

2 April 2020

Mr. Timothy Schneider, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road
Avon, New York 14414-9519

**Subject: AOC18 Interim Report
Former Sperry Remington Site – North Portion (#808022)
777 South Main Street, City of Elmira, Chemung County, NY**

Dear Mr. Schneider:

On behalf of Unisys Corporation (Unisys), Geosyntec Consultants, Inc. and its New York engineering affiliate, B&B Engineers & Geologists of New York, P.C. (collectively, Geosyntec) are submitting this Interim Report for AOC18 at the Former Sperry Remington Site – North Portion (Site #808022) (Site) in Elmira, New York.

The AOC18 area of the Former Sperry Remington Site – North Portion (Site 808022) (Site) was investigated in September and November 2019. The area described as AOC18 is shown on **Figure 1**. Background information reviewed prior to implementing data collection at AOC18 included the following:

- Historical records documenting waste disposal to the former sanitary sewer at the Site. The former sanitary sewer and ejector (lift station) are documented in historical records to extend from an area of industrial processes on-Site to the western edge of the Site, along Main Street. Site chemicals of potential concern (COPCs) in this area include trichloroethene (TCE), other volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), metals, semivolatile organic compounds (SVOCs) and petroleum hydrocarbons as represented by diesel-range organics (DRO).
- Soil sample data associated with AOC18 were obtained prior to investigation activities. These data included grab samples from a soil stockpile associated with a storm sewer trench excavation during a 2017 Elmira City School District (ECSD) Capital Project and reported by ECSD contractors. Analytical results indicated the presence of TCE in the soil stockpile at concentrations up to ten (10) milligrams per kilogram (mg/kg).

Investigation activities associated with AOC18 were conducted to characterize the magnitude and extent of Site COPCs in soil and groundwater at AOC18 using the data collection activities described herein. Findings, including results of soil and groundwater sampling, are reported, followed by conclusions interpreted from the data.

Data Collection Activities

Data to characterize potential impacts to soil were obtained from soil samples collected approximately every thirty (30) linear feet along the 2017 storm sewer alignment associated with the ECSD Capital Improvement project as shown in **Figure 1**. Samples were collected from undisturbed soils adjacent to

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and below the former trench excavation from surface soil to the water table, at six (6) sample locations B3174, B3175, B3176, B3177, B3179 and B3180. Boring logs from these locations are provided in **Attachment A**. Additional data were collected to characterize soils (surface, to and below the water table) adjacent to the sanitary ejector at sample location B3172 (**Figure 1**).

Soil sample collection, handling and analysis was in accordance with the Quality Assurance Project Plan / Field Sampling Plan (QAPP / FSP) for the Site. In summary, discrete soil samples were collected across two-foot (2-ft) sampling intervals at each location, for a total of forty-one (41) soil samples (**Table 1**). VOC analyses were completed for all 2-ft sampling intervals. Full suite analyses (VOCs, SVOCs, PCBs, metals and DRO) were conducted for (14) fourteen samples, at the shallowest and deepest sample intervals at each of the seven (7) locations. Soil samples for VOCs were collected directly from the acetate Geoprobe liners using a Terra Core[®] sampling kit. The remaining soil within the acetate sleeve was then transferred to a mixing bowl or container and homogenized prior to filling laboratory sampling containers for the remaining analyses. No visual or olfactory evidence of impacted soils were observed during sampling and photoionization detector (PID) readings for all sample intervals were well below the 10 parts per million (ppm) screening threshold established for the Site, as noted on the boring logs (**Attachment A**).

Groundwater was sampled at two depths: shallow (i.e., intersecting the water table approximately 15-25 feet bgs) and intermediate (intersecting the top of the silty clay interface approximately 30 feet bgs) zones using temporary well pairs installed at the following locations:

- centrally located in the storm sewer alignment (B3205);
- adjacent to the former sanitary ejector (B3200);
- at two additional locations south (B3203 and B3204) and one location north (B3201) of the former sanitary ejector along the western edge of the site.

Groundwater samples were collected from temporary piezometers installed to characterize the nature and extent of COPC in groundwater in accordance with the Workplan. Following sample collection, the piezometers were removed, the boreholes filled with bentonite to the top of native soil and the asphalt pavement replaced. The well pairs were installed at approximately 120-ft spacing (**Figure 1**). Borings logs are attached (**Attachment A**). In total, groundwater samples were collected at six (6) locations, at two (2) depths at each location, for a total of twelve (12) groundwater samples. Groundwater sampling logs are attached (**Attachment B**). Groundwater sample collection, handling and analysis was in accordance with the QAPP / FSP for the Site.

