October 11, 2019

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: **2019 Annual 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) (the "Parties"), EHS Support LLC ("EHS Support") is submitting this *Groundwater and Surface Water Monitoring Report* (GSMR) for the Pretreatment Plant Area property ("PTP Area" or "property") at the former CIBA pigments manufacturing facility located at 89 Lower Warren Street in Queensbury Township, near Glens Falls, New York (the "Site").

Groundwater and surface water monitoring was conducted at the PTP Area property in June 2019 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 monitoring wells MW-OB18 and MW-OB19. Tank T-110 and the former Pretreatment Plant Building were demolished and removed from the PTP Area property 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 17, 2019, water levels were measured at the 11 monitoring wells identified in **Table 1**. The Glens Falls Feeder Canal ("canal") was in the process of being drained during the week of June 17, 2019; therefore, water levels at the two surface water gauges (SG-11 located in the canal and SG-7 located in stream adjacent to the canal) were measured on June 24, 2019.

[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 PTP Area property, with localized southerly flow in the southwest corner of the property. Shallow groundwater (overburden) 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 property. Depth-to-water measurements were consistent with historical gauging data. Overburden groundwater elevations and potentiometric contour lines based on the June 2019 monitoring data are illustrated on **Figure 2**.

Groundwater and Surface Water Sampling and Analysis

Groundwater sampling was conducted on June 17 and June 18, 2019. Five wells (identified in **Table 1,** except MW-OB19) were purged and sampled using low-flow sampling methods (i.e., a peristaltic pump) on June 17, as detailed in the GSMP. Well MW-OB19 purged dry on June 17 and was allowed to recharge overnight. A grab sample was collected from this well the next morning. As noted above, the two surface water samples were not sampled during the week of June 17 because the canal was in the process of being drained. Grab samples were collected from the two surface water locations on June 24, 2019.

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. 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 Eurofins 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 EPA 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-milliliter (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 list 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 – DUP_20190617)
- One duplicate surface water sample (from SG-11 – DUP_20190624)
- Two matrix spike/matrix spike duplicate (MS/MSD) samples, one for groundwater (from MW-OB21) and one for surface water (from SG-11)
- Two equipment/field blanks (EB_20190617 and EB _20190624)

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 samples were clean (either low detection or no detections). 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 EHS Support 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. Total cyanide results for the groundwater samples were assigned J qualifiers (i.e., estimated results) during validation. However, all analytical data were deemed usable and technically defensible.

As approved by the NYSDEC in February 2018, Tier II Validation Reports were prepared rather than Tier IV DUSRs.[3] Copies of the Tier II Validation Reports are 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 well MW-OB23 (670 µg/L [J]). Free cyanide results in surface water were either below or near the detection limit of 2 µg/L.

Cyanide concentrations detected at the PTP Area property 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 PTP Area at well MW-OB23 and immediately adjacent to the historical wastewater tank at well MW-OB19 (**Table 5**). Concentrations declined following cessation of the historical operations and have been stable to declining for more than

[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.

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 declining 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-ground historical wastewater treatment structures (i.e., the former Pretreatment Plant Building and tank T-110) were demolished and removed from the PTP Area in March 2018. Post-demolition soil and groundwater sampling was performed in May 2019, with the results provided separately to the NYSDEC in the *Soil and Groundwater Sampling Report for the Pretreatment Plant Area* by EHS Support (October 11, 2019). The soil and groundwater samples collected at the PTP Area in May 2019 showed no indications of a release of COPCs from former tank T-110 or from the sumps in the former PTP building. No soil sample result exceeded an applicable 6 NYCRR Part 375 Soil Cleanup Objective (SCO) for industrial land use or the protection of groundwater. Cyanide was detected in groundwater below the former tank T-110 at 320-420 µg/L (PTP-SB01), which is an expected range given the concentrations of cyanide present at upgradient well MW-OB23.

The results of the groundwater samples collected during the annual sampling event in June 2019 demonstrate that cyanide concentrations in groundwater at the PTP Area property continue to be on a declining trend; this trend is supported by statistical analysis. Furthermore, cyanide concentrations in groundwater above the GA standard are limited in extent (i.e., limited to MW-OB23 area); concentrations downgradient from MW-OB23 are below the GA standard at the PTP Area property boundary (i.e., at MW-OB18); free cyanide concentrations in surface water are below surface water standards; 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 PTP Area does not present a risk to human health or the environment.

As indicated in the previous two annual *Groundwater and Surface Water Monitoring Reports* (submitted to the NYSDEC on November 29, 2017 and November 30, 2018), now that the demolition and post-demolition sampling are complete, the Parties have reevaluated the need for future groundwater and surface water sampling at the PTP Area.

On the basis of the historical sampling results and results collected during this annual sampling round in June 2019, the Parties recommend no further action at the PTP Area property, including:

- No further groundwater or surface water sampling.
- Decommissioning (abandonment) of the monitoring wells and staff gauges associated with the PTP Area property, as listed in **Table 1**.

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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Attachment 2 – Laboratory Analytical Reports
Attachment 3 – Tier II Validation Reports

cc: Eamonn O'Neill, New York State Department of Health
James Vondracek, Ashland LLC
Stephen Havlik, BASF Corporation
Laura McMahon, BASF Corporation
Cody Hume, Antea Group
Bob O'Neill, Brown and Caldwell
Jim Breza, EHS Support LLC

Tables

Table 1
Sampling Event Analysis Schedule
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2019

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	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 New York State Department of Environmental Conservation (NYSDEC) in October 2017, free cyanide analysis was limited to surface water samples.

Table 2
Gauging and Purge Data Summary
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2019

Well Name	Well Diam. (in)	Screen Interval (ft bgs)	6/17/19 Total Well Depth (ft btoc)	6/17/19 DTW (ft btoc)	TOC Elev (ft amsl)	6/17/19 GW Elevation (ft amsl)	6/17/19 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	13.81	7.84	289.91	282.07	5.97	10.83	150	7.67	7.68	0.01	1.5	P
MW-OB18	2	4 - 9	12.53	9.45	287.69	278.24	3.08	11.00	135	9.50	11.51	2.01	2.0	P
MW-OB19	2	5 - 10	9.63	7.96	287.82	279.86	1.67	8.80	100	7.97	dry	1.67	1.5	P
MW-OB20	2	4.5 - 8.5	10.44	9.89	290.36	280.47	0.55	10.17	100	9.92	10.03	0.11	2.0	P
MW-OB21	2	4.5 - 14.5	16.66	13.25	284.03	270.78	3.41	14.96	100	13.29	15.20	1.9	2.0	P
MW-OB23	2	3 - 6.5	8.43	5.64	287.05	281.41	2.79	7.04	100	5.65	5.89	0.24	5.0	P
P-1	1	3 - 8	8.14	5.31	287.73	282.42	2.83	ns	ns	ns	ns	ns	ns	ns
P-11	1	6 - 11	13.02	8.42	290.37	281.95	4.60	ns	ns	ns	ns	ns	ns	ns
P-12	1	3 - 8	9.57	6.87	287.91	281.04	2.70	ns	ns	ns	ns	ns	ns	ns
IG-1	-	-	8.87	6.06	288.79	282.73	2.81	ns	ns	ns	ns	ns	ns	ns
IG-2	-	-	11.42	7.96	289.77	281.81	3.46	ns	ns	ns	ns	ns	ns	ns
SURFACE WATER LOCATIONS [1]														
SG-11	-	n/a		0.30	n/a	n/a		grab						
SG-7	-	n/a		0.20	n/a	n/a		grab						

Notes:

1- Water levels as recorded on the date of sampling (June 24, 2019). The canal was in the process of being drained on June 17 - June 19, 2019; therefore, surface water sampling was performed on June 24.

"-" 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 2019

Location	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-OB17	MW-OB17_20190617	06/17/19	20.33	6.98	0.161	1.69	0.0	211	10	UJ	-	-
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-OB18	MW-OB18_20190617	06/17/19	21.21	7.13	0.391	0.16	0.0	254	100	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-OB19*	MW-OB19_20190618	06/18/19	20.45	7.31	0.294	2.82	4.1	225	57	UJ	-	-
MW-OB20	MW-OB20_20170619	06/19/17	20.97	7.38	0.764	5.00	0.0	142	51	J	2	U
MW-OB20	MW-OB20_20190617	06/17/19	15.01	6.80	0.673	7.52	0.0	182	28	J	-	-
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-OB21	MW-OB21_20190617	06/17/19	17.02	6.98	0.316	0.0	2.0	72	62	J	-	-
MW-OB21	DUP_20190617	06/17/19	-	-	-	-	-	-	98	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**		-	-
MW-OB23	MW-OB23_20190617	06/17/19	17.5	6.67	0.597	2.22	0.0	-78	**670**	J	-	-
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
Blank	EB_20190617	06/17/19	n/a	n/a	n/a	n/a	n/a	n/a	10	U	-	-
Blank	EB_20190624	06/24/19	n/a	n/a	n/a	n/a	n/a	n/a	3.4	J	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-7**	SG-7_20190624	06/24/19	22.22	7.28	1.390	6.01	1.8	150	10	U	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

Table 3
Groundwater and Surface Water Analytical and Field Parameter Results
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2019

Location	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)	
SG-11	DUP02_20180611	06/11/18	-	-	-	-	-	-	10	UJ	1.2	U
SG-11	SG-11_20190624	06/24/19	26.07	6.36	0.327	5.93	0.5	177	10	U	2.1	
SG-11	DUP_20190624	06/24/19	-	-	-	-	-	-	10	U	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 Methods
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2019

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

Notes:
µg/L - micrograms per liter
deg C = degrees Celsius
ml = milliliter
NaOH = sodium hydroxide
VOA = volatile organic analysis

Table 5
Historical Total Cyanide Concentration Data
Pretreatment Plant Annual Groundwater and Surface Water Sampling - June 2019

SAMPLE	GROUNDWATER - TOTAL CYANIDE CONCENTRATIONS (mg/L)							SURFACE WATER - TOTAL CYANIDE CONCENTRATIONS (mg/L)						
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
Jun-19	0.01 UJ	0.10 J	0.057 UJ	0.028 J	0.062J	-	0.670 J	-	-	-	-	<0.010	-	<0.010

Notes:

1) Available data obtained from historical monitoring reports; majority of samples analyzed were not field-filtered.

2) Prior to July 2015, samples were collected using 3-volume purge and sample methods.

3) Low flow sampling methods were employed beginning July 2015.

mg/L - milligrams per liter

U - indicates not detected above laboratory reporting limits

J - indicates result is estimated

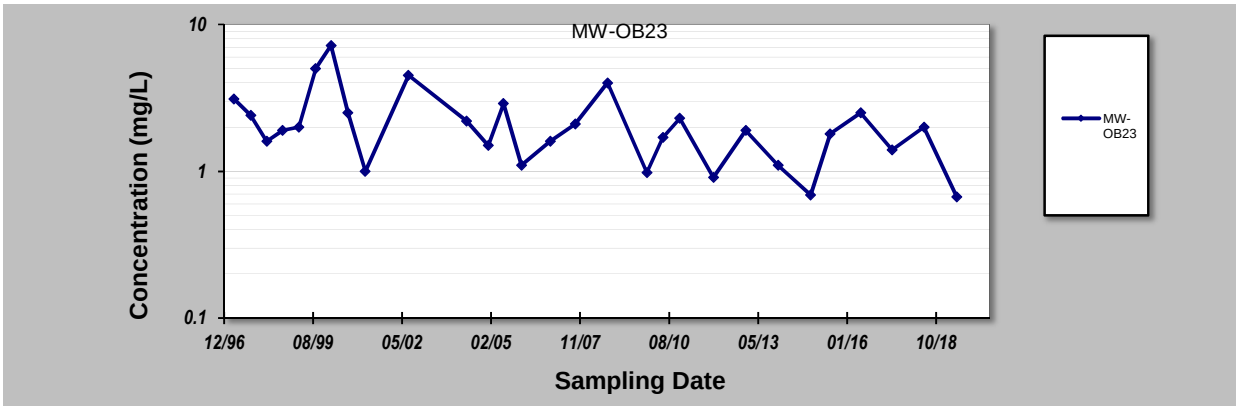
NS - not sampled

Table 6
Mann-Kendall Calculations – Well MW-OB23
Pretreatment Plant Annual Groundwater Surface Water Sampling - June 2019

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	26-Sep-19	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	17-Jun-19	0.67
30		
Coefficient of Variation:		0.67
Mann-Kendall Statistic (S):		-92
Confidence Factor:		97.2%
Concentration Trend:		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.

