB_20180612 (480-137307-20) were analyzed for hardness in accordance with SM 2340C. The samples were analyzed on 06/25/2018.

Job ID: 480-137307-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL DISSOLVED SOLIDS

Samples SW-01_20180612 (480-137307-14), SW-02_20180612 (480-137307-15), SW-03_20180612 (480-137307-16), DUP02_20180612 (480-137307-17), SW-04_20180612 (480-137307-18) and EB_20180612 (480-137307-20) were analyzed for total dissolved solids in accordance with SM 2540C. The samples were analyzed on 06/14/2018.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL CYANIDE

Samples DUP01_20180611 (480-137307-3), DUP02_20180611 (480-137307-4), SG-11_20180611 (480-137307-5), SG-7_20180611 (480-137307-6), EB_20180611 (480-137307-7), AW-C2_20180612 (480-137307-12), MW-26_20180612 (480-137307-13), SW-01_20180612 (480-137307-14), SW-02_20180612 (480-137307-15), SW-03_20180612 (480-137307-16), DUP02_20180612 (480-137307-17), SW-04_20180612 (480-137307-18), EB_20180612 (480-137307-20) and AW-B18_20180612 (480-137307-21) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012B. The samples were prepared and analyzed on 06/15/2018.

Cyanide, Total recovered low for LLCS 680-527920/3-A. Refer to the QC report for details.

Cyanide, Total recovered low for the MS of sample AW-B18_20180612MS (480-137307-21) in batch 680-528013. Cyanide, Total recovered low for the MSD of sample AW-B18_20180612MSD (480-137307-21) in batch 680-528013. Refer to the QC report for details.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Sample AW-B18_20180612 (480-137307-21)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Client Sample ID: DUP01_20180611 — Lab Sample ID: 480-137307-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.11		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: DUP02_20180611 — Lab Sample ID: 480-137307-4

No Detections.

Client Sample ID: SG-11_20180611 — Lab Sample ID: 480-137307-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.0032	J	0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: SG-7_20180611 — Lab Sample ID: 480-137307-6

No Detections.

Client Sample ID: EB_20180611 — Lab Sample ID: 480-137307-7

No Detections.

Client Sample ID: MW-36D_20180612 — Lab Sample ID: 480-137307-10

No Detections.

Client Sample ID: DUP01_20180612 — Lab Sample ID: 480-137307-11

No Detections.

Client Sample ID: AW-C2_20180612 — Lab Sample ID: 480-137307-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Chromium	17		1.5	0.36	ug/L	1		6020A	Dissolved
Dissolved Vanadium	3.9	J	4.0	1.2	ug/L	1		6020A	Dissolved
Cyanide, Total	0.025		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: MW-26_20180612 — Lab Sample ID: 480-137307-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Chromium	11		1.5	0.36	ug/L	1		6020A	Dissolved
Dissolved Vanadium	84		4.0	1.2	ug/L	1		6020A	Dissolved
Cyanide, Total	0.062		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: SW-01_20180612 — Lab Sample ID: 480-137307-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Chromium	0.82	J	1.5	0.36	ug/L	1		6020A	Dissolved
Cyanide, Total	0.010		0.010	0.0025	mg/L	1		9012B	Total/NA
Hardness as calcium carbonate	40000		4000	1100	ug/L	1		SM 2340C	Total/NA
Total Dissolved Solids	130		10	4.0	mg/L	1		SM 2540C	Dissolved

Client Sample ID: SW-02_20180612 — Lab Sample ID: 480-137307-15

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Client Sample ID: SW-02_20180612 (Continued) — Lab Sample ID: 480-137307-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Chromium	0.52	J	1.5	0.36	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	36000		4000	1100	ug/L	1		SM 2340C	Total/NA
Total Dissolved Solids	100		10	4.0	mg/L	1		SM 2540C	Dissolved

Client Sample ID: SW-03_20180612 — Lab Sample ID: 480-137307-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	32000		4000	1100	ug/L	1		SM 2340C	Total/NA
Total Dissolved Solids	100		10	4.0	mg/L	1		SM 2540C	Dissolved

Client Sample ID: DUP02_20180612 — Lab Sample ID: 480-137307-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Hardness as calcium carbonate	32000		4000	1100	ug/L	1		SM 2340C	Total/NA
Total Dissolved Solids	110		10	4.0	mg/L	1		SM 2540C	Dissolved

Client Sample ID: SW-04_20180612 — Lab Sample ID: 480-137307-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Chromium	0.37	J	1.5	0.36	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	32000		4000	1100	ug/L	1		SM 2340C	Total/NA
Total Dissolved Solids	110		10	4.0	mg/L	1		SM 2540C	Dissolved

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-137307-19

No Detections.

Client Sample ID: EB_20180612 — Lab Sample ID: 480-137307-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	21		10	4.0	mg/L	1		SM 2540C	Dissolved

Client Sample ID: AW-B18_20180612 — Lab Sample ID: 480-137307-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichlorobenzene	20		2.0	1.6	ug/L	2		8260C	Total/NA
1,4-Dichlorobenzene	2.1		2.0	1.7	ug/L	2		8260C	Total/NA
Dissolved Chromium	0.61	J F2	1.5	0.36	ug/L	1		6020A	Dissolved
Dissolved Vanadium	3.3	J	4.0	1.2	ug/L	1		6020A	Dissolved
Cyanide, Total	0.34		0.10	0.025	mg/L	10		9012B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DUP01_20180611

Lab Sample ID: 480-137307-3
Date Collected: 06/11/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.11		0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:00	1

Client Sample ID: DUP02_20180611

Lab Sample ID: 480-137307-4
Date Collected: 06/11/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:01	1

Client Sample ID: SG-11_20180611

Lab Sample ID: 480-137307-5
Date Collected: 06/11/18 15:00
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.0032	J	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:04	1

Client Sample ID: SG-7_20180611

Lab Sample ID: 480-137307-6
Date Collected: 06/11/18 14:45
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:07	1

Client Sample ID: EB_20180611

Lab Sample ID: 480-137307-7
Date Collected: 06/11/18 09:05
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:08	1

Client Sample ID: MW-36D_20180612

Lab Sample ID: 480-137307-10
Date Collected: 06/12/18 10:22
Matrix: Water
Date Received: 06/13/18 01:15

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	10	U	10	7.9	ug/L			06/19/18 04:23	10
1,3-Dichlorobenzene	10	U	10	7.8	ug/L			06/19/18 04:23	10
1,4-Dichlorobenzene	10	U	10	8.4	ug/L			06/19/18 04:23	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*88*		*80 - 120*		*06/19/18 04:23*	*10*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*06/19/18 04:23*	*10*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*06/19/18 04:23*	*10*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*06/19/18 04:23*	*10*

Client Sample ID: DUP01_20180612

Lab Sample ID: 480-137307-11
Date Collected: 06/12/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	10	U	10	7.9	ug/L			06/19/18 04:47	10
1,3-Dichlorobenzene	10	U	10	7.8	ug/L			06/19/18 04:47	10
1,4-Dichlorobenzene	10	U	10	8.4	ug/L			06/19/18 04:47	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*83*		*80 - 120*		*06/19/18 04:47*	*10*
1,2-Dichloroethane-d4 (Surr)	*102*		*77 - 120*		*06/19/18 04:47*	*10*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*06/19/18 04:47*	*10*
Dibromofluoromethane (Surr)	*94*		*75 - 123*		*06/19/18 04:47*	*10*

Client Sample ID: AW-C2_20180612

Lab Sample ID: 480-137307-12
Date Collected: 06/12/18 10:15
Matrix: Water
Date Received: 06/13/18 01:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	**17**		1.5	0.36	ug/L		06/14/18 08:42	06/23/18 05:23	1
Dissolved Vanadium	**3.9**	**J**	4.0	1.2	ug/L		06/14/18 08:42	06/23/18 05:23	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**0.025**		0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:12	1

Client Sample ID: MW-26_20180612

Lab Sample ID: 480-137307-13
Date Collected: 06/12/18 12:30
Matrix: Water
Date Received: 06/13/18 01:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	**11**		1.5	0.36	ug/L		06/28/18 08:33	06/28/18 21:04	1
Dissolved Vanadium	**84**		4.0	1.2	ug/L		06/28/18 08:33	06/28/18 21:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**0.062**		0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:13	1

Client Sample ID: SW-01_20180612

Lab Sample ID: 480-137307-14
Date Collected: 06/12/18 10:10
Matrix: Water
Date Received: 06/13/18 01:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	**0.82**	**J**	1.5	0.36	ug/L		06/14/18 08:42	06/23/18 05:29	1
Dissolved Vanadium	4.0	U	4.0	1.2	ug/L		06/14/18 08:42	06/23/18 05:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**0.010**		0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:14	1
Hardness as calcium carbonate	**40000**		4000	1100	ug/L			06/25/18 09:35	1

Client Sample ID: SW-01_20180612

Lab Sample ID: 480-137307-14
Matrix: Water
Date Collected: 06/12/18 10:10
Date Received: 06/13/18 01:15

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**130**		10	4.0	mg/L			06/14/18 12:42	1

Client Sample ID: SW-02_20180612

Lab Sample ID: 480-137307-15
Matrix: Water
Date Collected: 06/12/18 11:20
Date Received: 06/13/18 01:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	**0.52**	**J**	1.5	0.36	ug/L		06/14/18 08:42	06/23/18 05:34	1
Dissolved Vanadium	4.0	U	4.0	1.2	ug/L		06/14/18 08:42	06/23/18 05:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:17	1
Hardness as calcium carbonate	**36000**		4000	1100	ug/L			06/25/18 09:35	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**100**		10	4.0	mg/L			06/14/18 12:42	1

Client Sample ID: SW-03_20180612

Lab Sample ID: 480-137307-16
Matrix: Water
Date Collected: 06/12/18 13:00
Date Received: 06/13/18 01:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	1.5	U	1.5	0.36	ug/L		06/14/18 08:42	06/23/18 05:39	1
Dissolved Vanadium	4.0	U	4.0	1.2	ug/L		06/14/18 08:42	06/23/18 05:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:18	1
Hardness as calcium carbonate	**32000**		4000	1100	ug/L			06/25/18 09:35	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**100**		10	4.0	mg/L			06/14/18 12:42	1

Client Sample ID: DUP02_20180612

Lab Sample ID: 480-137307-17
Matrix: Water
Date Collected: 06/12/18 00:00
Date Received: 06/13/18 01:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	1.5	U	1.5	0.36	ug/L		06/14/18 08:42	06/23/18 06:22	1
Dissolved Vanadium	4.0	U	4.0	1.2	ug/L		06/14/18 08:42	06/23/18 06:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:22	1
Hardness as calcium carbonate	**32000**		4000	1100	ug/L			06/25/18 09:35	1

Client Sample ID: DUP02_20180612

Lab Sample ID: 480-137307-17
Date Collected: 06/12/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**110**		10	4.0	mg/L			06/14/18 12:42	1

Client Sample ID: SW-04_20180612

Lab Sample ID: 480-137307-18
Date Collected: 06/12/18 14:55
Matrix: Water
Date Received: 06/13/18 01:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	**0.37**	**J**	1.5	0.36	ug/L		06/14/18 08:42	06/23/18 06:27	1
Dissolved Vanadium	4.0	U	4.0	1.2	ug/L		06/14/18 08:42	06/23/18 06:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:23	1
Hardness as calcium carbonate	**32000**		4000	1100	ug/L			06/25/18 09:35	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**110**		10	4.0	mg/L			06/14/18 12:42	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-137307-19
Date Collected: 06/12/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	1.0	U	1.0	0.79	ug/L			06/20/18 12:06	1
1,3-Dichlorobenzene	1.0	U	1.0	0.78	ug/L			06/20/18 12:06	1
1,4-Dichlorobenzene	1.0	U	1.0	0.84	ug/L			06/20/18 12:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*06/20/18 12:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*77 - 120*		*06/20/18 12:06*	*1*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*		*06/20/18 12:06*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*06/20/18 12:06*	*1*