Data Usability

Analytical data packages generated by Eurofins TestAmerica during AOC18 investigation activities presented herein are included in **Appendix C** and were validated by Geosyntec, except as noted below. Data validation was performed on analytical data to verify and validate the usability of those data. Analytical data packages were reviewed for completeness, field and laboratory quality control (QC) sample results were evaluated, and data qualifiers were assigned where warranted. Stage 2B validation, as defined

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by USEPA Guidance¹, was performed on one-hundred percent (100%) of groundwater samples and on ninety five percent (95%) of soil samples. Stage 4 validation² was performed on seventy-eight percent (78%) of the soil samples collected. Data validation will be fully addressed in a subsequent submission. Verification and validation were based on completeness and compliance checks of sample receipt conditions, sample-related and instrument-related QC results, recalculation checks, and a review of actual instrument outputs. All data for which validation was performed were found to be suitable for their intended use, except as noted in the validation reports. None of the validation exceptions materially affect usability of the data.

Results

Soil Sampling

Results for VOCs, SVOCs, PCBs and metals were compared against the Restricted Residential and Protection of Groundwater Soil Cleanup Objectives (SCOs, 6 New York Codes, Rules and Regulations (NYCRR) Subpart 375) as provided in **Tables 2** and **3**. Laboratory reports are provided in **Attachment C**. This comparison indicates that all VOCs detections in soil are below Restricted Residential and Protection of Groundwater SCOs in soil borings associated with AOC18. TCE was reported in soil samples from three (3) locations, B3174, B3175 and B3177, with a maximum result of 0.019 mg/kg in the sample from four (4) to six (6) feet below ground surface (bgs) from B3175. The TCE concentrations in soil are all well below the Restricted Residential SCO for TCE of 21 mg/kg and the Protection of Groundwater SCO of 0.47 mg/kg (**Tables 2** and **3**). Acetone was also detected in three (3) subsurface soil samples, with concentrations ranging from estimated values of 0.0036 to 0.0086 mg/kg, well below the Restricted Residential SCO of 100 mg/kg and Protection of Groundwater SCO of 0.05 mg/kg for acetone.

Several individual polyaromatic hydrocarbons (PAHs) exceeded SCOs in soil from 0.17 to two (2) feet bgs and DRO were detected at sample locations B3177 and B3179. Those samples were collected directly beneath asphalt pavement in the faculty parking lot, a likely source for those compounds. PAHs did not exceed SCOs in deeper samples from AOC18 (**Table 3**). The presence of asphalt paving above sample locations B3177 and B3179 precludes the potential for exposure. Should ECSD need to excavate in this area, excavation activities would be performed in accordance with the Interim Site Management Plan and associated Excavation Work Plan (Geosyntec, 2019).

PCBs and metals were not detected above SCOs in any soil samples collected at AOC18 (**Tables 2** and **3**).

Soil Recovery

Recovery of apparently less than 100 percent of sample soil can be expected when sampling subsurface soil, for a variety of reasons. Low recoveries may arise due to refusal in the subsurface from large cobbles or boulders, voids or inherently loose material. The QAPP / FSP contains a soil recovery protocol whereby lower than expected recoveries in soil cores are evaluated as to whether usable data are being obtained and project objectives met. Under the QAPP/FSP soil recovery below 50 percent of a sample interval is evaluated.

¹ USEPA, *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use*. 2009.

² *Ibid*

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There were four sampling intervals where <50 percent recovery was observed during the AOC 18 investigation (**Table 4**). Three of the intervals were at sample location B3172, and the fourth was at sample location B3202. In all four cases the sample interval was below the water table, and the soil was observed to be loose, granular material. Both B3172 and B3202 were advanced below the water table for the purpose of temporary well installation. It is common for loose material to be compressed by the sampling tools, rather than enter the core barrel, particularly below the water table. As these soil cores were being retrieved for lithologic description rather than analytical sample collection, additional step-out locations were not advanced. Soil recoveries obtained from these intervals were considered adequate for the purpose of lithologic description.

Groundwater Sampling

Groundwater sample analytical data indicate VOCs, including TCE, were not detected in any of the twelve (12) samples collected, as shown in **Table 5**. Laboratory reports are provided in **Attachment C**. Analytical results for VOCs, SVOCs, PCBs and metals were compared against the NYSDEC Technical Operational Guidance Series (TOGS) 1.1.1 (Division of Water TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998). Of note, total iron was detected at 0.61 milligrams per liter (mg/L) (approximate to the TOGS value of 0.6 mg/L) at B3200A and bis(2-ethylhexyl) phthalate detected at an estimated 6.6 micrograms per liter ($\mu\text{g/L}$) (only slightly greater than the TOGS value of 5 $\mu\text{g/L}$) at B3203A. Dissolved iron at B3200A was not detected (ND) and bis(2-ethylhexyl) phthalate, a common laboratory contaminant, was not detected in associated soil samples.

