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: **Soil and Groundwater Sampling Report for the Pretreatment Plant Area**
Former Ciba-Geigy Facility, Glens Falls, New York
EPA ID NYD002069748 / NYSDEC Site No.: 557011

Dear Mr. Jankauskas:

This Soil and Groundwater Sampling Report (report) has been prepared to summarize results of the post-demolition confirmation soil and groundwater samples collected at the Pretreatment Plant (PTP) Area of the former Ciba-Geigy Corporation (CIBA) pigments manufacturing facility in the Town of Queensbury, New York (the Site; **Figure 1**), just east of the City of Glens Falls. EHS Support LLC ("EHS Support") is submitting this report to the New York State Department of Environmental Conservation (NYSDEC) on behalf of Hercules Incorporated (previously acquired by Ashland LLC) and CIBA (previously acquired by BASF Corporation). The Site is now in post-closure management under a NYSDEC Hazardous Waste Management (HWM) Post Closure Permit (NYSDEC Site No. 557011). A renewal of the Part 373 HWM Permit #5-5234-00008/00096 was issued by the NYSDEC on March 5, 2015. Hercules and CIBA (the Parties) are the permittees and share responsibility for on-going environmental activities at the Site.

Decommissioning and demolition activities were performed in accordance with a NYSDEC-approved Work Plan at the PTP Area between 2016 and 2018, including the cleaning and removal of the 500,000-gallon aboveground storage tank (AST; tank T-110), and the demolition of the former PTP building. Cleaning activities for tank T-110 were documented in the *AST Decommissioning Report* by Antea Group (February 2016). In March 2018, tank T-110 and the PTP building were demolished and removed, as documented in the *AST & Pretreatment Plant Decommissioning and Demolition Report* by Antea Group (August 2018).

The above-ground portions of the former PTP building have been removed, while the concrete floor slab remains in-place. There were two sumps associated with the former PTP building, which were observed to be in good condition during the demolition activities, with no evidence of release. Sump 1 was a circular sump located in the western portion of the building and estimated to be approximately 3 feet deep (see **Figure 2**). Sump 2 was a square sump located in the eastern portion of the building and estimated to be approximately 1 foot deep (see **Figure 3**). The sumps were filled with concrete concurrent with the demolition activities.

As detailed in the reports, during cleaning and demolition of the tank, visual inspections were completed of both the tank bottom and the soil beneath. The bottom of the tank was observed to be in

good condition, with no evidence of compromised integrity. When it was removed, there was no staining of the soil beneath, nor was there evidence of erosion or material disturbance. Based on the field observations, no evidence of a release from tank T-110 was documented, including the vicinity of the sump within the former tank.

On January 24, 2019, the Parties submitted a *Revised Soil and Groundwater Sampling Work Plan* (Work Plan) to the NYSDEC, which provided the Parties' proposed approach for the collection and analysis of soil samples from within the footprint of the former tank T-110 and near the former sumps within the footprint of the former PTP building, and the collection and analysis of a groundwater sample from within the footprint of the former tank T-110. The Work Plan was prepared as requested by the NYSDEC in its October 4, 2017 approval letter for the *Revised AST & Pretreatment Plant Demolition Work Plan* (submitted by Antea Group in September 2017) and its November 8, 2018 comment letter on the *Soil Sampling Work Plan for the Pretreatment Plant Site* (submitted by EHS Support in October 2018). The NYSDEC approved the Work Plan on February 12, 2019.

The Work Plan provided a summary of historical soil investigations, soil remediation activities, and groundwater investigations at the PTP Area. The Work Plan further detailed the objectives and scope of the soil and groundwater sampling activities, as follows.

Soil Sampling Objectives

The objectives of soil sampling activities were to:

- Determine the concentrations of Site-related constituents of potential concern (COPCs) in soils in the footprint of tank T-110 and in soils adjacent to the two former sumps in the PTP building. COPCs were selected based on historical investigations and include certain metals (barium, cadmium, chromium, lead and mercury) that were historically detected above screening levels in soils around tank T-110, as well as cyanide due to its presence in groundwater in other areas of the Site.
- Compare the soil sampling results to applicable 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs).
- Follow recommendations in DER-10 Section 3.9, which provides guidance for sampling beneath ASTs located over unpaved soil (Section 3.9(a)1) and beneath subsurface collection systems (Section 3.9(d)1).

Groundwater Sampling Objectives

Given the close proximity of the former tank T-110 to the boundary of the PTP Area, the previous inaccessibility to areas on the downgradient and side-gradient sides of the former tank, and the stable to declining cyanide concentrations in groundwater at downgradient off-site monitoring wells, a groundwater sample had not previously been collected in the immediate vicinity of the tank. While no evidence of a release was documented upon demolition of the tank, as requested by the NYSDEC in its November 8, 2018, letter and in accordance with DER-10 Section 3.9(a)(1), a groundwater sample beneath the former tank was included in the project scope.

The objectives of groundwater sample collection within the footprint of the former tank T-110 were to:

- Determine the concentration of cyanide, chromium and hexavalent chromium in groundwater within the former footprint of tank T-110. Cyanide was selected for analysis because it has been identified at concentrations above the GA standard at other locations in the PTP Area. Chromium and hexavalent chromium were selected for analysis because chromium was the primary Site-related COPC identified in the liquid waste removed from the tank in 2015.[1]
- Review the groundwater sample results to determine if the results are indicative of a potential historical release from tank T-110, which may warrant additional future sampling.
- Follow the recommendation in DER-10 Section 3.9(a)1, which provides guidance for sampling beneath ASTs located over unpaved soil.

Sampling Activities

On May 20 and May 21, 2019, Antea® Group ("Antea Group") of Valhalla, NY, collected soil and groundwater samples at the PTP Area pursuant to the Work Plan. Prior to field mobilization, Antea Group completed a private utility markout and a utility clearance survey via the New York Public Service Commission dig safely notification line. Brian Jankauskas of NYSDEC was on-Site during the sampling activities conducted on May 20, 2019.

Health and Safety

Field activities were conducted in accordance with a Site-specific Health and Safety Plan (HASP) developed as a separate document. Field personnel were required to implement the procedures presented in the HASP while conducting fieldwork, including the use of clean gloves during the collection of samples and any other personal protective equipment deemed necessary.

Sampling Locations and Depths

The soil and groundwater sampling program are summarized in **Table 1**. The locations of the borings were field-located using Global Positioning System coordinates and measurements to nearby landmarks (see **Table 2**). There were no substantive modifications to the locations or sample intervals included in the NYSDEC-approved Work Plan, and no soil staining or other indications of releases were observed during soil boring activities.

Sampling Activities - Former Tank T-110

Four borings were installed within the footprint of the former tank T-110, with each boring located within one quadrant of the former tank (PTP-SB01 through PTP-SB04; **Figure 4**). One of the borings (PTP-SB01) was located adjacent to the former sump, which was present in the southeastern quadrant of the tank.

Soil samples were collected from all four boring locations, as summarized in **Table 1**. At all locations, soil samples were collected from 0-0.5 feet below ground surface (ft bgs) and from 1.5-2 ft bgs. An

[1] AST Decommissioning Report, Ciba-Geigy/Hercules Site, Table 3 (Antea Group, February 2017).

additional sample was collected from 5.5-6 ft bgs from the boring located adjacent to the sump (PTP-SB01). The 0-0.5 ft bgs samples from each boring were analyzed for the identified list of Site-specific COPCs. In addition, the 1.5-2 ft bgs sample collected from the boring adjacent to the sump (PTP-SB01) was analyzed for Site-specific COPCs.

As summarized in Table 1, the remaining samples were held pending the results of the initial soil sample analysis. After reviewing the results of the initial analyses, the following additional samples were analyzed:

- PTP-SB01 (1.5-2 ft bgs) – Hexavalent chromium
- PTP-SB01 (5.5-6 ft bgs) – All COPCs

The remaining soil samples were discarded, in accordance with the approved Work Plan.

At boring PTP-SB01, a temporary well was installed (screened from approximately 5 to 15 ft bgs), and a groundwater sample was collected using low-flow sampling methods. Groundwater was encountered at approximately 9 ft bgs. The temporary well was left in-place.

Sampling Activities - Former PTP Building

One boring was installed adjacent to each of the two former sumps in the footprint of the PTP building (see **Figures 2 and 3**). A soil sample was collected from the 6-inch interval below the estimated bottom of the former sumps – Sump 1 (3-3.5 ft bgs) and Sump 2 (1-1.5 ft bgs) – and analyzed for the identified list of Site-specific COPCs in soil.

Per the approved Work Plan, hexavalent chromium analysis was not initially performed for samples collected at PTP-SB05 or PTP-SB06. After reviewing the total chromium results, hexavalent chromium analysis was performed to allow for comparison to the Part 375 SCOs for hexavalent chromium.

Boring and Sampling Methodology

At PTP-SB01, where the boring was extended to the depth of groundwater, and at the borings located within the former building footprint, soil samples were collected using Geoprobe direct-push methods and Macro-core samplers. Borings located within the footprint of the former PTP building required breaking through the concrete floor slab prior to sample collection. At the remaining boring locations, soil sampling was performed using hand augers. Soil boring logs are provided in **Attachment 1**.

Soil extracted from each sample depth interval was collected and visually inspected for physical characteristics (i.e., soil type, relative moisture content, color), and the field observations were recorded on the sample log.

Samples were sectioned, homogenized and transferred to clean sample containers provided by the laboratory. For each sample, the required sample volume was collected from a contiguous interval of the core, and the sampled interval and ID was recorded on the sample log.

Upon collection (filling of sample container for laboratory analysis), the container was sealed (lid closed), labeled with the sample ID, date and time of collection, and placed in a cooler with ice for

transport to TestAmerica Laboratories, Inc. of Amherst, NY ("TestAmerica Buffalo") under chain-of-custody documentation.

A temporary well was constructed at PTP-SB01 as illustrated on the well construction diagram in **Attachment 1**. A 1-inch-diameter polyvinyl chloride (PVC) screen was installed from 5 to 15 feet below ground surface, with 5 feet of 1-inch-diameter PVC riser. The annular space was left open for later removal of the well pending the groundwater results. The well was developed by purging five casing volumes and observing clear and sediment-free purge water. Groundwater sampling was performed using a peristaltic pump and the low-flow sampling procedures established for the Site.[2]

Quality Assurance/Quality Control Program

One blind duplicate soil sample and one duplicate groundwater sample were collected and handled using the same methodology employed for original samples and analyzed for the same suite of analytes as the original samples. Category B data deliverables were obtained, and Level IV data validation was performed. Data usability summary reports (DUSRs) are provided as **Attachment 2**, and electronic data deliverables (EDDs) will be supplied to the NYSDEC concurrent with this report.

Equipment Decontamination

Soil sampling equipment was decontaminated after use in each borehole. Cleaning/decontamination was comprised of a pre-rinse in potable water, followed by washing in non-phosphate detergent solution (e.g., Alconox wash), rinsing in clean (potable or laboratory grade) water, and air drying (or wiped dry using clean paper towels). Groundwater sampling was performed using dedicated tubing.

Investigation-Derived Waste

The excess soil not utilized for laboratory analysis was placed back into the hole created during the boring process. Excess cutting volumes were minimal. Solid waste (packaging material, spent gloves) were disposed as municipal waste. Purge and decontamination water were containerized and discharged to the Glens Falls publicly owned treatment works (POTW) via the effluent pumping station at the Main Plant Site.

Sample Results

Soil and groundwater samples were submitted to TestAmerica Buffalo for the laboratory analyses summarized in **Table 3**. TestAmerica Buffalo is certified under the Environmental Laboratory Accreditation Program (ELAP) for the test methods utilized.

The sample results are summarized in **Tables 4 and 5**, and laboratory analytical reports are provided in **Attachment 3**.

[2] Remedy Optimization Plan, Appendix H – Field Sampling Methodology and Field Parameters (EHS Support, November 2016).

Along with the soil sample results, **Table 4** provides the applicable Part 375 SCOs for the protection of public health at industrial properties and for the protection of groundwater. While not applicable to the PTP Area property (which is zoned and deed-restricted for industrial land use), **Table 4** also provides the Part 375 SCOs for commercial properties, for reference.

No soil sample result exceeded an applicable SCO for industrial land use or the protection of groundwater (**Table 4**). Further, no soil sample result exceeded a SCO for commercial land use. These results demonstrate no indication of a release of COPCs that affected soil beneath tank T-110 or the sumps inside the former PTP building.

Along with the groundwater sample results, **Table 5** provides the NYSDEC GA standards for chromium, hexavalent chromium and cyanide for reference only. GA standards are protective of fresh groundwater as a drinking water source; any use of groundwater from the PTP Area or the Site is prohibited by deed restriction (pursuant to the Deed Notice filed with Warren County).

Cyanide was detected in groundwater at PTP-SB01 at 320-420 µg/L, which is an expected range given the concentrations of cyanide that are typically present at upgradient well MW-OB23 (i.e., 2,000 µg/L in June 2018). Therefore, the cyanide results at PTP-SB01 are not indicative of an additional release beneath tank T-110 or the sump locations in the former PTP building. This is supported by the soil sample results, which were typically non-detect for cyanide. The concentrations of chromium and hexavalent chromium detected in groundwater at PTP-SB01 were below the GA standard, which further supports that there is no indication of a release of COPCs beneath tank T-110 or the sumps in the former PTP building.

Recommendations

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. The Parties recommend no further action, including:

- no further soil sampling at the PTP Area;
- no additional groundwater sampling at temporary well PTP-SB01; and
- the decommissioning (abandonment) of temporary well PTP-SB01.

We appreciate your time in review of this report. Please contact me at (608) 558-6795 regarding any questions or comments.

Sincerely,

Cassie R. Reuter
Project Manager

cc: Eamonn O'Neill, New York State Department of Health
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Table 1
Sampling Program
Soil and Groundwater Sampling Report for the Pretreatment Plant Area
Former Ciba-Geigy Facility, Glens Falls, NY

Soil Samples			
Sample Location	**Depth (ft bgs)**	**Analysis**	**Notes**
PTP-SB01 (Adjacent to Former Tank T-110 Sump)	0 - 0.5	Total Chromium; Cyanide; Additional Site-Specific Metals [(1)]	Analyzed
	0 - 0.5	Hexavalent chromium	Not analyzed based on total chromium results [(2)]
	0 - 0.5 (DUP)	Total Chromium; Cyanide; Additional Site-Specific Metals	Analyzed blind duplicate sample for same parameters as 0-0.5 ft bgs sample
	1.5 - 2	Total Chromium; Cyanide; Additional Site-Specific Metals	Analyzed
	1.5 - 2	Hexavalent chromium	Analyzed based on total chromium results [(2)]
	5.5 - 6	Total Chromium; Cyanide; Additional Site-Specific Metals	Analyzed after review of initial results from 1.5-2 ft bgs sample interval
	5.5 - 6	Hexavalent chromium	
PTP-SB02	0 - 0.5	Total Chromium; Cyanide; Additional Site-Specific Metals	Analyzed
	0 - 0.5	Hexavalent chromium	Not analyzed based on total chromium results [(2)]
	1.5 - 2	Total Chromium; Cyanide; Additional Site-Specific Metals	Not analyzed after review of results from 0-0.5 ft bgs sample interval
	1.5 - 2	Hexavalent chromium	
PTP-SB03	0 - 0.5	Total Chromium; Cyanide; Additional Site-Specific Metals	Analyzed
	0 - 0.5	Hexavalent chromium	Not analyzed based on total chromium results [(2)]
	1.5 - 2	Total Chromium; Cyanide; Additional Site-Specific Metals	Not analyzed after review of results from 0-0.5 ft bgs sample interval
	1.5 - 2	Hexavalent chromium	
PTP-SB04	0 - 0.5	Total Chromium; Cyanide; Additional Site-Specific Metals	Analyzed
	0 - 0.5	Hexavalent chromium	Not analyzed based on total chromium results [(2)]
	1.5 - 2	Total Chromium; Cyanide; Additional Site-Specific Metals	Not analyzed after review of results from 0-0.5 ft bgs sample interval
	1.5 - 2	Hexavalent chromium	
PTP-SB05	3 - 3.5	Total Chromium; Cyanide; Additional Site-Specific Metals	Analyzed
	3 - 3.5	Hexavalent chromium	Analyzed based on total chromium results [(2)]
PTP-SB06	1 - 1.5	Total Chromium; Cyanide; Additional Site-Specific Metals	Analyzed
	1 - 1.5	Hexavalent chromium	Analyzed based on total chromium results [(2)]

Table 1
Sampling Program
Soil and Groundwater Sampling Report for the Pretreatment Plant Area
Former Ciba-Geigy Facility, Glens Falls, NY

Groundwater Samples [3]			
Sample Location	**Depth (ft bgs)**	**Analysis**	**Notes**
PTP-SB01	11 ft bgs	Cyanide; Chromium; Hexavalent Chromium	Analyzed
PTP-DUP01	11 ft bgs	Cyanide; Chromium; Hexavalent Chromium	Analyzed

Notes:
(1) Additional metals analyzed were barium, cadmium, lead and mercury.
(2) Samples were initially held pending comparison of total chromium results to the NYSDEC DER Part 375 Soil Cleanup Objectives (SCOs). If a total chromium result exceeded the most conservative SCO for hexavalent chromium (19 mg/kg, based on protection of groundwater), the soil sample was also analyzed for hexavalent chromium.
(3) Boring PTP-SB01 was extended to below the groundwater table, and a grab groundwater sample was collected at a pump intake depth of approximately 11 feet below ground surface (ft bgs).
DUP - duplicate

Table 2
Sample Locations
Soil and Groundwater Sampling Report for the Pretreatment Plant Area
Former Ciba-Geigy Facility, Glens Falls, NY

Boring Name	Northing	Easting
PTP-SB01	1632777.33	730199.37
PTP-SB02	1632794.99	730173.21
PTP-SB03	1632812.84	730172.13
PTP-SB04	1632814.72	730187.82
PTP-SB05	1632811.84	730138.09
PTP-SB06	1632818.67	730152.93

Note:
(1) Coordinates recorded utilizing hand-held GPS and provided in NAD 1983 State Plane New York East (US Feet) datum.