Client Sample ID: EB_20180612

Lab Sample ID: 480-137307-20
Date Collected: 06/12/18 10:37
Matrix: Water
Date Received: 06/13/18 01:15

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	1.0	U	1.0	0.79	ug/L			06/20/18 12:33	1
1,3-Dichlorobenzene	1.0	U	1.0	0.78	ug/L			06/20/18 12:33	1
1,4-Dichlorobenzene	1.0	U	1.0	0.84	ug/L			06/20/18 12:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*		*06/20/18 12:33*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*		*06/20/18 12:33*	*1*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*		*06/20/18 12:33*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*06/20/18 12:33*	*1*

Client Sample ID: EB_20180612

Lab Sample ID: 480-137307-20

Date Collected: 06/12/18 10:37

Matrix: Water

Date Received: 06/13/18 01:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	7.5	U	7.5	1.8	ug/L		06/14/18 08:42	06/23/18 06:32	5
Dissolved Vanadium	20	U	20	6.0	ug/L		06/14/18 08:42	06/23/18 06:32	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:24	1
Hardness as calcium carbonate	4000	U	4000	1100	ug/L			06/25/18 09:35	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**21**		10	4.0	mg/L			06/14/18 12:42	1

Client Sample ID: AW-B18_20180612

Lab Sample ID: 480-137307-21

Date Collected: 06/12/18 15:30

Matrix: Water

Date Received: 06/13/18 01:15

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	**20**		2.0	1.6	ug/L			06/20/18 13:00	2
1,3-Dichlorobenzene	2.0	U	2.0	1.6	ug/L			06/20/18 13:00	2
1,4-Dichlorobenzene	**2.1**		2.0	1.7	ug/L			06/20/18 13:00	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*		*06/20/18 13:00*	*2*
1,2-Dichloroethane-d4 (Surr)	*117*		*77 - 120*		*06/20/18 13:00*	*2*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*06/20/18 13:00*	*2*
Dibromofluoromethane (Surr)	*105*		*75 - 123*		*06/20/18 13:00*	*2*

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	**0.61**	**J F2**	1.5	0.36	ug/L		06/14/18 08:42	06/23/18 06:37	1
Dissolved Vanadium	**3.3**	**J**	4.0	1.2	ug/L		06/14/18 08:42	06/23/18 06:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	**0.34**		0.10	0.025	mg/L		06/15/18 05:30	06/15/18 12:00	10

Surrogate Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	DCA	BFB	DBFM
Lab Sample ID	Client Sample ID	(80-120)	(77-120)	(73-120)	(75-123)
480-137307-10	MW-36D_20180612	88	100	96	95
480-137307-10 MS	MW-36D_20180612	87	102	95	95
480-137307-10 MSD	MW-36D_20180612	88	101	96	98
480-137307-11	DUP01_20180612	83	102	92	94
480-137307-19	TRIP BLANK	98	108	104	102
480-137307-20	EB_20180612	94	109	105	100
480-137307-21	AW-B18_20180612	98	117	103	105
480-137307-21 MS	AW-B18_20180612	96	110	104	102
480-137307-21 MSD	AW-B18_20180612	98	109	105	100
LCS 480-420270/5	Lab Control Sample	82	98	91	95
LCS 480-420526/5	Lab Control Sample	96	111	102	102
MB 480-420270/10	Method Blank	83	97	91	89
MB 480-420526/7	Method Blank	94	102	101	96

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-420270/10
Matrix: Water
Analysis Batch: 420270

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	1.0	U	1.0	0.79	ug/L			06/18/18 23:24	1
1,3-Dichlorobenzene	1.0	U	1.0	0.78	ug/L			06/18/18 23:24	1
1,4-Dichlorobenzene	1.0	U	1.0	0.84	ug/L			06/18/18 23:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*83*		*80 - 120*		*06/18/18 23:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*06/18/18 23:24*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*06/18/18 23:24*	*1*
Dibromofluoromethane (Surr)	*89*		*75 - 123*		*06/18/18 23:24*	*1*

Lab Sample ID: LCS 480-420270/5
Matrix: Water
Analysis Batch: 420270

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	25.0	25.5		ug/L		102	80 - 124
1,3-Dichlorobenzene	25.0	26.0		ug/L		104	77 - 120
1,4-Dichlorobenzene	25.0	25.2		ug/L		101	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*82*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*
Dibromofluoromethane (Surr)	*95*		*75 - 123*

Lab Sample ID: 480-137307-10 MS
Matrix: Water
Analysis Batch: 420270

Client Sample ID: MW-36D_20180612
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	10	U	250	264		ug/L		106	80 - 124
1,3-Dichlorobenzene	10	U	250	272		ug/L		109	77 - 120
1,4-Dichlorobenzene	10	U	250	258		ug/L		103	78 - 124

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*87*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*102*		*77 - 120*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*
Dibromofluoromethane (Surr)	*95*		*75 - 123*

Lab Sample ID: 480-137307-10 MSD
Matrix: Water
Analysis Batch: 420270

Client Sample ID: MW-36D_20180612
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichlorobenzene	10	U	250	265		ug/L		106	80 - 124	0	20
1,3-Dichlorobenzene	10	U	250	278		ug/L		111	77 - 120	2	20

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 480-137307-10 MSD
Matrix: Water
Analysis Batch: 420270

Client Sample ID: MW-36D_20180612
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene	10	U	250	263		ug/L		105	78 - 124	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*88*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*
Dibromofluoromethane (Surr)	*98*		*75 - 123*

Lab Sample ID: MB 480-420526/7
Matrix: Water
Analysis Batch: 420526

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	1.0	U	1.0	0.79	ug/L			06/20/18 10:08	1
1,3-Dichlorobenzene	1.0	U	1.0	0.78	ug/L			06/20/18 10:08	1
1,4-Dichlorobenzene	1.0	U	1.0	0.84	ug/L			06/20/18 10:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*94*		*80 - 120*		*06/20/18 10:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*77 - 120*		*06/20/18 10:08*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*06/20/18 10:08*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*06/20/18 10:08*	*1*

Lab Sample ID: LCS 480-420526/5
Matrix: Water
Analysis Batch: 420526

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	25.0	25.0		ug/L		100	80 - 124
1,3-Dichlorobenzene	25.0	25.1		ug/L		100	77 - 120
1,4-Dichlorobenzene	25.0	25.7		ug/L		103	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*111*		*77 - 120*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*
Dibromofluoromethane (Surr)	*102*		*75 - 123*

Lab Sample ID: 480-137307-21 MS
Matrix: Water
Analysis Batch: 420526

Client Sample ID: AW-B18_20180612
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	20		50.0	71.3		ug/L		103	80 - 124
1,3-Dichlorobenzene	2.0	U	50.0	51.7		ug/L		103	77 - 120
1,4-Dichlorobenzene	2.1		50.0	53.8		ug/L		103	78 - 124

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 480-137307-21 MS
Matrix: Water
Analysis Batch: 420526

Client Sample ID: AW-B18_20180612
Prep Type: Total/NA

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*96*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*110*		*77 - 120*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*
Dibromofluoromethane (Surr)	*102*		*75 - 123*

Lab Sample ID: 480-137307-21 MSD
Matrix: Water
Analysis Batch: 420526

Client Sample ID: AW-B18_20180612
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichlorobenzene	20		50.0	67.9		ug/L		96	80 - 124	5	20
1,3-Dichlorobenzene	2.0	U	50.0	47.8		ug/L		96	77 - 120	8	20
1,4-Dichlorobenzene	2.1		50.0	51.4		ug/L		99	78 - 124	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*
Dibromofluoromethane (Surr)	*100*		*75 - 123*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 480-419452/1-A
Matrix: Water
Analysis Batch: 421372

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 419452

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	1.5	U	1.5	0.36	ug/L		06/14/18 08:42	06/23/18 05:13	1
Dissolved Vanadium	4.0	U	4.0	1.2	ug/L		06/14/18 08:42	06/23/18 05:13	1

Lab Sample ID: LCS 480-419452/2-A
Matrix: Water
Analysis Batch: 421372

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 419452

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Chromium	20.0	20.0		ug/L		100	80 - 120
Dissolved Vanadium	20.0	20.7		ug/L		104	80 - 120

Lab Sample ID: MB 480-421581/1-A
Matrix: Water
Analysis Batch: 422306

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 421581

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	1.5	U	1.5	0.36	ug/L		06/28/18 08:33	06/28/18 20:38	1
Dissolved Vanadium	4.0	U	4.0	1.2	ug/L		06/28/18 08:33	06/28/18 20:38	1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 480-421581/2-A
Matrix: Water
Analysis Batch: 422306

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 421581

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Chromium	20.0	19.1		ug/L		96	80 - 120
Dissolved Vanadium	20.0	19.3		ug/L		97	80 - 120

Lab Sample ID: 480-137307-16 MS
Matrix: Water
Analysis Batch: 421372

Client Sample ID: SW-03_20180612
Prep Type: Dissolved
Prep Batch: 419452

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Chromium	1.5	U	20.0	19.9		ug/L		99	75 - 125
Dissolved Vanadium	4.0	U	20.0	21.1		ug/L		105	75 - 125

Lab Sample ID: 480-137307-16 MSD
Matrix: Water
Analysis Batch: 421372

Client Sample ID: SW-03_20180612
Prep Type: Dissolved
Prep Batch: 419452

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Chromium	1.5	U	20.0	19.3		ug/L		96	75 - 125	3	20
Dissolved Vanadium	4.0	U	20.0	20.6		ug/L		103	75 - 125	2	20

Lab Sample ID: 480-137307-21 MS
Matrix: Water
Analysis Batch: 421372

Client Sample ID: AW-B18_20180612
Prep Type: Dissolved
Prep Batch: 419452

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Chromium	0.61	J F2	20.0	24.5		ug/L		120	75 - 125
Dissolved Vanadium	3.3	J	20.0	24.4		ug/L		106	75 - 125

Lab Sample ID: 480-137307-21 MSD
Matrix: Water
Analysis Batch: 421372

Client Sample ID: AW-B18_20180612
Prep Type: Dissolved
Prep Batch: 419452

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Chromium	0.61	J F2	20.0	18.6	F2	ug/L		90	75 - 125	27	20
Dissolved Vanadium	3.3	J	20.0	22.6		ug/L		97	75 - 125	8	20

Lab Sample ID: 480-137307-13 MS
Matrix: Water
Analysis Batch: 422306

Client Sample ID: MW-26_20180612
Prep Type: Dissolved
Prep Batch: 421581

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Chromium	11		20.0	31.2		ug/L		103	75 - 125
Dissolved Vanadium	84		20.0	109	4	ug/L		124	75 - 125

Lab Sample ID: 480-137307-13 MSD
Matrix: Water
Analysis Batch: 422306

Client Sample ID: MW-26_20180612
Prep Type: Dissolved
Prep Batch: 421581

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Chromium	11		20.0	31.5		ug/L		105	75 - 125	1	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 480-137307-13 MSD
Matrix: Water
Analysis Batch: 422306

Client Sample ID: MW-26_20180612
Prep Type: Dissolved
Prep Batch: 421581

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Vanadium	84		20.0	110	4	ug/L		131	75 - 125	1	20

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 680-527920/1-A
Matrix: Water
Analysis Batch: 528013

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 527920

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 10:51	1

Lab Sample ID: HLCS 680-527920/4-A
Matrix: Water
Analysis Batch: 528013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0750	0.0796		mg/L		106	90 - 110