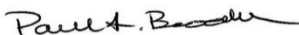
Conclusions

The results of AOC18 investigation activities demonstrate there are no exceedances of TCE in soil or groundwater at AOC18. Furthermore, no other COPCs were detected above SCOs in soil, apart from PAHs in shallow soil samples that are likely attributable to asphalt pavement. No COPCs were detected in groundwater apart from iron slightly above TOGS in one sample and bis (2-ethylhexyl) phthalate slightly above TOGS in another. Based on the soil results, there is no source in soil for bis (2-ethyl hexyl) phthalate at AOC18. Based on findings of the AOC18 investigation, no further action is recommended.

CLOSING

Geosyntec appreciates the opportunity to submit this interim report to the NYSDEC, NYSDOH and ECSD. If you have any questions, please contact Mr. Martin Howe of Unisys at (610) 287-5033.

Sincerely,



Paul Brookner
Project Director
Geosyntec Consultants, Inc.



Aron Krasnopoler, Ph.D., P.E.
Senior Engineer/Project Manager
B&B Engineers & Geologists of New York, P.C.

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Attachments: Figure 1 – AOC18 Sample Locations
 Table 1 – AOC18 Sampling Plan
 Table 2 – Shallow Subsurface Soil Sample Results
 Table 3 – Subsurface Soil Sample Results
 Table 4 – Soil Recovery
 Table 5 – Groundwater Sample Results
 Attachment A – Boring Logs
 Attachment B – Groundwater Sampling Logs
 Attachment C – Laboratory Reports

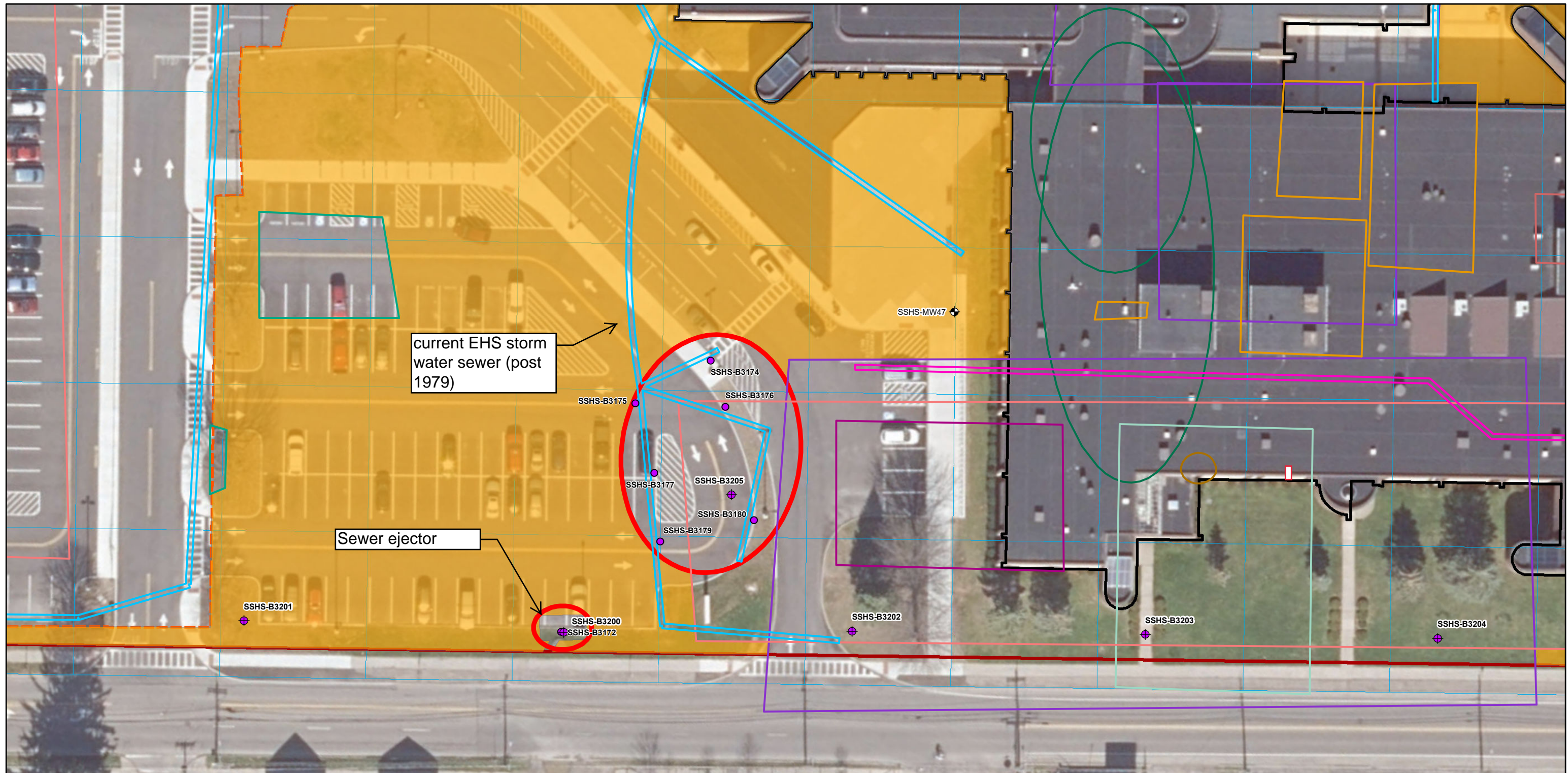
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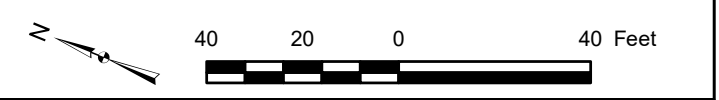
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Diamond