Table 3
Laboratory Analytical Method Summary
Soil and Groundwater Sampling Report for the Pretreatment Plant Area
Former Ciba-Geigy Facility, Glens Falls, NY

Analyte	Method Number	Anticipated Reporting Limit		Sample Container Type	Minimum Sample Volume	Preservation	Holding Time
Soil Sample Analysis							
Barium	SW846 6010C/ 6020A	1.0	mg/kg	4 oz glass	20 g	Cool, < 6 deg. C.	180 days
Chromium		1.0	mg/kg				
Cadmium		0.5	mg/kg				
Lead		2.0	mg/kg				
Mercury	SW846 7174B	0.033	mg/kg			Cool, < 6 deg. C.	28 Days
Hexavalent Chromium [(1)]	SW846 7199	0.4	mg/kg	4 oz glass	20 g	Cool, < 6 deg. C.	30 days
Cyanide	SW846 9012B	0.1	mg/kg	4 oz glass	20 g	Cool, < 6 deg. C.	14 Days
Groundwater Sample Analysis							
Dissolved Chromium	SW846 6020A	1.5	µg/L	250 mL plastic	250 mL	Filtration + HNO3 to pH<2	6 months
Hexavalent Chromium	SW846 7196A	10	µg/L	125 mL plastic	125 mL	Filtration, Cool, < 6 deg. C	24 hours
Cyanide	SW846 9012B	10	µg/L	250 mL plastic	250 mL	NaOH to pH>12, Cool, < 6 deg. C.	14 Days

Notes:

(1) Soil samples will be held pending comparison of total chromium results to applicable NYSDEC DER Part 375 standards.

mg/kg = milligrams per kilogram

µg/L = micrograms per liter

g = grams

oz = ounces

mL = milliliters

NaOH = sodium hydroxide

deg. C = degrees Celsius

Table 4
Soil Sample Results
Soil and Groundwater Sampling Report for the Pretreatment Plant Area
Former Ciba-Geigy Facility, Glens Falls, NY

Sample Location	Date	Depth Range (ft bgs)		Constituent	Result (mg/kg)	NYSDEC DER SCOs: Commercial - Protection of Public Health (mg/kg) [1]	NYSDEC DER SCOs: Industrial - Protection of Public Health (mg/kg) [1]	NYSDEC DER SCOs: Protection of Groundwater (mg/kg) [1]
PTP-SB01	5/21/2019	0	0.5	Barium	31 J	400	10,000	820
PTP-SB01	5/21/2019	0	0.5	Cadmium	0.54	9.3	60	7.5
PTP-SB01	5/21/2019	0	0.5	Chromium, total	16	400	800	19
PTP-SB01	5/21/2019	0	0.5	Cyanide	8.9 J	27	10,000	40
PTP-SB01	5/21/2019	0	0.5	Lead	13	1,000	3,900	450
PTP-SB01	5/21/2019	0	0.5	Mercury	0.071	2.8	5.7	0.73
PTP-SB01 - DUP01	5/21/2019	0	0.5	Barium	24 J	400	10,000	820
PTP-SB01 - DUP01	5/21/2019	0	0.5	Cadmium	0.45	9.3	60	7.5
PTP-SB01 - DUP01	5/21/2019	0	0.5	Chromium, total	16	400	800	19
PTP-SB01 - DUP01	5/21/2019	0	0.5	Cyanide	1 UJ	27	10,000	40
PTP-SB01 - DUP01	5/21/2019	0	0.5	Lead	15	1,000	3,900	450
PTP-SB01 - DUP01	5/21/2019	0	0.5	Mercury	0.074	2.8	5.7	0.73
PTP-SB01	5/21/2019	1.5	2	Barium	53 J	400	10,000	820
PTP-SB01	5/21/2019	1.5	2	Cadmium	1.3	9.3	60	7.5
PTP-SB01	5/21/2019	1.5	2	Chromium, hexavalent	0.44 UJ	400	800	19
PTP-SB01	5/21/2019	1.5	2	Chromium, total	46	400	800	19
PTP-SB01	5/21/2019	1.5	2	Cyanide	1.1 U	27	10,000	40
PTP-SB01	5/21/2019	1.5	2	Lead	37	1,000	3,900	450
PTP-SB01	5/21/2019	1.5	2	Mercury	0.12	2.8	5.7	0.73
PTP-SB01	5/21/2019	5.5	6	Barium	9.5 J	400	10,000	820
PTP-SB01	5/21/2019	5.5	6	Cadmium	0.21 U	9.3	60	7.5
PTP-SB01	5/21/2019	5.5	6	Chromium, hexavalent	0.42 UJ	400	800	19
PTP-SB01	5/21/2019	5.5	6	Chromium, total	2	400	800	19
PTP-SB01	5/21/2019	5.5	6	Cyanide [2]	0.12 R	27	10,000	40
PTP-SB01	5/21/2019	5.5	6	Lead	1.4	1,000	3,900	450
PTP-SB01	5/21/2019	5.5	6	Mercury	0.019 UJ	2.8	5.7	0.73
PTP-SB02	5/20/2019	0	0.5	Barium	14 J	400	10,000	820
PTP-SB02	5/20/2019	0	0.5	Cadmium	0.12 J	9.3	60	7.5
PTP-SB02	5/20/2019	0	0.5	Chromium, total	7.3	400	800	19
PTP-SB02	5/20/2019	0	0.5	Cyanide	0.97 U	27	10,000	40
PTP-SB02	5/20/2019	0	0.5	Lead	4	1,000	3,900	450
PTP-SB02	5/20/2019	0	0.5	Mercury	0.024	2.8	5.7	0.73
PTP-SB03	5/20/2019	0	0.5	Barium	25 J	400	10,000	820
PTP-SB03	5/20/2019	0	0.5	Cadmium	0.29	9.3	60	7.5
PTP-SB03	5/20/2019	0	0.5	Chromium, total	14	400	800	19
PTP-SB03	5/20/2019	0	0.5	Cyanide	1 U	27	10,000	40
PTP-SB03	5/20/2019	0	0.5	Lead	18	1,000	3,900	450
PTP-SB03	5/20/2019	0	0.5	Mercury	0.051	2.8	5.7	0.73

Table 4
Soil Sample Results
Soil and Groundwater Sampling Report for the Pretreatment Plant Area
Former Ciba-Geigy Facility, Glens Falls, NY

Sample Location	Date	Depth Range (ft bgs)		Constituent	Result (mg/kg)	NYSDEC DER SCOs: Commercial - Protection of Public Health (mg/kg) [1]	NYSDEC DER SCOs: Industrial - Protection of Public Health (mg/kg) [1]	NYSDEC DER SCOs: Protection of Groundwater (mg/kg) [1]
PTP-SB04	5/20/2019	0	0.5	Barium	24 J	400	10,000	820
PTP-SB04	5/20/2019	0	0.5	Cadmium	0.41	9.3	60	7.5
PTP-SB04	5/20/2019	0	0.5	Chromium, total	15	400	800	19
PTP-SB04	5/20/2019	0	0.5	Cyanide	1.1 U	27	10,000	40
PTP-SB04	5/20/2019	0	0.5	Lead	9.5	1,000	3,900	450
PTP-SB04	5/20/2019	0	0.5	Mercury	0.088	2.8	5.7	0.73
PTP-SB05	5/21/2019	3	3.5	Barium	80 J	400	10,000	820
PTP-SB05	5/21/2019	3	3.5	Cadmium	3.7	9.3	60	7.5
PTP-SB05	5/21/2019	3	3.5	Chromium, hexavalent	1.6 J	400	800	19
PTP-SB05	5/21/2019	3	3.5	Chromium, total	89	400	800	19
PTP-SB05	5/21/2019	3	3.5	Cyanide	4.4 U	27	10,000	40
PTP-SB05	5/21/2019	3	3.5	Lead	100	1,000	3,900	450
PTP-SB05	5/21/2019	3	3.5	Mercury	0.28	2.8	5.7	0.73
PTP-SB06	5/21/2019	1	1.5	Barium	46 J	400	10,000	820
PTP-SB06	5/21/2019	1	1.5	Cadmium	2.1	9.3	60	7.5
PTP-SB06	5/21/2019	1	1.5	Chromium, hexavalent	1.1 J	400	800	19
PTP-SB06	5/21/2019	1	1.5	Chromium, total	23	400	800	19
PTP-SB06	5/21/2019	1	1.5	Cyanide	1.1 U	27	10,000	40
PTP-SB06	5/21/2019	1	1.5	Lead	15	1,000	3,900	450
PTP-SB06	5/21/2019	1	1.5	Mercury	0.14	2.8	5.7	0.73

Notes:
1. New York State Department of Environmental Conservation Division of Environmental Remediation Soil Cleanup Objectives (SCOs). Chromium standards as indicated are for hexavalent chromium. All total chromium sample results are below SCOs for trivalent chromium (1,500 mg/kg and 6,800 mg/kg for commercial and industrial land use, respectively).
2. Cyanide analysis was performed but not required for the evaluation of site conditions, given that the overlying soil sample results (0-0.5 ft. bgs and 1-1.5 ft. bgs) were non-detect for cyanide. Data was rejected due to hold time.
bgs - below ground surface
mg/kg - milligrams per kilogram
NA - not applicable
U - indicates analyte was not detected above reporting limit shown
J - indicates value is estimated
R - sample analyzed after twice the holding time for the laboratory analytical method

Table 5
Groundwater Sample Results
Soil and Groundwater Sampling Report for the Pretreatment Plant Area
Former Ciba-Geigy Facility, Glens Falls, NY

Sample Location	Date	Pump Intake Depth (ft. below TOC)	Constituent	Result (µg/L)	NYSDEC GA Standard (µg/L) [1]
PTP-SB01	5/21/2019	12.6	Chromium	30	50
PTP-SB01	5/21/2019	12.6	Chromium, hexavalent	24	50
PTP-SB01	5/21/2019	12.6	Cyanide, Total	**420**	200
PTP-SB01 - DUP01	5/21/2019	12.6	Chromium	31	50
PTP-SB01 - DUP01	5/21/2019	12.6	Chromium, hexavalent	26	50
PTP-SB01 - DUP01	5/21/2019	12.6	Cyanide, Total	**320**	200
EB	5/21/2019	NA	Chromium	1.5 U	50
EB	5/21/2019	NA	Chromium, hexavalent	10 U	50
EB	5/21/2019	NA	Cyanide, Total	5.6 J	200

Notes:

1) Groundwater GA Standard from 6 NYCRR 703.5, Table 1 Water Quality Standards (or Water Quality Guidance Values from NYS Division of Water TOGS 1.1.1). GA standards are for protective of fresh groundwater for use as a drinking water source. Comparison of groundwater data to GA standards is for reference only. Groundwater is not used, and use of on-Site groundwater for any purpose is precluded (pursuant to the Deed Notice filed with Warren County).

TOC - top of casing

µg/L - micrograms per liter

BOLD value indicates concentration above GA standard

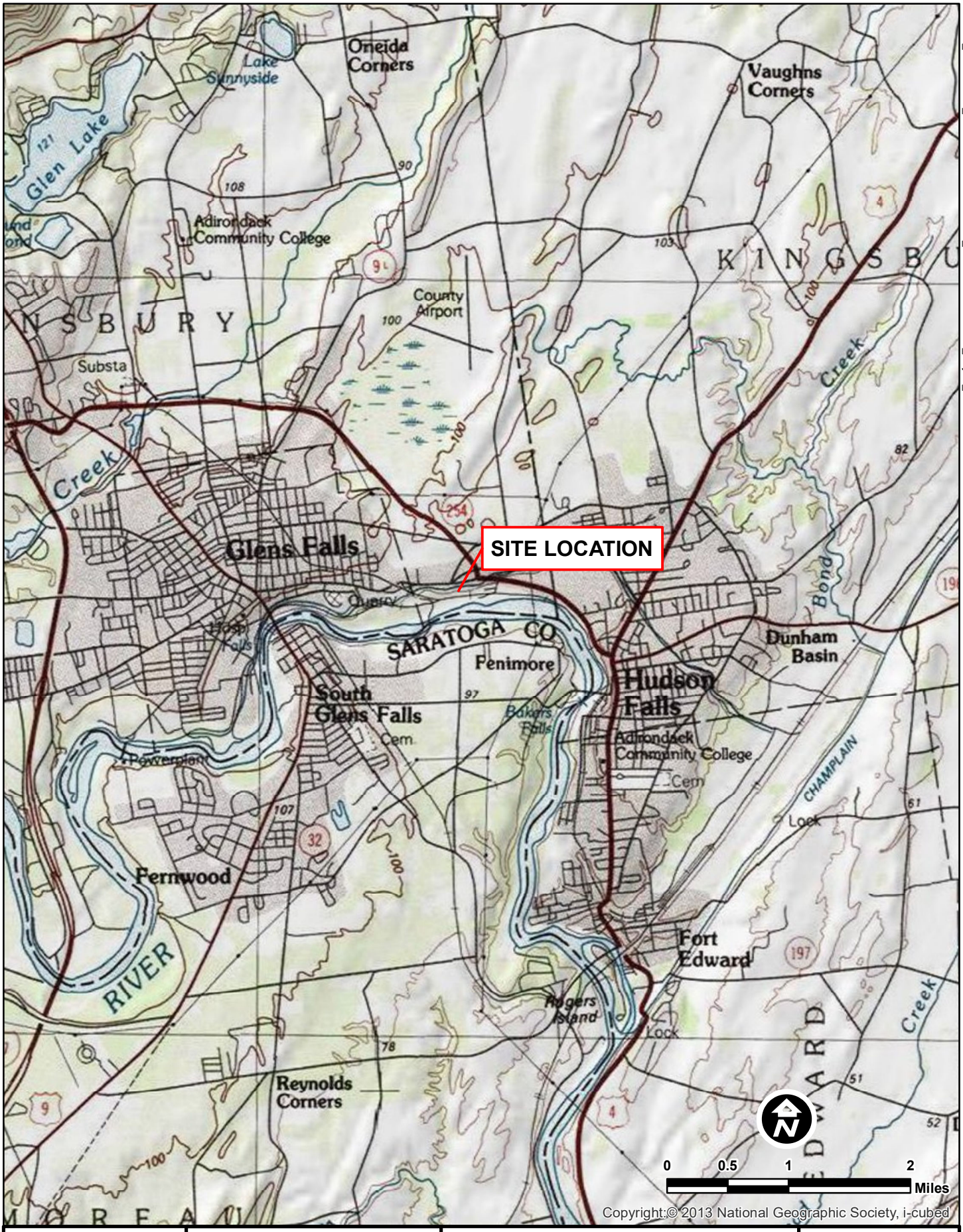
EB - equipment blank

NA - not applicable

U - indicates analyte was not detected above reporting limit shown

J - indicates value is estimated

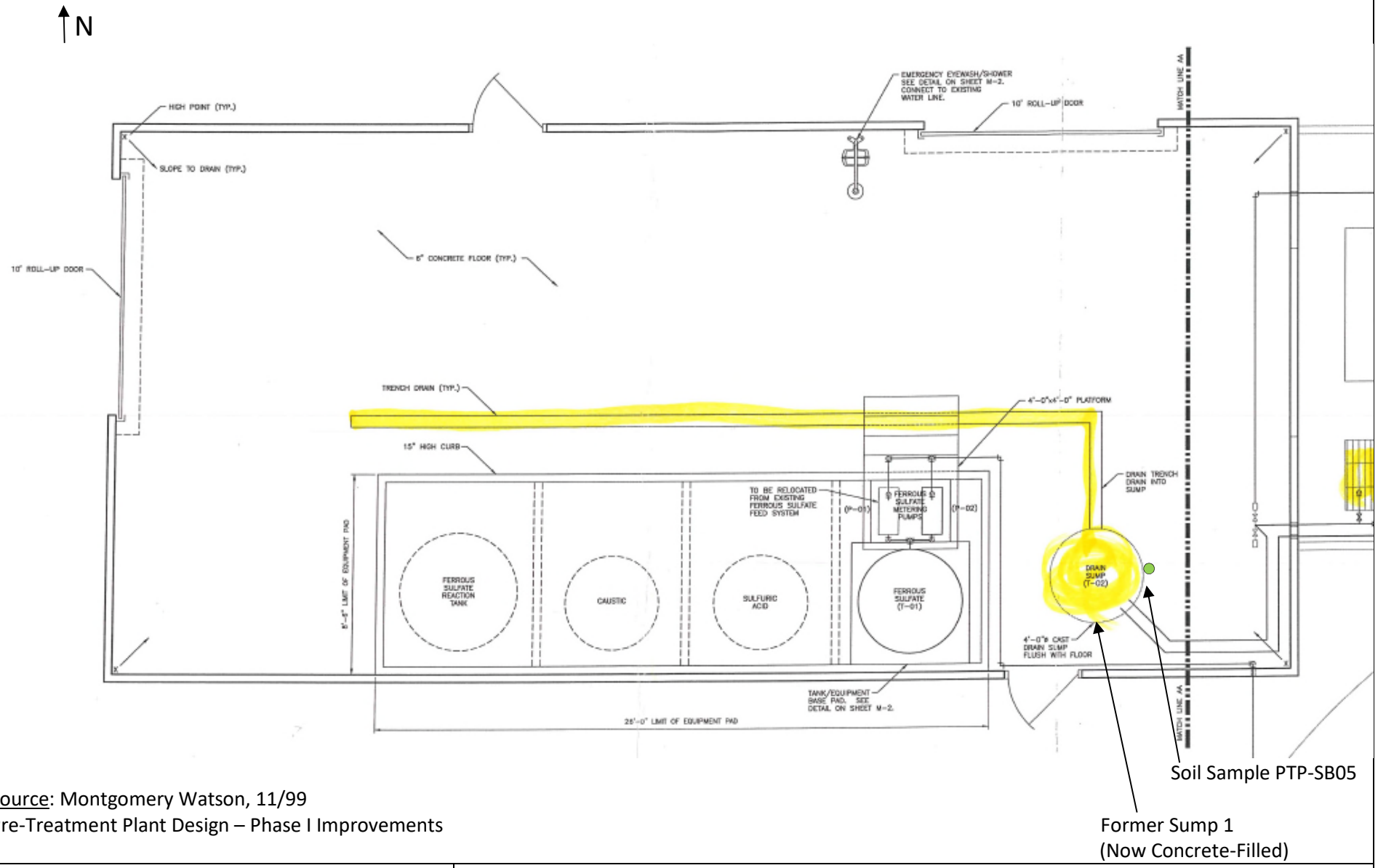
Figures



EHS Support *consider it done*	ASHLAND FORMER CIBA-GEIGY / HERCULES SITE GLENS FALLS, NY	SITE LOCATION	FIGURE 1