Lab Sample ID: LCS 680-527920/2-A
Matrix: Water
Analysis Batch: 528013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0511		mg/L		102	85 - 115

Lab Sample ID: LLCS 680-527920/3-A
Matrix: Water
Analysis Batch: 528013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0100	0.00867	J	mg/L		87	90 - 110

Lab Sample ID: 480-137307-5 MS
Matrix: Water
Analysis Batch: 528013

Client Sample ID: SG-11_20180611
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0032	J	0.0500	0.0523		mg/L		98	85 - 115

Lab Sample ID: 480-137307-5 MSD
Matrix: Water
Analysis Batch: 528013

Client Sample ID: SG-11_20180611
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	0.0032	J	0.0500	0.0516		mg/L		97	85 - 115	1	20

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: 480-137307-16 MS
Matrix: Water
Analysis Batch: 528013

Client Sample ID: SW-03_20180612
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.010	U	0.0500	0.0537		mg/L		107	85 - 115

Lab Sample ID: 480-137307-16 MSD
Matrix: Water
Analysis Batch: 528013

Client Sample ID: SW-03_20180612
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	0.010	U	0.0500	0.0487		mg/L		97	85 - 115	10	20

Lab Sample ID: 480-137307-21 MS
Matrix: Water
Analysis Batch: 528013

Client Sample ID: AW-B18_20180612
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.34		0.0500	0.363	4	mg/L		52	85 - 115

Lab Sample ID: 480-137307-21 MSD
Matrix: Water
Analysis Batch: 528013

Client Sample ID: AW-B18_20180612
Prep Type: Total/NA
Prep Batch: 527920

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	0.34		0.0500	0.375	4	mg/L		76	85 - 115	3	20

Method: SM 2340C - Hardness, Total (mg/l as CaC03)

Lab Sample ID: MB 480-421418/3
Matrix: Water
Analysis Batch: 421418

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	2000	U	2000	530	ug/L			06/25/18 09:35	1

Lab Sample ID: LCS 480-421418/4
Matrix: Water
Analysis Batch: 421418

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	173000	168000		ug/L		97	90 - 110

Lab Sample ID: 480-137307-16 MS
Matrix: Water
Analysis Batch: 421418

Client Sample ID: SW-03_20180612
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	32000		200000	228000		ug/L		98	74 - 130

Method: SM 2340C - Hardness, Total (mg/l as CaC03) (Continued)

Lab Sample ID: 480-137307-16 MSD
Matrix: Water
Analysis Batch: 421418

Client Sample ID: SW-03_20180612
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	32000		200000	228000		ug/L		98	74 - 130	0	15

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-419616/1
Matrix: Water
Analysis Batch: 419616

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10	U	10	4.0	mg/L			06/14/18 12:42	1

Lab Sample ID: LCS 480-419616/2
Matrix: Water
Analysis Batch: 419616

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			513	523		mg/L		102	85 - 115		

Lab Sample ID: 480-137307-20 DU
Matrix: Water
Analysis Batch: 419616

Client Sample ID: EB_20180612
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	21			23.0		mg/L				9	10

QC Association Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

GC/MS VOA

Analysis Batch: 420270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-10	MW-36D_20180612	Total/NA	Water	8260C	
480-137307-11	DUP01_20180612	Total/NA	Water	8260C	
MB 480-420270/10	Method Blank	Total/NA	Water	8260C	
LCS 480-420270/5	Lab Control Sample	Total/NA	Water	8260C	
480-137307-10 MS	MW-36D_20180612	Total/NA	Water	8260C	
480-137307-10 MSD	MW-36D_20180612	Total/NA	Water	8260C	

Analysis Batch: 420526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-19	TRIP BLANK	Total/NA	Water	8260C	
480-137307-20	EB_20180612	Total/NA	Water	8260C	
480-137307-21	AW-B18_20180612	Total/NA	Water	8260C	
MB 480-420526/7	Method Blank	Total/NA	Water	8260C	
LCS 480-420526/5	Lab Control Sample	Total/NA	Water	8260C	
480-137307-21 MS	AW-B18_20180612	Total/NA	Water	8260C	
480-137307-21 MSD	AW-B18_20180612	Total/NA	Water	8260C	

Metals

Prep Batch: 419452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-12	AW-C2_20180612	Dissolved	Water	3020A	
480-137307-14	SW-01_20180612	Dissolved	Water	3020A	
480-137307-15	SW-02_20180612	Dissolved	Water	3020A	
480-137307-16	SW-03_20180612	Dissolved	Water	3020A	
480-137307-17	DUP02_20180612	Dissolved	Water	3020A	
480-137307-18	SW-04_20180612	Dissolved	Water	3020A	
480-137307-20	EB_20180612	Dissolved	Water	3020A	
480-137307-21	AW-B18_20180612	Dissolved	Water	3020A	
MB 480-419452/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-419452/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-137307-16 MS	SW-03_20180612	Dissolved	Water	3020A	
480-137307-16 MSD	SW-03_20180612	Dissolved	Water	3020A	
480-137307-21 MS	AW-B18_20180612	Dissolved	Water	3020A	
480-137307-21 MSD	AW-B18_20180612	Dissolved	Water	3020A	

Analysis Batch: 421372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-12	AW-C2_20180612	Dissolved	Water	6020A	419452
480-137307-14	SW-01_20180612	Dissolved	Water	6020A	419452
480-137307-15	SW-02_20180612	Dissolved	Water	6020A	419452
480-137307-16	SW-03_20180612	Dissolved	Water	6020A	419452
480-137307-17	DUP02_20180612	Dissolved	Water	6020A	419452
480-137307-18	SW-04_20180612	Dissolved	Water	6020A	419452
480-137307-20	EB_20180612	Dissolved	Water	6020A	419452
480-137307-21	AW-B18_20180612	Dissolved	Water	6020A	419452
MB 480-419452/1-A	Method Blank	Total/NA	Water	6020A	419452
LCS 480-419452/2-A	Lab Control Sample	Total/NA	Water	6020A	419452
480-137307-16 MS	SW-03_20180612	Dissolved	Water	6020A	419452
480-137307-16 MSD	SW-03_20180612	Dissolved	Water	6020A	419452

Metals (Continued)

Analysis Batch: 421372 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-21 MS	AW-B18_20180612	Dissolved	Water	6020A	419452
480-137307-21 MSD	AW-B18_20180612	Dissolved	Water	6020A	419452

Prep Batch: 421581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-13	MW-26_20180612	Dissolved	Water	3020A	
MB 480-421581/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-421581/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-137307-13 MS	MW-26_20180612	Dissolved	Water	3020A	
480-137307-13 MSD	MW-26_20180612	Dissolved	Water	3020A	

Analysis Batch: 422306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-13	MW-26_20180612	Dissolved	Water	6020A	421581
MB 480-421581/1-A	Method Blank	Total/NA	Water	6020A	421581
LCS 480-421581/2-A	Lab Control Sample	Total/NA	Water	6020A	421581
480-137307-13 MS	MW-26_20180612	Dissolved	Water	6020A	421581
480-137307-13 MSD	MW-26_20180612	Dissolved	Water	6020A	421581

General Chemistry

Analysis Batch: 419616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-14	SW-01_20180612	Dissolved	Water	SM 2540C	
480-137307-15	SW-02_20180612	Dissolved	Water	SM 2540C	
480-137307-16	SW-03_20180612	Dissolved	Water	SM 2540C	
480-137307-17	DUP02_20180612	Dissolved	Water	SM 2540C	
480-137307-18	SW-04_20180612	Dissolved	Water	SM 2540C	
480-137307-20	EB_20180612	Dissolved	Water	SM 2540C	
MB 480-419616/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-419616/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-137307-20 DU	EB_20180612	Dissolved	Water	SM 2540C	

Analysis Batch: 421418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-14	SW-01_20180612	Total/NA	Water	SM 2340C	
480-137307-15	SW-02_20180612	Total/NA	Water	SM 2340C	
480-137307-16	SW-03_20180612	Total/NA	Water	SM 2340C	
480-137307-17	DUP02_20180612	Total/NA	Water	SM 2340C	
480-137307-18	SW-04_20180612	Total/NA	Water	SM 2340C	
480-137307-20	EB_20180612	Total/NA	Water	SM 2340C	
MB 480-421418/3	Method Blank	Total/NA	Water	SM 2340C	
LCS 480-421418/4	Lab Control Sample	Total/NA	Water	SM 2340C	
480-137307-16 MS	SW-03_20180612	Total/NA	Water	SM 2340C	
480-137307-16 MSD	SW-03_20180612	Total/NA	Water	SM 2340C	

Prep Batch: 527920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-3	DUP01_20180611	Total/NA	Water	9012B	
480-137307-4	DUP02_20180611	Total/NA	Water	9012B	

General Chemistry (Continued)

Prep Batch: 527920 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-5	SG-11_20180611	Total/NA	Water	9012B	
480-137307-6	SG-7_20180611	Total/NA	Water	9012B	
480-137307-7	EB_20180611	Total/NA	Water	9012B	
480-137307-12	AW-C2_20180612	Total/NA	Water	9012B	
480-137307-13	MW-26_20180612	Total/NA	Water	9012B	
480-137307-14	SW-01_20180612	Total/NA	Water	9012B	
480-137307-15	SW-02_20180612	Total/NA	Water	9012B	
480-137307-16	SW-03_20180612	Total/NA	Water	9012B	
480-137307-17	DUP02_20180612	Total/NA	Water	9012B	
480-137307-18	SW-04_20180612	Total/NA	Water	9012B	
480-137307-20	EB_20180612	Total/NA	Water	9012B	
480-137307-21	AW-B18_20180612	Total/NA	Water	9012B	
MB 680-527920/1-A	Method Blank	Total/NA	Water	9012B	
HLCS 680-527920/4-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 680-527920/2-A	Lab Control Sample	Total/NA	Water	9012B	
LLCS 680-527920/3-A	Lab Control Sample	Total/NA	Water	9012B	
480-137307-5 MS	SG-11_20180611	Total/NA	Water	9012B	
480-137307-5 MSD	SG-11_20180611	Total/NA	Water	9012B	
480-137307-16 MS	SW-03_20180612	Total/NA	Water	9012B	
480-137307-16 MSD	SW-03_20180612	Total/NA	Water	9012B	
480-137307-21 MS	AW-B18_20180612	Total/NA	Water	9012B	
480-137307-21 MSD	AW-B18_20180612	Total/NA	Water	9012B	

Analysis Batch: 528013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-3	DUP01_20180611	Total/NA	Water	9012B	527920
480-137307-4	DUP02_20180611	Total/NA	Water	9012B	527920
480-137307-5	SG-11_20180611	Total/NA	Water	9012B	527920
480-137307-6	SG-7_20180611	Total/NA	Water	9012B	527920
480-137307-7	EB_20180611	Total/NA	Water	9012B	527920
480-137307-12	AW-C2_20180612	Total/NA	Water	9012B	527920
480-137307-13	MW-26_20180612	Total/NA	Water	9012B	527920
480-137307-14	SW-01_20180612	Total/NA	Water	9012B	527920
480-137307-15	SW-02_20180612	Total/NA	Water	9012B	527920
480-137307-16	SW-03_20180612	Total/NA	Water	9012B	527920
480-137307-17	DUP02_20180612	Total/NA	Water	9012B	527920
480-137307-18	SW-04_20180612	Total/NA	Water	9012B	527920
480-137307-20	EB_20180612	Total/NA	Water	9012B	527920
480-137307-21	AW-B18_20180612	Total/NA	Water	9012B	527920
MB 680-527920/1-A	Method Blank	Total/NA	Water	9012B	527920
HLCS 680-527920/4-A	Lab Control Sample	Total/NA	Water	9012B	527920
LCS 680-527920/2-A	Lab Control Sample	Total/NA	Water	9012B	527920
LLCS 680-527920/3-A	Lab Control Sample	Total/NA	Water	9012B	527920
480-137307-5 MS	SG-11_20180611	Total/NA	Water	9012B	527920
480-137307-5 MSD	SG-11_20180611	Total/NA	Water	9012B	527920
480-137307-16 MS	SW-03_20180612	Total/NA	Water	9012B	527920
480-137307-16 MSD	SW-03_20180612	Total/NA	Water	9012B	527920
480-137307-21 MS	AW-B18_20180612	Total/NA	Water	9012B	527920
480-137307-21 MSD	AW-B18_20180612	Total/NA	Water	9012B	527920