Figures

693500 E

BRUSH

BRUSH

PRETREATMENT PLANT SWMU

FORMER TANK

BRUSH

BRUSH

BRUSH

B R U S H

RIVER STREET

GLENS FALLS FEEDER CANAL

FLOW

FEEDER CANAL

Edge Of Woods

P-1
P-3
P-6
P-7
P-8
P-10
P-11
P-12
P-14
IG-1
IG-2
IG-3R
IG-4
MW-OB17
MW-OB18
MW-OB19
MW-OB20
MW-OB21
MW-OB22
MW-OB23
SG-7
SG-11

Legend

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

Note:
SWMU = solid waste management unit

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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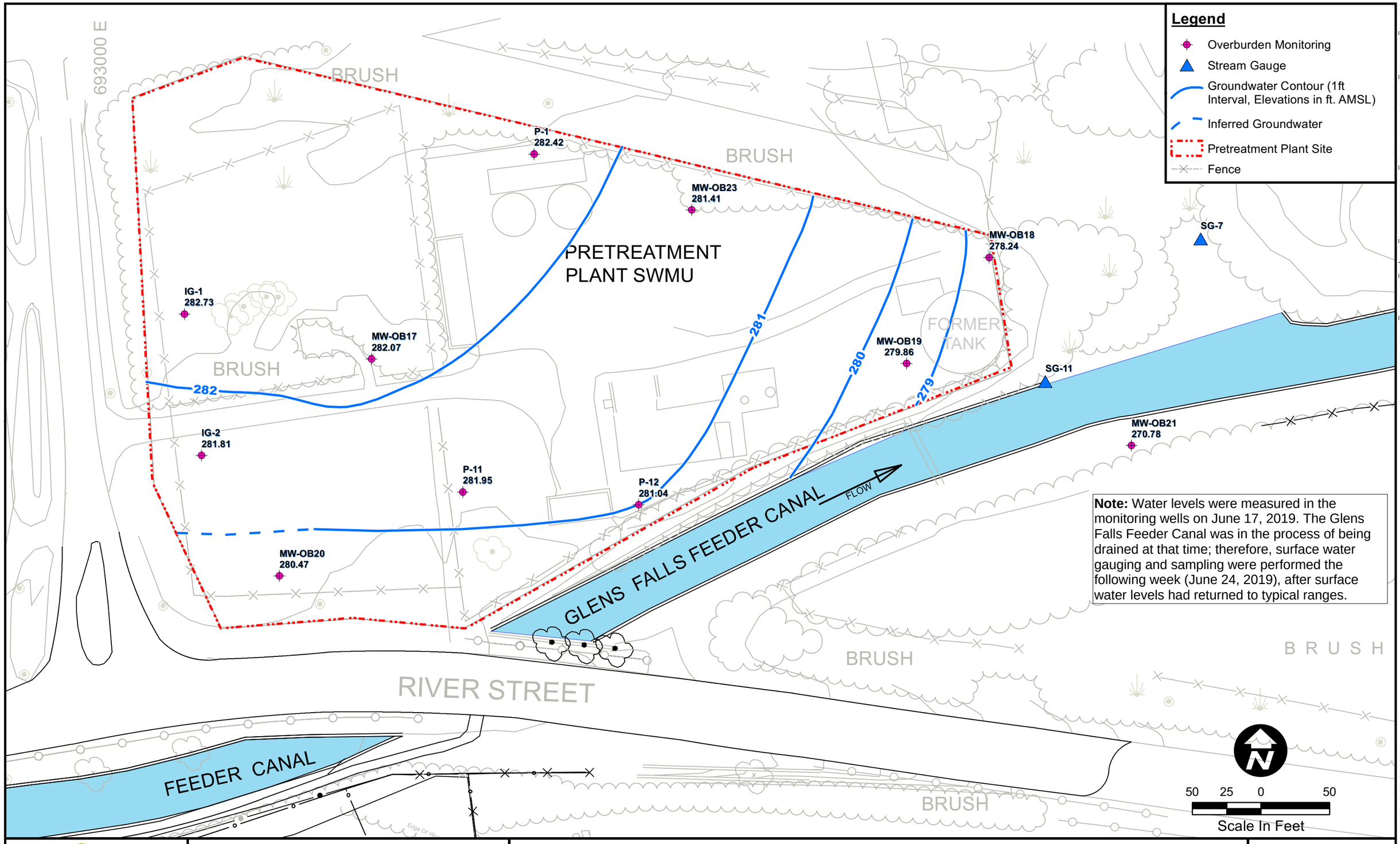

Legend

- Overburden Monitoring
- Stream Gauge
- Groundwater Contour (1ft Interval, Elevations in ft. AMSL)
- Inferred Groundwater
- Pretreatment Plant Site
- Fence

Note: Water levels were measured in the monitoring wells on June 17, 2019. The Glens Falls Feeder Canal was in the process of being drained at that time; therefore, surface water gauging and sampling were performed the following week (June 24, 2019), after surface water levels had returned to typical ranges.

EHS Support

ASHLAND
FORMER CIBA-GEIGY / HERCULES SITE
GLENS FALLS, NY

GROUNDWATER ELEVATION CONTOUR OVERBURDEN AT PRETREATMENT PLANT JUNE 2019

FIGURE 2

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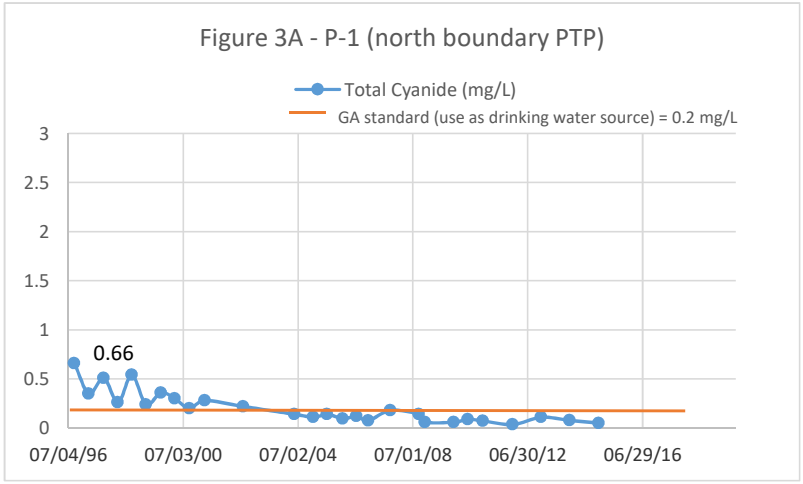
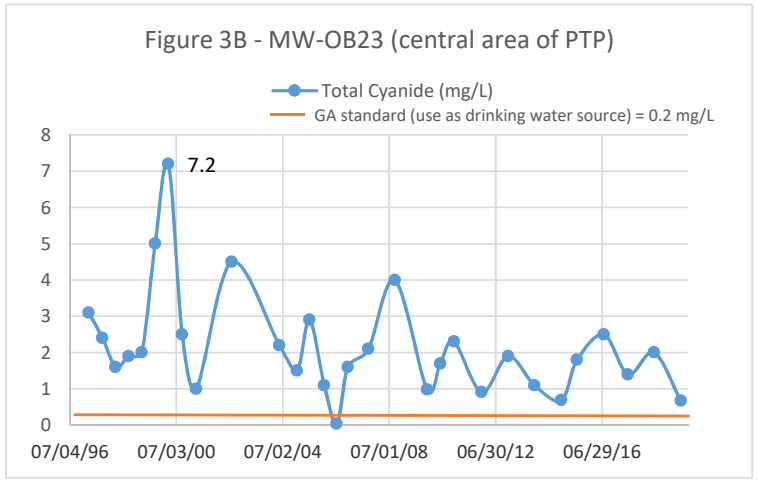
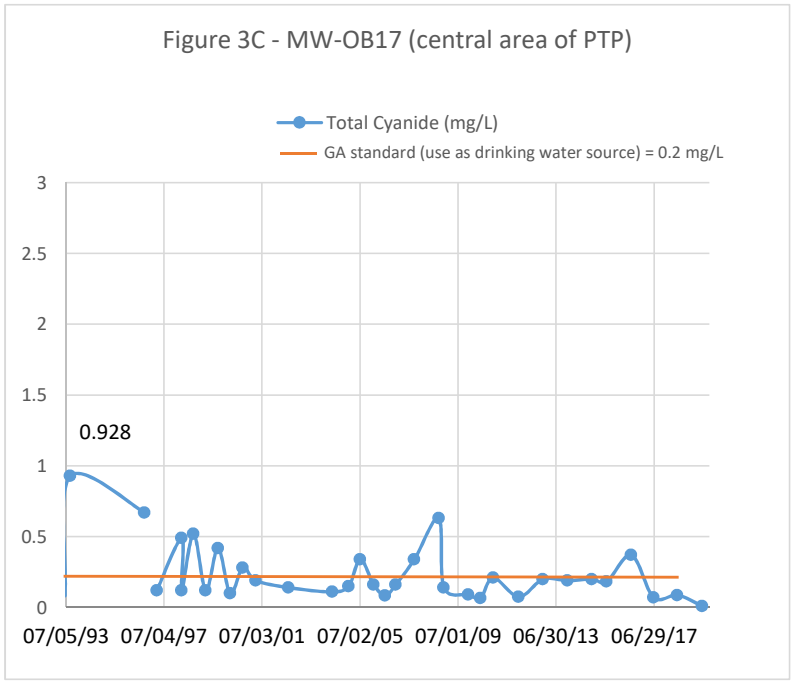
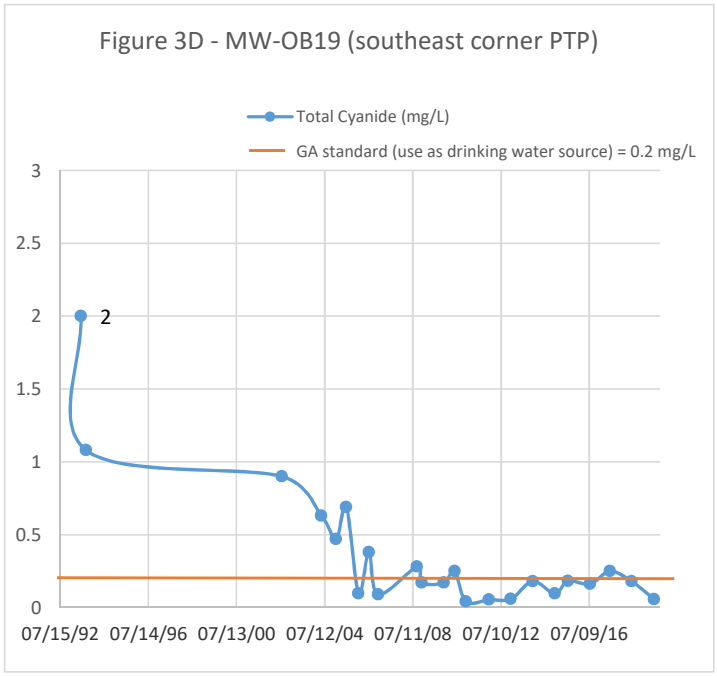
Figures 3A - 3D
Cyanide Concentrations in Groundwater versus Time
Pretreatment Plant Annual Groundwater & Surface Water Sampling - June 2019