J:\EHSS_GIS\C16262_GlensFallsHudsonRiver\01_ANALYSIS\20160913_July16_GW\FIGURE 1 Site Location.mxd

Printed 9/25/2019 2:40:24 PM by Chelbi.Stromblad



Source: Montgomery Watson, 11/99
Pre-Treatment Plant Design – Phase I Improvements

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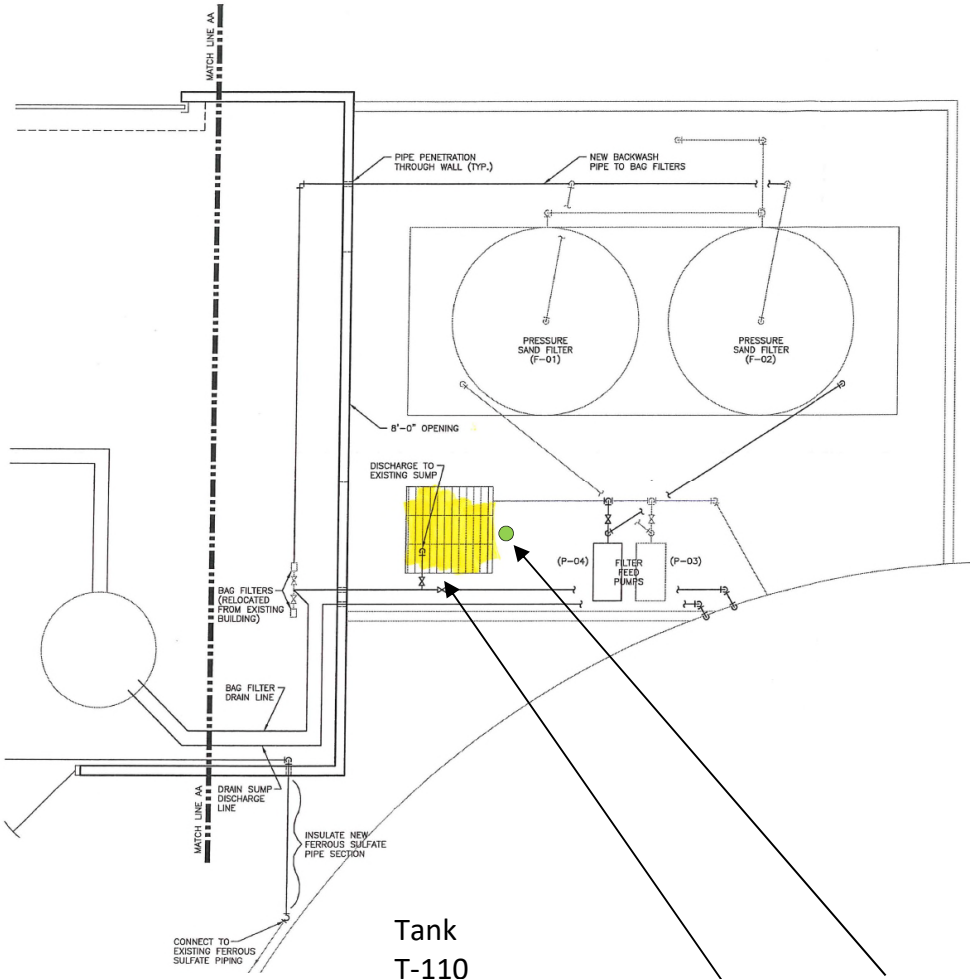
Figure 2
Sampling Location – Sump 1 in Former PTP Building

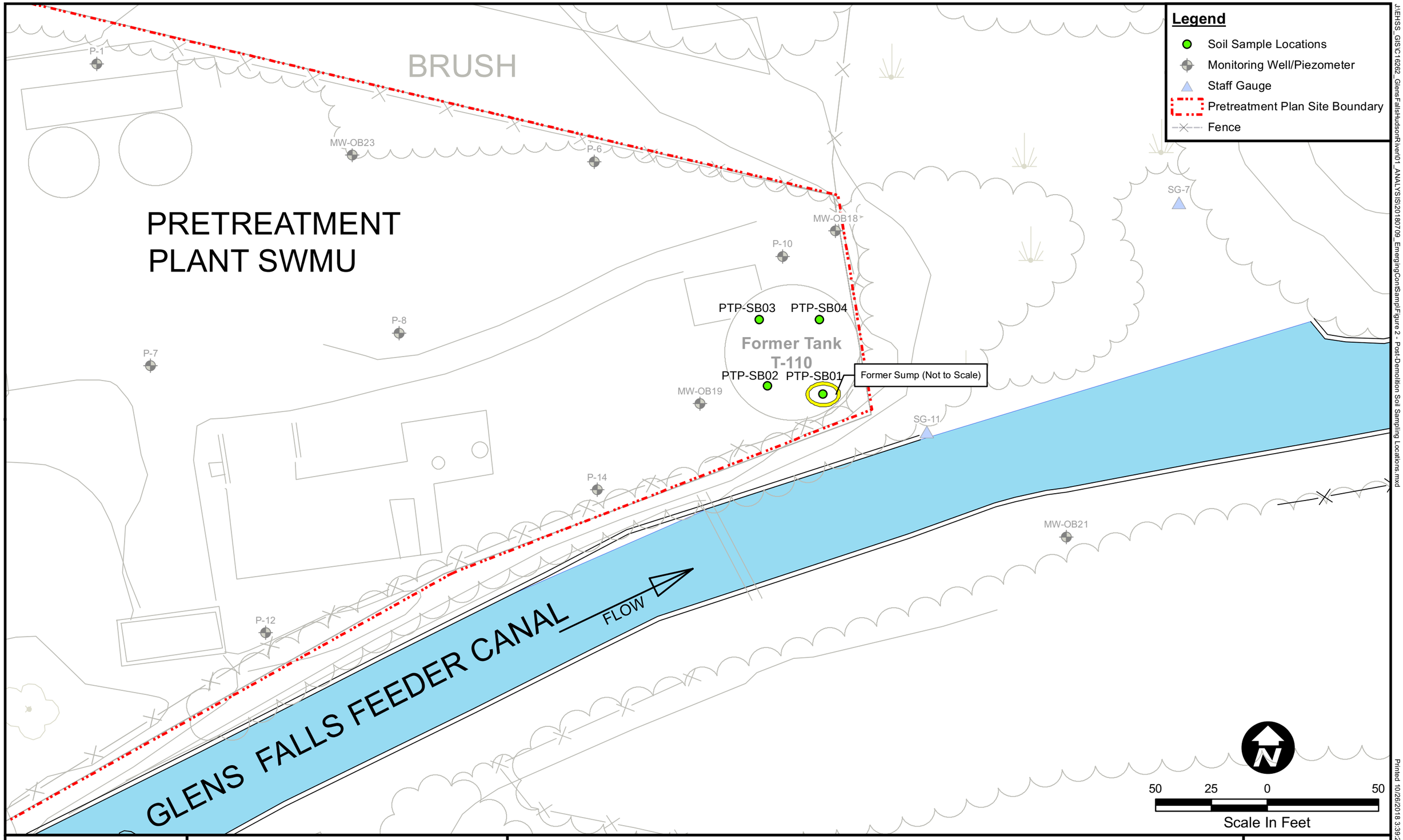
N



Source: Montgomery Watson, 11/99
Pre-Treatment Plant Design – Phase I Improvements

EHS Support

Figure 3
Sampling Location – Sump 2 in Former PTP Building



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

SAMPLING LOCATIONS - FORMER TANK T-110 AREA

FIGURE 4

Attachment 1 – Boring Logs and Well Construction Diagram

Project Name	Soil Boring Log	Soil Boring Number
Ashland - Glens Falls		PTP-SB01

Address	Drilling Contractor	Drilling Method	Backfill Material / Surface Finish
89 Lower Warren St - Pre-Treatment Plant Queensbury New York	Aztech Technologies, Inc.	Hand Auger/ Direct Push	NA
Logged By / **Approved By** K. Foster / C. Hume	Sampling Method Continuous Sample	Boring Depth 15 ft.	Boring Diameter 4 in.
Antea Group Project Number GLENSFA191	Headspace Monitoring Device NA	Date Drilling Started 5/20/19	Date Drilling Completed 5/20/19

LITHOLOGY **SAMPLING DATA**

Elevation	Depth	Graphic Log	Visual Description	Headspace (ppm)	Sample Interval (ft)	Sample Type	Sample Collected	Recovery (%)	Water Level	Temporary Well Diagram	Notes	Depth
0	0		Surface Soils		0 - 0.5	G		100			1" Temporary Blank SCH40 PVC: 0 - 5 ft.	0
			Sand; red/brown, 100% medium-fine sand		1.5 - 2	G		100				
-5	5		Sand with Clay; brown/gray, 70% medium-fine sand, 30% clay fines									5
			Sand; brown, 100% medium-fine sand as above; moist		5.5 - 6	G		100			1" Temporary SCH40 PVC with 0.01 Screen: 5 - 15 ft.	
					7 - 10	DP		100				
-10	10		Clay; brown-gray, 100% clay fines						▽			10
			Silty Sand; brown, 50% fine sand, 50% silt fines		10 - 15	DP		100				
			Clay; gray, 100% clay fines									
-15	15		Boring terminated at 15 ft. bgs.									15
-20	20											20
-25	25											25

G = Grab Sample
DP = Direct Push

Groundwater sample collected from well screen on 5/21/19 and submitted for laboratory analysis.

▽ Water Level During Drilling

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Project Name	Soil Boring Log	Soil Boring Number
Ashland - Glens Falls		**PTP-SB02**

Address	Drilling Contractor	Drilling Method	Backfill Material / Surface Finish
89 Lower Warren St - Pre-Treatment Plant **Queensbury** **New York**	**Antea Group**	**Hand Auger**	**Drill Cuttings**
Logged By / Approved By **K. Foster** / **C. Hume**	Sampling Method **Grab**	Boring Depth **2 ft.**	Boring Diameter **4 in**
Antea Group Project Number **GLENSFA191**	Headspace Monitoring Device **NA**	Date Drilling Started **5/20/19**	Date Drilling Completed **5/20/19**

LITHOLOGY **SAMPLING DATA**

Elevation	Depth	Graphic Log	Visual Description	Headspace (ppm)	Sample Interval (ft)	Sample Type	Sample Collected	Recovery (%)	Water Level Temporary Well Diagram	Notes	Depth
0	0		Sand; red/brown, 100% medium-fine sand		0 - 0.5	G		100		Soil Boring only; backfilled with drill cuttings.	0
			Sand with Clay; red/brown, 70% medium-fine sand, 30% clay fines		1.5 - 2	G		100			
			Boring terminated at 2 ft. bgs.								
-5	5										5
-10	10										10
-15	15										15
-20	20										20
-25	25										25

G = Grab Sample

▽ Water Level During Drilling

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Project Name	Soil Boring Log	Soil Boring Number
Ashland - Glens Falls		**PTP-SB03**

Address	Drilling Contractor	Drilling Method	Backfill Material / Surface Finish
89 Lower Warren St - Pre-Treatment Plant			
Queensbury **New York**	**Antea Group**	**Hand Auger**	**Drill Cuttings**
Logged By / Approved By	Sampling Method	Boring Depth	Boring Diameter
K. Foster / **C. Hume**	**Grab**	**2 ft.**	**4 in**
Antea Group Project Number	Headspace Monitoring Device	Date Drilling Started	Date Drilling Completed
GLENSFA191	**NA**	**5/20/19**	**5/20/19**

LITHOLOGY **SAMPLING DATA**

Elevation	Depth	Graphic Log	Visual Description	Headspace (ppm)	Sample Interval (ft)	Sample Type	Sample Collected	Recovery (%)	Water Level Temporary Well Diagram	Notes	Depth
0	0		Surface Soils		0 - 0.5	G		100		Soil Boring only; backfilled with drill cuttings.	0
			Sand; red/brown, 100% medium-fine sand								
			Clay; gray, 100% clay fines		1.5 - 2	G		100			
			Sand; red/brown, 100% medium-fine sand								
			Boring terminated at 2 ft. bgs.								
-5	5										5
-10	10										10
-15	15										15
-20	20										20
-25	25										25

G = Grab Sample

▽ Water Level During Drilling

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Project Name	Soil Boring Log	Soil Boring Number
Ashland - Glens Falls		**PTP-SB04**

Address	Drilling Contractor	Drilling Method	Backfill Material / Surface Finish
89 Lower Warren St - Pre-Treatment Plant			
Queensbury **New York**	**Antea Group**	**Hand Auger**	**Drill Cuttings**
Logged By / Approved By	Sampling Method	Boring Depth	Boring Diameter
K. Foster / **C. Hume**	**Grab**	**2 ft.**	**4 in**
Antea Group Project Number	Headspace Monitoring Device	Date Drilling Started	Date Drilling Completed
GLENSFA191	**NA**	**5/20/19**	**5/20/19**

LITHOLOGY **SAMPLING DATA**

Elevation	Depth	Graphic Log	Visual Description	Headspace (ppm)	Sample Interval (ft)	Sample Type	Sample Collected	Recovery (%)	Water Level Temporary Well Diagram	Notes	Depth
0	0		Surface Soils		0 - 0.5	G		100		Soil Boring only; backfilled with drill cuttings.	0
			Sand; red/brown, 100% medium-fine sand								
			Sand with Clay; red/brown, 70% medium-fine sand, 30% clay fines		1.5 - 2	G		100			
			Boring terminated at 2 ft. bgs.								
-5	5										5
-10	10										10
-15	15										15
-20	20										20
-25	25										25

G = Grab Sample

▽ Water Level During Drilling

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Project Name	Soil Boring Log	Soil Boring Number
Ashland - Glens Falls		**PTP-SB05**

Address	Drilling Contractor	Drilling Method	Backfill Material / Surface Finish
89 Lower Warren St - Pre-Treatment Plant **Queensbury** **New York**	**Antea Group**	**Hand Auger**	**Drill Cuttings**
Logged By / Approved By **K. Foster** / **C. Hume**	Sampling Method **Grab**	Boring Depth **3.5 ft.**	Boring Diameter **4 in**
Antea Group Project Number **GLENSFA191**	Headspace Monitoring Device **NA**	Date Drilling Started **5/20/19**	Date Drilling Completed **5/20/19**

LITHOLOGY **SAMPLING DATA**

Elevation	Depth	Graphic Log	Visual Description	Headspace (ppm)	Sample Interval (ft)	Sample Type	Sample Collected	Recovery (%)	Water Level Temporary Well Diagram	Notes	Depth
0	0		Concrete							Soil Boring only; backfilled with drill cuttings.	0
			Sand; brown, 100% medium-fine sand								
			Sand with Clay; brown/gray, 70% medium-fine sand, 30% clay fines		3 - 3.5	G		100			
			Boring terminated at 3.5 ft. bgs.								
-5	5										5
-10	10										10
-15	15										15
-20	20										20
-25	25										25

G = Grab Sample

▽ Water Level During Drilling

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Project Name	Soil Boring Log	Soil Boring Number
Ashland - Glens Falls		**PTP-SB06**

Address	Drilling Contractor	Drilling Method	Backfill Material / Surface Finish
89 Lower Warren St - Pre-Treatment Plant **Queensbury** **New York**	**Antea Group**	**Hand Auger**	**Drill Cuttings**
Logged By / Approved By **K. Foster** / **C. Hume**	Sampling Method **Grab**	Boring Depth **1.5 ft.**	Boring Diameter **4 in**
Antea Group Project Number **GLENSFA191**	Headspace Monitoring Device **NA**	Date Drilling Started **5/21/19**	Date Drilling Completed **5/21/19**

LITHOLOGY **SAMPLING DATA**

Elevation	Depth	Graphic Log	Visual Description	Headspace (ppm)	Sample Interval (ft)	Sample Type	Sample Collected	Recovery (%)	Water Level Temporary Well Diagram	Notes	Depth
0	0		Asphalt								0
			Sand; red/brown, 100% medium-fine sand		1 - 1.5	G		100		Soil Boring only; backfilled with drill cuttings.	
			Boring terminated at 1.5 ft. bgs.								
-5	5										5
-10	10										10
-15	15										15
-20	20										20
-25	25										25

G = Grab Sample

▽ Water Level During Drilling

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Attachment 2 – DUSRs

EHS Validation Report Number: 238

Former Ciba Geigy Facility
Queensbury, New York

Analyses performed by: TestAmerica, Buffalo, New York and Savannah, Georgia

Sample Delivery Group (SDG): 680-153844-1
Analyses: Metals, General Chemistry
Review Level: DUSR

EHS Support

Report Date: August 5, 2019

Table of Contents

Sample Summary

Soil and water samples were collected at the Former Ciba Geigy Facility in Queensbury, New York and were analyzed by Environmental Protection Agency (EPA) SW-846 Methods 6010C and 6020A for metals, 7471B for mercury, 7196A for hexavalent chromium, and 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+}
480-153844-1	PTP SB01	Water	5/21/2019	X	X	X
480-153844-2	PTP DUP01	Water	5/21/2019	X	X	X
480-153844-3	PTP Blank	Water	5/21/2019	X	X	X
480-153844-4	PTP-SB02 (0-0.5')	Soil	5/20/2019	X	X	
480-153844-6	PTP-SB03 (0-0.5')	Soil	5/20/2019	X	X	
480-153844-8	PTP-SB04 (0-0.5')	Soil	5/21/2019	X	X	
480-153844-10	PTP-SB01 (0-0.5')	Soil	5/21/2019	X	X	
480-153844-11	PTP-SB01 (1.5-2')	Soil	5/21/2019	X	X	
480-153844-13	PTP-SB05 (3-3.5')	Soil	5/21/2019	X	X	
480-153844-14	PTP-SB06 (1-1.5')	Soil	5/21/2019	X	X	
480-153844-15	PTP-DUP01 (0-0.5')	Soil	5/21/2019	X	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 that there is a gap between the relinquishing and receiving signatures associated with the second custody transfer. 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 Metals 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
Metals (except Hg and Cr6+) by 6010 / 6020	Water	HNO_3 to pH <2	180 days
	Soil	None	180 days
Mercury by 7470A	Water	HNO_3 to pH <2	28 days
Mercury by 7471B	Soil	≤6 °C	28 days

4.2 ICP-MS Tune Analysis

Acceptance criteria were met.