Client Sample ID: DUP01_20180611
Date Collected: 06/11/18 00:00
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:00	DAM	TAL SAV

Client Sample ID: DUP02_20180611
Date Collected: 06/11/18 00:00
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:01	DAM	TAL SAV

Client Sample ID: SG-11_20180611
Date Collected: 06/11/18 15:00
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:04	DAM	TAL SAV

Client Sample ID: SG-7_20180611
Date Collected: 06/11/18 14:45
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:07	DAM	TAL SAV

Client Sample ID: EB_20180611
Date Collected: 06/11/18 09:05
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:08	DAM	TAL SAV

Client Sample ID: MW-36D_20180612
Date Collected: 06/12/18 10:22
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		10	420270	06/19/18 04:23	S1V	TAL BUF

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Client Sample ID: DUP01_20180612
Date Collected: 06/12/18 00:00
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		10	420270	06/19/18 04:47	S1V	TAL BUF

Client Sample ID: AW-C2_20180612
Date Collected: 06/12/18 10:15
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			419452	06/14/18 08:42	KMP	TAL BUF
Dissolved	Analysis	6020A		1	421372	06/23/18 05:23	JJP	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:12	DAM	TAL SAV

Client Sample ID: MW-26_20180612
Date Collected: 06/12/18 12:30
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			421581	06/28/18 08:33	JAK	TAL BUF
Dissolved	Analysis	6020A		1	422306	06/28/18 21:04	MTM2	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:13	DAM	TAL SAV

Client Sample ID: SW-01_20180612
Date Collected: 06/12/18 10:10
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			419452	06/14/18 08:42	KMP	TAL BUF
Dissolved	Analysis	6020A		1	421372	06/23/18 05:29	JJP	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:14	DAM	TAL SAV
Total/NA	Analysis	SM 2340C		1	421418	06/25/18 09:35	MJB	TAL BUF
Dissolved	Analysis	SM 2540C		1	419616	06/14/18 12:42	SLM	TAL BUF

Client Sample ID: SW-02_20180612
Date Collected: 06/12/18 11:20
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			419452	06/14/18 08:42	KMP	TAL BUF
Dissolved	Analysis	6020A		1	421372	06/23/18 05:34	JJP	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:17	DAM	TAL SAV

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2340C		1	421418	06/25/18 09:35	MJB	TAL BUF
Dissolved	Analysis	SM 2540C		1	419616	06/14/18 12:42	SLM	TAL BUF

Client Sample ID: SW-03_20180612

Lab Sample ID: 480-137307-16
Date Collected: 06/12/18 13:00
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			419452	06/14/18 08:42	KMP	TAL BUF
Dissolved	Analysis	6020A		1	421372	06/23/18 05:39	JJP	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:18	DAM	TAL SAV
Total/NA	Analysis	SM 2340C		1	421418	06/25/18 09:35	MJB	TAL BUF
Dissolved	Analysis	SM 2540C		1	419616	06/14/18 12:42	SLM	TAL BUF

Client Sample ID: DUP02_20180612

Lab Sample ID: 480-137307-17
Date Collected: 06/12/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			419452	06/14/18 08:42	KMP	TAL BUF
Dissolved	Analysis	6020A		1	421372	06/23/18 06:22	JJP	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:22	DAM	TAL SAV
Total/NA	Analysis	SM 2340C		1	421418	06/25/18 09:35	MJB	TAL BUF
Dissolved	Analysis	SM 2540C		1	419616	06/14/18 12:42	SLM	TAL BUF

Client Sample ID: SW-04_20180612

Lab Sample ID: 480-137307-18
Date Collected: 06/12/18 14:55
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			419452	06/14/18 08:42	KMP	TAL BUF
Dissolved	Analysis	6020A		1	421372	06/23/18 06:27	JJP	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:23	DAM	TAL SAV
Total/NA	Analysis	SM 2340C		1	421418	06/25/18 09:35	MJB	TAL BUF
Dissolved	Analysis	SM 2540C		1	419616	06/14/18 12:42	SLM	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-137307-19
Date Collected: 06/12/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	420526	06/20/18 12:06	KMN	TAL BUF

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Client Sample ID: EB_20180612

Date Collected: 06/12/18 10:37
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-20

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	420526	06/20/18 12:33	KMN	TAL BUF
Dissolved	Prep	3020A			419452	06/14/18 08:42	KMP	TAL BUF
Dissolved	Analysis	6020A		5	421372	06/23/18 06:32	JJP	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:24	DAM	TAL SAV
Total/NA	Analysis	SM 2340C		1	421418	06/25/18 09:35	MJB	TAL BUF
Dissolved	Analysis	SM 2540C		1	419616	06/14/18 12:42	SLM	TAL BUF

Client Sample ID: AW-B18_20180612

Date Collected: 06/12/18 15:30
Date Received: 06/13/18 01:15

Lab Sample ID: 480-137307-21

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	420526	06/20/18 13:00	KMN	TAL BUF
Dissolved	Prep	3020A			419452	06/14/18 08:42	KMP	TAL BUF
Dissolved	Analysis	6020A		1	421372	06/23/18 06:37	JJP	TAL BUF
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		10	528013	06/15/18 12:00	DAM	TAL SAV

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

Laboratory: TestAmerica Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10842	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9012B	9012B	Water	Cyanide, Total

Method Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
9012B	Cyanide, Total andor Amenable	SW846	TAL SAV
SM 2340C	Hardness, Total (mg/l as CaC03)	SM	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
3020A	Preparation, Total Metals	SW846	TAL BUF
5030C	Purge and Trap	SW846	TAL BUF
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL SAV

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Sample Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-137307-3	DUP01_20180611	Water	06/11/18 00:00	06/13/18 01:15
480-137307-4	DUP02_20180611	Water	06/11/18 00:00	06/13/18 01:15
480-137307-5	SG-11_20180611	Water	06/11/18 15:00	06/13/18 01:15
480-137307-6	SG-7_20180611	Water	06/11/18 14:45	06/13/18 01:15
480-137307-7	EB_20180611	Water	06/11/18 09:05	06/13/18 01:15
480-137307-10	MW-36D_20180612	Water	06/12/18 10:22	06/13/18 01:15
480-137307-11	DUP01_20180612	Water	06/12/18 00:00	06/13/18 01:15
480-137307-12	AW-C2_20180612	Water	06/12/18 10:15	06/13/18 01:15
480-137307-13	MW-26_20180612	Water	06/12/18 12:30	06/13/18 01:15
480-137307-14	SW-01_20180612	Water	06/12/18 10:10	06/13/18 01:15
480-137307-15	SW-02_20180612	Water	06/12/18 11:20	06/13/18 01:15
480-137307-16	SW-03_20180612	Water	06/12/18 13:00	06/13/18 01:15
480-137307-17	DUP02_20180612	Water	06/12/18 00:00	06/13/18 01:15
480-137307-18	SW-04_20180612	Water	06/12/18 14:55	06/13/18 01:15
480-137307-19	TRIP BLANK	Water	06/12/18 00:00	06/13/18 01:15
480-137307-20	EB_20180612	Water	06/12/18 10:37	06/13/18 01:15
480-137307-21	AW-B18_20180612	Water	06/12/18 15:30	06/13/18 01:15

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

480-137307 COC

Client Information	Sampler: Garrett Crowe	Lab PM: Barnett, Eddie T	Carrie
Client Contact: Mr. Jim Vondracek	Phone: 860 992 2636	E-Mail: eddie.barnett@testamericainc.com	COC No: 680-76228-31646.1
Company: Ashland Inc			Page: Page 1 of 2
Address: 5200 Blazer Parkway DS-4	Due Date Requested:		Job #:
City: Dublin	TAT Requested (days): Standard		
State, Zip: OH, 43017			
Phone: 614-790-6146	PO #: 4502471936		
Email: jevondracek@ashland.com, cassie.reuter@ehs support.com	WO #:		
Project Name: Hercules Glens Falls Quarterly Event	Project #: 68000956		
Site: Ashland Glens Falls	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B - Cyanide, Total	7196A - Chromium, hexavalent (field filtered)	6020A - Dissolved Total Chromium and Vanadium (field filtered)	2540C_Calcd - Total Dissolved Solids (field filtered)	2340C - Hardness as calcium carbonate	8260C - (MOD) TCL list OLM04.2 (Dichlorobenzenes [1,2-, 1,3-, 1,4-])	Total Number of containers	Special Instructions/Note:
			Preservation Code:				B	N	D	N	D	A		
MW-0817_20180611	6/11/18	1115	G	Water	N	N	X						1	
MW-0821_20180611	6/11/18	1250	G	Water	N	Y	X						2	Run extra bottles for MS/MSD
DUP01_20180611	6/11/18	—	G	Water	N	N	X						1	
DUP02_20180611	6/11/18	—	G	Water	N	N	X						1	
SG-11_20180611	6/11/18	1500	G	Water	N	Y	X						2	Run extra bottles for MS/MSD
SG-7_20180611	6/11/18	1445	G	Water	N	N	X						1	
EB_20180611	6/11/18	0905	G	Water	N	N	X						1	Run EB_20180611 as equipment blank
MW-0818_20180612	6/12/18	840	G	Water	N	N	X						1	
MW-0819_20180612	6/12/18	824	G	Water	N	N	X						1	
MW-360_20180612	6/12/18	1022	G	Water	N	N						X	3	
DUP01_20180612	6/12/18	—	G	Water	N	N						X	3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Field Filtered Samples are ID on labels

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Mike Edwards	Date/Time: 6-12-18 1710	Company: Antea Group	Received by: Karl Zoeller
Relinquished by: Karl Zoeller	Date/Time: 6-12-18 1800	Company: TA	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Received by: Karl Zoeller	Date/Time: 6-12-18 1710	Company: TA		
Received by:	Date/Time: 6-13-18 0105	Company: TA		
Received by:	Date/Time:	Company:		

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.2, 0.1 C #1

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Garett Crowe	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 680-76228-31646.1
Client Contact: Mr. Jim Vondracek	Phone: 860 992 2636	E-Mail: eddie.barnett@testamericainc.com		Page: Page 2 of 2
Company: Ashland Inc				Job #:

Address: 5200 Blazer Parkway DS-4	Due Date Requested:	Analysis Requested
City: Dublin	TAT Requested (days): Standard	
State, Zip: OH, 43017		
Phone: 614-790-6146	PO #: 4502471936	
Email: jevondracek@ashland.com, cassie.reuter@ehs support.com	WO #:	
Project Name: Hercules Glens Falls Quarterly Event	Project #: 68000956	
Site: Ashland Glens Falls	SSOW#:	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B - Cyanide, Total	7196A - Chromium, hexavalent (field filtered)	6020A - Dissolved Total Chromium and Vanadium (field filtered)	2540C_Calcd - Total Dissolved Solids (field filtered)	2340C - Hardness as calcium carbonate	8260C - (MOD) TCL list OLM04.2 (Dichlorobenzenes [1,2-, 1,3-, 1,4-])	Total Number of containers	Special Instructions/Note:
			Preservation Code:				B	N	D	N	D	A		
AW-C2_20180612	6/12/18	1015	G	Water	Y	N	X		X				2	
MW-26_20180612	6/12/18	1230	G	Water	Y	N	X		X				2	
SW-01_20180612	6/12/18	1010	G	Water	Y	N	X		X	X	X		4	
SW-02_20180612	6/12/18	1120	G	Water	Y	N	X		X	X	X		4	
SW-03_20180612	6/12/18	1300	G	Water	Y	Y	X		X	X	X		8	Run extra bottle for ms/msd
DUP02_20180612	6/12/18	—	G	Water	Y	N	X		X	X	X		4	
SW-04_20180612	6/12/18	1455	G	Water	Y	N	X		X	X	X		4	2a
TRIP Blank	5/24/18	—	G	Water	N	N						X	2	
EB_20180612	6/12/18	1037	G	Water	Y	N	X		X	X	X	X	8	7 Run EB_20180612 as equipment blank
AW-B1B_20180612	6/12/18	1530	G	Water	Y	Y	X		X			X	4	2c 10 Run extra bottle for ms/msd
				Water										

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Field filtered Samples are I.D. on Labels

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Mike Loland	6-12-18 1710	Antea Group	Kyle Jordan	6-12-18 1710	TA
Kyle Jordan	6-12-18 1800	TA		6-13-18 0815	DHL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 0.7, 0.8 #1

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8/7/2018 (Rev. 1)

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 480-42841.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-137307-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 6/25/2018			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: Hercules Glens Falls O&M Quarterly	Project #: 68000956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B/9012B_Prep (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-OB17_20180611 (480-137307-1)	6/11/18	11:15 Eastern		Water			X	1	
MW-OB21_20180611 (480-137307-2)	6/11/18	12:50 Eastern		Water			X	1	
MW-OB21_20180611 (480-137307-2MS)	6/11/18	12:50 Eastern	MS	Water			X	1	MS/MSD SHARED VOLUME
MW-OB21_20180611 (480-137307-2MSD)	6/11/18	12:50 Eastern	MSD	Water			X	1	MS/MSD SHARED VOLUME
DUP01_20180611 (480-137307-3)	6/11/18	Eastern		Water			X	1	
DUP02_20180611 (480-137307-4)	6/11/18	Eastern		Water			X	1	
SG-11_20180611 (480-137307-5)	6/11/18	15:00 Eastern		Water			X	1	
SG-11_20180611 (480-137307-5MS)	6/11/18	15:00 Eastern	MS	Water			X	1	MS/MSD SHARED VOLUME
SG-11_20180611 (480-137307-5MSD)	6/11/18	15:00 Eastern	MSD	Water			X	1	MS/MSD SHARED VOLUME

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	6/13/18 1300	TAB		0900 6/14/18	TASAV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: 2.2/1.6	Date/Time:	Company

Custody Seals Intact: | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 480-42841.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 2 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-137307-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested: 6/25/2018	Analysis Requested		Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: Hercules Glens Falls O&M Quarterly	Project #: 68000956			
Site:	SSOW#:			Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B/9012B_Prep (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SG-7_20180611 (480-137307-6)	6/11/18	14:45 Eastern		Water			X	1	
EB_20180611 (480-137307-7)	6/11/18	09:05 Eastern		Water			X	1	
MW-OB18_20180612 (480-137307-8)	6/12/18	08:40 Eastern		Water			X	1	
MW-OB19_20180612 (480-137307-9)	6/12/18	08:24 Eastern		Water			X	1	
AW-C2_20180612 (480-137307-12)	6/12/18	10:15 Eastern		Water			X	1	
MW-26_20180612 (480-137307-13)	6/12/18	12:30 Eastern		Water			X	1	
SW-01_20180612 (480-137307-14)	6/12/18	10:10 Eastern		Water			X	1	
SW-02_20180612 (480-137307-15)	6/12/18	11:20 Eastern		Water			X	1	
SW-03_20180612 (480-137307-16)	6/12/18	13:00 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 6/13/18 1500	Company: TAS	Received by:	Date/Time: 0900 6/14/18	Company: TASAV
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.2 / 1.6

Ver: 09/20/2016

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 480-42841.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 3 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-137307-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 6/25/2018			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: Hercules Glens Falls O&M Quarterly	Project #: 68000956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B/9012B_Prep (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SW-03_20180612 (480-137307-16MS)	6/12/18	13:00 Eastern	MS	Water			X	1	MS/MSD SHARED VOLUME
SW-03_20180612 (480-137307-16MSD)	6/12/18	13:00 Eastern	MSD	Water			X	1	MS/MSD SHARED VOLUME
DUP02_20180612 (480-137307-17)	6/12/18	Eastern		Water			X	1	
SW-04_20180612 (480-137307-18)	6/12/18	14:55 Eastern		Water			X	1	
EB_20180612 (480-137307-20)	6/12/18	10:37 Eastern		Water			X	1	
AW-B18_20180612 (480-137307-21)	6/12/18	15:30 Eastern		Water			X	1	
AW-B18_20180612 (480-137307-21MS)	6/12/18	15:30 Eastern	MS	Water			X	1	MS/MSD SHARED VOLUME
AW-B18_20180612 (480-137307-21MSD)	6/12/18	15:30 Eastern	MSD	Water			X	1	MS/MSD SHARED VOLUME

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/13/18 1700			0900 6/14/18	TAL-BUF
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.2 (7.6)

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-137307-1

Login Number: 137307
List Number: 2
Creator: Barnett, Eddie T

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-137307-1

Login Number: 137307
List Number: 3
Creator: Jones, Tyre D

List Source: TestAmerica Savannah
List Creation: 06/14/18 03:23 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-137307-2
Client Project/Site: Hercules Glens Falls 2Q18
Revision: 1

For:
Ashland LLC
5200 Blazer Parkway
DS-4
Dublin, Ohio 43017

Attn: Mr. Jim Vondracek

Authorized for release by:
8/7/2018 11:16:10 AM

Eddie Barnett, Project Manager I
(912)250-0280
eddie.barnett@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-2

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-137307-2

Laboratory: TestAmerica Buffalo

Narrative

CASE NARRATIVE
Client: Ashland LLC
Project: Hercules Glens Falls 2Q18

Report Number: 480-137307-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

This report has been revised on 08/07/18 per client request to report laboratory sample DUP01_20180611 (480-137307-3) in addition to MW-OB17_20180611 (480-137307-1), MW-OB21_20180611 (480-137307-2), MW-OB18_20180612 (480-137307-8), and MW-OB19_20180612 (480-137307-9) separately.

RECEIPT

The samples were received on 06/13/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.7 C.

TOTAL CYANIDE

Samples MW-OB17_20180611 (480-137307-1), MW-OB21_20180611 (480-137307-2), DUP01_20180611 (480-137307-3), MW-OB18_20180612 (480-137307-8) and MW-OB19_20180612 (480-137307-9) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012B. The samples were prepared and analyzed on 06/15/2018.

Cyanide, Total recovered low for LLCS 680-527920/3-A. Refer to the QC report for details.

Cyanide, Total recovered low for the MS of sample MW-OB21_20180611MS (480-137307-2) in batch 680-528013. Cyanide, Total recovered low for the MSD of sample MW-OB21_20180611MSD (480-137307-2) in batch 680-528013. Refer to the QC report for details.

Samples MW-OB21_20180611 (480-137307-2)[5X] and MW-OB19_20180612 (480-137307-9)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-2

Client Sample ID: MW-OB17_20180611 — Lab Sample ID: 480-137307-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.087		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: MW-OB21_20180611 — Lab Sample ID: 480-137307-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.14	F1	0.050	0.013	mg/L	5		9012B	Total/NA

Client Sample ID: DUP01_20180611 — Lab Sample ID: 480-137307-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.11		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: MW-OB18_20180612 — Lab Sample ID: 480-137307-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.11		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: MW-OB19_20180612 — Lab Sample ID: 480-137307-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.18		0.050	0.013	mg/L	5		9012B	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-2

Client Sample ID: MW-OB17_20180611

Lab Sample ID: 480-137307-1

Date Collected: 06/11/18 11:15
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.087		0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 10:55	1

Client Sample ID: MW-OB21_20180611

Lab Sample ID: 480-137307-2

Date Collected: 06/11/18 12:50
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.14	F1	0.050	0.013	mg/L		06/15/18 05:30	06/15/18 11:54	5

Client Sample ID: DUP01_20180611

Lab Sample ID: 480-137307-3

Date Collected: 06/11/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.11		0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:00	1

Client Sample ID: MW-OB18_20180612

Lab Sample ID: 480-137307-8

Date Collected: 06/12/18 08:40
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.11		0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 11:10	1

Client Sample ID: MW-OB19_20180612

Lab Sample ID: 480-137307-9

Date Collected: 06/12/18 08:24
Matrix: Water
Date Received: 06/13/18 01:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.18		0.050	0.013	mg/L		06/15/18 05:30	06/15/18 11:59	5

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 680-527920/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 528013 — **Prep Batch: 527920**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/15/18 05:30	06/15/18 10:51	1

Lab Sample ID: HLCS 680-527920/4-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 528013 — **Prep Batch: 527920**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0750	0.0796		mg/L		106	90 - 110

Lab Sample ID: LCS 680-527920/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 528013 — **Prep Batch: 527920**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0511		mg/L		102	85 - 115

Lab Sample ID: LLCS 680-527920/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 528013 — **Prep Batch: 527920**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0100	0.00867	J	mg/L		87	90 - 110

Lab Sample ID: 480-137307-2 MS — **Client Sample ID: MW-OB21_20180611**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 528013 — **Prep Batch: 527920**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.14	F1	0.0500	0.150	F1	mg/L		13	85 - 115

Lab Sample ID: 480-137307-2 MSD — **Client Sample ID: MW-OB21_20180611**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 528013 — **Prep Batch: 527920**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	0.14	F1	0.0500	0.158	F1	mg/L		29	85 - 115	5	20

QC Association Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-2

General Chemistry

Prep Batch: 527920

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-1	MW-OB17_20180611	Total/NA	Water	9012B	
480-137307-2	MW-OB21_20180611	Total/NA	Water	9012B	
480-137307-3	DUP01_20180611	Total/NA	Water	9012B	
480-137307-8	MW-OB18_20180612	Total/NA	Water	9012B	
480-137307-9	MW-OB19_20180612	Total/NA	Water	9012B	
MB 680-527920/1-A	Method Blank	Total/NA	Water	9012B	
HLCS 680-527920/4-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 680-527920/2-A	Lab Control Sample	Total/NA	Water	9012B	
LLCS 680-527920/3-A	Lab Control Sample	Total/NA	Water	9012B	
480-137307-2 MS	MW-OB21_20180611	Total/NA	Water	9012B	
480-137307-2 MSD	MW-OB21_20180611	Total/NA	Water	9012B	

Analysis Batch: 528013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137307-1	MW-OB17_20180611	Total/NA	Water	9012B	527920
480-137307-2	MW-OB21_20180611	Total/NA	Water	9012B	527920
480-137307-3	DUP01_20180611	Total/NA	Water	9012B	527920
480-137307-8	MW-OB18_20180612	Total/NA	Water	9012B	527920
480-137307-9	MW-OB19_20180612	Total/NA	Water	9012B	527920
MB 680-527920/1-A	Method Blank	Total/NA	Water	9012B	527920
HLCS 680-527920/4-A	Lab Control Sample	Total/NA	Water	9012B	527920
LCS 680-527920/2-A	Lab Control Sample	Total/NA	Water	9012B	527920
LLCS 680-527920/3-A	Lab Control Sample	Total/NA	Water	9012B	527920
480-137307-2 MS	MW-OB21_20180611	Total/NA	Water	9012B	527920
480-137307-2 MSD	MW-OB21_20180611	Total/NA	Water	9012B	527920