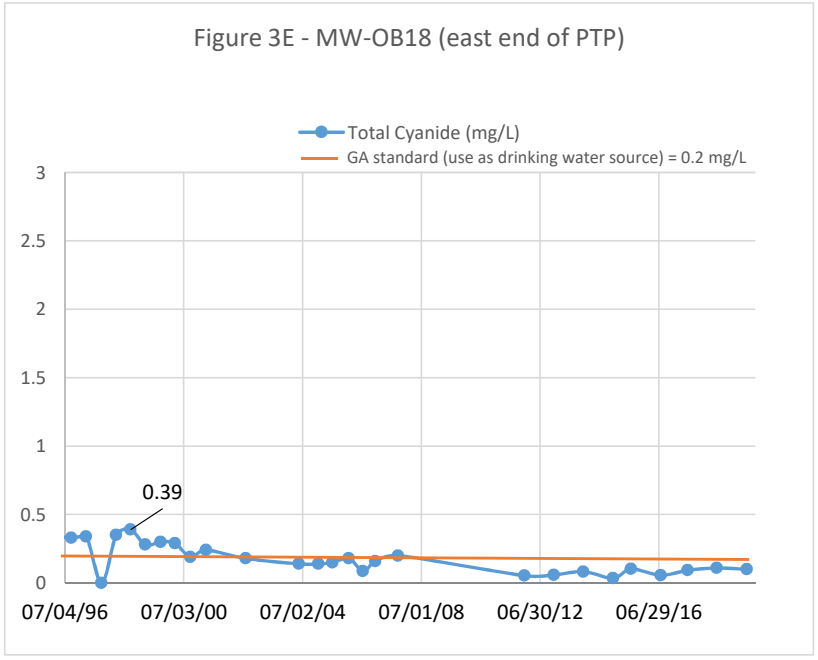


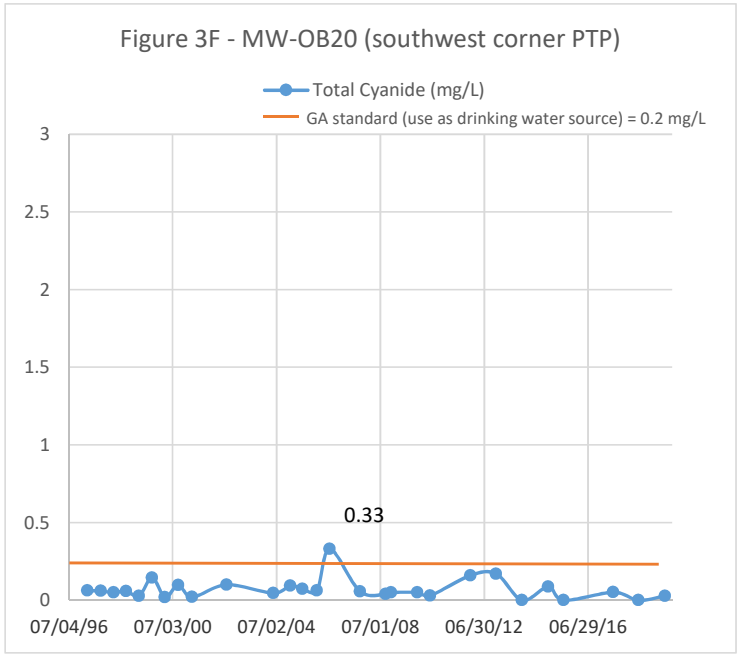


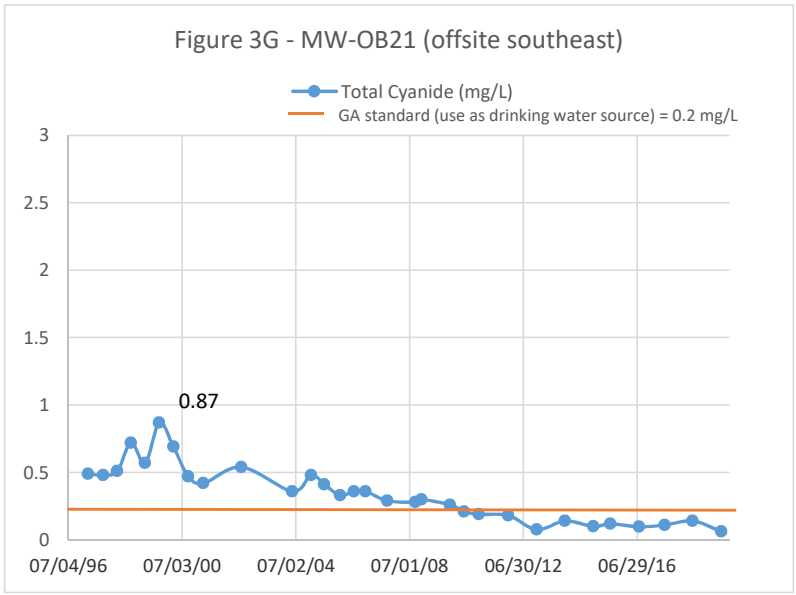


Note: Values indicated on each graph respresent historical maximum detections.

Figures 3E - 3G
Cyanide Concentrations in Groundwater versus Time
Pretreatment Plant Annual Groundwater & Surface Water Sampling - June 2019







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

Attachment 1 – Purge and Sample Logs

Water Level Measurements
Ashland - Glens Falls, NY

Date 6/17/19 Quarter/Year: 2Q19

Personnel: Cody Murphy, Katelyn Foster, Haley Brown, Garrett Cronin

Well Name	Install Depth (ft bgs)	Well Screen Length	Time	DTW (ft btoc)	Total Depth (ft btoc)	Comments
MAIN PLANT SITE						
AW-A14	34.5	10	845	4.86	32.61	
AW-B4	47.5	10	840	27.49	46.5	
AW-C11	158.0	10	835	9.63	158.31	
MW-OB14	18.0	10	830	4.61	14.19	
MW-OB25	10.0	5	830	8.8	11.58	
MW-OB26	14.0	5	901	10.76	16.69	
~~MW-OB34~~	~~16.04~~	~~10~~				NG —
AW-B14	48.0	10				NG —
AW-B15	47.0	10				NG —
REMEDIATION SYSTEM						
Sump A	~31.5	N/A	849	29.03	NA	
Sump B	~29.2	N/A	835	23.10	NA	
~~EW-A14~~	~~34.4~~	~~11.4~~				NG —
EW-B5	51.8	15.8	849	47.69	64.03	
MW-OB17	11	6	1025	7.84	13.81	
MW-OB18	9	5	1026	9.45	12.53	
MW-OB19	10	5	1008	7.96	9.63	
MW-OB20	8.5	4	1017	9.89	10.44	
MW-OB21	14.5	10	1016	13.25	16.66	Dup, MS/MSD
MW-OB23	6.5	4	1012	5.64	8.43	
* IG-1	NA	NA	1005	6.06	8.87	missing J-plug
* IG-2	NA	NA	1010	7.96	11.42	Gopher hall near well
* P-1	8	5	1011	5.31	9.14	
* P-11	11	5	1040	8.42	13.02	
* P-12	8	5	1015	6.81	9.67	J-plug missing
SG-7	NA	NA	1042	DRY	NG	
~~SG-2~~ SG-11	NA	NA	1045	DRY	NG	
* ~~SG-2~~ SG-11	NA	NA	1048	DRY	5.25	Dup, MS/MSD
SG-12	NA	NA	905	3.2	NA	

6/18/19, SG-11 NA NA ~~1604~~ 1642 4.85 5.25

6/19/19 SG-11 NA NA 1029 4.85 5.29

6/19/19 SG-2 NA NA 1055 water column .32

6/19/19 SG-7 NA NA 1110 water column DRY

6/24/19 SG-11 NA NA 1530 NA 0.3

6/24/19 SG-7 NA NA 1610 NA 0.2

* Gauge only

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Cody M.	Well ID:	MW-CB17		
Date:	6/17/19	Original Install Depth:	11	feet	
Weather:	6/17/19	Screen Length:	6	feet	
Time In:	1400 Time Out: 1530	Well Diameter:	2	inches	

WELL INFORMATION

Depth to Water (from TOC):	(feet)	6/17 7.84	Well Type:	Flushmount ☐	Stick-Up ☒
Depth to Water(From TOC) With Pump in place:	(feet)	7.67	Well Locked:	Yes ☒	No ☐
Total Depth (from TOC):	(feet)	13.81	Measuring Point Marked:	Yes ☒	No ☐
Length of Water Column :	(feet)	5.97	Well Condition:	Good ☒	Poor ☐
			Well Condition Comments:		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.97
Pumping Rate of Pump:	(mL/min)	150
Total Volume Removed:	(mL or gal)	1.5

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	Pump Size:	3/8 x 1/4 11	Depth of Pump Intake:	10.83
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐		
Water Quality Meter (type/Serial Number):	4 or IBA U-52 UW HTANNW				
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Did well go dry?	Yes ☐	No ☒			
Final Depth to Water (prior to turning off pump):	7.68				
Barometric Pressure (At time of sampling) in mm/Hg:	756.328				

FIELD PARAMETER READINGS:

Time	1427	1429	1431	1433	1435	1437	1448	1447	1453	1457 DM* 1507	1503	1507	1513	1517
Rate (ml/min)	150	150	150	150	150	150	150	150	156	150	150	150	150	150
Depth to Water (ft. TOC)	7.69	7.69	7.68	7.68	7.68	7.68	7.68	7.68	7.68	7.68	7.68	7.68	7.68	7.68
Temperature (°C)	22.06	21.25	20.16	20.10	20.08	20.00	19.66	19.47	18.94	18.87	20.16	20.37	20.38	20.33
pH	7.40	7.06	7.00	6.96	6.93	6.92	6.95	6.97	6.95	6.97	7.08	7.03	6.99	6.98
Conductivity (mS/cm)	0.163	0.164	0.165	0.166	0.165	0.165	0.165	0.165	0.166	0.166	0.163	0.161	0.161	0.161
Dissolved Oxygen (mg/L)	2.17	2.02	2.16	2.09	2.10	2.07	1.96	1.86	1.85	1.74	1.83	1.65	1.66	1.69
Turbidity (NTU)	24.7	22.4	18.6	18.4	22.8	24.7	22.6	24.6	21.7	20.8	0.0	0.0	0.0	0.0
ORP (mV)	114	133	141	150	157	164	173	184	192	197	195	201	208	211

SAMPLE INFORMATION

Sample List:

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

Sample ID:	MW-CB17-20190617
Start Time:	1520
End Time:	1534
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☒
Total Bottles:	9
Sampled By:	CM

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

Observations (water color, clarity, etc.):

*1500 open and clean HORIBA due to high turbidity.