4.3 Calibration

Acceptance criteria were met: The ICV and CCV (initial calibration and continuing calibration verification) results were within limits for all reported metals. The CCVs at low concentrations also exhibited acceptable recoveries.

4.4 Blanks

Acceptance criteria were met. No detections were reported in the equipment blank nor the laboratory blanks.

4.5 ICP Interference Check Sample (ICS)

Acceptance criteria were met

4.6 Laboratory Control Sample (LCS)

Acceptance criteria were met.

4.7 Laboratory Duplicate Analysis

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

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

Acceptance criteria were met. MS/MSD analysis of 6010 metals was performed on sample 480-153844-4 and, for mercury, MS/MSD analysis was performed on sample 480-153844-15.

4.9 Serial Dilution

Acceptance criteria were met. Please note that serial dilution analysis is only evaluated for compounds that were detected in the original sample at concentrations at least 50X the IDL.

4.10 ICP MS Internal Standards

Acceptance criteria were met.

4.11 Field Duplicates

Acceptance criteria, shown in the table below, were met. One field duplicate sample was included in 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

4.12 Additional Notes

From the filtered sample aliquots, total chromium and hexavalent chromium were analyzed and reported. Relationships between hexavalent chromium results and total chromium results were acceptable.

5 General Chemistry Analysis

5.1 Preservation and holding times

Acceptance criteria were met for all reported results. 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
Hexavalent chromium by 7196	Water	≤6 °C	24 hours

5.2 Calibration

Acceptance criteria were met:

- All ICV and CCV recoveries were within control limits.
- Calibration curves exhibited acceptable correlation coefficients.

5.3 Blanks

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

Analyte	Blank detection	Blank result (category)	Associated samples	Sample result	Qualification
Cyanide	0.00399 J mg/L (CCB) and 0.0056 J mg/L (EB)	≤ RL	480-153844-2	> RL and > 5X the blank result	No qualification needed
	0.00420 J mg/L (CCB) and 0.0056 J mg/L (EB)	≤ RL	480-153844-1	> RL and > 5X the blank result	No qualification needed
	1.17 mg/kg (MB)	> RL	480-153844-4 480-153844-6 480-153844-11 480-153844-14	< RL	U at the RL
			480-153844-8 480-153844-15	Non-detect	No qualification needed
			480-153844-10	> RL and > 5x blank concentration	No qualification needed
			480-153844-13	> RL but < 5x blank concentration	U at the detected concentration

CCB Continuing calibration blank
EB Equipment blank
MB Method blank
U Non-detect
RL Reporting limit

Please note that blank samples are not qualified due to contamination seen in other blanks. For example, equipment blanks are not qualified based on calibration blank results.

5.4 Laboratory Control Sample (LCS)

Acceptance criteria were met.

5.5 Laboratory Duplicate Analysis

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

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

Acceptance criteria were met. MS/MSD analysis was performed on sample 480-153844-1 for cyanide. The recoveries and the relative percent difference (RPD) between MS and MSD were acceptable.

5.7 Field Duplicates

One field duplicate sample was submitted in this sample delivery group. The field duplicate analysis associated with a relative percent different (RPD) value outside acceptance limits is shown in the table below.

Samples	Analyte	Parent Sample Result	Duplicate Sample Result	RPD
PTP-SB01 (0-0.5')/ PTP-DUP01 (0-0.5')	Cyanide	8.9 mg/kg	1.0 U mg/kg	NC

NC Not compliant (this refers to cases in which the sample and/or duplicate concentration is less than 2X the RL and the difference between the two is outside acceptance limits)

As a consequence of this QC excursion, qualification in accordance with the table below has been applied to all soil cyanide results in this data set.

Quality Control Nonconformance	Sample Result	Sample Result Qualification
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

5.8 Additional Notes

NA: No additional notes to report.

Validation performed by: Amy Coats
EHS Support

EHS Validation Report Number: 239

Former Ciba Geigy Facility
Queensbury, New York

Analyses performed by: TestAmerica, Buffalo, New York and Pittsburgh, Pennsylvania

Sample Delivery Group (SDG): 680-153844-2
Analyses: Metals, General Chemistry
Review Level: DUSR

EHS Support

Report Date:
July 18, 2019

Table of Contents

Sample Summary

Soil samples were collected at the Former Ciba Geigy Facility in Queensbury, New York and were analyzed by Environmental Protection Agency (EPA) SW-846 Methods 6010C for metals, 7471B for mercury, 9012B for cyanide, and 719A for hexavalent chromium. 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	Cyanide	Hex. chromium
480-153844-11	PTP-SB01 (1.5-2')	Soil	5/21/2019			X
480-153844-12	PTP-SB01 (5.5-6')	Soil	5/21/2019	X	X	X
480-153844-13	PTP-SB05 (3-3.5')	Soil	5/21/2019			X
480-153844-14	PTP-SB06 (1-1.5')	Soil	5/21/2019			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 but there is a gap between the relinquishing and receiving times associated with the second custody transfer. It is assumed that custody was maintained.

3 Assessment Summary and Data Usability

In this SDG, QC (quality control) excursions lead to rejection of one sample result. Remaining data are considered usable. Please refer to report below for specific QC variances and data qualification.

4 Metals Analysis

4.1 Preservation and holding times

Relevant preservation and holding time requirements are presented in the following table.

Method	Matrix	Preservation	Holding Time
Metals (except Hg and Cr6+) by 6010 / 6020	Water	HNO_3 to pH <2	180 days
	Soil	None	180 days
Mercury by 7471B	Soil	≤6 °C	28 days

Analyses performed outside of specified holding times are listed in the following table. Other holding time criteria for metals analyses were met.

Sample	Analysis	Method holding time	Observed holding time
480-153844-12	7471B	28 days	40 days

The samples listed in the table above have been qualified as follows:

Quality Control Nonconformance	Qualification	
	Detected analytes	Non-detect analytes
Technical Holding Time exceeded; analysis performed in less than, or equal to, 2x holding time	J	UJ
Technical Holding Time exceeded; analysis performed in more than 2x holding time	J	R

4.2 ICP-MS Tune Analysis

Neither raw data nor %RSD summary reports were available from the laboratory. Laboratory personnel have stated that no samples are run unless the %RSD values are less than 5 for each isotope. No qualification was applied as a consequence of this lack of tune data.

4.3 Calibration

Acceptance criteria were met: The ICV and CCV (initial calibration and continuing calibration verification) results were within limits for all reported metals. The CCVs at low concentrations also exhibited acceptable recoveries.

4.4 Blanks

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

Analyte	Blank detection	Blank result (category)	Associated samples	Sample result	Qualification
Cadmium	0.103 J mg/kg (MB)	> RL	480-153844-12	0.081 J mg/kg	U at the RL

MB Method blank

4.5 ICP Interference Check Sample (ICS)

Acceptance criteria were met

4.6 Laboratory Control Sample (LCS)

Acceptance criteria were met.

4.7 Laboratory Duplicate Analysis

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

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

Matrix spike analyses associated with recoveries and/or RPD values outside control limits are presented in the table below.

Sample ID	Analyte	Recovery		MS/MSD RPD
		MS	MSD	
480-153844-12	Barium	Acceptable	164%	> Upper acceptance limit

The impacted result was qualified in accordance with the table below.

Spike recovery	Sample result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J
MS/MSD RPD > UL	Non-detect	UJ
	Detect	J

4.9 Serial Dilution

Serial dilution analysis results that were outside control limits are shown in the table below.

Sample	Analyte	% Difference
480-153844-12	Barium	16

As a consequence of these excursions, barium results in all soil samples in this SDG have been qualified as estimated.

4.10 ICP MS Internal Standards

Acceptance criteria were met.

4.11 Field Duplicates

NA: No field duplicate samples were submitted in this sample delivery group.

4.12 Additional Notes:

For one sample, total chromium and hexavalent chromium were analyzed and reported. The relationship between the hexavalent chromium result and the total chromium result was acceptable.

5 General Chemistry Analysis

5.1 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	Soil	≤6 °C	14 days
Hexavalent chromium by 7196	Soil	≤6 °C	28 days

Analyses performed outside of specified holding times are listed in the following table. All other holding time criteria were met.

Samples	Analysis	Technical holding time	Observed holding time
480-153844-11 480-153844-12 480-153844-13 480-153844-14	Hexavalent chromium	28 days	43 days
480-153844-12	Cyanide	14 days	41 days

The samples listed in the table above have been qualified as per the table below.

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

5.2 Calibration

Acceptance criteria were met:

- All ICV and CCV recoveries were within control limits.
- Calibration curves exhibited acceptable correlation coefficients.

5.3 Blanks

Acceptance criteria were met.

5.4 Laboratory Control Sample (LCS)

Acceptance criteria were met.

5.5 Laboratory Duplicate Analysis

Acceptance criteria were met. Laboratory duplicate analysis was performed on sample 480-153844-12. Results for the parent and the duplicate were non-detect.

5.6 Matrix Spike (MS) Analysis

NA: No MS analysis was reported with this data set.

5.7 Field Duplicates

NA: No field duplicate samples were submitted in this sample delivery group.

5.8 Additional Notes

NA: No additional notes to report.

Validation performed by: Amy Coats
EHS Support

Attachment 3 – Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 480-153844-1
Client Project/Site: Hercules Glens Falls O&M

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

Attn: Mr. Jim Vondracek

Authorized for release by:
6/26/2019 9:13:05 AM

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

Table of Contents

Definitions/Glossary

Client: Ashland LLC
Job ID: 480-153844-1
Project/Site: Hercules Glens Falls O&M

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

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

Glossary

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

Job ID: 480-153844-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

CASE NARRATIVE
Client: Ashland LLC
Project: Hercules Glens Falls O&M

Report Number: 480-153844-1

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 05/22/2019; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.2º C.

METALS (ICP)
Samples PTP-SB02 (0-0.5') (480-153844-4), PTP-SB03 (0-0.5') (480-153844-6), PTP-SB04 (0-0.5') (480-153844-8), PTP-SB01 (0-0.5') (480-153844-10), PTP-SB01 (1.5-2') (480-153844-11), PTP-SB05 (3-3.5') (480-153844-13), PTP-SB06 (1-1.5') (480-153844-14) and PTP-DUP01 (0-0.5') (480-153844-15) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/23/2019 and analyzed on 05/30/2019.

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

METALS (ICPMS) - DISSOLVED
Samples PTP SB01 (480-153844-1), PTP DUP01 (480-153844-2) and PTP Blank (480-153844-3) were analyzed for Metals (ICPMS) - Dissolved in accordance with EPA SW-846 Method 6020A. The samples were prepared on 05/29/2019 and analyzed on 06/01/2019.

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

HEXAVALENT CHROMIUM
Samples PTP SB01 (480-153844-1), PTP DUP01 (480-153844-2) and PTP Blank (480-153844-3) were analyzed for hexavalent chromium in accordance with EPA SW-846 Method 7196A. The samples were analyzed on 05/22/2019.

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

TOTAL MERCURY
Samples PTP-SB02 (0-0.5') (480-153844-4), PTP-SB03 (0-0.5') (480-153844-6), PTP-SB04 (0-0.5') (480-153844-8), PTP-SB01 (0-0.5') (480-153844-10), PTP-SB01 (1.5-2') (480-153844-11), PTP-SB05 (3-3.5') (480-153844-13), PTP-SB06 (1-1.5') (480-153844-14) and PTP-DUP01 (0-0.5') (480-153844-15) were analyzed for total mercury in accordance with EPA SW-846 Method 7471B. The samples were prepared and analyzed on 05/24/2019.

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

TOTAL CYANIDE
Samples PTP-SB02 (0-0.5') (480-153844-4), PTP-SB03 (0-0.5') (480-153844-6), PTP-SB04 (0-0.5') (480-153844-8), PTP-SB01 (0-0.5') (480-153844-10), PTP-SB01 (1.5-2') (480-153844-11), PTP-SB05 (3-3.5') (480-153844-13), PTP-SB06 (1-1.5') (480-153844-14) and PTP-DUP01 (0-0.5') (480-153844-15) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012B. The samples were prepared on 05/25/2019 and analyzed on 05/26/2019.

Cyanide, Total exceeded the RPD limit for the duplicate of sample 480-153885-1. Refer to the QC report for details.

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

Job ID: 480-153844-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

TOTAL CYANIDE

Samples PTP SB01 (480-153844-1), PTP DUP01 (480-153844-2) and PTP Blank (480-153844-3) were analyzed for total cyanide in accordance with EPA SW-846 Method 9012B. The samples were prepared on 06/03/2019 and analyzed on 06/04/2019 and 06/11/2019.

Reanalysis of sample PTP DUP01 (480-153844-2) was performed outside of the analytical holding time due to failing QC in the initial analysis. Both sets of data have been reported.

Cyanide, Total recovered high for the MS of sample PTP SB01MS (480-153844-1) in batch 680-572914. Refer to the QC report for details.

Samples PTP SB01 (480-153844-1)[10X] and PTP DUP01 (480-153844-2)[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.

PERCENT SOLIDS/MOISTURE

Samples PTP-SB02 (0-0.5') (480-153844-4), PTP-SB03 (0-0.5') (480-153844-6), PTP-SB04 (0-0.5') (480-153844-8), PTP-SB01 (0-0.5') (480-153844-10), PTP-SB01 (1.5-2') (480-153844-11), PTP-SB05 (3-3.5') (480-153844-13), PTP-SB06 (1-1.5') (480-153844-14) and PTP-DUP01 (0-0.5') (480-153844-15) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 06/14/2019 and 06/25/2019.