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-2

Client Sample ID: MW-OB17_20180611

Lab Sample ID: 480-137307-1

Date Collected: 06/11/18 11:15
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 10:55	DAM	TAL SAV

Client Sample ID: MW-OB21_20180611

Lab Sample ID: 480-137307-2

Date Collected: 06/11/18 12:50
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		5	528013	06/15/18 11:54	DAM	TAL SAV

Client Sample ID: DUP01_20180611

Lab Sample ID: 480-137307-3

Date Collected: 06/11/18 00:00
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:00	DAM	TAL SAV

Client Sample ID: MW-OB18_20180612

Lab Sample ID: 480-137307-8

Date Collected: 06/12/18 08:40
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		1	528013	06/15/18 11:10	DAM	TAL SAV

Client Sample ID: MW-OB19_20180612

Lab Sample ID: 480-137307-9

Date Collected: 06/12/18 08:24
Matrix: Water
Date Received: 06/13/18 01:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			527920	06/15/18 05:30	DAM	TAL SAV
Total/NA	Analysis	9012B		5	528013	06/15/18 11:59	DAM	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-2

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-19

Laboratory: TestAmerica Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10842	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9012B	9012B	Water	Cyanide, Total

Method Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-2

Method	Method Description	Protocol	Laboratory
9012B	Cyanide, Total andor Amenable	SW846	TAL SAV
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL SAV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Sample Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137307-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-137307-1	MW-OB17_20180611	Water	06/11/18 11:15	06/13/18 01:15
480-137307-2	MW-OB21_20180611	Water	06/11/18 12:50	06/13/18 01:15
480-137307-3	DUP01_20180611	Water	06/11/18 00:00	06/13/18 01:15
480-137307-8	MW-OB18_20180612	Water	06/12/18 08:40	06/13/18 01:15
480-137307-9	MW-OB19_20180612	Water	06/12/18 08:24	06/13/18 01:15

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

480-137307 COC

Client Information	Sampler: Garrett Crowe	Lab PM: Barnett, Eddie T	Carrie
Client Contact: Mr. Jim Vondracek	Phone: 860 992 2636	E-Mail: eddie.barnett@testamericainc.com	COC No: 680-76228-31646.1
Company: Ashland Inc			Page: Page 1 of 2
Address: 5200 Blazer Parkway DS-4	Due Date Requested:		Job #:
City: Dublin	TAT Requested (days): Standard		
State, Zip: OH, 43017			
Phone: 614-790-6146	PO #: 4502471936		
Email: jevondracek@ashland.com, cassie.reuter@ehs support.com	WO #:		
Project Name: Hercules Glens Falls Quarterly Event	Project #: 68000956		
Site: Ashland Glens Falls	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B - Cyanide, Total	7196A - Chromium, hexavalent (field filtered)	6020A - Dissolved Total Chromium and Vanadium (field filtered)	2540C_Calcd - Total Dissolved Solids (field filtered)	2340C - Hardness as calcium carbonate	8260C - (MOD) TCL list OLM04.2 (Dichlorobenzenes [1,2-, 1,3-, 1,4-])	Total Number of containers	Special Instructions/Note:
			Preservation Code:				B	N	D	N	D	A		
MW-0817_20180611	6/11/18	1115	G	Water	N	N	X						1	
MW-0821-20180611	6/11/18	1250	G	Water	N	Y	X						2	Run extra bottles for MS/MSD
DUP01_20180611	6/11/18	—	G	Water	N	N	X						1	
DUP02_20180611	6/11/18	—	G	Water	N	N	X						1	
SG-11_20180611	6/11/18	1500	G	Water	N	Y	X						2	Run extra bottles for MS/MSD
SG-7_20180611	6/11/18	1445	G	Water	N	N	X						1	
EB_20180611	6/11/18	0905	G	Water	N	N	X						1	Run EB_20180611 as equipment blank
MW-0818_20180612	6/12/18	840	G	Water	N	N	X						1	
MW-0819_20180612	6/12/18	824	G	Water	N	N	X						1	
MW-360_20180612	6/12/18	1022	G	Water	N	N						X	3	
DUP01_20180612	6/12/18	—	G	Water	N	N						X	3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Field Filtered Samples are ID on Labels

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Mike Edwards	Date/Time: 6-12-18 1710	Company: Antea Group	Received by: Karl Zoeller
Relinquished by: Karl Zoeller	Date/Time: 6-12-18 1800	Company: TA	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Received by: Karl Zoeller	Date/Time: 6-12-18 1710	Company: TA	
Received by:	Date/Time: 6-13-18 0105	Company: TA	
Received by:	Date/Time:	Company:	

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.2, 0.1 C #1

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Garett Crowe	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 680-76228-31646.1
Client Contact: Mr. Jim Vondracek	Phone: 860 992 2636	E-Mail: eddie.barnett@testamericainc.com		Page: Page 2 of 2
Company: Ashland Inc				Job #:

Address: 5200 Blazer Parkway DS-4	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Dublin	TAT Requested (days): Standard		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: OH, 43017			
Phone: 614-790-6146	PO #: 4502471936		Other:
Email: jevondracek@ashland.com, cassie.reuter@ehs support.com	WO #:		
Project Name: Hercules Glens Falls Quarterly Event	Project #: 68000956		
Site: Ashland Glens Falls	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B - Cyanide, Total	7196A - Chromium, hexavalent (field filtered)	6020A - Dissolved Total Chromium and Vanadium (field filtered)	2540C_Calcd - Total Dissolved Solids (field filtered)	2340C - Hardness as calcium carbonate	8260C - (MOD) TCL list OLM04.2 (Dichlorobenzenes [1,2-, 1,3-, 1,4-])	Total Number of containers	Special Instructions/Note:
			Preservation Code:				B	N	D	N	D	A		
AW-C2_20180612	6/12/18	1015	G	Water	Y	N	X		X				2	
MW-26_20180612	6/12/18	1230	G	Water	Y	N	X		X				2	
SW-01_20180612	6/12/18	1010	G	Water	Y	N	X		X	X	X		4	
SW-02_20180612	6/12/18	1120	G	Water	Y	N	X		X	X	X		4	
SW-03_20180612	6/12/18	1300	G	Water	Y	Y	X		X	X	X		8	Run extra bottle for ms/msd
DUP02_20180612	6/12/18	—	G	Water	Y	N	X		X	X	X		4	
SW-04_20180612	6/12/18	1455	G	Water	Y	N	X		X	X	X		4	
TRIP Blank	5/24/18	—	G	Water	N	N						X	2	
EB_20180612	6/12/18	1037	G	Water	Y	N	X		X	X	X	X	8	Run EB_20180612 as equipment blank
AW-B1B_20180612	6/12/18	1530	G	Water	Y	Y	X		X			X	4	Run extra bottle for ms/msd
				Water										

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Field filtered Samples are I.D. on labels

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Mike Loland	6-12-18 1710	Antea Group	Kyle Jordan	6-12-18 1710	TA
Kyle Jordan	6-12-18 1800	TA		6-13-18 0815	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.7, 0.8 #1

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 480-42841.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 1 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-137307-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 6/25/2018			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: Hercules Glens Falls O&M Quarterly	Project #: 68000956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B/9012B_Prep (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-OB17_20180611 (480-137307-1)	6/11/18	11:15 Eastern		Water			X	1	
MW-OB21_20180611 (480-137307-2)	6/11/18	12:50 Eastern		Water			X	1	
MW-OB21_20180611 (480-137307-2MS)	6/11/18	12:50 Eastern	MS	Water			X	1	MS/MSD SHARED VOLUME
MW-OB21_20180611 (480-137307-2MSD)	6/11/18	12:50 Eastern	MSD	Water			X	1	MS/MSD SHARED VOLUME
DUP01_20180611 (480-137307-3)	6/11/18	Eastern		Water			X	1	
DUP02_20180611 (480-137307-4)	6/11/18	Eastern		Water			X	1	
SG-11_20180611 (480-137307-5)	6/11/18	15:00 Eastern		Water			X	1	
SG-11_20180611 (480-137307-5MS)	6/11/18	15:00 Eastern	MS	Water			X	1	MS/MSD SHARED VOLUME
SG-11_20180611 (480-137307-5MSD)	6/11/18	15:00 Eastern	MSD	Water			X	1	MS/MSD SHARED VOLUME

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	6/13/19 1300	TOOS		0900 6/14/18	TASAV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: 2.2/1.6	Date/Time:	Company

Custody Seals Intact: | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 480-42841.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 2 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-137307-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested: 6/25/2018			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: Hercules Glens Falls O&M Quarterly	Project #: 68000956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B/9012B_Prep (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SG-7_20180611 (480-137307-6)	6/11/18	14:45 Eastern		Water			X	1	
EB_20180611 (480-137307-7)	6/11/18	09:05 Eastern		Water			X	1	
MW-OB18_20180612 (480-137307-8)	6/12/18	08:40 Eastern		Water			X	1	
MW-OB19_20180612 (480-137307-9)	6/12/18	08:24 Eastern		Water			X	1	
AW-C2_20180612 (480-137307-12)	6/12/18	10:15 Eastern		Water			X	1	
MW-26_20180612 (480-137307-13)	6/12/18	12:30 Eastern		Water			X	1	
SW-01_20180612 (480-137307-14)	6/12/18	10:10 Eastern		Water			X	1	
SW-02_20180612 (480-137307-15)	6/12/18	11:20 Eastern		Water			X	1	
SW-03_20180612 (480-137307-16)	6/12/18	13:00 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 6/13/18 1500	Company: TAS	Received by:	Date/Time: 0900 6/14/18	Company: TASBV	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.2 / 1.6

Ver: 09/20/2016

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 480-42841.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 3 of 3
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-137307-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 6/25/2018			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: Hercules Glens Falls O&M Quarterly	Project #: 68000956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B/9012B_Prep (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SW-03_20180612 (480-137307-16MS)	6/12/18	13:00 Eastern	MS	Water			X	1	MS/MSD SHARED VOLUME
SW-03_20180612 (480-137307-16MSD)	6/12/18	13:00 Eastern	MSD	Water			X	1	MS/MSD SHARED VOLUME
DUP02_20180612 (480-137307-17)	6/12/18	Eastern		Water			X	1	
SW-04_20180612 (480-137307-18)	6/12/18	14:55 Eastern		Water			X	1	
EB_20180612 (480-137307-20)	6/12/18	10:37 Eastern		Water			X	1	
AW-B18_20180612 (480-137307-21)	6/12/18	15:30 Eastern		Water			X	1	
AW-B18_20180612 (480-137307-21MS)	6/12/18	15:30 Eastern	MS	Water			X	1	MS/MSD SHARED VOLUME
AW-B18_20180612 (480-137307-21MSD)	6/12/18	15:30 Eastern	MSD	Water			X	1	MS/MSD SHARED VOLUME

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/13/18 1700			0900 6/14/18	TAL BUF
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.2 (7.6)

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-137307-2

Login Number: 137307

List Source: TestAmerica Buffalo

List Number: 2

Creator: Barnett, Eddie T

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-137307-2

Login Number: 137307
List Number: 3
Creator: Jones, Tyre D

List Source: TestAmerica Savannah
List Creation: 06/14/18 03:23 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-137390-2
Client Project/Site: Hercules Glens Falls 2Q18

For:
Ashland LLC
5200 Blazer Parkway
DS-4
Dublin, Ohio 43017

Attn: Mr. Jim Vondracek

Authorized for release by:
7/2/2018 8:26:32 AM

Eddie Barnett, Project Manager I
(912)250-0280
eddie.barnett@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137390-2

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-137390-2

Laboratory: TestAmerica Buffalo

Narrative

CASE NARRATIVE
Client: Ashland LLC
Project: Hercules Glens Falls 2Q18

Report Number: 480-137390-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The sample was received on 06/14/2018; the sample arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 0.7º C.