FIGURES



Explanation

- | | | | | | | | |
|--|--|--------|--------|-------|---------|---------|--------|
| Site Boundary | Permanent Monitoring Well | AOC-1 | AOC-2D | AOC-5 | AOC-10A | AOC-11A | AOC-15 |
| School Building (AOC-1) | Sampled Temporary Well | AOC-2 | AOC-2E | AOC-6 | AOC-10B | AOC-11B | AOC-16 |
| Football Field Complex Investigation Area | Sampled Site-Wide RI Sampling Location | AOC-2A | AOC-3 | AOC-7 | AOC-10C | AOC-12 | AOC-17 |
| Area Characterized during SC and IRM#1 PDI | | AOC-2B | AOC-3A | AOC-8 | AOC-10D | AOC-13 | AOC-18 |
| Area Characterized during SC and IRM#2 PDI | | AOC-2C | AOC-4 | AOC-9 | AOC-11 | AOC-14 | |
| Non-AOC Areas | | | | | | | |



AOC18 Sample Locations
Former Sperry Remington - North Portion #808022
Elmira, New York

B&B Engineers & Geologists
of new york, p.c.
an affiliate of Geosyntec Consultants

Figure 1

Columbia, Maryland January 2020

Notes
1. Aerial imagery accessed via ArcGIS Online and provided by Microsoft on 23 January 2020. Image is dated 30 April 2018.

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TABLES

TABLE 1
AOC18 Sampling Plan
Former Sperry Remington - North Portion
Elmira, Chemung County, New York

Primary Sample Locations	Screen Interval	Surface Condition	Top of Water Table ^(a) ft bgs	Top of Aquitard ^(a) ft bgs	Soil Sampling Interval							Groundwater Analyses
					Shallow 1 0 to 0.17 ft bgs	Shallow 2 0.17 to 2 ft bgs	Sub 1 2 to 4 ft bgs	Sub 2 4 to 6 ft bgs	Sub 3 6 to 8 ft bgs	Sub 4 8 to 10 ft bgs	Sub 5 10 to 12 ft bgs	
Soil Borings												
SSHS-3172	N/A	Grass	12	N/A		V, P, T, S, M	V	V	V	V	V, P, T, S, M	
SSHS-3174	N/A	Asphalt	12	N/A		V, P, T, S, M, EC	V	V	V	V	V, P, T, S, M, EC	
SSHS-3175	N/A	Asphalt	N/A	N/A		V, P, T, S, M	V	V	V	V	V, P, T, S, M	
SSHS-3176	N/A	Grass	10	N/A		V, P, T, S, M	V	V	V	V, P, T, S, M	N/A	
SSHS-3177	N/A	Asphalt	12	N/A		V, P, T, S, M, EC	V	V	V	V	V, P, T, S, M, EC	
SSHS-3179	N/A	Asphalt	13	N/A		V, P, T, S, M	V	V	V	V	V, P, T, S, M	
SSHS-3180	N/A	Grass	12	N/A		V, P, T, S, M	V	V	V	V	V, P, T, S, M	
Temporary Groundwater Wells												
SSHS-B3200a	11-21	Grass	12	29								V, P, T, S, M, EC
SSHS-B3200b	21-31	Grass	12	29								V, EC
SSHS-B3201a	13-23	Grass	14	30								V
SSHS-B3201b	22-32	Grass	14	30								V
SSHS-B3202a	14-24	Grass	14	30								V
SSHS-B3202b	22-32	Grass	14	30								V
SSHS-B3203a	14-24	Grass	14	30								V, P, T, S, M
SSHS-B3203b	25-30	Grass	14	30								V
SSHS-B3204a	13-23	Grass	13	30								V
SSHS-B3204b	25-30	Grass	13	30								V
SSHS-B3205a	13-23	Asphalt	14	27								V, EC
SSHS-B3205b	18-28	Asphalt	14	27								V, EC

Notes:

M - Metals P - PCBs S - SVOCs V - VOCs T - TPH (DRO and ORO) E - Emerging Contaminants

ft bgs - feet below ground surface, defined as base of vegetation (turf areas) and base of sub-base fill (non-turf areas)

(a) Based on drilling observations.