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

Detection Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-1

Client Sample ID: PTP SB01 — Lab Sample ID: 480-153844-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Chromium	30		1.5	0.36	ug/L	1		6020A	Dissolved
Cyanide, Total	0.42		0.10	0.025	mg/L	10		9012B	Total/NA
Chromium, hexavalent	0.024		0.010	0.0050	mg/L	1		7196A	Dissolved

Client Sample ID: PTP DUP01 — Lab Sample ID: 480-153844-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dissolved Chromium	31		1.5	0.36	ug/L	1		6020A	Dissolved
Cyanide, Total	0.32		0.010	0.0025	mg/L	1		9012B	Total/NA
Cyanide, Total	0.33	H	0.10	0.025	mg/L	10		9012B	Total/NA
Chromium, hexavalent	0.026		0.010	0.0050	mg/L	1		7196A	Dissolved

Client Sample ID: PTP Blank — Lab Sample ID: 480-153844-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.0056	J	0.010	0.0025	mg/L	1		9012B	Total/NA

Client Sample ID: PTP-SB02 (0-0.5') — Lab Sample ID: 480-153844-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	14		0.54	0.12	mg/Kg	1	☼	6010C	Total/NA
Cadmium	0.12	J	0.22	0.032	mg/Kg	1	☼	6010C	Total/NA
Chromium	7.3		0.54	0.22	mg/Kg	1	☼	6010C	Total/NA
Lead	4.0		1.1	0.26	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.024		0.020	0.0080	mg/Kg	1	☼	7471B	Total/NA
Cyanide, Total	0.47	J B	0.97	0.47	mg/Kg	1	☼	9012B	Total/NA

Client Sample ID: PTP-SB03 (0-0.5') — Lab Sample ID: 480-153844-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	25		0.55	0.12	mg/Kg	1	☼	6010C	Total/NA
Cadmium	0.29		0.22	0.033	mg/Kg	1	☼	6010C	Total/NA
Chromium	14		0.55	0.22	mg/Kg	1	☼	6010C	Total/NA
Lead	18		1.1	0.26	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.051		0.020	0.0082	mg/Kg	1	☼	7471B	Total/NA
Cyanide, Total	0.51	J B	1.0	0.48	mg/Kg	1	☼	9012B	Total/NA

Client Sample ID: PTP-SB04 (0-0.5') — Lab Sample ID: 480-153844-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	24		0.56	0.12	mg/Kg	1	☼	6010C	Total/NA
Cadmium	0.41		0.22	0.033	mg/Kg	1	☼	6010C	Total/NA
Chromium	15		0.56	0.22	mg/Kg	1	☼	6010C	Total/NA
Lead	9.5		1.1	0.27	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.088		0.020	0.0082	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: PTP-SB01 (0-0.5') — Lab Sample ID: 480-153844-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	31		0.55	0.12	mg/Kg	1	☼	6010C	Total/NA
Cadmium	0.54		0.22	0.033	mg/Kg	1	☼	6010C	Total/NA
Chromium	16		0.55	0.22	mg/Kg	1	☼	6010C	Total/NA
Lead	13		1.1	0.26	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.071		0.021	0.0084	mg/Kg	1	☼	7471B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: PTP-SB01 (0-0.5') (Continued) — Lab Sample ID: 480-153844-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	8.9	B	1.1	0.52	mg/Kg	1	☼	9012B	Total/NA

Client Sample ID: PTP-SB01 (1.5-2') — Lab Sample ID: 480-153844-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	53		0.57	0.12	mg/Kg	1	☼	6010C	Total/NA
Cadmium	1.3		0.23	0.034	mg/Kg	1	☼	6010C	Total/NA
Chromium	46		0.57	0.23	mg/Kg	1	☼	6010C	Total/NA
Lead	37		1.1	0.27	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.12		0.023	0.0092	mg/Kg	1	☼	7471B	Total/NA
Cyanide, Total	0.54	J B	1.1	0.52	mg/Kg	1	☼	9012B	Total/NA

Client Sample ID: PTP-SB05 (3-3.5') — Lab Sample ID: 480-153844-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	80		0.59	0.13	mg/Kg	1	☼	6010C	Total/NA
Cadmium	3.7		0.23	0.035	mg/Kg	1	☼	6010C	Total/NA
Chromium	89		0.59	0.23	mg/Kg	1	☼	6010C	Total/NA
Lead	100		1.2	0.28	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.28		0.022	0.0091	mg/Kg	1	☼	7471B	Total/NA
Cyanide, Total	4.4	B	1.1	0.55	mg/Kg	1	☼	9012B	Total/NA

Client Sample ID: PTP-SB06 (1-1.5') — Lab Sample ID: 480-153844-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	46		0.55	0.12	mg/Kg	1	☼	6010C	Total/NA
Cadmium	2.1		0.22	0.033	mg/Kg	1	☼	6010C	Total/NA
Chromium	23		0.55	0.22	mg/Kg	1	☼	6010C	Total/NA
Lead	15		1.1	0.26	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.14		0.022	0.0088	mg/Kg	1	☼	7471B	Total/NA
Cyanide, Total	0.64	J B	1.1	0.53	mg/Kg	1	☼	9012B	Total/NA

Client Sample ID: PTP-DUP01 (0-0.5') — Lab Sample ID: 480-153844-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	24		0.54	0.12	mg/Kg	1	☼	6010C	Total/NA
Cadmium	0.45		0.21	0.032	mg/Kg	1	☼	6010C	Total/NA
Chromium	16		0.54	0.21	mg/Kg	1	☼	6010C	Total/NA
Lead	15		1.1	0.26	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.074		0.021	0.0087	mg/Kg	1	☼	7471B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: PTP SB01
Lab Sample ID: 480-153844-1
Date Collected: 05/21/19 13:55
Matrix: Water
Date Received: 05/22/19 05:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	30		1.5	0.36	ug/L		05/29/19 12:04	06/01/19 15:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.42		0.10	0.025	mg/L		06/03/19 09:28	06/04/19 09:44	10

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.024		0.010	0.0050	mg/L			05/22/19 09:07	1

Client Sample ID: PTP DUP01
Lab Sample ID: 480-153844-2
Date Collected: 05/21/19 00:00
Matrix: Water
Date Received: 05/22/19 05:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	31		1.5	0.36	ug/L		05/29/19 12:04	06/01/19 15:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.32		0.010	0.0025	mg/L		06/03/19 09:28	06/04/19 09:03	1
Cyanide, Total	0.33	H	0.10	0.025	mg/L		06/03/19 09:28	06/11/19 15:04	10

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.026		0.010	0.0050	mg/L			05/22/19 09:07	1

Client Sample ID: PTP Blank
Lab Sample ID: 480-153844-3
Date Collected: 05/21/19 14:45
Matrix: Water
Date Received: 05/22/19 05:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	1.5	U	1.5	0.36	ug/L		05/29/19 12:04	06/01/19 15:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.0056	J	0.010	0.0025	mg/L		06/03/19 09:28	06/04/19 09:04	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.010	U	0.010	0.0050	mg/L			05/22/19 09:07	1

Client Sample ID: PTP-SB02 (0-0.5')
Lab Sample ID: 480-153844-4
Date Collected: 05/20/19 10:10
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 94.7

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	14		0.54	0.12	mg/Kg	☼	05/23/19 12:43	05/30/19 15:18	1
Cadmium	0.12	J	0.22	0.032	mg/Kg	☼	05/23/19 12:43	05/30/19 15:18	1
Chromium	7.3		0.54	0.22	mg/Kg	☼	05/23/19 12:43	05/30/19 15:18	1

Client Sample ID: PTP-SB02 (0-0.5')
Lab Sample ID: 480-153844-4

Date Collected: 05/20/19 10:10
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 94.7

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.0		1.1	0.26	mg/Kg	☼	05/23/19 12:43	05/30/19 15:18	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.024		0.020	0.0080	mg/Kg	☼	05/24/19 14:10	05/24/19 16:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.47	J B	0.97	0.47	mg/Kg	☼	05/25/19 15:17	05/26/19 11:20	1

Client Sample ID: PTP-SB03 (0-0.5')
Lab Sample ID: 480-153844-6

Date Collected: 05/20/19 10:30
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 92.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	25		0.55	0.12	mg/Kg	☼	05/23/19 12:43	05/30/19 15:47	1
Cadmium	0.29		0.22	0.033	mg/Kg	☼	05/23/19 12:43	05/30/19 15:47	1
Chromium	14		0.55	0.22	mg/Kg	☼	05/23/19 12:43	05/30/19 15:47	1
Lead	18		1.1	0.26	mg/Kg	☼	05/23/19 12:43	05/30/19 15:47	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.051		0.020	0.0082	mg/Kg	☼	05/24/19 14:10	05/24/19 16:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.51	J B	1.0	0.48	mg/Kg	☼	05/25/19 15:17	05/26/19 11:22	1

Client Sample ID: PTP-SB04 (0-0.5')
Lab Sample ID: 480-153844-8

Date Collected: 05/20/19 10:50
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 90.3

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	24		0.56	0.12	mg/Kg	☼	05/23/19 12:43	05/30/19 15:51	1
Cadmium	0.41		0.22	0.033	mg/Kg	☼	05/23/19 12:43	05/30/19 15:51	1
Chromium	15		0.56	0.22	mg/Kg	☼	05/23/19 12:43	05/30/19 15:51	1
Lead	9.5		1.1	0.27	mg/Kg	☼	05/23/19 12:43	05/30/19 15:51	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.088		0.020	0.0082	mg/Kg	☼	05/24/19 14:10	05/24/19 16:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	1.1	U	1.1	0.53	mg/Kg	☼	05/25/19 15:17	05/26/19 11:23	1

Client Sample ID: PTP-SB01 (0-0.5')

Lab Sample ID: 480-153844-10

Date Collected: 05/21/19 08:35
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 91.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	31		0.55	0.12	mg/Kg	☼	05/23/19 12:43	05/30/19 15:54	1
Cadmium	0.54		0.22	0.033	mg/Kg	☼	05/23/19 12:43	05/30/19 15:54	1
Chromium	16		0.55	0.22	mg/Kg	☼	05/23/19 12:43	05/30/19 15:54	1
Lead	13		1.1	0.26	mg/Kg	☼	05/23/19 12:43	05/30/19 15:54	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.071		0.021	0.0084	mg/Kg	☼	05/24/19 14:10	05/24/19 16:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	8.9	B	1.1	0.52	mg/Kg	☼	05/25/19 15:17	05/26/19 11:25	1

Client Sample ID: PTP-SB01 (1.5-2')

Lab Sample ID: 480-153844-11

Date Collected: 05/21/19 08:45
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 89.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	53		0.57	0.12	mg/Kg	☼	05/23/19 12:43	05/30/19 15:58	1
Cadmium	1.3		0.23	0.034	mg/Kg	☼	05/23/19 12:43	05/30/19 15:58	1
Chromium	46		0.57	0.23	mg/Kg	☼	05/23/19 12:43	05/30/19 15:58	1
Lead	37		1.1	0.27	mg/Kg	☼	05/23/19 12:43	05/30/19 15:58	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.12		0.023	0.0092	mg/Kg	☼	05/24/19 14:10	05/24/19 16:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.54	J B	1.1	0.52	mg/Kg	☼	05/25/19 15:17	05/26/19 11:29	1

Client Sample ID: PTP-SB05 (3-3.5')

Lab Sample ID: 480-153844-13

Date Collected: 05/21/19 09:30
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 85.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	80		0.59	0.13	mg/Kg	☼	05/23/19 12:43	05/30/19 16:02	1
Cadmium	3.7		0.23	0.035	mg/Kg	☼	05/23/19 12:43	05/30/19 16:02	1
Chromium	89		0.59	0.23	mg/Kg	☼	05/23/19 12:43	05/30/19 16:02	1
Lead	100		1.2	0.28	mg/Kg	☼	05/23/19 12:43	05/30/19 16:02	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.28		0.022	0.0091	mg/Kg	☼	05/24/19 14:10	05/24/19 16:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	4.4	B	1.1	0.55	mg/Kg	☼	05/25/19 15:17	05/26/19 11:30	1

Client Sample ID: PTP-SB06 (1-1.5')

Lab Sample ID: 480-153844-14
Date Collected: 05/21/19 09:10
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 88.1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	46		0.55	0.12	mg/Kg	☼	05/23/19 12:43	05/30/19 16:05	1
Cadmium	2.1		0.22	0.033	mg/Kg	☼	05/23/19 12:43	05/30/19 16:05	1
Chromium	23		0.55	0.22	mg/Kg	☼	05/23/19 12:43	05/30/19 16:05	1
Lead	15		1.1	0.26	mg/Kg	☼	05/23/19 12:43	05/30/19 16:05	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.14		0.022	0.0088	mg/Kg	☼	05/24/19 14:10	05/24/19 16:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.64	J B	1.1	0.53	mg/Kg	☼	05/25/19 15:17	05/26/19 11:32	1

Client Sample ID: PTP-DUP01 (0-0.5')

Lab Sample ID: 480-153844-15
Date Collected: 05/21/19 00:00
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 92.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	24		0.54	0.12	mg/Kg	☼	05/23/19 12:43	05/30/19 16:20	1
Cadmium	0.45		0.21	0.032	mg/Kg	☼	05/23/19 12:43	05/30/19 16:20	1
Chromium	16		0.54	0.21	mg/Kg	☼	05/23/19 12:43	05/30/19 16:20	1
Lead	15		1.1	0.26	mg/Kg	☼	05/23/19 12:43	05/30/19 16:20	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.074		0.021	0.0087	mg/Kg	☼	05/24/19 14:10	05/24/19 16:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	1.0	U	1.0	0.50	mg/Kg	☼	05/25/19 15:17	05/26/19 11:33	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-474373/1-A
Matrix: Solid
Analysis Batch: 475551

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 474373

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.50	U	0.50	0.11	mg/Kg		05/23/19 12:43	05/30/19 15:11	1
Cadmium	0.20	U	0.20	0.030	mg/Kg		05/23/19 12:43	05/30/19 15:11	1
Chromium	0.50	U	0.50	0.20	mg/Kg		05/23/19 12:43	05/30/19 15:11	1
Lead	1.0	U	1.0	0.24	mg/Kg		05/23/19 12:43	05/30/19 15:11	1

Lab Sample ID: LCSSRM 480-474373/2-A
Matrix: Solid
Analysis Batch: 475551

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 474373

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	288	262		mg/Kg		90.8	70.5 - 117.4
Cadmium	153	135		mg/Kg		88.4	68.6 - 115.0
Chromium	179	163		mg/Kg		90.8	65.4 - 121.2
Lead	74.5	81.9		mg/Kg		110.0	67.8 - 130.3

Lab Sample ID: 480-153844-4 MS
Matrix: Solid
Analysis Batch: 475551

Client Sample ID: PTP-SB02 (0-0.5')
Prep Type: Total/NA
Prep Batch: 474373

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	14		42.1	62.7		mg/Kg	☼		
Cadmium	0.12	J	42.1	40.0		mg/Kg	☼		
Chromium	7.3		42.1	50.7		mg/Kg	☼		
Lead	4.0		42.1	47.6		mg/Kg	☼		

Lab Sample ID: 480-153844-4 MSD
Matrix: Solid
Analysis Batch: 475551

Client Sample ID: PTP-SB02 (0-0.5')
Prep Type: Total/NA
Prep Batch: 474373

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	14		41.7	62.5		mg/Kg	☼				
Cadmium	0.12	J	41.7	39.9		mg/Kg	☼				
Chromium	7.3		41.7	48.0		mg/Kg	☼				
Lead	4.0		41.7	47.3		mg/Kg	☼				

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 480-475049/1-A
Matrix: Water
Analysis Batch: 476089

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 475049

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Chromium	1.5	U	1.5	0.36	ug/L		05/29/19 12:04	06/01/19 15:10	1

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

Lab Sample ID: LCS 480-475049/2-A
Matrix: Water
Analysis Batch: 476089

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 475049

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Dissolved Chromium			20.0	19.8		ug/L		99	80 - 120		

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 480-474404/1-A
Matrix: Solid
Analysis Batch: 474690

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 474404

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	U	0.020	0.0080	mg/Kg		05/24/19 14:10	05/24/19 15:58	1

Lab Sample ID: LCSSRM 480-474404/2-A ^5
Matrix: Solid
Analysis Batch: 474690

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 474404

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			4.85	3.15		mg/Kg		65.0	46.0 - 107.0		

Lab Sample ID: 480-153844-15 MS
Matrix: Solid
Analysis Batch: 474690

Client Sample ID: PTP-DUP01 (0-0.5')
Prep Type: Total/NA
Prep Batch: 474404

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	0.074		0.336	0.439		mg/Kg	☼	109	80 - 120		

Lab Sample ID: 480-153844-15 MSD
Matrix: Solid
Analysis Batch: 474690

Client Sample ID: PTP-DUP01 (0-0.5')
Prep Type: Total/NA
Prep Batch: 474404

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.074		0.363	0.468		mg/Kg	☼	109	80 - 120	6	20

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 480-474228/27
Matrix: Water
Analysis Batch: 474228

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.010	U	0.010	0.0050	mg/L			05/22/19 09:07	1

Lab Sample ID: MB 480-474228/3
Matrix: Water
Analysis Batch: 474228

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.010	U	0.010	0.0050	mg/L			05/22/19 09:07	1

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: LCS 480-474228/28
Matrix: Water
Analysis Batch: 474228

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.0500	0.0509		mg/L		102	85 - 115

Lab Sample ID: LCS 480-474228/4
Matrix: Water
Analysis Batch: 474228

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.0500	0.0509		mg/L		102	85 - 115

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 680-572763/1-A
Matrix: Water
Analysis Batch: 572914

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 572763

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.010	U	0.010	0.0025	mg/L		06/03/19 09:28	06/04/19 08:50	1

Lab Sample ID: LCS 680-572763/2-A
Matrix: Water
Analysis Batch: 572914

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 572763

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.0500	0.0545		mg/L		109	85 - 115

Lab Sample ID: 480-153844-1 MS
Matrix: Water
Analysis Batch: 572914

Client Sample ID: PTP SB01
Prep Type: Total/NA
Prep Batch: 572763

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.42		0.0500	0.485	4	mg/L		132	85 - 115

Lab Sample ID: 480-153844-1 MSD
Matrix: Water
Analysis Batch: 572914

Client Sample ID: PTP SB01
Prep Type: Total/NA
Prep Batch: 572763

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	0.42		0.0500	0.475	4	mg/L		112	85 - 115	2	20

Metals

Prep Batch: 474373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-4	PTP-SB02 (0-0.5')	Total/NA	Solid	3050B	
480-153844-6	PTP-SB03 (0-0.5')	Total/NA	Solid	3050B	
480-153844-8	PTP-SB04 (0-0.5')	Total/NA	Solid	3050B	
480-153844-10	PTP-SB01 (0-0.5')	Total/NA	Solid	3050B	
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	3050B	
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	3050B	
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	3050B	
480-153844-15	PTP-DUP01 (0-0.5')	Total/NA	Solid	3050B	
MB 480-474373/1-A	Method Blank	Total/NA	Solid	3050B	
LCSSRM 480-474373/2-A	Lab Control Sample	Total/NA	Solid	3050B	
480-153844-4 MS	PTP-SB02 (0-0.5')	Total/NA	Solid	3050B	
480-153844-4 MSD	PTP-SB02 (0-0.5')	Total/NA	Solid	3050B	