TOTAL CYANIDE

Sample MW-OB23_20180613 (480-137390-3) was analyzed for total cyanide in accordance with EPA SW-846 Method 9012B. The sample was prepared and analyzed on 06/18/2018.

Sample MW-OB23_20180613 (480-137390-3)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137390-2

Client Sample ID: MW-OB23_20180613

Lab Sample ID: 480-137390-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	2.0		0.20	0.050	mg/L	20		9012B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137390-2

Client Sample ID: MW-OB23_20180613
Date Collected: 06/13/18 08:53
Date Received: 06/14/18 01:00

Lab Sample ID: 480-137390-3
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	2.0		0.20	0.050	mg/L		06/18/18 06:00	06/18/18 12:07	20

QC Association Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137390-2

General Chemistry

Prep Batch: 528152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137390-3	MW-OB23_20180613	Total/NA	Water	9012B	

Analysis Batch: 528241

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-137390-3	MW-OB23_20180613	Total/NA	Water	9012B	528152

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137390-2

Client Sample ID: MW-OB23_20180613
Date Collected: 06/13/18 08:53
Date Received: 06/14/18 01:00

Lab Sample ID: 480-137390-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			528152	06/18/18 06:00	DAM	TAL SAV
Total/NA	Analysis	9012B		20	528241	06/18/18 12:07	DAM	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137390-2

Laboratory: TestAmerica Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-18 *

Laboratory: TestAmerica Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10842	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
9012B	9012B	Water	Cyanide, Total

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137390-2

Method	Method Description	Protocol	Laboratory
9012B	Cyanide, Total andor Amenable	SW846	TAL SAV
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL SAV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Sample Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q18

TestAmerica Job ID: 480-137390-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-137390-3	MW-OB23_20180613	Water	06/13/18 08:53	06/14/18 01:00

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

480501-Albany

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Garrett Crowe	Lab PM: Barnett, Eddie T	Carr	COC No: 680-76228-31646.1
Client Contact: Mr. Jim Vondracek	Phone: 960 992 2636	E-Mail: eddie.barnett@testamericainc.com		Page: Page 1 of 2
Company: Ashland Inc		Analysis Reques	480-137390 COC	Job #:
Address: 5200 Blazer Parkway DS-4	Due Date Requested:			
City: Dublin	TAT Requested (days): Standard			
State, Zip: OH, 43017				
Phone: 614-790-6146	PO #: 4502471936			
Email: jevondracek@ashland.com, cassie.reuter@ehs support.com	WO #:			
Project Name: Hercules Glens Falls Quarterly Event	Project #: 68000956			
Site: Ashland Glens Falls	SSOW#:			

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B - Cyanide, Total	7196A - Chromium, hexavalent (field filtered)	6020A - Dissolved Total Chromium and Vanadium (field filtered)	2540C_Calcd - Total Dissolved Solids (field filtered)	2340C - Hardness as calcium carbonate	8260C - (MOD) TCL list OLM04.2 (Dichlorobenzenes [1,2-, 1,3-, 1,4-])	Total Number of containers	Special Instructions/Note:
			Preservation Code:				B	N	D	N	D	A		
EB_20180613	6/13/18	1135	G	Water	Y	N	X		X				2	
AW-AIS_20180613	6/13/18	910	G	Water	Y	N	X		X				2	
MW_0823_20180613	6/13/18	853	G	Water	N	N	X						1	
MW-31_20180613	6/13/18	945	G	Water	Y	N	X		X				2	
MW_0827_20180613	6/13/18	1025	G	Water	Y	N	X		X				2	
MW-0814_20180613	6/13/18	1140	G	Water	Y	N	X		X				2	
AW-B17_20180613	6/13/18	1229	G	Water	Y	N	X		X				2	
EW-B5_20180613	6/13/18	1200	G	Water	Y	N	X		X				2	
DUP_20180613	6/13/18	—	G	Water	Y	N	X		X				2	
AW-B4_20180613	6/13/18	1230	G	Water	Y	N	X		X				2	
AW-B20_20180613	6/13/18	1442	G	Water	Y	N	X		X				2	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Field Filtered bottles marked on Label

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Mike Leland	6-13-18 1710		Kurt Zoeller	6-13-18 1710	TA
2	Kurt Zoeller	6-13-18 1800	TA		6-14-18 0100	TA
3						

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.7 #1

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7/2/2018

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone (912) 354-7858 Fax (912) 352-0165

480501-Albany

Chain of Custody Record

TestAmerica — THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Garrett Crowe	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 680-76228-31646.1
Client Contact: Mr. Jim Vondracek	Phone: 860 992 2636	E-Mail: eddie.barnett@testamericainc.com		Page: Page 2 of 2
Company: Ashland Inc				Job #:
Address: 5200 Blazer Parkway DS-4	Due Date Requested:			
City: Dublin	TAT Requested (days): Standard			
State, Zip: OH, 43017				
Phone: 614-790-6146	PO #: 4502471936			
Email: jevondracek@ashland.com, cassie.reuter@ehs support.com	WO #:			
Project Name: Hercules Glens Falls Quarterly Event	Project #: 68000956			
Site: Ashland Glens Falls	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA
M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - ph 4-5; Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9012B - Cyanide, Total	7196A - Chromium, hexavalent (field filtered)	6020A - Dissolved Total Chromium and Vanadium (field filtered)	2540C_Calcd - Total Dissolved Solids (field filtered)	2340C - Hardness as calcium carbonate	8260C - (MOD) TCL list OLM04.2 (Dichlorobenzenes [1,2-, 1,3-, 1,4-])	Total Number of containers	Special Instructions/Note:
				Preservation Code:			B	N	D	N	D	A		
AW-A2_20180613	6/13/18	1450	G	Water	Y	N	X		X				2	
MW-0825_20180613	6/13/18	1535	G	Water	Y	N	X		X				2	
				Water										
				Water										
				Water										
				Water										
				Water										
				Water										
				Water										
				Water										
				Water										

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: Field Filtered bottles labeled samples noted on bottle labels

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Mike Edwards	Date/Time: 6-13-18 1710	Company: Antea Group	Received by: Rob [illegible]	Date/Time: 6-13-18 1710	Company: TA
Relinquished by: Rob [illegible]	Date/Time: 6-13-18 1800	Company: TA	Received by: [illegible]	Date/Time: 6-14-18 0100	Company: TAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.7 #1

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-137390-2

Login Number: 137390
List Number: 2
Creator: Barnett, Eddie T

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-137390-2

Login Number: 137390
List Number: 3
Creator: Elwell, Devin M

List Source: TestAmerica Savannah
List Creation: 06/15/18 10:15 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Attachment 3 – Tier II Validation Report

HERCULES

Tier II Validation Report
Groundwater and Surface Water Monitoring
June 2018
Pretreatment Plant Site
Former Ciba Geigy Facility
Queensbury, New York

Prepared by:

EHS Support℠

November 2018

TABLE OF CONTENTS

1.0 SUMMARY

This report presents the results of a Tier II data usability assessment for aqueous samples collected in June 2018 at the former Ciba Geigy facility in Queensbury, New York. Laboratory data packages for were provided to EHS Support LLC by ALS Environmental and TestAmerica Laboratories. The data were reviewed by Amy Coats, an EHS Support Project Chemist approved by the New York State Department of Environmental Conservation (NYSDEC).

Validation reports were prepared for the laboratory reports detailed in Sections 2 and 3 of this report.

Overall Data Evaluation and Usability

Data included in these data sets are considered usable. Details regarding the usability assessment are provided in Sections 2 through 4.

2.0 VALIDATION REPORT FOR PTP DATA SET 1

Former Ciba Geigy Facility
Queensbury, New York

Sample Delivery Group (SDG): 480-137390-2
Analyses: General chemistry
Analysis performed by: TestAmerica, Savannah, Georgia
EHS Validation Report Number: 185
Review Level: Tier II
Report Date: November 23, 2018

SAMPLE SUMMARY

A water sample was collected at the Former Ciba Geigy Facility in Queensbury, New York and was analyzed by Environmental Protection Agency (EPA) SW-846 Method 9021B for cyanide. The sample included in this Sample Delivery Group (SDG), and in this data validation report, is presented in the table below.

SDG	Lab Sample ID	Field Sample ID	Sample Matrix	Sample Collection Date	Analysis		
					VOC	Metals	Gen chem
480-137390-2	480-137390-3	MW-OB23_20180613	Water	6/13/2018			X

INTRODUCTION

Data were reviewed in accordance with USEPA Contract Laboratory Program National Functional Guidelines (Inorganic, January 2010), laboratory analytical methods, and professional judgment. Relevant EPA Region 2 Data Validation SOPs were referenced if needed. It is expected that the laboratory conducted sufficient quality review of the data prior to reporting. While QC is meant to increase confidence in analytical data, it is important to note that no compound concentration is guaranteed to be accurate, even if all QC criteria were met.

Data validation includes a review of reported results and supporting documentation in the laboratory report. Based on this evaluation, qualifiers may be added, deleted, or modified. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

Validation Qualifiers

U The analyte was included in the analysis, but was not detected above the reported quantitation limit, or the result is considered non-detect as a consequence of associated blank contamination.

UJ The analyte was included in the analysis, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

SAMPLE CUSTODY AND RECEIPT

The sample was received in good condition and properly preserved. The chain of custody was properly completed, except that the date accompanying the relinquishing signature does not match the date accompanying the receiving signature. It is assumed that this was a clerical issue and that custody was maintained.

ASSESSMENT SUMMARY AND DATA USABILITY

In this SDG, no QC (quality control) excursions encountered led to rejection of data. Results reported in this SDG are considered usable. Please refer to report below for specific QC variances.

GENERAL CHEMISTRY ANALYSIS

Preservation and Holding Times

Relevant preservation and holding time requirements are presented in the following table.

Method	Matrix	Preservation	Holding Time
Cyanide by 9012B	Water	4°C ± 2°C, NaOH to pH > 12	14 days

Acceptance criteria were met.

Blanks

Acceptance criteria were met.

Laboratory Control Sample (LCS)

Acceptance criteria were met.

Laboratory duplicate analysis

NA: No laboratory duplicate analysis was performed on the sample in this SDG.

Matrix Spike (MS) Analysis

NA: No matrix spike analysis was performed on the sample in this SDG.

Field Duplicates

A field duplicate sample was submitted in SDG 480-137390-1 that is associated with sample MW-OB23_20180613. The field duplicate analysis exhibited a relative percent difference (RPD) value that is outside acceptance limits and it is presented in the table below.

Samples	Analyte	Parent Sample Result	Duplicate Sample Result	RPD
MW-OB23_20180613/ DUP_20180613	Cyanide	2.0 mg/L	0.52 mg/L	118%

As a consequence of this QC excursion, cyanide results for the parent, the duplicate, and associated samples would be considered estimated but usable. Results in this data set are not subject to qualification as estimated. These results are considered usable and will be reported “as-is.”

Additional Notes

NA: No additional notes to report.

Validation performed by: Amy Coats
EHS Support

3.0 VALIDATION REPORT FOR PTP DATA SET 2

Former Ciba Geigy Facility
Queensbury, New York

Sample Delivery Group (SDG): 480-137307-1
Analyses: VOC, Metals, General chemistry
Analyses performed by: TestAmerica, Buffalo, New York and Savannah, Georgia
EHS Validation Report Number: 165
Review Level: Tier II
Report Date: July 5, 2018

SAMPLE SUMMARY

Water samples were collected at the Former Ciba Geigy Facility in Queensbury, New York and were analyzed by Environmental Protection Agency (EPA) SW-846 Methods 8260C for volatile organic compounds (VOC), 6020A for metals, and 9012B for cyanide, and by Standard Method SM 2340C for hardness. Samples included in this Sample Delivery Group (SDG), and in this data validation report, are listed in the table below.