The soil sample collected from the interval immediately above the interval where the water table was encountered was analyzed for P, V, T, S, M.

At select locations, EC were analyzed in the shallow subsurface sample and at the sample interval immediately above the water table.

TABLE 2
Shallow Subsurface Soil Sample Results
AOC 18
Former Sperry Remington Site - North
Elmira, New York

				LocCode	SSHS-B3179	SSHS-B3180
				Sampled Date-Time	9/14/2019	9/14/2019
				Sample Depth Range	0.17-2	0.17-2
				Lab Report Number	180-95747-1	180-95747-1
				Restricted - Residential		
Class	Chemical	Units	EQL			
VOCs	Chlorobenzene	mg/kg	0.0016	100	<0.0017U	<0.0018U
	Chlorodibromomethane	mg/kg	0.0024		<0.0025U	<0.0027U
	Chloroethane	mg/kg	0.0026		<0.0027U	<0.0029U
	Chloroform	mg/kg	0.0021	49	<0.0022U	<0.0024U
	Chloromethane	mg/kg	0.0038		<0.004U	<0.0043U
	cis-1,2-dichloroethene	mg/kg	0.0016	100	<0.0017U	<0.0018U
	cis-1,3-dichloropropene	mg/kg	0.0016		<0.0017U	<0.0018U
	Cyclohexane	mg/kg	0.0012		<0.0013U	<0.0014U
	Dichlorodifluoromethane	mg/kg	0.0029		<0.0031U	<0.0033U
	Dichloromethane	mg/kg	0.0038	100	<0.004U	<0.0043U
	Ethylbenzene	mg/kg	0.0021	41	<0.0023U	<0.0024U
	Freon 113	mg/kg	0.0019		<0.002U	<0.0021U
	Isopropylbenzene	mg/kg	0.0023		<0.0024U	<0.0026U
	Methyl acetate	mg/kg	0.0059		<0.0062U	<0.0066U
	Methylcyclohexane	mg/kg	0.0021		<0.0022U	<0.0024U
	Methyl-tert-butyl ether	mg/kg	0.0037	100	<0.0039U	<0.0041U
	Styrene	mg/kg	0.0013		<0.0014U	<0.0015U
	Trichloroethene	mg/kg	0.0015	21	<0.0016U	<0.0017U
	Tetrachloroethene	mg/kg	0.002	19	<0.0021U	<0.0022U
	Toluene	mg/kg	0.0017	100	<0.0018U	<0.0019U
	trans-1,2-dichloroethene	mg/kg	0.0025	100	<0.0027U	<0.0028U
	trans-1,3-dichloropropene	mg/kg	0.0017		<0.0018U	<0.0019U
	Trichlorofluoromethane	mg/kg	0.0015		<0.0015U	<0.0016U
Vinyl chloride	mg/kg	0.0037	0.9	<0.0039U	<0.0041U	
Xylene (m & p)	mg/kg	0.0019		<0.002U	<0.0021U	
Xylene (o)	mg/kg	0.0024		<0.0026U	<0.0027U	
Xylene Total	mg/kg	0.0043	100	<0.0045U	<0.0048U	
PFCs	8:2-Fluorotelomersulfonic acid	µg/kg	0.25		-	-
	NEtFOSAA	µg/kg	0.36		-	-
	NMeFOSAA	µg/kg	0.38		-	-
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	µg/kg	0.15		-	-
	Perfluorobutanesulfonic acid	µg/kg	0.025		-	-
	Perfluorobutanoic acid	µg/kg	0.2		-	-
	Perfluorodecanesulfonic acid	µg/kg	0.041		-	-
	Perfluorodecanoic acid	µg/kg	0.022		-	-
	Perfluorododecanoic acid	µg/kg	0.066		-	-
	Perfluoroheptanesulfonic acid	µg/kg	0.035		-	-
	Perfluoroheptanoic acid	µg/kg	0.029		-	-
	Perfluorohexanesulfonic acid	µg/kg	0.031		-	-
	Perfluorohexanoic acid	µg/kg	0.041		-	-
	Perfluorononanoic acid	µg/kg	0.036		-	-
	Perfluorooctanesulfonamide	µg/kg	0.081		-	-
	Perfluorooctanesulfonic acid	µg/kg	0.49		-	-
	Perfluorooctanoate	µg/kg	0.085		-	-
	Perfluoropentanoic acid	µg/kg	0.076		-	-
Perfluorotetradecanoic acid	µg/kg	0.053		-	-	
Perfluorotridecanoic acid	µg/kg	0.05		-	-	
Perfluoroundecanoic acid	µg/kg	0.036		-	-	
Metals	Aluminum	mg/kg	20		6700	8400
	Antimony	mg/kg	0.34		<0.38UJ	<0.36U
	Arsenic	mg/kg	0.99	16	4.6	5.9
	Barium	mg/kg	20	400	52	68
	Beryllium	mg/kg	0.39	72	0.27J	0.34J
	Cadmium	mg/kg	0.49	4.3	0.11J	0.15J
	Calcium	mg/kg	490		40,000	42,000
	Chromium (III+VI)	mg/kg	0.49	110	8.8	11
	Cobalt	mg/kg	4.9		5.8	7.5
	Copper	mg/kg	2.5	270	22	25
	Iron	mg/kg	9.9		15,000	18,000
	Lead	mg/kg	0.99	400	13	18
	Magnesium	mg/kg	490		6800J-	8600
	Manganese	mg/kg	1.5	2000	420	510
	Nickel	mg/kg	3.9	310	18	21
	Potassium	mg/kg	490		660	700
	Selenium	mg/kg	0.61	180	0.57J	0.77J
	Silver	mg/kg	0.1	180	<0.12U	<0.11U
	Sodium	mg/kg	490		190J	180J
	Thallium	mg/kg	0.32		<0.36U	<0.34U
Vanadium	mg/kg	4.9		16	14	
Zinc	mg/kg	2	10000	55J-	72	
Mercury	mg/kg	0.013	0.81	<0.014U	0.018J	