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

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Cody Murphy	Well ID:	MW-08B18		
Date:	06/17/19	Original Install Depth:	9	feet	
Weather:		Screen Length:	5	feet	
Time In:	1645 Time Out: 1810	Well Diameter:	2"	inches	

WELL INFORMATION

Depth to Water (from TOC):	(feet)	6/17 9.45	Well Type:	Flushmount ☐	Stick-Up ☒	
Depth to Water(From TOC) With Pump in place:	(feet)	9.50	Well Locked:	Yes ☒	No ☐	
Total Depth (from TOC):	(feet)	12.55	Measuring Point Marked:	Yes ☒	No ☐	
Length of Water Column :	(feet)	3.10	Well Condition:	Good ☒	Poor ☐	
			Well Condition Comments:			

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.51
Pumping Rate of Pump:	(mL/min)	135
Total Volume Removed:	(mL or gal)	2

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 4068

Pump ID:	4068 Geopump	Pump Size:	3/8 x 1/4"	Depth of Pump Intake:	11.00
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐		
Water Quality Meter (type/Serial Number):	HORIBA U-52 UW HTANNW				
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Did well go dry?	Yes ☐	No ☒			
Final Depth to Water (prior to turning off pump):	11.51				
Barometric Pressure (At time of sampling) in mm/Hg:	755.464				

FIELD PARAMETER READINGS

Time	1700 ~~1700~~	1702 ~~1702~~	1704 ~~1704~~	1706 ~~1706~~	1708 ~~1708~~	1710 ~~1710~~	1715 ~~1715~~	1720 ~~1720~~	* 1725 ~~1725~~	1730 ~~1730~~	1735 ~~1735~~	1740 ~~1740~~	CM	
Rate (ml/min)	135	135	135	135	135	135	135	135	135	135	135	135		
Depth to Water (ft. TOC)	10.08	10.18	10.25	10.31	10.38	10.42	10.60	10.78	10.89	11.02	11.21	11.37		
Temperature (°C)	21.44	19.86	19.47	18.80	18.55	18.43	18.27	19.97	20.73	20.58	20.95	21.21		
pH	7.18	7.11	7.08	7.05	7.04	7.04	7.03	7.03	7.06	7.10	7.11	7.13		
Conductivity (mS/cm)	0.363	0.373	0.374	0.378	0.381	0.382	0.390	0.396	0.385	0.392	0.388	0.391		
Dissolved Oxygen (mg/L)	1.33	1.35	1.35	1.42	1.24	1.16	0.94	0.33	0.13	0.33	0.21	0.16		
Turbidity (NTU)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
ORP (mV)	228	249	254	259	262	263	267	257	245	253	257	254		

SAMPLE INFORMATION

Sample List:

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

Sample ID:	MW-08B18-20190617
Start Time:	1744
End Time:	1755
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☒
Total Bottles:	1
Sampled By:	CM

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

Observations (water color, clarity, etc.):

* lower pump intake to 11.5' BTOC to avoid going 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:	Katelyn Foster ; Haley Brown	Well ID:	MW-089		
Date:	6/17/19	Original Install Depth:	9	feet	
Weather:	Sunny 70s	Screen Length:	5	feet	
Time In:	1556 (HB)	Time Out:	1640	Well Diameter:	2"	inches

WELL INFORMATION

Depth to Water (from TOC):	(feet)	7.96	Well Type:	Flushmount ☐	Stick-Up ☒	
Depth to Water(From TOC) With Pump in place:	(feet)	7.97	Well Locked:	Yes ☒	No ☐	
Total Depth (from TOC):	(feet)	9.63	Measuring Point Marked:	Yes ☒	No ☐	
Length of Water Column :	(feet)	1.67	Well Condition:	Good ☒	Poor ☐	
			Well Condition Comments:			

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.27
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	1.50

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:	H16004655	Pump Size:	1/4" x 3/8"	Depth of Pump Intake:	8.90
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐		
Water Quality Meter (type/Serial Number):	U-52 / PLONHHIDHD				
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Did well go dry?	Yes ☒	No ☐			
Final Depth to Water (prior to turning off pump):	DRY				
Barometric Pressure (At time of sampling) in mm/Hg:	NS				

FIELD PARAMETER READINGS:

	1600 @ T2	T3	T4	T5	T6								
Time	1602	1604	1606	1608	1610	1615	1620	1625	1630	1635	1637		
Rate (ml/min)	100	100	100	100	100	100	100	100	100	100	↓		
Depth to Water (ft. TOC)	8.27	8.41	8.51	8.61	8.72	8.81	9.05	9.26	9.40	9.50	9.50		
Temperature (°C)	14.38	17.64	17.17	16.90	16.63	16.41	16.09	15.73	15.32	15.06	15.42		
pH	6.93	6.82	6.76	6.74	6.73	6.73	6.73	6.71	6.65	6.54	6.38		
Conductivity (mS/cm)	0.406	0.415	0.425	0.427	0.419	0.415	0.400	0.395	0.396	0.403	0.410		
Dissolved Oxygen (mg/L)	2.23	1.66	1.30	1.08	0.94	0.88	0.73	0.60	0.56	0.63	3.88		
Turbidity (NTU)	25.4	19.6	9.5	4.6	2.9	2.0	0.2	0.0	0.0	0.2	7.3		
ORP (mV)	99	-33	-67	-77	-78	-79	-71	-54	14	178	222		

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:	NS
End Time:	NS
MS/MSD: Yes ☐ No ☒	
Duplicate: Yes ☐ No ☒	
Total Bottles:	NS
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.):

Dry @ 1637

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

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel:	Cody M.	Well ID:	MW-08I9		
Date:	6/18/19	Original Install Depth:	10	feet	
Weather:	Sunny 70s	Screen Length:	5	feet	
Time In:	1200 Time Out: 1700	Well Diameter:	2	inches	

		6/17	6/18
Depth to Water (from TOC):	(feet)	7.96	7.95
Depth to Water(From TOC) With Pump in place:	(feet)	7.94	
Total Depth (from TOC):	(feet)	9.63	
Length of Water Column :	(feet)	1.68	

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)	0.27
Pumping Rate of Pump:	(mL/min)	125
Total Volume Removed:	(mL or gal)	6 rnb

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	Pump Size:	3/8 x 1/4	Depth of Pump Intake:	8.79		
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐			
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐				
Water Quality Meter (type/Serial Number):	Horiba U-52 UWHTANUW						
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐			
Did well go dry?	Yes ☐	No ☒					
Final Depth to Water (prior to turning off pump):	8.30						
Barometric Pressure (At time of sampling) in mm/Hg:	753.187						

FIELD PARAMETER READINGS:

Time	1641													
Rate (ml/min)	125													
Depth to Water (ft. TOC)	8.35													
Temperature (°C)	20.43													
pH	7.31													
Conductivity (mS/cm)	0.294													
Dissolved Oxygen (mg/L)	2.82													
Turbidity (NTU)	4.1													
ORP (mV)	223													

SAMPLE INFORMATION

Sample List:

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

Sample ID:	MW-08I9 20190618
Start Time:	1645
End Time:	1650
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☒
Total Bottles:	1
Sampled By:	CR

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

Observations (water color, clarity, etc.):

Grab

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 Haley	Well ID:	MW-0820		
Date:	6/17/19	Original Install Depth:	8.5	feet	
Weather:	70's Sunny	Screen Length:	4	feet	
Time In:	1430 Time Out: 1527	Well Diameter:	2	inches	

WELL INFORMATION

Depth to Water (from TOC):	(feet)	9.89	Well Type:	Flushmount ☐	Stick-Up ☒
Depth to Water(From TOC) With Pump in place:	(feet)	9.92	Well Locked:	Yes ☒	No ☐
Total Depth (from TOC):	(feet)	10.44	Measuring Point Marked:	Yes ☒	No ☐
Length of Water Column :	(feet)	0.55	Well Condition:	Good ☒	Poor ☐
			Well Condition Comments:		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.09
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	2.00

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:	HL0024055	Pump Size:	1/4"x3/8"	Depth of Pump Intake:	10.17
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐		
Water Quality Meter (type/Serial Number):	U-52/PCMHHOHD				
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Did well go dry?	Yes ☐	No ☒			
Final Depth to Water (prior to turning off pump):	10.03				
Barometric Pressure (At time of sampling) in mm/Hg:	756.153				

FIELD PARAMETER READINGS:

	T0	T1	T2	T3	T4	T5			(HB)				(HB)	
Time	1436	1438	1440	1442	1444	1446	1451	1456	1501	1506	1511	1516		
Rate (ml/min)	100	100	100	100	100	100	100	100	100	100	100	100		
Depth to Water (ft. TOC)	9.92	9.99	10.00	10.01	10.02	10.03	10.03	10.03	10.03	10.03	10.03	10.03		
Temperature (°C)	22.49	17.15	16.20	15.97	15.65	15.52	15.11	15.18	15.14	15.01	14.75	15.01		
pH	7.25	7.02	7.00	6.99	6.97	6.98	6.87	6.84	6.81	6.77	6.78	6.80		
Conductivity (mS/cm)	0.417	0.457	0.472	0.490	0.516	0.543	0.597	0.625	0.643	0.656	0.664	0.673		
Dissolved Oxygen (mg/L)	8.55	8.97	8.70	8.35	8.26	8.17	7.94	7.82	7.66	8.14	7.54	7.52		
Turbidity (NTU)	5.3	1.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
ORP (mV)	67	98	109	121	130	137	154	164	172	178	181	182		

SAMPLE INFORMATION

Sample List:

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

Sample ID:	MW-0820 20190617
Start Time:	1522
End Time:	1524
MS/MSD: Yes ☐ No	☒
Duplicate: Yes ☐ No	☒
Total Bottles:	1
Sampled By:	HB/KF

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) NA

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:	Cody Murph	Well ID:	MW-0821		
Date:	6/17/19	Original Install Depth:	14.5	feet	
Weather:	Sunny 70's	Screen Length:	10	feet	
Time In:	1200 Time Out: 1325	Well Diameter:	2"	Inches	

WELL INFORMATION

		6/17					
Depth to Water (from TOC):	(feet)	13.25	Well Type:	Flushmount ☐	Stick-Up ☒		
Depth to Water(From TOC) With Pump in place:	(feet)	13.29	Well Locked:	Yes ☒	No ☐		
Total Depth (from TOC):	(feet)	16.66	Measuring Point Marked:	Yes ☒	No ☐		
Length of Water Column :	(feet)	3.41	Well Condition:	Good ☒	Poor ☐		
			Well Condition Comments:				

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.56
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	2

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 Geopump	Pump Size:	3/8x1/4"	Depth of Pump Intake:	14.96'		
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐			
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐				
Water Quality Meter (type/Serial Number):	HORIBA UWHTANNW U-52						
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐			
Did well go dry?	Yes ☐	No ☒					
Final Depth to Water (prior to turning off pump):	15.20						
Barometric Pressure (At time of sampling) in mm/Hg:	756.68						

FIELD PARAMETER READINGS:

Time	1215	1217	1219	1221	1223	1225	1230	1235	1240	1245	1250	1255	1300	1305
Rate (ml/min)	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Depth to Water (ft. TOC)	13.68	13.69	13.76	13.83	13.88	13.94	14.16	14.29	14.46	14.53	14.67	14.78	14.87	15.01
Temperature (°C)	22.70	21.48	20.67	19.70	19.43	18.91	18.69	18.03	18.30	18.09	17.77	17.46	17.24	17.02
pH	6.82	6.87	6.90	6.92	6.93	6.94	6.98	6.99	7.00	6.99	6.99	6.99	6.98	6.98
Conductivity (mS/cm)	0.334	0.335	0.333	0.333	0.331	0.326	0.320	0.318	0.313	0.314	0.315	0.315	0.314	0.316
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Turbidity (NTU)	5.5	4.3	4.2	10.6	11.2	13.7	11.1	10.6	6.5	2.9	2.9	1.9	1.6	2.0
ORP (mV)	98	97	101	106	113	114	109	101	94	45	56	63	70	72

SAMPLE INFORMATION

Sample List:

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

Sample ID:	MW-0821 20190617	Duplicate ID:	DUP-20190617
Start Time:	~~1213~~ / 1305	Sample Time:	—
End Time:	~~1305~~ / 1316	Total Bottles:	1
MS/MSD: Yes ☒	No ☐	Sampled By:	CM
Duplicate: Yes ☒	No ☐	MS/MSD ID:	MW-0821-20190617
Total Bottles:	1	Sample Time:	1305
Sampled By:	CM	Total Bottles:	1
		Sampled By:	CM

Observations (water color, clarity, etc.):

#1242 move sampling depth to 15 ~~ft~~ TOC on to avoid running dry

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

GROUNDWATER SAMPLING LOG

Ashland Glens Falls, NY

Quarterly Groundwater & Surface Water Sampling Event

Sampling Personnel: ~~Garrett Crowe~~ Katelyn Foster		Well ID:	MW-0823		
Date: 6/17/19		Original Install Depth:	6.5	feet	
Weather: Sunny 70s		Screen Length:	4	feet	
Time In: 1210	Time Out: ~~1400~~ 1351	Well Diameter:	2"	inches	