SDG	Lab Sample ID	Field Sample ID	Sample Matrix	Sample Collection Date	Analysis		
					VOC	Metals	Gen chem
480-137307	480-137307-1	MW-OB17_20180611	Water	6/11/2018			X
480-137307	480-137307-2	MW-OB21_20180611	Water	6/11/2018			X
480-137307	480-137307-3	DUP01_20180611	Water	6/11/2018			X
480-137307	480-137307-4	DUP02_20180611	Water	6/11/2018			X
480-137307	480-137307-5	SG-11_20180611	Water	6/11/2018			X
480-137307	480-137307-6	SG-7_20180611	Water	6/11/2018			X
480-137307	480-137307-7	EB_20180611	Water	6/11/2018			X
480-137307	480-137307-8	MW-OB18_20180612	Water	6/12/2018			X
480-137307	480-137307-9	MW-OB19_20180612	Water	6/12/2018			X
480-137307	480-137307-10	MW-36D_20180612	Water	6/12/2018	X		
480-137307	480-137307-11	DUP01_20180612	Water	6/12/2018	X		
480-137307	480-137307-12	AW-C2_20180612	Water	6/12/2018		X	X
480-137307	480-137307-13	MW-26_20180612	Water	6/12/2018		X	X
480-137307	480-137307-14	SW-01_20180612	Water	6/12/2018		X	X

SDG	Lab Sample ID	Field Sample ID	Sample Matrix	Sample Collection Date	Analysis		
					VOC	Metals	Gen chem
480-137307	480-137307-15	SW-02_20180612	Water	6/12/2018		X	X
480-137307	480-137307-16	SW-03_20180612	Water	6/12/2018		X	X
480-137307	480-137307-17	DUP02_20180612	Water	6/12/2018		X	X
480-137307	480-137307-18	SW-04_20180612	Water	6/12/2018		X	X
480-137307	480-137307-19	TRIP BLANK	Water	6/12/2018	X		
480-137307	480-137307-20	EB_20180612	Water	6/12/2018	X	X	X
480-137307	480-137307-21	AW-B18_20180612	Water	6/12/2018	X	X	X

INTRODUCTION

Data were reviewed in accordance with USEPA Contract Laboratory Program National Functional Guidelines (Organic, 2008 and Inorganic, January 2010), laboratory analytical methods, and professional judgment. Relevant EPA Region 2 Data Validation SOPs were referenced if needed. It is expected that the laboratory conducted sufficient quality review of the data prior to reporting. While QC is meant to increase confidence in analytical data, it is important to note that no compound concentration is guaranteed to be accurate, even if all QC criteria were met.

Data validation includes a review of reported results and supporting documentation in the laboratory report. Based on this evaluation, qualifiers may be added, deleted, or modified. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

Validation Qualifiers

U The analyte was included in the analysis, but was not detected above the reported quantitation limit, or the result is considered non-detect as a consequence of associated blank contamination.

UJ The analyte was included in the analysis, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

SAMPLE CUSTODY AND RECEIPT

All samples were received in good condition and properly preserved. The chain of custody was properly completed.

ASSESSMENT SUMMARY AND DATA USABILITY

In this SDG, no QC (Quality Control) excursions encountered led to rejection of data. Results reported in this SDG are considered usable. Please refer to report below for specific QC variances and data qualification.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSIS

Preservation and Holding Times

Relevant preservation and holding time requirements are presented in the following table.

Method	Matrix	Preservation	Holding Time
Method 8260	Water	≤6 °C; HCl to pH < 2	14 days

Acceptance criteria were met.

Blanks

Acceptance criteria were met; no detections were reported from the method blank, or from the trip blank or equipment blank associated with the field samples in this SDG.

Surrogates

Acceptance criteria were met.

Laboratory Control Sample / Laboratory Control Sample Duplicate (LCS/LCSD)

Acceptance criteria were met.

Matrix Spike/ Matrix Spike Duplicate (MS/MSD) Analysis

Acceptance criteria were met. MS/ MSD analyses were performed on samples 480-137307-10 and 480-137307-21.

Compound Identification

Acceptable; no issues to report.

Field duplicates

Acceptance criteria were met. One field duplicate & parent sample pair in this sample delivery group was designated for VOC analysis. Criteria for comparison of field duplicate results with parent sample results are presented in the table below.

Quality control nonconformance	Sample Result	Qualification
Sample and its field duplicate ≥ 5x the RL and -RPD > 30% (aqueous) - or - -RPD > 50% (soil/ sediment)	Detect	J
Sample and/or its field duplicate < 5x the RL and -absolute difference > 2x the RL (aqueous) - or- -absolute difference > 3x the RL (soil/ sediment)	Non-detect	UJ
	Detect	J

Additional Notes

NA: No additional notes to report.

METALS ANALYSIS

Preservation and Holding Times

Relevant preservation and holding time requirements are presented in the following table.

Method	Matrix	Preservation	Holding Time
Metals (except Hg and Cr6+) by 6010 / 6020	Water	HNO_3 to pH < 2	180 days
	Soil	None	180 days

Acceptance criteria were met.

Blanks

Acceptance criteria were met; no detections were reported from the method blank or from the equipment blank associated with the field samples in this SDG.

Laboratory Control Sample (LCS) Analysis

Acceptance criteria were met.

Matrix Spike/ Matrix Spike Duplicate (MS/MSD) analysis

Matrix spike analyses associated with recoveries and/or RPD values outside control limits are presented in the table below. Please note that matrix spike analyses cannot be evaluated if the unspiked sample concentration of the relevant analyte is ≥ 4x the spike amount. Other MS/MSD analyses associated with this data set exhibited acceptable results.

Sample ID	Analyte	Recovery		MS/MSD RPD
		MS	MSD	
480-137307-21	Chromium	Acceptable	Acceptable	27%

As a consequence of this excursion, qualifiers were applied to results for chromium in all field samples in this SDG – except for any samples that were associated with acceptable matrix spike analyses. Qualifiers were applied as per the table below.

Spike recovery	Sample result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	UJ if PDS %R ≥ 75%
		R if PDS not performed or PDS %R < 75%
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J
MS/MSD RPD > UL	Non-detect	UJ
	Detect	J

Field Duplicates

Acceptance criteria were met. One field duplicate & parent sample pair in this sample delivery group was designated for metals analysis. Criteria for comparison of field duplicate results with parent sample results are presented in the table below.

Quality control nonconformance	Sample Result	Sample Result Qualification
Sample and its field duplicate ≥ 5x the RL and -RPD > 30% (aqueous) - or - -RPD > 50% (soil/ sediment)	Detect	J
Sample and/or its field duplicate < 5x the RL and -absolute difference > 2x the RL (aqueous) - or- -absolute difference > 3x the RL (soil/ sediment)	Non-detect	UJ
	Detect	J

Additional Notes

NA: No additional notes to report.

GENERAL CHEMISTRY ANALYSIS

Preservation and Holding Times

Relevant preservation and holding time requirements are presented in the following table.

Method	Matrix	Preservation	Holding Time
Total cyanide by 9012B	Water	4°C ± 2°C, NaOH to pH > 12	14 days
Hardness by SM2340C	Water	HNO_3 to pH < 2	180 days

Acceptance criteria were met.

Blanks

Acceptance criteria were met; no detections were reported from the method blank or from the equipment blank associated with the field samples in this SDG.

Laboratory Control Sample (LCS)

Acceptance criteria were met. The laboratory analyzed LCS samples and recoveries were acceptable. Please note that for cyanide, the laboratory also analyzed a low-level laboratory control sample. The recovery of cyanide in the low-level LCS was 87%, which is outside of laboratory limits. However, 87% is within the limits applied during validation, so this recovery is considered acceptable and did not lead to any result qualification.

Laboratory duplicate analysis

NA: No laboratory duplicate analysis was performed on samples in this data set.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

Matrix spike analyses associated with recoveries and/or RPD values outside control limits are presented in the table below. Please note that matrix spike analyses cannot be evaluated if the unspiked sample concentration of the relevant analyte is ≥ 4x the spike amount. Other MS/MSD analyses associated with this data set exhibited acceptable results.

Sample ID	Analyte	Recovery		MS/MSD RPD
		MS	MSD	
480-137307-2	Cyanide	13%	29%	Acceptable
480-137307-21	Cyanide	52%	Acceptable	Acceptable

As a consequence of this excursion, qualifiers were applied to results for cyanide in all field samples in this SDG – except for any samples that were associated with acceptable matrix spike analyses. Qualifiers were applied as per the table below.

Field Duplicates

Acceptance criteria were met. Three field duplicate & parent sample pairs in this sample delivery group were designated for general chemistry analysis. Criteria for comparison of field duplicate results with parent sample results are presented in the table below.

Quality control nonconformance	Sample Result	Sample Result Qualification
Sample and its field duplicate ≥ 5x the RL and -RPD > 30% (aqueous) - or - -RPD > 50% (soil/ sediment)	Detect	J
Sample and/or its field duplicate < 5x the RL and -absolute difference > 2x the RL (aqueous) - or- -absolute difference > 3x the RL (soil/ sediment)	Non-detect	UJ
	Detect	J

Additional Notes

NA: No additional notes to report.

Validation performed by: Amy Coats
EHS Support

4.0 USABILITY REVIEW FOR PTP DATA SET 3

Former Ciba Geigy Facility
Queensbury, New York

EHS Validation Report Number: 163
Review Level: Usability review
Report Date: July 5, 2018

SAMPLE SUMMARY

Water samples were collected at the Former Ciba Geigy Facility in Queensbury, New York and were analyzed at TestAmerica Laboratories in Buffalo, New York and in Savannah, Georgia as well as at ALS Environmental in Holland, Michigan. Samples delivery groups (SDGs) included in this data usability review are listed in the table below.

SDG	Analytical parameters included in SDG				
	VOC	Metals	Cyanide	Hexavalent chromium	Miscellaneous
480-137390-1		X	X		
480-137390-2			X		
480-137485-1				X	
480-137486-1		X	X		
480-137576-1				X	
480-137577-1		X	X		
18061180					X (Free cyanide)

INTRODUCTION

Data were reviewed to determine whether reported results are usable. Results considered usable will be used as-is; no validation qualifiers will be added, and no laboratory qualifiers will be modified or removed. Results that are deemed unusable will be rejected. Quality control (QC) elements included in this usability review are:

- Sample temperature
- Holding time
- Laboratory control sample (LCS, including LCS Duplicate) recoveries
- Matrix spike (MS, including MS Duplicate) recoveries

- Surrogate recoveries
- Internal standard recoveries
- Total vs. dissolved results
- Percent solids for solid samples

Please note that not all QC elements are expected for all analyses or for all batches. E.g. inorganic analyses in this data set do not include surrogates or internal standards.

The following QC variances, if found, will be presented and may lead to rejection of associated results:

- Sample temperature variances
- Holding time exceedances of more than 2x the technical holding time
- Spike (surrogate, LCS, MS) and internal standard recoveries less than 20% for organic analyses
- Spike (LCS, MS) recoveries less than 40% for inorganic analyses
- Dissolved result greater than total result by more than 50%
- Percent solids less than 10%

The only validation qualifier that may be applied to data include in this usability review is:

R The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.

DATA USABILITY SUMMARY

In this SDG, no quality control excursions encountered led to rejection of data. Results are considered usable.

ADDITIONAL NOTES

On chains of custody for two sample delivery groups in this data set, the time/ date associated with the relinquishing signature did not match the time/ date associated with the receiving signature. It is assumed that these were clerical issues.

Usability review performed by: Amy Coats
EHS Support