Notes:

J: estimated value

U: non-detect

mg/kg: milligrams per kilogram

µg/kg: micrograms per kilogram

- : not analyzed

PCBs: polychlorinated biphenyls

SVOCs: semi-volatile organic compounds

VOCs: volatile organic compounds

SCOs Restricted Residential Soil Cleanup Objectives

UJ - compound not detected at an estimated value

Concentrations detected above the SCOs are present

TABLE 4
AOC18 Soil Recovery
Former Sperry Remington - North Portion
Elmira, Chemung County, New York

Boring	Interval (ft)	Run (in)	Recovery (in)	Percent Recovery	Water Table (ft)
SSHS-3172	12-14	24	1	4	12
SSHS-3172	14-16	24	6	25	12
SSHS-3172	16-20	48	18	38	12
SSHS-B3202	25-30	60	27	45	14

TABLE 5
Groundwater Sample Results
AOC 18
Former Sperry Remington Site - North
Elmira, New York

Class	Chemical	Units	EQL	Location								
				Sample Date		SSHS-B3203A	SSHS-B3203B	SSHS-B3204A	SSHS-B3204B	SSHS-B3200A	SSHS-B3200B	SSHS-B3201A
				Screen Interval (ft bgs)		14-24	25-30	13-23	25-30	11-21	21-31	13-23
				Lab Report Number		180-95715-1	180-95715-1	180-95715-1	180-95715-1	180-95745-1	180-95745-1	180-95745-1
Metals	Aluminum	mg/L	0.036	<0.036U	-	-	-	-	0.4J	-	-	
	Aluminum (Filtered)	mg/L	0.036	<0.036U	-	-	-	-	<0.036U	-	-	
	Antimony	mg/L	0.0034	<0.0034U	-	-	-	-	<0.0034U	-	-	
	Antimony (Filtered)	mg/L	0.0034	<0.0034U	-	-	-	-	<0.0034U	-	-	
	Arsenic	mg/L	0.0041	<0.0041U	-	-	-	-	<0.0041U	-	-	
	Arsenic (Filtered)	mg/L	0.0041	<0.0041U	-	-	-	-	<0.0041U	-	-	
	Barium	mg/L	0.2	0.087J	-	-	-	-	0.08J	-	-	
	Barium (Filtered)	mg/L	0.2	0.085J	-	-	-	-	0.075J	-	-	
	Beryllium	mg/L	0.00033	<0.00033U	-	-	-	-	<0.00033U	-	-	
	Beryllium (Filtered)	mg/L	0.00033	<0.00033U	-	-	-	-	<0.00033U	-	-	
	Cadmium	mg/L	0.00028	<0.00028U	-	-	-	-	<0.00028U	-	-	
	Cadmium (Filtered)	mg/L	0.00028	<0.00028U	-	-	-	-	<0.00028U	-	-	
	Calcium	mg/L	5	57	-	-	-	-	61	-	-	
	Calcium (Filtered)	mg/L	5	56	-	-	-	-	60	-	-	
	Chromium (III+VI)	mg/L	0.00078	<0.00078U	-	-	-	-	0.0013J	-	-	
	Chromium (III+VI) (Filtered)	mg/L	0.00078	<0.00078U	-	-	-	-	0.001J	-	-	