6/17/

WELL INFORMATION

Depth to Water (from TOC):	(feet)	5.64	Well Type:	Flushmount ☐	Stick-Up ☒
Depth to Water(From TOC) With Pump in place:	(feet)	5.65	Well Locked:	Yes ☒	No ☐
Total Depth (from TOC):	(feet)	8.43	Measuring Point Marked:	Yes ☒	No ☐
Length of Water Column :	(feet)	2.79	Well Condition:	Good ☒	Poor ☐
			Well Condition Comments:		

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	~~MW-0823~~ 0.45
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	5.0

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:	H1600446655	Pump Size:	3/8 x 1/4"	Depth of Pump Intake:	7.04
Evacuation Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Tubing Used:	Teflon ☐	Polyethylene ☒	N/A ☐		
Water Quality Meter (type/Serial Number):	U-52 / PUENNHHØHØ				
Sampling Method:	Bailer ☐	Peristaltic ☒	Bladder ☐	Other ☐	
Did well go dry?	Yes ☐	No ☒			
Final Depth to Water (prior to turning off pump):	5.89				
Barometric Pressure (At time of sampling) in mm/Hg:	756.042				

FIELD PARAMETER READINGS:

Time	1214	1216	1218	1220	1222	1224	1229	1234	1239	1244	1249	1254	1259	1304
Rate (ml/min)	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Depth to Water (ft. TOC)	5.75	5.77	5.80	5.80	5.81	5.81	5.82	5.85	5.86	5.86	5.86	5.86	5.87	5.88
Temperature (°C)	21.32	19.34	17.64	17.11	17.08	17.46	17.15	16.87	16.86	17.25	17.22	17.00	17.15	17.27
pH	6.41	6.69	6.71	6.70	6.70	6.70	6.67	6.68	6.68	6.68	6.68	6.67	6.67	6.67
Conductivity (mS/cm)	0.692	0.653	0.648	0.644	0.638	0.632	0.625	0.622	0.612	0.613	0.611	0.607	0.607	0.605
Dissolved Oxygen (mg/L)	8.04	8.01	8.26	8.15	8.23	7.97	7.45	6.91	6.19	5.81	5.04	4.55	4.01	3.66
Turbidity (NTU)	3.8	2.6	2.5	2.5	1.5	0.50	0.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ORP (mV)	-17	10	124	42	-15	-71	-84	-92	-92	-90	-88	-89	-88	-84

SAMPLE INFORMATION

Sample List:

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

Sample ID:	MW-0823-20190617
Start Time:	1314
End Time:	1319
MS/MSD: Yes ☐ No ☒	
Duplicate: Yes ☐ No ☒	
Total Bottles:	1
Sampled By:	KF

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)~~ NA

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:	6/17/19	Original Install Depth:	6.5	feet	
Weather:	Sunny, 70s°F	Screen Length:	4	feet	
Time In:	1210	Time Out:	1351	Well Diameter:	2"	Inches

6/17

WELL INFORMATION

Depth to Water (from TOC):	(feet)	5.64	Well Type:	Flushmount ☐	Stick-Up ☒	
Depth to Water(From TOC) With Pump in place:	(feet)	5.65	Well Locked:	Yes ☒	No ☐	
Total Depth (from TOC):	(feet)	8.43	Measuring Point Marked:	Yes ☒	No ☐	
Length of Water Column :	(feet)	2.79	Well Condition:	Good ☒	Poor ☐	
			Well Condition Comments:			

WELL WATER INFORMATION

Volume of Water in Well:	(mL or gal)	0.45
Pumping Rate of Pump:	(mL/min)	100
Total Volume Removed:	(mL or gal)	5.0

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: H1600446SS Pump Size: 3/8" × 1/4" Depth of Pump Intake: 7.04

Evacuation Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Tubing Used: Teflon ☐ Polyethylene ☒ N/A ☐

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

Sampling Method: Bailer ☐ Peristaltic ☒ Bladder ☐ Other ☐

Did well go dry? Yes ☐ No ☒

Final Depth to Water (prior to turning off pump): 5.89

Barometric Pressure (At time of sampling) in mm/Hg: 756.042

FIELD PARAMETER READINGS:

Time	1309	1314	1319	1324	1329	1334	1339	1344						
Rate (ml/min)	100	100	100	100	100	100	100							
Depth to Water (ft. TOC)	5.88	5.88	5.88	5.89	5.89	5.89	5.89							
Temperature (°C)	17.31	17.48	17.52	17.45	17.49	17.53	17.50							
pH	6.68	6.69	6.70	6.69	6.68	6.67	6.67							
Conductivity (mS/cm)	0.604	0.605	0.601	0.602	0.599	0.598	0.597							
Dissolved Oxygen (mg/L)	3.31	3.02	2.81	2.65	2.44	2.31	2.22							
Turbidity (NTU)	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
ORP (mV)	-86	-86	-87	-84	-79	-78	-78							

SAMPLE INFORMATION

Sample List:

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

Sample ID: MW-OB23-20190617

Start Time: 1314

End Time: 1324

MS/MSD: Yes ☐ No ☒

Duplicate: Yes ☐ No ☒

Total Bottles: 1

Sampled By: KF

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)

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:	Garrett Cover	Well ID:	SG-7		
Date:	6/24/19	Original Install Depth:	NA	feet	
Weather:	70's Sunny	Screen Length:	NA	feet	
Time In:	1606 Time Out: 1630	Well Diameter:	NA	Inches	

6/24/19

WELL INFORMATION

Depth to Water (from TOC):	(feet)	NA	Well Type:	Flushmount ☐	Stick-Up ☐	Surface water sample
Depth to Water(From TOC) With Pump in place:	(feet)	NA	Well Locked:	Yes ☐	No ☐	
Total Depth (from TOC):	(feet)	.2	Measuring Point Marked:	Yes ☐	No ☐	
Length of Water Column :	(feet)	.2	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)	.5

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:	2"	Depth of Pump Intake:	NA		
Evacuation Method:	Bailer ☒	Peristaltic ☐	Bladder ☐	Other ☐			
Tubing Used:	Teflon ☐	Polyethylene ☐	N/A ☒				
Water Quality Meter (type/Serial Number):	Horiba U-52 PGNHHOHO						
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:							

FIELD PARAMETER READINGS:

Time	1605													
Rate (ml/min)	—													
Depth to Water (ft. TOC)	~2													
Temperature (°C)	22.22													
pH	7.28													
Conductivity (mS/cm)	1.39													
Dissolved Oxygen (mg/L)	6.01													
Turbidity (NTU)	1.8													
ORP (mV)	130													

SAMPLE INFORMATION

Sample List:

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

Sample ID:	SG-7-20190624
Start Time:	1615
End Time:	1620
MS/MSD:	Yes ☐ No ☒
Duplicate:	Yes ☐ No ☒
Total Bottles:	2
Sampled By:	GC

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

Observations (water color, clarity, etc.):

GRAB — Surface 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:	Garett Crowe	Well ID:	SG-11		
Date:	6/24/19	Original Install Depth:	NA	feet	
Weather:	70's Sunny	Screen Length:	NA	feet	
Time In:	1515 Time Out: 1545	Well Diameter:	NA	inches	

6/24

WELL INFORMATION

Depth to Water (from TOC):	(feet)	NA	Well Type:	Flushmount ☐	Stick-Up ☐	Surface water sample
Depth to Water(From TOC) With Pump in place:	(feet)	NA	Well Locked:	Yes ☐	No ☐	
Total Depth (from TOC):	(feet)	.3	Measuring Point Marked:	Yes ☐	No ☐	
Length of Water Column :	(feet)	e3	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:	2"	Depth of Pump Intake:	~~NA~~ NA		
Evacuation Method:	Bailer ☒	Peristaltic ☐	Bladder ☐	Other ☐			
Tubing Used:	Teflon ☐	Polyethylene ☐	N/A ☑				
Water Quality Meter (type/Serial Number):	Horiba U-52 P6NHHOHO						
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:							

FIELD PARAMETER READINGS:

Time	1535													
Rate (ml/min)	NA													
Depth to Water (ft. TOC)	.3													
Temperature (°C)	26.07													
pH	6.36													
Conductivity (mS/cm)	0.327													
Dissolved Oxygen (mg/L)	5.93													
Turbidity (NTU)	0.5													
ORP (mV)	~~100~~ 177													

SAMPLE INFORMATION

Sample List:

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

Sample ID:	SG-11_20190624
Start Time:	1536
End Time:	1543
MS/MSD: Yes ☐ No ☒	
Duplicate: Yes ☐ No ☒	
Total Bottles:	2
Sampled By:	GC

Duplicate ID:	DUP_20190624
Sample Time:	
Total Bottles:	2
Sampled By:	GC
MS/MSD ID:	SG-11_20190624
Sample Time:	1536
Total Bottles:	2
Sampled By:	GC

Observations (water color, clarity, etc.):

GRAB - Surface 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

Attachment 2 – Laboratory Analytical Reports

30-Jun-2019

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

Re: **Ashland Glens Falls, NY** Work Order: **19061804**

Dear Cassie,

ALS Environmental received 4 samples on 26-Jun-2019 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 8.

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,

Ehrland Bosworth

Electronically approved by: Ehrland Bosworth

Ehrland Bosworth
Project Manager

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS Group, USA

Date: 30-Jun-19

Client: EHS Support LLC
Project: Ashland Glens Falls, NY
Work Order: **19061804**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
19061804-01	SG-11_20190624	Water		6/24/2019 15:36	6/26/2019 10:00	☐
19061804-02	SG-7_20190624	Water		6/24/2019 16:15	6/26/2019 10:00	☐
19061804-03	DUP-20190624	Water		6/24/2019	6/26/2019 10:00	☐
19061804-04	EB_20190624	Water		6/24/2019 16:50	6/26/2019 10:00	☐

ALS Group, USA

Date: 30-Jun-19

Client: EHS Support LLC
Project: Ashland Glens Falls, NY
WorkOrder: **19061804**

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
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
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: 19061804

Case Narrative

Samples for the above noted Work Order were received on 06/26/19. 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.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:
No deviations or anomalies were noted.

ALS Group, USA

Date: *30-Jun-19*

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

Work Order: 19061804

Lab ID: 19061804-01A
Collection Date: 6/24/2019 3:36:00 PM
Client Sample ID: SG-11_20190624
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, FREE			**OIA 1677**			Analyst: **MB**
Cyanide, Free	**2.1**		**2.0**	**µg/L**	1	6/28/2019 01:00 PM

Lab ID: 19061804-02A
Collection Date: 6/24/2019 4:15:00 PM
Client Sample ID: SG-7_20190624
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	6/28/2019 01:00 PM

Lab ID: 19061804-03A
Collection Date: 6/24/2019
Client Sample ID: DUP-20190624
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	6/28/2019 01:00 PM

Lab ID: 19061804-04A
Collection Date: 6/24/2019 4:50:00 PM
Client Sample ID: EB_20190624
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	6/28/2019 01:00 PM

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

ALS Group, USA

Date: 30-Jun-19

Client: EHS Support LLC

Work Order: 19061804

Project: Ashland Glens Falls, NY

QC BATCH REPORT

Batch ID: **R263795** Instrument ID **FS3700** Method: **OIA 1677**

MBLK	Sample ID: **MB-R263795-R263795**			Units: **µg/L**			Analysis Date: **6/28/2019 01:00 PM**			
Client ID:	Run ID: **FS3700_190628A**			SeqNo: **5750298**		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-R263795-R263795**			Units: **µg/L**			Analysis Date: **6/28/2019 01:00 PM**			
Client ID:	Run ID: **FS3700_190628A**			SeqNo: **5750299**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	53.6	2.0	50	0	107	82-132	0			

MS	Sample ID: **19061804-01AMS**			Units: **µg/L**			Analysis Date: **6/28/2019 01:00 PM**			
Client ID: **SG-11_20190624**	Run ID: **FS3700_190628A**			SeqNo: **5750302**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	61.5	2.0	50	2.1	119	82-130	0			