Prep Batch: 474404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-4	PTP-SB02 (0-0.5')	Total/NA	Solid	7471B	
480-153844-6	PTP-SB03 (0-0.5')	Total/NA	Solid	7471B	
480-153844-8	PTP-SB04 (0-0.5')	Total/NA	Solid	7471B	
480-153844-10	PTP-SB01 (0-0.5')	Total/NA	Solid	7471B	
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	7471B	
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	7471B	
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	7471B	
480-153844-15	PTP-DUP01 (0-0.5')	Total/NA	Solid	7471B	
MB 480-474404/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 480-474404/2-A ^5	Lab Control Sample	Total/NA	Solid	7471B	
480-153844-15 MS	PTP-DUP01 (0-0.5')	Total/NA	Solid	7471B	
480-153844-15 MSD	PTP-DUP01 (0-0.5')	Total/NA	Solid	7471B	

Analysis Batch: 474690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-4	PTP-SB02 (0-0.5')	Total/NA	Solid	7471B	474404
480-153844-6	PTP-SB03 (0-0.5')	Total/NA	Solid	7471B	474404
480-153844-8	PTP-SB04 (0-0.5')	Total/NA	Solid	7471B	474404
480-153844-10	PTP-SB01 (0-0.5')	Total/NA	Solid	7471B	474404
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	7471B	474404
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	7471B	474404
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	7471B	474404
480-153844-15	PTP-DUP01 (0-0.5')	Total/NA	Solid	7471B	474404
MB 480-474404/1-A	Method Blank	Total/NA	Solid	7471B	474404
LCSSRM 480-474404/2-A ^5	Lab Control Sample	Total/NA	Solid	7471B	474404
480-153844-15 MS	PTP-DUP01 (0-0.5')	Total/NA	Solid	7471B	474404
480-153844-15 MSD	PTP-DUP01 (0-0.5')	Total/NA	Solid	7471B	474404

Prep Batch: 475049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-1	PTP SB01	Dissolved	Water	3020A	
480-153844-2	PTP DUP01	Dissolved	Water	3020A	
480-153844-3	PTP Blank	Dissolved	Water	3020A	
MB 480-475049/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-475049/2-A	Lab Control Sample	Total/NA	Water	3020A	

Metals

Analysis Batch: 475551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-4	PTP-SB02 (0-0.5')	Total/NA	Solid	6010C	474373
480-153844-6	PTP-SB03 (0-0.5')	Total/NA	Solid	6010C	474373
480-153844-8	PTP-SB04 (0-0.5')	Total/NA	Solid	6010C	474373
480-153844-10	PTP-SB01 (0-0.5')	Total/NA	Solid	6010C	474373
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	6010C	474373
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	6010C	474373
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	6010C	474373
480-153844-15	PTP-DUP01 (0-0.5')	Total/NA	Solid	6010C	474373
MB 480-474373/1-A	Method Blank	Total/NA	Solid	6010C	474373
LCSSRM 480-474373/2-A	Lab Control Sample	Total/NA	Solid	6010C	474373
480-153844-4 MS	PTP-SB02 (0-0.5')	Total/NA	Solid	6010C	474373
480-153844-4 MSD	PTP-SB02 (0-0.5')	Total/NA	Solid	6010C	474373

Analysis Batch: 476089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-1	PTP SB01	Dissolved	Water	6020A	475049
480-153844-2	PTP DUP01	Dissolved	Water	6020A	475049
480-153844-3	PTP Blank	Dissolved	Water	6020A	475049
MB 480-475049/1-A	Method Blank	Total/NA	Water	6020A	475049
LCS 480-475049/2-A	Lab Control Sample	Total/NA	Water	6020A	475049

General Chemistry

Analysis Batch: 474228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-1	PTP SB01	Dissolved	Water	7196A	
480-153844-2	PTP DUP01	Dissolved	Water	7196A	
480-153844-3	PTP Blank	Dissolved	Water	7196A	
MB 480-474228/27	Method Blank	Total/NA	Water	7196A	
MB 480-474228/3	Method Blank	Total/NA	Water	7196A	
LCS 480-474228/28	Lab Control Sample	Total/NA	Water	7196A	
LCS 480-474228/4	Lab Control Sample	Total/NA	Water	7196A	
480-153844-1 MS	PTP SB01	Dissolved	Water	7196A	

Prep Batch: 474763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-4	PTP-SB02 (0-0.5')	Total/NA	Solid	9012B	
480-153844-6	PTP-SB03 (0-0.5')	Total/NA	Solid	9012B	
480-153844-8	PTP-SB04 (0-0.5')	Total/NA	Solid	9012B	
480-153844-10	PTP-SB01 (0-0.5')	Total/NA	Solid	9012B	
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	9012B	
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	9012B	
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	9012B	
480-153844-15	PTP-DUP01 (0-0.5')	Total/NA	Solid	9012B	

Analysis Batch: 474809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-4	PTP-SB02 (0-0.5')	Total/NA	Solid	9012B	474763
480-153844-6	PTP-SB03 (0-0.5')	Total/NA	Solid	9012B	474763
480-153844-8	PTP-SB04 (0-0.5')	Total/NA	Solid	9012B	474763
480-153844-10	PTP-SB01 (0-0.5')	Total/NA	Solid	9012B	474763

General Chemistry (Continued)

Analysis Batch: 474809 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	9012B	474763
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	9012B	474763
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	9012B	474763
480-153844-15	PTP-DUP01 (0-0.5')	Total/NA	Solid	9012B	474763

Analysis Batch: 477909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-6	PTP-SB03 (0-0.5')	Total/NA	Solid	Moisture	
480-153844-8	PTP-SB04 (0-0.5')	Total/NA	Solid	Moisture	
480-153844-10	PTP-SB01 (0-0.5')	Total/NA	Solid	Moisture	
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	Moisture	
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	Moisture	
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	Moisture	
480-153844-15	PTP-DUP01 (0-0.5')	Total/NA	Solid	Moisture	

Analysis Batch: 479481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-4	PTP-SB02 (0-0.5')	Total/NA	Solid	Moisture	
480-153844-4 DU	PTP-SB02 (0-0.5')	Total/NA	Solid	Moisture	

Prep Batch: 572763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-1	PTP SB01	Total/NA	Water	9012B	
480-153844-2	PTP DUP01	Total/NA	Water	9012B	
480-153844-3	PTP Blank	Total/NA	Water	9012B	
MB 680-572763/1-A	Method Blank	Total/NA	Water	9012B	
LCS 680-572763/2-A	Lab Control Sample	Total/NA	Water	9012B	
480-153844-1 MS	PTP SB01	Total/NA	Water	9012B	
480-153844-1 MSD	PTP SB01	Total/NA	Water	9012B	

Analysis Batch: 572914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-1	PTP SB01	Total/NA	Water	9012B	572763
480-153844-2	PTP DUP01	Total/NA	Water	9012B	572763
480-153844-3	PTP Blank	Total/NA	Water	9012B	572763
MB 680-572763/1-A	Method Blank	Total/NA	Water	9012B	572763
LCS 680-572763/2-A	Lab Control Sample	Total/NA	Water	9012B	572763
480-153844-1 MS	PTP SB01	Total/NA	Water	9012B	572763
480-153844-1 MSD	PTP SB01	Total/NA	Water	9012B	572763

Analysis Batch: 573849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-2	PTP DUP01	Total/NA	Water	9012B	572763

Client Sample ID: PTP SB01
Lab Sample ID: 480-153844-1

Date Collected: 05/21/19 13:55
Matrix: Water
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			475049	05/29/19 12:04	EMB	TAL BUF
Dissolved	Analysis	6020A		1	476089	06/01/19 15:49	KMP	TAL BUF
Dissolved	Analysis	7196A		1	474228	05/22/19 09:07	MJB	TAL BUF
Total/NA	Prep	9012B			572763	06/03/19 09:28	MDF	TAL SAV
Total/NA	Analysis	9012B		10	572914	06/04/19 09:44	ALG	TAL SAV

Client Sample ID: PTP DUP01
Lab Sample ID: 480-153844-2

Date Collected: 05/21/19 00:00
Matrix: Water
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			475049	05/29/19 12:04	EMB	TAL BUF
Dissolved	Analysis	6020A		1	476089	06/01/19 15:51	KMP	TAL BUF
Dissolved	Analysis	7196A		1	474228	05/22/19 09:07	MJB	TAL BUF
Total/NA	Prep	9012B			572763	06/03/19 09:28	MDF	TAL SAV
Total/NA	Analysis	9012B		1	572914	06/04/19 09:03	ALG	TAL SAV
Total/NA	Prep	9012B			572763	06/03/19 09:28	MDF	TAL SAV
Total/NA	Analysis	9012B		10	573849	06/11/19 15:04	ALG	TAL SAV

Client Sample ID: PTP Blank
Lab Sample ID: 480-153844-3

Date Collected: 05/21/19 14:45
Matrix: Water
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			475049	05/29/19 12:04	EMB	TAL BUF
Dissolved	Analysis	6020A		1	476089	06/01/19 15:53	KMP	TAL BUF
Dissolved	Analysis	7196A		1	474228	05/22/19 09:07	MJB	TAL BUF
Total/NA	Prep	9012B			572763	06/03/19 09:28	MDF	TAL SAV
Total/NA	Analysis	9012B		1	572914	06/04/19 09:04	ALG	TAL SAV

Client Sample ID: PTP-SB02 (0-0.5')
Lab Sample ID: 480-153844-4

Date Collected: 05/20/19 10:10
Matrix: Solid
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	479481	06/25/19 10:53	KEK1	TAL BUF

Client Sample ID: PTP-SB02 (0-0.5')
Lab Sample ID: 480-153844-4

Date Collected: 05/20/19 10:10
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			474373	05/23/19 12:43	EMB	TAL BUF
Total/NA	Analysis	6010C		1	475551	05/30/19 15:18	AMH	TAL BUF

Lab Chronicle

Client: Ashland LLC
Job ID: 480-153844-1
Project/Site: Hercules Glens Falls O&M

Client Sample ID: PTP-SB02 (0-0.5')
Lab Sample ID: 480-153844-4

Date Collected: 05/20/19 10:10
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471B			474404	05/24/19 14:10	BMB	TAL BUF
Total/NA	Analysis	7471B		1	474690	05/24/19 16:00	BMB	TAL BUF
Total/NA	Prep	9012B			474763	05/25/19 15:17	AJL	TAL BUF
Total/NA	Analysis	9012B		1	474809	05/26/19 11:20	MDL	TAL BUF

Client Sample ID: PTP-SB03 (0-0.5')
Lab Sample ID: 480-153844-6

Date Collected: 05/20/19 10:30
Matrix: Solid
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	477909	06/14/19 16:48	CMK	TAL BUF

Client Sample ID: PTP-SB03 (0-0.5')
Lab Sample ID: 480-153844-6

Date Collected: 05/20/19 10:30
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 92.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			474373	05/23/19 12:43	EMB	TAL BUF
Total/NA	Analysis	6010C		1	475551	05/30/19 15:47	AMH	TAL BUF
Total/NA	Prep	7471B			474404	05/24/19 14:10	BMB	TAL BUF
Total/NA	Analysis	7471B		1	474690	05/24/19 16:02	BMB	TAL BUF
Total/NA	Prep	9012B			474763	05/25/19 15:17	AJL	TAL BUF
Total/NA	Analysis	9012B		1	474809	05/26/19 11:22	MDL	TAL BUF

Client Sample ID: PTP-SB04 (0-0.5')
Lab Sample ID: 480-153844-8

Date Collected: 05/20/19 10:50
Matrix: Solid
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	477909	06/14/19 16:48	CMK	TAL BUF

Client Sample ID: PTP-SB04 (0-0.5')
Lab Sample ID: 480-153844-8

Date Collected: 05/20/19 10:50
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			474373	05/23/19 12:43	EMB	TAL BUF
Total/NA	Analysis	6010C		1	475551	05/30/19 15:51	AMH	TAL BUF
Total/NA	Prep	7471B			474404	05/24/19 14:10	BMB	TAL BUF
Total/NA	Analysis	7471B		1	474690	05/24/19 16:03	BMB	TAL BUF
Total/NA	Prep	9012B			474763	05/25/19 15:17	AJL	TAL BUF
Total/NA	Analysis	9012B		1	474809	05/26/19 11:23	MDL	TAL BUF

Client Sample ID: PTP-SB01 (0-0.5') — **Lab Sample ID: 480-153844-10**
Date Collected: 05/21/19 08:35 — **Matrix: Solid**
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	477909	06/14/19 16:48	CMK	TAL BUF

Client Sample ID: PTP-SB01 (0-0.5') — **Lab Sample ID: 480-153844-10**
Date Collected: 05/21/19 08:35 — **Matrix: Solid**
Date Received: 05/22/19 05:00 — **Percent Solids: 91.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			474373	05/23/19 12:43	EMB	TAL BUF
Total/NA	Analysis	6010C		1	475551	05/30/19 15:54	AMH	TAL BUF
Total/NA	Prep	7471B			474404	05/24/19 14:10	BMB	TAL BUF
Total/NA	Analysis	7471B		1	474690	05/24/19 16:07	BMB	TAL BUF
Total/NA	Prep	9012B			474763	05/25/19 15:17	AJL	TAL BUF
Total/NA	Analysis	9012B		1	474809	05/26/19 11:25	MDL	TAL BUF

Client Sample ID: PTP-SB01 (1.5-2') — **Lab Sample ID: 480-153844-11**
Date Collected: 05/21/19 08:45 — **Matrix: Solid**
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	477909	06/14/19 16:48	CMK	TAL BUF

Client Sample ID: PTP-SB01 (1.5-2') — **Lab Sample ID: 480-153844-11**
Date Collected: 05/21/19 08:45 — **Matrix: Solid**
Date Received: 05/22/19 05:00 — **Percent Solids: 89.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			474373	05/23/19 12:43	EMB	TAL BUF
Total/NA	Analysis	6010C		1	475551	05/30/19 15:58	AMH	TAL BUF
Total/NA	Prep	7471B			474404	05/24/19 14:10	BMB	TAL BUF
Total/NA	Analysis	7471B		1	474690	05/24/19 16:08	BMB	TAL BUF
Total/NA	Prep	9012B			474763	05/25/19 15:17	AJL	TAL BUF
Total/NA	Analysis	9012B		1	474809	05/26/19 11:29	MDL	TAL BUF

Client Sample ID: PTP-SB05 (3-3.5') — **Lab Sample ID: 480-153844-13**
Date Collected: 05/21/19 09:30 — **Matrix: Solid**
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	477909	06/14/19 16:48	CMK	TAL BUF

Client Sample ID: PTP-SB05 (3-3.5')
Lab Sample ID: 480-153844-13

Date Collected: 05/21/19 09:30
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 85.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			474373	05/23/19 12:43	EMB	TAL BUF
Total/NA	Analysis	6010C		1	475551	05/30/19 16:02	AMH	TAL BUF
Total/NA	Prep	7471B			474404	05/24/19 14:10	BMB	TAL BUF
Total/NA	Analysis	7471B		1	474690	05/24/19 16:09	BMB	TAL BUF
Total/NA	Prep	9012B			474763	05/25/19 15:17	AJL	TAL BUF
Total/NA	Analysis	9012B		1	474809	05/26/19 11:30	MDL	TAL BUF

Client Sample ID: PTP-SB06 (1-1.5')
Lab Sample ID: 480-153844-14

Date Collected: 05/21/19 09:10
Matrix: Solid
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	477909	06/14/19 16:48	CMK	TAL BUF

Client Sample ID: PTP-SB06 (1-1.5')
Lab Sample ID: 480-153844-14

Date Collected: 05/21/19 09:10
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			474373	05/23/19 12:43	EMB	TAL BUF
Total/NA	Analysis	6010C		1	475551	05/30/19 16:05	AMH	TAL BUF
Total/NA	Prep	7471B			474404	05/24/19 14:10	BMB	TAL BUF
Total/NA	Analysis	7471B		1	474690	05/24/19 16:10	BMB	TAL BUF
Total/NA	Prep	9012B			474763	05/25/19 15:17	AJL	TAL BUF
Total/NA	Analysis	9012B		1	474809	05/26/19 11:32	MDL	TAL BUF

Client Sample ID: PTP-DUP01 (0-0.5')
Lab Sample ID: 480-153844-15

Date Collected: 05/21/19 00:00
Matrix: Solid
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	477909	06/14/19 16:48	CMK	TAL BUF

Client Sample ID: PTP-DUP01 (0-0.5')
Lab Sample ID: 480-153844-15

Date Collected: 05/21/19 00:00
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 92.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			474373	05/23/19 12:43	EMB	TAL BUF
Total/NA	Analysis	6010C		1	475551	05/30/19 16:20	AMH	TAL BUF
Total/NA	Prep	7471B			474404	05/24/19 14:10	BMB	TAL BUF
Total/NA	Analysis	7471B		1	474690	05/24/19 16:12	BMB	TAL BUF
Total/NA	Prep	9012B			474763	05/25/19 15:17	AJL	TAL BUF
Total/NA	Analysis	9012B		1	474809	05/26/19 11:33	MDL	TAL BUF

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-1

Laboratory References:

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

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

Accreditation/Certification Summary

Client: Ashland LLC
Job ID: 480-153844-1
Project/Site: Hercules Glens Falls O&M

Laboratory: Eurofins TestAmerica, Buffalo

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	10026	03-31-20

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
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

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: 480-153844-1
Project/Site: Hercules Glens Falls O&M

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7471B	Mercury (CVAA)	SW846	TAL BUF
7196A	Chromium, Hexavalent	SW846	TAL BUF
9012B	Cyanide, Total andor Amenable	SW846	TAL BUF
9012B	Cyanide, Total andor Amenable	SW846	TAL SAV
Moisture	Percent Moisture	EPA	TAL BUF
3020A	Preparation, Total Metals	SW846	TAL BUF
3050B	Preparation, Metals	SW846	TAL BUF
7471B	Preparation, Mercury	SW846	TAL BUF
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL BUF
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL SAV