	Cobalt	mg/L	0.00055	<0.00055U	-	-	-	-	<0.00055U	-	-	
	Cobalt (Filtered)	mg/L	0.00055	<0.00055U	-	-	-	-	<0.00055U	-	-	
	Copper	mg/L	0.0022	<0.0022U	-	-	-	-	0.0022J	-	-	
	Copper (Filtered)	mg/L	0.0022	<0.0022U	-	-	-	-	<0.0022U	-	-	
	Iron	mg/L	0.1	0.036J	-	-	-	-	0.61	-	-	
	Iron (Filtered)	mg/L	0.031	<0.031U	-	-	-	-	<0.031U	-	-	
	Lead	mg/L	0.0029	<0.0029U	-	-	-	-	<0.0029U	-	-	
	Lead (Filtered)	mg/L	0.0029	<0.0029U	-	-	-	-	<0.0029U	-	-	
	Magnesium	mg/L	5	9.1	-	-	-	-	9.1	-	-	
	Magnesium (Filtered)	mg/L	5	8.8	-	-	-	-	8.9	-	-	
	Manganese	mg/L	0.015	0.014J	-	-	-	-	0.036	-	-	
	Manganese (Filtered)	mg/L	0.015	0.014J	-	-	-	-	0.006J	-	-	
	Mercury	mg/L	0.0001	<0.0001U	-	-	-	-	<0.0001U	-	-	
	Mercury (Filtered)	mg/L	0.0001	<0.0001U	-	-	-	-	<0.0001U	-	-	
	Nickel	mg/L	0.0015	<0.0015U	-	-	-	-	<0.0015U	-	-	
	Nickel (Filtered)	mg/L	0.0015	<0.0015U	-	-	-	-	<0.0015U	-	-	
	Potassium	mg/L	5	3.1J	-	-	-	-	3.4J	-	-	
	Potassium (Filtered)	mg/L	5	3J	-	-	-	-	3.3J	-	-	
	Selenium	mg/L	0.0036	<0.0036U	-	-	-	-	<0.0036U	-	-	
	Selenium (Filtered)	mg/L	0.0036	<0.0036U	-	-	-	-	<0.0036U	-	-	
	Silver	mg/L	0.00085	<0.00085U	-	-	-	-	<0.00085U	-	-	
	Silver (Filtered)	mg/L	0.00085	<0.00085U	-	-	-	-	<0.00085U	-	-	
	Sodium	mg/L	5	78	-	-	-	-	81	-	-	
	Sodium (Filtered)	mg/L	5	77	-	-	-	-	80	-	-	
Thallium	mg/L	0.0033	<0.0033U	-	-	-	-	<0.0033U	-	-		
Thallium (Filtered)	mg/L	0.0033	<0.0033U	-	-	-	-	<0.0033U	-	-		
Vanadium	mg/L	0.0037	<0.0037U	-	-	-	-	<0.0037U	-	-		
Vanadium (Filtered)	mg/L	0.0037	<0.0037U	-	-	-	-	<0.0037U	-	-		
Zinc	mg/L	0.02	<0U	-	-	-	-	<0.02U	-	-		
Zinc (Filtered)	mg/L	0.02	<0U	-	-	-	-	<0.02U	-	-		

Notes:

J: estimated value

U: non-detect

UJ - compound not detected at an estimated value

ng/l: nanograms per liter

mg/L: milligrams per liter

µg/L: micrograms per liter

- : not analyzed

PCBs: polychlorinated biphenyls

SVOCs: semi-volatile organic compounds

VOCs: volatile organic compounds

TABLE 5
Groundwater Sample Results
AOC 18
Former Sperry Remington Site - North
Elmira, New York