MSD	Sample ID: **19061804-01AMSD**			Units: **µg/L**			Analysis Date: **6/28/2019 01:00 PM**			
Client ID: **SG-11_20190624**	Run ID: **FS3700_190628A**			SeqNo: **5750303**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Free	61.9	2.0	50	2.1	120	82-130	61.5	0.648	11	

The following samples were analyzed in this batch:

19061804-01A	19061804-02A	19061804-03A
19061804-04A		

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

19061804

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:** GLENSFA191-0400

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

Sample I.D.	Date	Time	LAB ID	Matrix	Number of Containers	Analysis Requested: Free Cyanide (OIA-1677) 250 mL	REMARKS
SG-11_20190624	6/24/19	1536	—	water	2	X	MS/MSD
SG-7_20190624	6/24/19	1615	—	↓	1	X	
DUP_20190624	6/24/19	—	—	↓	1	X	
EB_20190624	6/24/19	1650	—	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. # GLENSFA191-0400
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:
Printed Name: Courtlane 8609922630	Printed Name: DINA AYERS	Printed Name: ~~Printed Name:~~	Printed Name: KEITH WIEBENGA
Firm: Ashland	Firm: ALS	Firm:	Firm: ALS
Date/Time: 6/25/19 ~~842~~ 822 GC	Date/Time: 6/25/19 8:22am	Date/Time: 6/25/19 1600	Date/Time: 6/26/19 1000 EB

30° SR2

ALS Group, USA

Sample Receipt Checklist

Client Name: **EHS SUPPORT-ARGYLE** Date/Time Received: **26-Jun-19 10:00**

Work Order: **19061804** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 26-Jun-19 (Date) Reviewed by: Ehrland Bosworth (eSignature) 26-Jun-19 (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):	3.0/3.0 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	6/26/2019 1:26:52 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:

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 480-155178-1
Client Project/Site: Hercules Glens Falls 2Q19
Revision: 1

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

Attn: Mr. Jim Vondracek

Authorized for release by:
7/10/2019 10:14:15 AM

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

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Definitions/Glossary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 480-155178-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
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: 480-155178-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

CASE NARRATIVE
Client: Ashland LLC
Project: Hercules Glens Falls 2Q19

Report Number: 480-155178-1

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 07/10/19 to split the samples into separate reports per COC.

RECEIPT

The samples were received on 06/19/2019; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 1.3º C.

TOTAL CYANIDE

Samples MW-OB17_20190617 (480-155178-1), MW-OB18_20190617 (480-155178-2), MW-OB19_20190618 (480-155178-3), MW-OB20_20190617 (480-155178-4), MW-OB21_20190617 (480-155178-5), MW-OB23_20190617 (480-155178-6), EB_20190617 (480-155178-7), EB_20190618 (480-155178-8) and DUP_20190617 (480-155178-9) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012B. The samples were prepared on 06/26/2019 and 06/27/2019 and analyzed on 06/28/2019, 06/29/2019 and 07/03/2019.

Reanalysis of the following sample was performed outside of the analytical holding time due to sample exceeding calibration during the initial analysis : MW-OB23_20190617 (480-155178-6).

Cyanide, Total recovered low for the MS of sample MW-OB21_20190617MS (480-155178-5) in batch 680-576276. Refer to the QC report for details.

Sample MW-OB23_20190617 (480-155178-6)[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
Job ID: 480-155178-1
Project/Site: Hercules Glens Falls 2Q19

Client Sample ID: MW-OB17_20190617 — Lab Sample ID: 480-155178-1

No Detections.

Client Sample ID: MW-OB18_20190617 — Lab Sample ID: 480-155178-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.10		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: MW-OB19_20190618 — Lab Sample ID: 480-155178-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.029		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: MW-OB20_20190617 — Lab Sample ID: 480-155178-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.028		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: MW-OB21_20190617 — Lab Sample ID: 480-155178-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.062		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: MW-OB23_20190617 — Lab Sample ID: 480-155178-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.67	H	0.10	0.025	mg/L	10		9012B	Total/NA

Client Sample ID: EB_20190617 — Lab Sample ID: 480-155178-7

No Detections.

Client Sample ID: EB_20190618 — Lab Sample ID: 480-155178-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.057		0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: DUP_20190617 — Lab Sample ID: 480-155178-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.098		0.010	0.0025	mg/L	1		9012B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 480-155178-1

Client Sample ID: MW-OB17_20190617
Lab Sample ID: 480-155178-1
Date Collected: 06/17/19 15:20
Matrix: Ground Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/26/19 11:11	06/28/19 10:27	1

Client Sample ID: MW-OB18_20190617
Lab Sample ID: 480-155178-2
Date Collected: 06/17/19 17:44
Matrix: Ground Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.10		0.010	0.0025	mg/L		06/26/19 11:11	06/28/19 10:28	1

Client Sample ID: MW-OB19_20190618
Lab Sample ID: 480-155178-3
Date Collected: 06/18/19 16:45
Matrix: Ground Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.029		0.010	0.0025	mg/L		06/27/19 15:50	06/29/19 15:45	1

Client Sample ID: MW-OB20_20190617
Lab Sample ID: 480-155178-4
Date Collected: 06/17/19 15:22
Matrix: Ground Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.028		0.010	0.0025	mg/L		06/26/19 11:11	06/28/19 10:32	1

Client Sample ID: MW-OB21_20190617
Lab Sample ID: 480-155178-5
Date Collected: 06/17/19 13:05
Matrix: Ground Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.062		0.010	0.0025	mg/L		06/26/19 11:11	06/28/19 10:13	1

Client Sample ID: MW-OB23_20190617
Lab Sample ID: 480-155178-6
Date Collected: 06/17/19 13:44
Matrix: Ground Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.67	H	0.10	0.025	mg/L		06/26/19 11:11	07/03/19 11:09	10

Client Sample ID: EB_20190617
Lab Sample ID: 480-155178-7
Date Collected: 06/17/19 00:00
Matrix: Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/26/19 11:11	06/28/19 10:34	1

Client Sample Results

Client: Ashland LLC
Job ID: 480-155178-1
Project/Site: Hercules Glens Falls 2Q19

Client Sample ID: EB_20190618
Lab Sample ID: 480-155178-8
Date Collected: 06/18/19 17:59
Matrix: Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.057		0.010	0.0025	mg/L		06/27/19 15:50	06/29/19 15:46	1

Client Sample ID: DUP_20190617
Lab Sample ID: 480-155178-9
Date Collected: 06/17/19 00:00
Matrix: Ground Water
Date Received: 06/19/19 18:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.098		0.010	0.0025	mg/L		06/26/19 11:11	06/28/19 10:35	1

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 680-575797/1-A
Matrix: Water
Analysis Batch: 576225

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 575797

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/26/19 11:11	06/28/19 10:05	1

Lab Sample ID: LCS 680-575797/2-A
Matrix: Water
Analysis Batch: 576276

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 575797

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0504		mg/L		101	85 - 115

Lab Sample ID: 480-155178-5MS
Matrix: Ground Water
Analysis Batch: 576276

Client Sample ID: MW-OB21_20190617
Prep Type: Total/NA
Prep Batch: 575797

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.010	U ^ F1	0.0500	0.0321	F1	mg/L		64	85 - 115

Lab Sample ID: 480-155178-5MSD
Matrix: Ground Water
Analysis Batch: 576276

Client Sample ID: MW-OB21_20190617
Prep Type: Total/NA
Prep Batch: 575797

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	0.010	U ^ F1	0.0500	0.0142		mg/L		28	85 - 115	NC	20

Lab Sample ID: MB 680-576086/1-A
Matrix: Water
Analysis Batch: 576387

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576086

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/27/19 15:50	06/29/19 14:12	1

Lab Sample ID: LCS 680-576086/2-A
Matrix: Water
Analysis Batch: 576387

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576086

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0463		mg/L		93	85 - 115

QC Association Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 480-155178-1

General Chemistry

Prep Batch: 575797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155178-1	MW-OB17_20190617	Total/NA	Ground Water	9012B	
480-155178-2	MW-OB18_20190617	Total/NA	Ground Water	9012B	
480-155178-4	MW-OB20_20190617	Total/NA	Ground Water	9012B	
480-155178-5	MW-OB21_20190617	Total/NA	Ground Water	9012B	
480-155178-6	MW-OB23_20190617	Total/NA	Ground Water	9012B	
480-155178-7	EB_20190617	Total/NA	Water	9012B	
480-155178-9	DUP_20190617	Total/NA	Ground Water	9012B	
MB 680-575797/1-A	Method Blank	Total/NA	Water	9012B	
LCS 680-575797/2-A	Lab Control Sample	Total/NA	Water	9012B	
480-155178-5MS	MW-OB21_20190617	Total/NA	Ground Water	9012B	
480-155178-5MSD	MW-OB21_20190617	Total/NA	Ground Water	9012B	

Prep Batch: 576086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155178-3	MW-OB19_20190618	Total/NA	Ground Water	9012B	
480-155178-8	EB_20190618	Total/NA	Water	9012B	
MB 680-576086/1-A	Method Blank	Total/NA	Water	9012B	
LCS 680-576086/2-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 576225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155178-1	MW-OB17_20190617	Total/NA	Ground Water	9012B	575797
480-155178-2	MW-OB18_20190617	Total/NA	Ground Water	9012B	575797
480-155178-4	MW-OB20_20190617	Total/NA	Ground Water	9012B	575797
480-155178-5	MW-OB21_20190617	Total/NA	Ground Water	9012B	575797
480-155178-7	EB_20190617	Total/NA	Water	9012B	575797
480-155178-9	DUP_20190617	Total/NA	Ground Water	9012B	575797
MB 680-575797/1-A	Method Blank	Total/NA	Water	9012B	575797

Analysis Batch: 576276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-575797/2-A	Lab Control Sample	Total/NA	Water	9012B	575797
480-155178-5MS	MW-OB21_20190617	Total/NA	Ground Water	9012B	575797
480-155178-5MSD	MW-OB21_20190617	Total/NA	Ground Water	9012B	575797

Analysis Batch: 576387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155178-3	MW-OB19_20190618	Total/NA	Ground Water	9012B	576086
480-155178-8	EB_20190618	Total/NA	Water	9012B	576086
MB 680-576086/1-A	Method Blank	Total/NA	Water	9012B	576086
LCS 680-576086/2-A	Lab Control Sample	Total/NA	Water	9012B	576086

Analysis Batch: 576828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155178-6	MW-OB23_20190617	Total/NA	Ground Water	9012B	575797

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 480-155178-1

Client Sample ID: MW-OB17_20190617
Date Collected: 06/17/19 15:20
Date Received: 06/19/19 18:00

Lab Sample ID: 480-155178-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			575797	06/26/19 11:11	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576225	06/28/19 10:27	ALG	TAL SAV

Client Sample ID: MW-OB18_20190617
Date Collected: 06/17/19 17:44
Date Received: 06/19/19 18:00

Lab Sample ID: 480-155178-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			575797	06/26/19 11:11	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576225	06/28/19 10:28	ALG	TAL SAV

Client Sample ID: MW-OB19_20190618
Date Collected: 06/18/19 16:45
Date Received: 06/19/19 18:00

Lab Sample ID: 480-155178-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			576086	06/27/19 15:50	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576387	06/29/19 15:45	ALG	TAL SAV

Client Sample ID: MW-OB20_20190617
Date Collected: 06/17/19 15:22
Date Received: 06/19/19 18:00

Lab Sample ID: 480-155178-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			575797	06/26/19 11:11	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576225	06/28/19 10:32	ALG	TAL SAV

Client Sample ID: MW-OB21_20190617
Date Collected: 06/17/19 13:05
Date Received: 06/19/19 18:00

Lab Sample ID: 480-155178-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			575797	06/26/19 11:11	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576225	06/28/19 10:13	ALG	TAL SAV

Client Sample ID: MW-OB23_20190617
Date Collected: 06/17/19 13:44
Date Received: 06/19/19 18:00