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

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

Sample Summary

Client: Ashland LLC
Job ID: 480-153844-1
Project/Site: Hercules Glens Falls O&M

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-153844-1	PTP SB01	Water	05/21/19 13:55	05/22/19 05:00	
480-153844-2	PTP DUP01	Water	05/21/19 00:00	05/22/19 05:00	
480-153844-3	PTP Blank	Water	05/21/19 14:45	05/22/19 05:00	
480-153844-4	PTP-SB02 (0-0.5')	Solid	05/20/19 10:10	05/22/19 05:00	
480-153844-6	PTP-SB03 (0-0.5')	Solid	05/20/19 10:30	05/22/19 05:00	
480-153844-8	PTP-SB04 (0-0.5')	Solid	05/20/19 10:50	05/22/19 05:00	
480-153844-10	PTP-SB01 (0-0.5')	Solid	05/21/19 08:35	05/22/19 05:00	
480-153844-11	PTP-SB01 (1.5-2')	Solid	05/21/19 08:45	05/22/19 05:00	
480-153844-13	PTP-SB05 (3-3.5')	Solid	05/21/19 09:30	05/22/19 05:00	
480-153844-14	PTP-SB06 (1-1.5')	Solid	05/21/19 09:10	05/22/19 05:00	
480-153844-15	PTP-DUP01 (0-0.5')	Solid	05/21/19 00:00	05/22/19 05:00	

Chain of Custody Record 311578

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

Albany #224

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

Client Contact	Project Manager:	Site Contact:	Date:	COC No 3 of 4 COCs
Company Name: Ashland Inc.	Tel/Fax:	Lab Contact:	Carrier:	Sampler:
Address: 5200 Blazer Parkway DS-4	Analysis Turnaround Time			For Lab Use Only:
City/State/Zip: Dublin, OH 43017	☐ CALENDAR DAYS ☐ WORKING DAYS			Walk-in Client
Phone: (614) 790-1641e	TAT if different from Below STD TAT			Lab Sampling
Fax:	☐ 2 weeks			
Project Name: Hercules Glens Falls Q Event	☐ 1 week			Job / SDG No
Site: Ashland Glens Falls	☐ 2 days			
PO # GLENSFA191-0300	☐ 1 day			

480-153844 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	8012B total cyanide	9012B Dissolved cyanide	Sample Specific Notes
PTP-SB01	5/21/19	1355	G	water	2			X	X	
PTP-DUP01	5/21/19	—	G	water	2			X	X	
PTP-Blank	5/21/19	1445	G	water	2			X	X	
KZ	5/21/19									

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 longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: 9020A Field Filtered

2.2 #1

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

	Company	Date/Time		Company	Date/Time
Relinquished by:	Antea Group	5/21/19 1645	Received by:	TA	5/21/19 1645
Relinquished by:	TA	5/21/19 1808	Received by:		5/22/19 0900
Relinquished by:	Company	Date/Time	Received in Laboratory by	Company	Date/Time

Albany
#224

Chain of Custody Record

68000956

311577

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

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

Client Contact	Project Manager:	Site Contact:	Date:	COC No
Company Name: Ashland Inc.	Tel/Fax:	Lab Contact:	Carrier:	4 of 4 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 STDTAT			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Hercules Glens Falls Q Cont	☐ 1 week			
Site: Ashland Glens Falls	☐ 2 days			Job / SDG No.
PO# GLENSFALL91-0300	☐ 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)	7196A Hexavalent Chromium	Sample Specific Notes:
PTP-SB01	5/21/19	1355	G	Water	1			X	
PTP-DUP01	5/21/19	—	G	Water	1			X	
PTP-Blank	5/21/19	1445	G	Water	1			X	
162	5/21/19								

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 longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: 7196A field filtered

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd _____ Corr'd _____		Therm ID No. _____	
Relinquished by:	Company: Antea Group	Date/Time: 5/21/19 1445	Received by:	Company: TA	Date/Time: 5/21/19 1445	
Relinquished by:	Company: TA	Date/Time: 5/21/19 1800	Received by:	Company:	Date/Time: 05/22/19 0800	
Relinquished by	Company:	Date/Time:	Received in Laboratory by	Company	Date/Time	

2 2 #1

Albany #224

Chain of Custody Record 311574

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

Regulatory Program: DW NPDES RCRA Other:

Client Contact	Project Manager:	Site Contact:	Date:	COC No.
Company Name: Ashland Inc.	Tel/Fax:	Lab Contact:	Carrier:	1 of 4 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 TAT			Walk-in Client:
Fax:	2 weeks			Lab Sampling:
Project Name: Hercules Falls Q. Plant	1 week			
Site: Ashland Falls Falls	2 days			Job / SDG No.:
PO # GLENSFA191-0300	1 day			

480-153844 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	8021B - Total Chromium	7471B - Mercury	6010C*	Sample Specific Notes.
PTP-SB02 (0-0.5')	5/20/19	1010	G	Soil	2	N	N	X	X	X	@1010
PTP-SB02 (1.5-2')	5/20/19	1020	G	Soil	2	N	N	X	X	X	@1020, HOLD
PTP-SB03 (0-0.5')	5/20/19	1030	G	Soil	2	N	N	X	X	X	
PTP-SB03 (1.5-2')	5/20/19	1040	G	Soil	2	N	N	X	X	X	HOLD
PTP-SB04 (0-0.5')	5/20/19	1050	G	Soil	2	N	N	X	X	X	
PTP-SB04 (1.5-2')	5/20/19	1100	G	Soil	2	N	N	X	X	X	HOLD
PTP-SB01 (0-0.5')	5/21/19	0835	G	Soil	2	N	N	X	X	X	
PTP-SB01 (1.5-2')	5/21/19	0845	G	Soil	2	N	N	X	X	X	
PTP-SB01 (5.5-6')	5/21/19	0900	G	Soil	2	N	N	X	X	X	HOLD
PTP-SB05 (3-3.5')	5/21/19	0930	G	Soil	2	N	N	X	X	X	
PTP-SB06 (1-1.5')	5/21/19	0910	G	Soil	2	N	N	X	X	X	
PTP-DUP01 (0-0.5')	5/21/19	—	G	Soil	2	N	N	X	X	X	

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 longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: *6010C - Barium, Chromium, Cadmium, Lead

Custody Seals Intact: Yes No	Custody Seal No.:	Cooler Temp. (°C): Obs'd. _____ Corr'd. _____	Therm ID No.: _____
Relinquished by:	Company: Arcadis Group	Date/Time: 5/21/19 1645	Received by: Karl Zaehr	Company: TA	Date/Time: 5/21/19 1645
Relinquished by: Karl Zaehr	Company: TA 5/21/19	Date/Time: 1800	Received by: Steven C	Company:	Date/Time: 05-22-19 0100
Relinquished by:	Company	Date/Time	Received in Laboratory by:	Company	Date/Time

2.8 #1

Albany #224

Chain of Custody Record 311579

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

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

Client Contact	Project Manager:	Site Contact:	Date:	COC No:
Company Name: Ashland Inc.	Tel/Fax:	Lab Contact:	Carrier:	2 of 4 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 TAT			Walk-in Client
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Hercules Glens Falls Q. Plant	☐ 1 week			
Site: Ashland Glens Falls	☐ 2 days			Job / SDG No:
PO # GLENSFA191-0300	☐ 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)	Total Hexavalent Chromium	Sample Specific Notes
PTP-SB02 (0-0.5')	5/20/19	1010	G	Soil	1	N	N	X	HOLD
PTP-SB02 (1.5-2')	5/20/19	1020	G	Soil	1	N	N	X	HOLD
PTP-SB03 (0-0.5')	5/20/19	1030	G	Soil	1	N	N	X	HOLD
PTP-SB03 (1.5-2')	5/20/19	1040	G	Soil	1	N	N	X	HOLD
PTP-SB04 (0-0.5')	5/20/19	1050	G	Soil	1	N	N	X	HOLD
PTP-SB04 (1.5-2')	5/20/19	1100	G	Soil	1	N	N	X	HOLD
PTP-SB01 (0-0.5')	5/21/19	0835	G	Soil	1	N	N	X	HOLD
PTP-SB01 (1.5-2')	5/21/19	0845	G	Soil	1	N	N	X	HOLD
PTP-SB01 (5.5-6')	5/21/19	0900	G	Soil	1	N	N	X	HOLD
PTP-SB05 (3-3.5')	5/21/19	0930	G	Soil	1	N	N	X	HOLD
PTP-SB06 (1-1.5')	5/21/19	0910	G	Soil	1	N	N	X	HOLD
PTP-DUP01 (0-0.5')	5/21/19	—	G	Soil	1	N	N	X	HOLD

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 longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No:	Cooler Temp (°C): Obs'd _____ Corr'd _____	Therm ID No: _____
Relinquished by:	Company: Antea Group	Date/Time: 5/21/19 1645	Received by: Kal Jordan
Relinquished by: Kal Jordan	Company: 5/21/19	Date/Time: 1800	Received by:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:

Company	Date/Time
TA	5/21/19 1645
Company	Date/Time
	05/22/19 0500
Company	Date/Time

3.2 #1

6/26/2019

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: 480-49877.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eddie.barnett@testamericainc.com	State of Origin: New York	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-153844-1
Address: 5102 LaRoche Avenue,	Due Date Requested: 6/4/2019			
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, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - 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:						
PTP SB01 (480-153844-1)	5/21/19	13:55 Eastern		Water			X	1	
PTP DUP01 (480-153844-2)	5/21/19	Eastern		Water			X	1	
PTP Blank (480-153844-3)	5/21/19	14:45 Eastern		Water			X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	5-22-19 1630	TAL	[signature]	5-23-19 0909	TAL SAV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.2/1.1

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-153844-1

Login Number: 153844

List Source: Eurofins TestAmerica, Buffalo

List Number: 1

Creator: Velickovic, Zoran

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: 480-153844-1

Login Number: 153844
List Number: 3
Creator: Nobles, Terry G

List Source: Eurofins TestAmerica, Savannah
List Creation: 05/23/19 02:55 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	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 480-153844-2
Laboratory Sample Delivery Group: 680-153844-2
Client Project/Site: Hercules Glens Falls O&M

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

Attn: Mr. Jim Vondracek

Authorized for release by:
7/10/2019 1:38:30 PM

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

Table of Contents

Definitions/Glossary

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-2
SDG: 680-153844-2

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
H	Sample was prepped or analyzed beyond the specified holding time
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.

General Chemistry

Qualifier	Qualifier Description
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: 480-153844-2

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

CASE NARRATIVE
Client: Ashland LLC
Project: Hercules Glens Falls O&M

Report Number: 480-153844-2

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

RECEIPT
The samples were received on 05/22/2019; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.2º C.

METALS (ICP)
Sample PTP-SB01 (5.5-6') (480-153844-12) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 07/01/2019 and analyzed on 07/02/2019.

Cadmium was detected in method blank MB 480-480366/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Barium recovered high for the MSD of sample PTP-SB01 (5.5-6')MSD (480-153844-12) in batch 480-480731. Barium exceeded the RPD limit. Refer to the QC report for details.

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

TOTAL MERCURY
Sample PTP-SB01 (5.5-6') (480-153844-12) was analyzed for total mercury in accordance with EPA SW-846 Method 7471B. The samples were prepared and analyzed on 06/30/2019.

Analysis of sample PTP-SB01 (5.5-6') (480-153844-12) was performed outside of analytical holding time.

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

HEXAVALENT CHROMIUM
Samples PTP-SB01 (1.5-2') (480-153844-11), PTP-SB01 (5.5-6') (480-153844-12), PTP-SB05 (3-3.5') (480-153844-13) and PTP-SB06 (1-1.5') (480-153844-14) were analyzed for hexavalent chromium in accordance with EPA SW-846 Method 3060A/7196A. The samples were prepared on 07/01/2019 and analyzed on 07/03/2019.

Analysis of samples PTP-SB01 (1.5-2') (480-153844-11), PTP-SB01 (5.5-6') (480-153844-12), PTP-SB05 (3-3.5') (480-153844-13) and PTP-SB06 (1-1.5') (480-153844-14) was performed outside of analytical holding time.

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

TOTAL CYANIDE
Sample PTP-SB01 (5.5-6') (480-153844-12) was analyzed for total cyanide in accordance with EPA SW-846 Method 9012B. The samples were prepared and analyzed on 07/01/2019.

Analysis of sample PTP-SB01 (5.5-6') (480-153844-12) was performed outside of analytical holding time.

Job ID: 480-153844-2 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

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

PERCENT SOLIDS/MOISTURE

Sample PTP-SB01 (5.5-6') (480-153844-12) was analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 07/03/2019.

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

Detection Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-2
SDG: 680-153844-2

Client Sample ID: PTP-SB01 (1.5-2') — Lab Sample ID: 480-153844-11

No Detections.

Client Sample ID: PTP-SB01 (5.5-6') — Lab Sample ID: 480-153844-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	9.5	F1 F2	0.52	0.11	mg/Kg	1	☼	6010C	Total/NA
Cadmium	0.081	J B	0.21	0.031	mg/Kg	1	☼	6010C	Total/NA
Chromium	2.0		0.52	0.21	mg/Kg	1	☼	6010C	Total/NA
Lead	1.4		1.0	0.25	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: PTP-SB05 (3-3.5') — Lab Sample ID: 480-153844-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	1.6	H	0.46	0.25	mg/Kg	1	☼	EPA 7196A	Total/NA

Client Sample ID: PTP-SB06 (1-1.5') — Lab Sample ID: 480-153844-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	1.1	H	0.46	0.25	mg/Kg	1	☼	EPA 7196A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: PTP-SB01 (1.5-2')

Lab Sample ID: 480-153844-11

Date Collected: 05/21/19 08:45
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 89.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.44	U H	0.44	0.23	mg/Kg	☼	07/01/19 13:11	07/03/19 13:34	1

Client Sample ID: PTP-SB01 (5.5-6')

Lab Sample ID: 480-153844-12

Date Collected: 05/21/19 09:00
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 95.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	9.5	F1 F2	0.52	0.11	mg/Kg	☼	07/01/19 09:44	07/02/19 20:02	1
Cadmium	0.081	J B	0.21	0.031	mg/Kg	☼	07/01/19 09:44	07/02/19 20:02	1
Chromium	2.0		0.52	0.21	mg/Kg	☼	07/01/19 09:44	07/02/19 20:02	1
Lead	1.4		1.0	0.25	mg/Kg	☼	07/01/19 09:44	07/02/19 20:02	1

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.019	U H	0.019	0.0079	mg/Kg	☼	06/30/19 14:03	06/30/19 16:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.12	U H	0.12	0.060	mg/Kg	☼	07/01/19 10:35	07/01/19 14:29	1
Cr (VI)	0.42	U H	0.42	0.22	mg/Kg	☼	07/01/19 13:11	07/03/19 13:36	1

Client Sample ID: PTP-SB05 (3-3.5')

Lab Sample ID: 480-153844-13

Date Collected: 05/21/19 09:30
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 85.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	1.6	H	0.46	0.25	mg/Kg	☼	07/01/19 13:11	07/03/19 13:38	1

Client Sample ID: PTP-SB06 (1-1.5')

Lab Sample ID: 480-153844-14

Date Collected: 05/21/19 09:10
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 88.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	1.1	H	0.46	0.25	mg/Kg	☼	07/01/19 13:11	07/03/19 13:40	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-480366/1-A
Matrix: Solid
Analysis Batch: 480731

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480366

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.49	U	0.49	0.11	mg/Kg		07/01/19 09:44	07/02/19 19:55	1
Cadmium	0.103	J	0.20	0.030	mg/Kg		07/01/19 09:44	07/02/19 19:55	1
Chromium	0.49	U	0.49	0.20	mg/Kg		07/01/19 09:44	07/02/19 19:55	1
Lead	0.99	U	0.99	0.24	mg/Kg		07/01/19 09:44	07/02/19 19:55	1

Lab Sample ID: LCSSRM 480-480366/2-A
Matrix: Solid
Analysis Batch: 480731

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480366

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	288	224		mg/Kg		77.9	70.5 - 117.4
Cadmium	153	120		mg/Kg		78.2	68.6 - 115.0
Chromium	179	139		mg/Kg		77.9	65.4 - 121.2
Lead	74.5	67.5		mg/Kg		90.7	67.8 - 130.3

Lab Sample ID: 480-153844-12 MS
Matrix: Solid
Analysis Batch: 480731

Client Sample ID: PTP-SB01 (5.5-6')
Prep Type: Total/NA
Prep Batch: 480366

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	9.5	F1 F2	41.6	60.5		mg/Kg	☼	123	75 - 125
Cadmium	0.081	J B	41.6	35.1		mg/Kg	☼	84	75 - 125
Chromium	2.0		41.6	39.5		mg/Kg	☼	90	75 - 125
Lead	1.4		41.6	41.3		mg/Kg	☼	96	75 - 125

Lab Sample ID: 480-153844-12 MSD
Matrix: Solid
Analysis Batch: 480731

Client Sample ID: PTP-SB01 (5.5-6')
Prep Type: Total/NA
Prep Batch: 480366

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	9.5	F1 F2	40.8	76.2	F1 F2	mg/Kg	☼	164	75 - 125	23	20
Cadmium	0.081	J B	40.8	33.6		mg/Kg	☼	82	75 - 125	4	20
Chromium	2.0		40.8	39.3		mg/Kg	☼	91	75 - 125	0	20
Lead	1.4		40.8	42.4		mg/Kg	☼	101	75 - 125	3	20

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 480-480217/1-A
Matrix: Solid
Analysis Batch: 480303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480217

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	U	0.020	0.0080	mg/Kg		06/30/19 14:03	06/30/19 15:49	1