Lab Sample ID: 480-155178-6
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			575797	06/26/19 11:11	MDF	TAL SAV
Total/NA	Analysis	9012B		10	576828	07/03/19 11:09	ALG	TAL SAV

Lab Chronicle

Client: Ashland LLC
Job ID: 480-155178-1
Project/Site: Hercules Glens Falls 2Q19

Client Sample ID: EB_20190617
Lab Sample ID: 480-155178-7
Date Collected: 06/17/19 00:00
Matrix: Water
Date Received: 06/19/19 18:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			575797	06/26/19 11:11	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576225	06/28/19 10:34	ALG	TAL SAV

Client Sample ID: EB_20190618
Lab Sample ID: 480-155178-8
Date Collected: 06/18/19 17:59
Matrix: Water
Date Received: 06/19/19 18:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			576086	06/27/19 15:50	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576387	06/29/19 15:46	ALG	TAL SAV

Client Sample ID: DUP_20190617
Lab Sample ID: 480-155178-9
Date Collected: 06/17/19 00:00
Matrix: Ground Water
Date Received: 06/19/19 18:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			575797	06/26/19 11:11	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576225	06/28/19 10:35	ALG	TAL SAV

Laboratory References:

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

Accreditation/Certification Summary

Client: Ashland LLC
Job ID: 480-155178-1
Project/Site: Hercules Glens Falls 2Q19

Laboratory: Eurofins 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	03-31-20

Laboratory: Eurofins 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	04-01-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

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

Method Summary

Client: Ashland LLC
Job ID: 480-155178-1
Project/Site: Hercules Glens Falls 2Q19

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

Sample Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 480-155178-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-155178-1	MW-OB17_20190617	Ground Water	06/17/19 15:20	06/19/19 18:00	
480-155178-2	MW-OB18_20190617	Ground Water	06/17/19 17:44	06/19/19 18:00	
480-155178-3	MW-OB19_20190618	Ground Water	06/18/19 16:45	06/19/19 18:00	
480-155178-4	MW-OB20_20190617	Ground Water	06/17/19 15:22	06/19/19 18:00	
480-155178-5	MW-OB21_20190617	Ground Water	06/17/19 13:05	06/19/19 18:00	
480-155178-6	MW-OB23_20190617	Ground Water	06/17/19 13:44	06/19/19 18:00	
480-155178-7	EB_20190617	Water	06/17/19 00:00	06/19/19 18:00	
480-155178-8	EB_20190618	Water	06/18/19 17:59	06/19/19 18:00	
480-155178-9	DUP_20190617	Ground Water	06/17/19 00:00	06/19/19 18:00	

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

Albany #224

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler	Lab PM	Carrier Tracking No(s)	COC No
Client Contact: Mr Jim Vondracek	Phone: 814 992 2136	Barnett, Eddie T E-Mail: eddie.barnett@testamericainc.com		680-76228-31646.1
Company: Ashland Inc				Page: Page 1 of 1
Address: 5200 Blazer Parkway DS-4	Due Date Requested:	Analysis Requested		Job #
City: Dublin	TAT Requested (days): Standard			Preservation Codes: A - HCL; M - Hexane; 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#			

480-155178 Chain of Custody

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 conta	Special Instructions/Note:
			Preservation Code:				B	N	D	N	D	A		
MW-0817_20190617	6/17/19	520	G	Water	N	N	X						1	
MW-0818_20190617	6/17/19	1744	G	Water	N	N	X						1	
MW-0819_20190617	6/17/19	1545	G	Water	N	N	X						1	
MW-0820_20190617	6/17/19	1523	G	Water	N	N	X						1	
MW_0821_2019 0617	6/17/19	1505	G	Water	N	Y	X						2	MS/MSD
MW-0823_20190617	6/17/19	1344	G	Water	N	N	X						1	
EB_20190617	6/17/19	~~1344~~	G	Water	N	N	X						1	
EB_2019 0618	6/18/19	1759	G	Water	N	N	X						1	
DUP_20190617	6/17/19	—	6	Water	N	N	X						1	
				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:

Empty Kit Relinquished by:	Date	Time	Method of Shipment

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Haley Brown	6/19/19 14:10	Antea group	Karl Jodon	6/19/19 1410	TA
Karl Jodon	6/19/19 1800	TA		6-19-19 1800	

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks
		1.3 #1

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 480-50344.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-155178-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested: 7/1/2019			
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-0B17-20190617 (480-155178-1)	6/17/19	15:20 Eastern		Water			X	1	
MW-0B18-20190619 (480-155178-2)	6/17/19	17:44 Eastern		Water			X	1	
MW-0B1920190618 (480-155178-3)	6/17/19	16:45 Eastern		Water			X	1	
MW-0B20-20190619 (480-155178-4)	6/17/19	15:22 Eastern		Water			X	1	
MW-0B21-20190619 (480-155178-5)	6/17/19	13:05 Eastern		Water			X	1	
MW-0B21-20190619 (480-155178-5MS)	6/17/19	13:05 Eastern	MS	Water			X	1	
MW-0B-23-20190619 (480-155178-6)	6/17/19	13:44 Eastern		Water			X	1	
EB-20190619 (480-155178-7)	6/17/19	Eastern		Water			X	1	
FB-20190618 (480-155178-8)	6/18/19	17:59 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	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
[signature]	6-20-19 1530	TAB	[signature]	6-21-19 0912	TASTAV
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

4.3/4.3

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

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Barnett, Eddie T	Carrier Tracking No(s):	COC No: 480-50344.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-155178-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 7/1/2019			
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:						
DUP-20190617 (480-155178-9)	6/17/19	Eastern		Water			X	1	
EB-20190619 (480-155178-10)	6/19/19	10:41 Eastern		Water			X	1	
MW-0B25-20190619 (480-155178-11)	6/19/19	09:35 Eastern		Water			X	1	
MW-0B26-20190619 (480-155178-12)	6/19/19	09:25 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.

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
[signature]	6-20-19 1520	ALS	[signature]	6-21-19 0912	TestAm
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: 4.3/4.3

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-155178-1

Login Number: 155178
List Number: 2
Creator: Harper, Marcus D

List Source: Eurofins 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: 480-155178-1

Login Number: 155178
List Number: 3
Creator: Nobles, Terry G

List Source: Eurofins TestAmerica, Savannah
List Creation: 06/21/19 12:50 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?	N/A	
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.	N/A	
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	

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ANALYTICAL REPORT

Eurofins TestAmerica, Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

Laboratory Job ID: 680-170878-1
Client Project/Site: Hercules Glens Falls 2Q19

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

Attn: Mr. Jim Vondracek

Authorized for release by:
7/5/2019 10:27:21 AM

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

Definitions/Glossary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 680-170878-1

Qualifiers

General Chemistry

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.
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)

Sample Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 680-170878-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
680-170878-1	SG-11_20190624	Water	06/24/19 15:36	06/26/19 09:00	
680-170878-2	SG-7_20190624	Water	06/24/19 16:15	06/26/19 09:00	
680-170878-3	DUP_20190624	Water	06/24/19 00:00	06/26/19 09:00	
680-170878-4	EB_20190624	Water	06/24/19 16:50	06/26/19 09:00	

Job ID: 680-170878-1

Laboratory: Eurofins TestAmerica, Savannah

Narrative

CASE NARRATIVE
Client: Ashland LLC
Project: Hercules Glens Falls 2Q19

Report Number: 680-170878-1

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.

RECEIPT

The samples were received on 06/26/2019; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 1.5º C.

TOTAL CYANIDE

Samples SG-11_20190624 (680-170878-1), SG-7_20190624 (680-170878-2), DUP_20190624 (680-170878-3) and EB_20190624 (680-170878-4) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012B. The samples were prepared on 07/02/2019 and analyzed on 07/03/2019.

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

Client Sample Results

Client: Ashland LLC
Job ID: 680-170878-1
Project/Site: Hercules Glens Falls 2Q19

Client Sample ID: SG-11_20190624
Lab Sample ID: 680-170878-1
Date Collected: 06/24/19 15:36
Matrix: Water
Date Received: 06/26/19 09:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.0066	J	0.010	0.0025	mg/L		07/02/19 11:10	07/03/19 13:37	1

Client Sample Results

Client: Ashland LLC
Job ID: 680-170878-1
Project/Site: Hercules Glens Falls 2Q19

Client Sample ID: SG-7_20190624
Lab Sample ID: 680-170878-2
Date Collected: 06/24/19 16:15
Matrix: Water
Date Received: 06/26/19 09:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.0054	J	0.010	0.0025	mg/L		07/02/19 11:10	07/03/19 13:52	1

Client Sample Results

Client: Ashland LLC
Job ID: 680-170878-1
Project/Site: Hercules Glens Falls 2Q19

Client Sample ID: DUP_20190624
Lab Sample ID: 680-170878-3
Date Collected: 06/24/19 00:00
Matrix: Water
Date Received: 06/26/19 09:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		07/02/19 11:10	07/03/19 13:53	1

Client Sample Results

Client: Ashland LLC
Job ID: 680-170878-1
Project/Site: Hercules Glens Falls 2Q19

Client Sample ID: EB_20190624
Lab Sample ID: 680-170878-4
Date Collected: 06/24/19 16:50
Matrix: Water
Date Received: 06/26/19 09:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.0034	J	0.010	0.0025	mg/L		07/02/19 11:10	07/03/19 13:54	1

QC Sample Results

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 680-170878-1

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 680-576654/1-A
Matrix: Water
Analysis Batch: 576865

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 576654

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		07/02/19 11:10	07/03/19 13:32	1

Lab Sample ID: LCS 680-576654/2-A
Matrix: Water
Analysis Batch: 576865

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 576654

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0506		mg/L		101	85 - 115

Lab Sample ID: 680-170878-1 MS
Matrix: Water
Analysis Batch: 576865

Client Sample ID: SG-11_20190624
Prep Type: Total/NA
Prep Batch: 576654

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0066	J	0.0500	0.0597		mg/L		106	85 - 115

Lab Sample ID: 680-170878-1 MSD
Matrix: Water
Analysis Batch: 576865

Client Sample ID: SG-11_20190624
Prep Type: Total/NA
Prep Batch: 576654

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	0.0066	J	0.0500	0.0551		mg/L		97	85 - 115	8	20

QC Association Summary

Client: Ashland LLC
Job ID: 680-170878-1
Project/Site: Hercules Glens Falls 2Q19

General Chemistry

Prep Batch: 576654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-170878-1	SG-11_20190624	Total/NA	Water	9012B	
680-170878-2	SG-7_20190624	Total/NA	Water	9012B	
680-170878-3	DUP_20190624	Total/NA	Water	9012B	
680-170878-4	EB_20190624	Total/NA	Water	9012B	
MB 680-576654/1-A	Method Blank	Total/NA	Water	9012B	
LCS 680-576654/2-A	Lab Control Sample	Total/NA	Water	9012B	
680-170878-1 MS	SG-11_20190624	Total/NA	Water	9012B	
680-170878-1 MSD	SG-11_20190624	Total/NA	Water	9012B	

Analysis Batch: 576865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-170878-1	SG-11_20190624	Total/NA	Water	9012B	576654
680-170878-2	SG-7_20190624	Total/NA	Water	9012B	576654
680-170878-3	DUP_20190624	Total/NA	Water	9012B	576654
680-170878-4	EB_20190624	Total/NA	Water	9012B	576654
MB 680-576654/1-A	Method Blank	Total/NA	Water	9012B	576654
LCS 680-576654/2-A	Lab Control Sample	Total/NA	Water	9012B	576654
680-170878-1 MS	SG-11_20190624	Total/NA	Water	9012B	576654
680-170878-1 MSD	SG-11_20190624	Total/NA	Water	9012B	576654