Method: 7471B - Mercury (CVAA) (Continued)

Lab Sample ID: LCSSRM 480-480217/2-A ^5
Matrix: Solid
Analysis Batch: 480303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480217

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	4.85	3.15		mg/Kg		64.9	46.0 - 107.0

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 480-480375/1-A
Matrix: Solid
Analysis Batch: 480435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480375

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.12	U	0.12	0.056	mg/Kg		07/01/19 10:35	07/01/19 14:26	1

Lab Sample ID: LCSSRM 480-480375/2-A ^20
Matrix: Solid
Analysis Batch: 480435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480375

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	86.4	45.5		mg/Kg		52.6	29.1 - 119.2

Lab Sample ID: 480-153844-12 DU
Matrix: Solid
Analysis Batch: 480435

Client Sample ID: PTP-SB01 (5.5-6')
Prep Type: Total/NA
Prep Batch: 480375

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	0.12	U H	0.12	U	mg/Kg	☼	NC	15

Method: EPA 7196A - Chromium, Hexavalent

Lab Sample ID: MB 180-283586/1-A
Matrix: Solid
Analysis Batch: 283874

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 283586

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.40	U	0.40	0.21	mg/Kg		07/01/19 13:11	07/03/19 12:59	1

Lab Sample ID: LCSI 180-283586/3-A
Matrix: Solid
Analysis Batch: 283874

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283586

Analyte	Spike Added	LCSI Result	LCSI Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	708	666		mg/Kg		94	80 - 120

Lab Sample ID: LCSS 180-283586/2-A
Matrix: Solid
Analysis Batch: 283874

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 283586

Analyte	Spike Added	LCSS Result	LCSS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	20.0	17.0		mg/Kg		85	80 - 120

QC Association Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-2
SDG: 680-153844-2

Metals

Prep Batch: 480217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	7471B	
MB 480-480217/1-A	Method Blank	Total/NA	Solid	7471B	
LCSSRM 480-480217/2-A ^5	Lab Control Sample	Total/NA	Solid	7471B	

Analysis Batch: 480303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	7471B	480217
MB 480-480217/1-A	Method Blank	Total/NA	Solid	7471B	480217
LCSSRM 480-480217/2-A ^5	Lab Control Sample	Total/NA	Solid	7471B	480217

Prep Batch: 480366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	3050B	
MB 480-480366/1-A	Method Blank	Total/NA	Solid	3050B	
LCSSRM 480-480366/2-A	Lab Control Sample	Total/NA	Solid	3050B	
480-153844-12 MS	PTP-SB01 (5.5-6')	Total/NA	Solid	3050B	
480-153844-12 MSD	PTP-SB01 (5.5-6')	Total/NA	Solid	3050B	

Analysis Batch: 480731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	6010C	480366
MB 480-480366/1-A	Method Blank	Total/NA	Solid	6010C	480366
LCSSRM 480-480366/2-A	Lab Control Sample	Total/NA	Solid	6010C	480366
480-153844-12 MS	PTP-SB01 (5.5-6')	Total/NA	Solid	6010C	480366
480-153844-12 MSD	PTP-SB01 (5.5-6')	Total/NA	Solid	6010C	480366

General Chemistry

Prep Batch: 283586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	3060A	
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	3060A	
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	3060A	
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	3060A	
MB 180-283586/1-A	Method Blank	Total/NA	Solid	3060A	
LCSI 180-283586/3-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSS 180-283586/2-A	Lab Control Sample	Total/NA	Solid	3060A	

Analysis Batch: 283874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-11	PTP-SB01 (1.5-2')	Total/NA	Solid	EPA 7196A	283586
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	EPA 7196A	283586
480-153844-13	PTP-SB05 (3-3.5')	Total/NA	Solid	EPA 7196A	283586
480-153844-14	PTP-SB06 (1-1.5')	Total/NA	Solid	EPA 7196A	283586
MB 180-283586/1-A	Method Blank	Total/NA	Solid	EPA 7196A	283586
LCSI 180-283586/3-A	Lab Control Sample	Total/NA	Solid	EPA 7196A	283586
LCSS 180-283586/2-A	Lab Control Sample	Total/NA	Solid	EPA 7196A	283586

Prep Batch: 480375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	9012B	

General Chemistry (Continued)

Prep Batch: 480375 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-480375/1-A	Method Blank	Total/NA	Solid	9012B	
LCSSRM 480-480375/2-A ^20	Lab Control Sample	Total/NA	Solid	9012B	
480-153844-12 DU	PTP-SB01 (5.5-6')	Total/NA	Solid	9012B	

Analysis Batch: 480435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	9012B	480375
MB 480-480375/1-A	Method Blank	Total/NA	Solid	9012B	480375
LCSSRM 480-480375/2-A ^20	Lab Control Sample	Total/NA	Solid	9012B	480375
480-153844-12 DU	PTP-SB01 (5.5-6')	Total/NA	Solid	9012B	480375

Analysis Batch: 480750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-153844-12	PTP-SB01 (5.5-6')	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-2
SDG: 680-153844-2

Client Sample ID: PTP-SB01 (1.5-2')

Lab Sample ID: 480-153844-11

Date Collected: 05/21/19 08:45
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 89.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			283586	07/01/19 13:11	TAM	TAL PIT
Total/NA	Analysis	EPA 7196A		1	283874	07/03/19 13:34	TAM	TAL PIT

Client Sample ID: PTP-SB01 (5.5-6')

Lab Sample ID: 480-153844-12

Date Collected: 05/21/19 09:00
Matrix: Solid
Date Received: 05/22/19 05:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	480750	07/03/19 14:11	CMK	TAL BUF

Client Sample ID: PTP-SB01 (5.5-6')

Lab Sample ID: 480-153844-12

Date Collected: 05/21/19 09:00
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			480366	07/01/19 09:44	JMP	TAL BUF
Total/NA	Analysis	6010C		1	480731	07/02/19 20:02	EMB	TAL BUF
Total/NA	Prep	7471B			480217	06/30/19 14:03	BMB	TAL BUF
Total/NA	Analysis	7471B		1	480303	06/30/19 16:10	BMB	TAL BUF
Total/NA	Prep	9012B			480375	07/01/19 10:35	AJL	TAL BUF
Total/NA	Analysis	9012B		1	480435	07/01/19 14:29	MDL	TAL BUF
Total/NA	Prep	3060A			283586	07/01/19 13:11	TAM	TAL PIT
Total/NA	Analysis	EPA 7196A		1	283874	07/03/19 13:36	TAM	TAL PIT

Client Sample ID: PTP-SB05 (3-3.5')

Lab Sample ID: 480-153844-13

Date Collected: 05/21/19 09:30
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 85.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			283586	07/01/19 13:11	TAM	TAL PIT
Total/NA	Analysis	EPA 7196A		1	283874	07/03/19 13:38	TAM	TAL PIT

Client Sample ID: PTP-SB06 (1-1.5')

Lab Sample ID: 480-153844-14

Date Collected: 05/21/19 09:10
Matrix: Solid
Date Received: 05/22/19 05:00
Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3060A			283586	07/01/19 13:11	TAM	TAL PIT
Total/NA	Analysis	EPA 7196A		1	283874	07/03/19 13:40	TAM	TAL PIT

Laboratory References:

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

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Accreditation/Certification Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-2
SDG: 680-153844-2

Laboratory: Eurofins TestAmerica, Buffalo

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	10026	03-31-20

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
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-20
California	State		2891	04-30-20
California	State Program	9	2891	04-30-20
Connecticut	State		PH-0688	09-30-20
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-20
Florida	NELAP		E871008	06-30-20
Illinois	NELAP	5	200005	06-30-20
Illinois	NELAP		004375	06-30-20
Kansas	NELAP	7	E-10350	01-31-20
Kentucky (UST)	State Program	4	162013	04-30-20
Kentucky (WW)	State Program	4	KY98043	12-31-19
Louisiana	NELAP	6	04041	06-30-20
Minnesota	NELAP Secondary AB	5	042-999-482	12-31-19
Nevada	State		PA00164	07-31-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-20
New York	NELAP	2	11182	03-31-20
New York	NELAP		11182	04-01-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Oregon	NELAP		PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-20
Pennsylvania	NELAP		02-00416	04-30-20
Rhode Island	State		LAO00362	12-30-19
Rhode Island	State Program	1	LAO00362	12-30-19
South Carolina	State Program	4	89014	04-30-20
Texas	NELAP	6	T104704528-15-2	03-31-20
Texas	NELAP		T104704528	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
US Fish & Wildlife	US Federal Programs		058448	07-31-20
USDA	Federal		P-Soil-01	06-26-22
Utah	NELAP	8	PA001462015-4	05-31-20
Virginia	NELAP	3	460189	09-14-19
Virginia	NELAP		10043	09-14-19
West Virginia DEP	State		142	01-31-20
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State		998027800	08-31-19

Accreditation/Certification Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-2
SDG: 680-153844-2

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998027800	08-31-19

Laboratory: Eurofins TestAmerica, Savannah

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

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10842	04-01-20

Method Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-2
SDG: 680-153844-2

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL BUF
7471B	Mercury (CVAA)	SW846	TAL BUF
9012B	Cyanide, Total andor Amenable	SW846	TAL BUF
EPA 7196A	Chromium, Hexavalent	SW846	TAL PIT
Moisture	Percent Moisture	EPA	TAL BUF
3050B	Preparation, Metals	SW846	TAL BUF
3060A	Alkaline Digestion (Chromium, Hexavalent)	SW846	TAL PIT
7471B	Preparation, Mercury	SW846	TAL BUF
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Sample Summary

Client: Ashland LLC
Project/Site: Hercules Glens Falls O&M

Job ID: 480-153844-2
SDG: 680-153844-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-153844-11	PTP-SB01 (1.5-2')	Solid	05/21/19 08:45	05/22/19 05:00	
480-153844-12	PTP-SB01 (5.5-6')	Solid	05/21/19 09:00	05/22/19 05:00	
480-153844-13	PTP-SB05 (3-3.5')	Solid	05/21/19 09:30	05/22/19 05:00	
480-153844-14	PTP-SB06 (1-1.5')	Solid	05/21/19 09:10	05/22/19 05:00	

Chain of Custody Record 311578

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

Albany #224

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

Client Contact	Project Manager:	Site Contact:	Date:	COC No
Company Name: Ashland Inc.	Tel/Fax:	Lab Contact:	Carrier:	3 of 4 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) 790-6446	TAT if different from Below STD TAT			Walk-in Client
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Hercules Glens Falls Q Event	☐ 1 week			
Site: Ashland Glens Falls	☐ 2 days			Job / SDG No
PO# GLENSFA191-0300	☐ 1 day			

480-153844 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	8012B total cyanide	9012B Dissolved cyanide	Sample Specific Notes
PTP-SB01	5/21/19	1355	G	water	2			X	X	
PTP-DUP01	5/21/19	—	G	water	2			X	X	
PTP-Blank	5/21/19	1445	G	water	2			X	X	
KZ	5/21/19									

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 longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: 9012A Field Filtered

2.2 #1

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

	Company	Date/Time		Company	Date/Time
Relinquished by:	Antea Group	5/21/19 1645	Received by:	TA	5/21/19 1645
Relinquished by:	TA 5/21/19	1808	Received by:		5/22/19 0900
Relinquished by:			Received in Laboratory by		

Albany
#224

Chain of Custody Record

68000956

311577

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

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

Client Contact	Project Manager:	Site Contact:	Date:	COC No
Company Name: Ashland Inc.	Tel/Fax:	Lab Contact:	Carrier:	4 of 4 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 STDTAT			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Hercules Glens Falls Q Cont	☐ 1 week			
Site: Ashland Glens Falls	☐ 2 days			Job / SDG No.:
PO# GLENSFALL91-0300	☐ 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)	7196A Hexavalent Chromium	Sample Specific Notes:
PTP-SB01	5/21/19	1355	G	water	1			X	
PTP-DUP01	5/21/19	—	G	water	1			X	
PTP-Blank	5/21/19	1445	G	water	1			X	
162	5/21/19								

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 longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: 7196A field filtered

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd _____ Corr'd _____		Therm ID No. _____	
Relinquished by:	Company: Antea Group	Date/Time: 5/21/19 1445	Received by:	Company: TA	Date/Time: 5/21/19 1445	
Relinquished by:	Company: TA	Date/Time: 5/21/19 1800	Received by:	Company:	Date/Time: 05/22/19 0800	
Relinquished by	Company:	Date/Time:	Received in Laboratory by	Company	Date/Time	

2 2 #1

Albany #224

Chain of Custody Record 311574

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

Regulatory Program: DW NPDES RCRA Other:

Client Contact	Project Manager:	Site Contact:	Date:	COC No.
Company Name: Ashland Inc.	Tel/Fax:	Lab Contact:	Carrier:	1 of 4 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 TAT			Walk-in Client:
Fax:	2 weeks			Lab Sampling:
Project Name: Hercules Falls Q. Plant	1 week			
Site: Ashland Falls Falls	2 days			Job / SDG No.:
PO # GLENSFA191-0300	1 day			

480-153844 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	6010B - Total Chromium	7471B - Mercury	6010C*	Sample Specific Notes
PTP-SB02 (0-0.5')	5/20/19	1010	G	Soil	2	N	N	X	X	X	@1010
PTP-SB02 (1.5-2')	5/20/19	1020	G	Soil	2	N	N	X	X	X	@1020, HOLD
PTP-SB03 (0-0.5')	5/20/19	1030	G	Soil	2	N	N	X	X	X	
PTP-SB03 (1.5-2')	5/20/19	1040	G	Soil	2	N	N	X	X	X	HOLD
PTP-SB04 (0-0.5')	5/20/19	1050	G	Soil	2	N	N	X	X	X	
PTP-SB04 (1.5-2')	5/20/19	1100	G	Soil	2	N	N	X	X	X	HOLD
PTP-SB01 (0-0.5')	5/21/19	0835	G	Soil	2	N	N	X	X	X	
PTP-SB01 (1.5-2')	5/21/19	0845	G	Soil	2	N	N	X	X	X	
PTP-SB01 (5.5-6')	5/21/19	0900	G	Soil	2	N	N	X	X	X	HOLD
PTP-SB05 (3-3.5')	5/21/19	0930	G	Soil	2	N	N	X	X	X	
PTP-SB06 (1-1.5')	5/21/19	0910	G	Soil	2	N	N	X	X	X	
PTP-DUP01 (0-0.5')	5/21/19	—	G	Soil	2	N	N	X	X	X	

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 longer than 1 month)

Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: *6010C - Barium, Chromium, Cadmium, Lead

Custody Seals Intact: Yes No	Custody Seal No.:	Cooler Temp. (°C): Obs'd. _____ Corr'd. _____	Therm ID No.: _____
Relinquished by:	Company: Arcadis Group	Date/Time: 5/21/19 1645	Received by:	Company: TA	Date/Time: 5/21/19 1645
Relinquished by:	Company: TA 5/21/19	Date/Time: 1800	Received by:	Company:	Date/Time: 05-22-19 0100
Relinquished by:	Company	Date/Time	Received in Laboratory by:	Company	Date/Time

2.8 #1

Albany #224

Chain of Custody Record 311579

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

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

Client Contact	Project Manager:	Site Contact:	Date:	COC No:
Company Name: Ashland Inc.	Tel/Fax:	Lab Contact:	Carrier:	2 of 4 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 TAT			Walk-in Client
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Hercules Glens Falls Q. Plant	☐ 1 week			
Site: Ashland Glens Falls	☐ 2 days			Job / SDG No:
PO # GLENSFA191-0300	☐ 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)	TAL, Hexavalent Chromium	Sample Specific Notes
PTP-SB02 (0-0.5')	5/20/19	1010	G	Soil	1	N	N	X	HOLD
PTP-SB02 (1.5-2')	5/20/19	1020	G	Soil	1	N	N	X	HOLD
PTP-SB03 (0-0.5')	5/20/19	1030	G	Soil	1	N	N	X	HOLD
PTP-SB03 (1.5-2')	5/20/19	1040	G	Soil	1	N	N	X	HOLD
PTP-SB04 (0-0.5')	5/20/19	1050	G	Soil	1	N	N	X	HOLD
PTP-SB04 (1.5-2')	5/20/19	1100	G	Soil	1	N	N	X	HOLD
PTP-SB01 (0-0.5')	5/21/19	0835	G	Soil	1	N	N	X	HOLD
PTP-SB01 (1.5-2')	5/21/19	0845	G	Soil	1	N	N	X	HOLD
PTP-SB01 (5.5-6')	5/21/19	0900	G	Soil	1	N	N	X	HOLD
PTP-SB05 (3-3.5')	5/21/19	0930	G	Soil	1	N	N	X	HOLD
PTP-SB06 (1-1.5')	5/21/19	0910	G	Soil	1	N	N	X	HOLD
PTP-DUP01 (0-0.5')	5/21/19	—	G	Soil	1	N	N	X	HOLD

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 longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No:		Cooler Temp (°C): Obs'd _____ Corr'd _____		Therm ID No: _____
Relinquished by:	Company: Antea Group	Date/Time: 5/21/19 1645	Received by:	Company: TA	Date/Time: 5/21/19 1645
Relinquished by: Kal Fuchs	Company: 5/21/19	Date/Time: 1800	Received by:	Company:	Date/Time: 05/22/19 0500
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

3.2 #1

Login Sample Receipt Checklist

Client: Ashland LLC

Job Number: 480-153844-2
SDG Number: 680-153844-2

Login Number: 153844
List Number: 1
Creator: Velickovic, Zoran

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: 480-153844-2
SDG Number: 680-153844-2

Login Number: 153844
List Number: 2
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 05/23/19 11:41 AM

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