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls 2Q19

Job ID: 680-170878-1

Client Sample ID: SG-11_20190624
Lab Sample ID: 680-170878-1
Date Collected: 06/24/19 15:36
Matrix: Water
Date Received: 06/26/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			576654	07/02/19 11:10	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576865	07/03/19 13:37	ALG	TAL SAV

Client Sample ID: SG-7_20190624
Lab Sample ID: 680-170878-2
Date Collected: 06/24/19 16:15
Matrix: Water
Date Received: 06/26/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			576654	07/02/19 11:10	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576865	07/03/19 13:52	ALG	TAL SAV

Client Sample ID: DUP_20190624
Lab Sample ID: 680-170878-3
Date Collected: 06/24/19 00:00
Matrix: Water
Date Received: 06/26/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			576654	07/02/19 11:10	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576865	07/03/19 13:53	ALG	TAL SAV

Client Sample ID: EB_20190624
Lab Sample ID: 680-170878-4
Date Collected: 06/24/19 16:50
Matrix: Water
Date Received: 06/26/19 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	9012B			576654	07/02/19 11:10	MDF	TAL SAV
Total/NA	Analysis	9012B		1	576865	07/03/19 13:54	ALG	TAL SAV

Laboratory References:

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

Accreditation/Certification Summary

Client: Ashland LLC
Job ID: 680-170878-1
Project/Site: Hercules Glens Falls 2Q19

Laboratory: Eurofins 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	04-01-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

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

Method Summary

Client: Ashland LLC
Job ID: 680-170878-1
Project/Site: Hercules Glens Falls 2Q19

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

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Phone: 912.354.7858 Fax:

Albany 681-Atlanta

Chain of Custody Record #224

263810

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Mr. Jim Vondracek	Site Contact: Garrett Crowe	Date:	COC No:
Company Name: Ashland LLC	Tel/Fax:	Lab Contact:	Carrier:	1 of 1 COCs
Address: 5200 Blazer Parkway DS-4	Analysis Turnaround Time			Sampler:
City/State/Zip: Dublin OH, 43017	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 614-790-6146	TAT if different from Below STD			Walk-in Client:
Fax: email: SevondrareK@ashland.com / cassie.mateo@eha-support.com	☐ 2 weeks			Lab Sampling:
Project Name: Ashland Glens Falls	☐ 1 week			
Site: Hercules Glens Falls O&M 2019	☐ 2 days			Job / SDG No.:
PO# GLENSFA191-0400	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	9012B - Cyanide, Total	Sample Specific Notes:
SG-11_20190624	6/24/19	1536	G	Water	2	N	Y	X	MS/MSD
SG-7_20190624	6/24/19	1615	G	water	1	N	N	X	
DUP_20190624	6/24/19	—	G	water	1	N	N	X	
EB_20190624	6/24/19	1650	G	water	1	N	N	X	
	NP2	6/25/19							

680-170878 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longe.

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

1.4/1.5

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Ashland Comp	6/24/19 850	Karl Jaeh	TA	6/25/19 0850
Relinquished by: Karl Jaeh	Company: TA	6/25/19 1200	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time: 6-26-19 0900

7/5/2019

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 680-170878-1

Login Number: 170878
List Number: 1
Creator: Laughlin, Paul D

List Source: Eurofins TestAmerica, Savannah

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?	N/A	
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	

Attachment 3 – Tier II Validation Reports

EHS Validation Report Number: 236

Former Ciba Geigy Facility
Queensbury, New York

Analysis performed by: ALS Environmental, Holland, Michigan

Sample Delivery Group (SDG): 19061804
Analysis: General Chemistry
Review Level: Tier II

EHS Support

Report Date: August 4, 2019

Table of Contents

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Sample Summary

Water samples were collected at the Former Ciba Geigy Facility in Queensbury, New York and were analyzed by Environmental Protection Agency (EPA) Method by OIA 1677 for free cyanide. 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	Free cyanide analysis
19061804	19061804-01	SG-11_20190624	Water	6/24/2019	X
19061804	19061804-02	SG-7_20190624	Water	6/24/2019	X
19061804	19061804-03	DUP-20190624	Water	6/24/2019	X
19061804	19061804-04	EB_20190624	Water	6/24/2019	X

1 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 as 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:

1.1 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 (QC) criteria. The analyte may or may not be present in the sample.

2 Sample Custody and Receipt

All samples were received in good condition and properly preserved. The chain of custody was properly completed.

3 Assessment Summary and Data Usability

In this SDG, no quality control (QC) excursions encountered led to qualification or rejection of data. Results reported in this SDG are considered usable. Please refer to report below for specific QC information.

4 General Chemistry Analysis

4.1 Preservation and holding times

Acceptance criteria were met. Relevant preservation and holding time requirements are presented in the following table.

Method	Matrix	Preservation	Holding time
Free cyanide by OIA 1677	Water	NaOH to pH > 12	14 days

4.2 Blanks

Acceptance criteria were met. No detections were reported in the method blank or in the equipment blank.

4.3 Laboratory Control Sample (LCS)

Acceptance criteria were met.

4.4 Laboratory Duplicate Analysis

NA: No laboratory duplicate analysis performed on a sample in this data set was reported.

4.5 Matrix Spike/ Matrix Spike Duplicate (MS/MSD) analysis

Acceptance criteria were met. MS/MSD analysis was performed on sample 19061804-01A.

4.6 Field Duplicates

Acceptance criteria, shown in the table below, were met. One parent sample – field duplicate pair was included in this sample delivery group. The relationship between parent result and duplicate result was acceptable.

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

4.7 Additional Notes

NA: No additional notes to report.

Validation performed by: Amy Coats
EHS Support

EHS Validation Report Number: 242

Former Ciba Geigy Facility
Queensbury, New York

Analysis performed by: TestAmerica, Savannah, Georgia

Sample Delivery Group (SDG): 480-155178-1
Analysis: General Chemistry
Review Level: Tier II

EHS Support

Report Date: August 5, 2019

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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 Method 9012 for cyanide. 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	Cyanide analysis
480-155178-1	480-155178-1	MW-OB17_20190617	Water	6/17/2019	X
480-155178-1	480-155178-2	MW-OB18_20190617	Water	6/17/2019	X
480-155178-1	480-155178-3	MW-OB19_20190618	Water	6/18/2019	X
480-155178-1	480-155178-4	MW-OB20_20190617	Water	6/17/2019	X
480-155178-1	480-155178-5	MW-OB21_20190617	Water	6/17/2019	X
480-155178-1	480-155178-6	MW-OB23_20190617	Water	6/17/2019	X
480-155178-1	480-155178-7	EB_20190617	Water	6/17/2019	X
480-155178-1	480-155178-8	EB_20190618	Water	6/18/2019	X
480-155178-1	480-155178-9	DUP_20190617	Water	6/17/2019	X

1 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 as 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:

1.1 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 (QC) criteria. The analyte may or may not be present in the sample.

2 Sample Custody and Receipt

All samples were received in good condition and properly preserved. The chain of custody was properly completed.

3 Assessment Summary and Data Usability

In this SDG, no QC (quality control) excursions encountered led to rejection of data. Reported results are considered usable. Please refer to report below for specific QC variances and data qualification.

4 General Chemistry Analysis

4.1 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	≤6 °C, NaOH to pH > 12	14 days

The analysis performed outside of the specified holding time is shown in the table below. All other holding time criteria were met.

Samples	Analysis	Method holding time	Observed holding time
480-155178-6	Cyanide	14 days	16 days

The sample analyzed outside of holding time has been qualified in accordance with the table below. Notes in the narrative explain that the sample was re-run outside the holding time window because of a QC variance associated with the initial run. Only the re-analysis is reported in the lab report.

QC excursion	Qualification	
	Detected analytes	Non-detect analytes
Technical Holding Time exceeded; analysis performed in less than 2x holding time	J	UJ
Technical Holding Time exceeded; analysis performed in more than 2x holding time	J	R

4.2 Blanks

Sample results associated with blank contamination are presented in the table below.

Analyte	Blank detection	Blank result (category)	Associated sample	Sample result	Qualification
Cyanide	0.057 mg/L (EB_20190618)	> RL	480-155178-3	> RL but < blank concentration	U at the blank concentration

EB Equipment blank
RL Reporting limit
U Non-detect

4.3 Laboratory Control Sample (LCS)

Acceptance criteria were met.

4.4 Laboratory Duplicate Analysis

NA: No laboratory duplicate analysis was reported with this data set.

4.5 Matrix Spike/ Matrix Spike Duplicate (MS/MSD) Analysis

Sample 480-155178-5 was used for cyanide MS/MSD analysis. The recoveries are reported incorrectly in the lab report. Recalculation of results from raw data reveal that recoveries and the relative percent difference (RPD) between MS and MSD were greater than the upper acceptance limits. As a consequence of this excursion, qualifiers were applied to cyanide results for all groundwater samples in this SDG.

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

For inorganic analyses in which the samples undergo batch digestion or batch distillation, batch qualifications are applied in accordance with the National Functional Guidelines (NFG) for Inorganic Data Review (January 2010). The NFG addresses the topic of sample QC leading to batch qualification, stating that when matrix spike analyses do not meet criteria, qualifiers are applied to all the samples of the same matrix.

4.6 Field Duplicates

One parent sample-field duplicate pair was submitted with this SDG. Field duplicate analyses associated with RPD (relative percent difference) values outside control limits are listed in the table below.

Samples	Analyte	Parent Sample Result	Duplicate Sample Result	RPD
MW-OB21_20190617/ DUP_20190617	Cyanide	0.062	0.098	45.0%

As a consequence of this QC excursion, cyanide results for all groundwater samples in this SDG have been qualified as estimated (J), in accordance with the following table.

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

4.7 Additional Notes

NA: No additional notes to report.

Validation performed by: Amy Coats
EHS Support

EHS Validation Report Number: 244

Former Ciba Geigy Facility
Queensbury, New York

Analyses performed by: TestAmerica, Savannah, Georgia

Sample Delivery Group (SDG): 680-170878
Analyses: General Chemistry
Review Level: Tier II

EHS Support

Report Date: July 30, 2019

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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 Method 9012B for cyanide. Samples included in this sample delivery group (SDG), and in this data validation report, are listed in the table below.

Lab Sample ID	Field Sample ID	Sample Matrix	Sample Collection Date	Analysis		
				Metals	CN	Cr^{6+}
680-170878-1	SG-11_20190624	Water	6/24/2019		X	
680-170878-2	SG-7_20190624	Water	6/24/2019		X	
680-170878-3	DUP_20190624	Water	6/24/2019		X	
680-170878-4	EB_20190624	Water	6/24/2019		X	

1 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 as 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:

1.1 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 (QC) criteria. The analyte may or may not be present in the sample.

2 Sample Custody and Receipt

All samples were received in good condition and properly preserved. The chain of custody was properly completed except the last receiving party recorded only initials, not a full name nor signature. It is assumed that custody was maintained.

3 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.

4 General Chemistry Analysis

4.1 Preservation and holding times

Acceptance criteria were met. 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

4.2 Blanks

Sample results associated with blank contamination are presented in the table below.

Analyte	Blank detection	Blank result (category)	Associated samples	Sample result	Qualification
Total cyanide	0.0034 J mg/L (EB)	≥ MDL but ≤ RL	680-170878-1 680-170878-2	< RL	U at the RL
			680-170878-3	Non-detect	No qualification needed

EB Equipment blank
MDL Method detection limit
RL Reporting limit

4.3 Laboratory Control Sample (LCS)

Acceptance criteria were met.

4.4 Laboratory Duplicate Analysis

NA: No laboratory duplicate analysis performed on a sample in this data set was reported.

4.5 Matrix Spike/Matrix Spike Duplicate (MS/MSD) analysis

Acceptance criteria were met. MS/MSD analysis was performed on sample 680-170878-1 for cyanide.

4.6 Field Duplicates

Acceptance criteria, shown in the table below, were met. One field duplicate sample was submitted n this sample delivery group.

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

4.7 Additional Notes

NA: No additional notes to report.

Validation performed by: Amy Coats
EHS Support