	Location				SSHS-B3201B	SSHS-B3202A	SSHS-B3202B	SSHS-B3205A	SSHS-B3205B
	Sample Date				9/14/2019	9/14/2019	9/14/2019	9/14/2019	9/14/2019
	Screen Interval (ft bgs)				22-32	14-24	22-32	13-23	18-28
	Lab Report Number				180-95745-1	180-95745-1	180-95745-1	180-95745-1	180-95745-1
Class	Chemical	Units	EQL						
PCBs	Aroclor 1016	µg/L	0.0048	-	-	-	-	-	
	Aroclor 1221	µg/L	0.0057	-	-	-	-	-	
	Aroclor 1232	µg/L	0.0052	-	-	-	-	-	
	Aroclor 1242	µg/L	0.0091	-	-	-	-	-	
	Aroclor 1248	µg/L	0.003	-	-	-	-	-	
	Aroclor 1254	µg/L	0.0095	-	-	-	-	-	
	Aroclor 1260	µg/L	0.0039	-	-	-	-	-	
	Aroclor 1268	µg/L	0.0046	-	-	-	-	-	
	Aroclor 1262	µg/L	0.0071	-	-	-	-	-	
	Total PCBs	µg/L	-	-	-	-	-	-	
SVOCs	1,1-Biphenyl	µg/L	0.061	-	-	-	-	-	
	1,2,4,5-tetrachlorobenzene	µg/L	0.054	-	-	-	-	-	
	1,4-Dioxane	µg/L	0.2	-	-	-	-	-	
	2,3,4,6-tetrachlorophenol	µg/L	0.047	-	-	-	-	-	
	2,4,5-trichlorophenol	µg/L	0.064	-	-	-	-	-	
	2,4,6-trichlorophenol	µg/L	0.071	-	-	-	-	-	
	2,4-dichlorophenol	µg/L	0.053	-	-	-	-	-	
	2,4-dimethylphenol	µg/L	0.043	-	-	-	-	-	
	2,4-dinitrophenol	mg/L	0.0016	-	-	-	-	-	
	2,4-Dinitrotoluene	µg/L	0.053	-	-	-	-	-	
	2,6-dinitrotoluene	µg/L	0.063	-	-	-	-	-	
	2-chloronaphthalene	µg/L	0.061	-	-	-	-	-	
	2-chlorophenol	µg/L	0.067	-	-	-	-	-	
	2-methylnaphthalene	µg/L	0.065	-	-	-	-	-	
	2-methylphenol	µg/L	0.31	-	-	-	-	-	
	2-nitroaniline	µg/L	0.57	-	-	-	-	-	
	2-nitrophenol	µg/L	0.064	-	-	-	-	-	
	3,3-Dichlorobenzidine	µg/L	0.61	-	-	-	-	-	
	3-nitroaniline	µg/L	0.07	-	-	-	-	-	
	4,6-Dinitro-2-methylphenol	µg/L	1.5	-	-	-	-	-	
	4-bromophenyl phenyl ether	µg/L	0.066	-	-	-	-	-	
	4-chloro-3-methylphenol	µg/L	0.064	-	-	-	-	-	
	4-chloroaniline	µg/L	0.046	-	-	-	-	-	
	4-chlorophenyl phenyl ether	µg/L	0.064	-	-	-	-	-	
	4-methylphenol	mg/L	0.00039	-	-	-	-	-	
	4-nitroaniline	µg/L	0.06	-	-	-	-	-	
	4-nitrophenol	µg/L	0.15	-	-	-	-	-	
	Acenaphthene	µg/L	0.068	-	-	-	-	-	
	Acenaphthylene	µg/L	0.068	-	-	-	-	-	
	Acetophenone	µg/L	0.065	-	-	-	-	-	
	Anthracene	µg/L	0.051	-	-	-	-	-	
	Atrazine	mg/L	0.00066	-	-	-	-	-	
	Benz(a)anthracene	µg/L	0.078	-	-	-	-	-	
	Benzaldehyde	µg/L	0.12	-	-	-	-	-	
	Benzo(a) pyrene	µg/L	0.055	-	-	-	-	-	
	Benzo(b)fluoranthene	µg/L	0.1	-	-	-	-	-	
	Benzo(g,h,i)perylene	µg/L	0.072	-	-	-	-	-	
	Benzo(k)fluoranthene	µg/L	0.092	-	-	-	-	-	
	Bis(2-chloroethoxy) methane	µg/L	0.07	-	-	-	-	-	
	Bis(2-chloroethyl)ether	µg/L	0.042	-	-	-	-	-	
	Bis(2-chloroisopropyl) ether	µg/L	0.06	-	-	-	-	-	
	Bis(2-ethylhexyl) phthalate	µg/L	6.5	-	-	-	-	-	
	Butyl benzyl phthalate	µg/L	0.48	-	-	-	-	-	
	Caprolactam	µg/L	0.49	-	-	-	-	-	
	Carbazole	µg/L	0.053	-	-	-	-	-	
	Chrysene	µg/L	0.084	-	-	-	-	-	
	Dibenz(a,h)anthracene	µg/L	0.075	-	-	-	-	-	
	Dibenzofuran	µg/L	0.076	-	-	-	-	-	
	Diethylphthalate	µg/L	0.59	-	-	-	-	-	
	Dimethyl phthalate	µg/L	0.058	-	-	-	-	-	
	Di-n-butyl phthalate	µg/L	0.77	-	-	-	-	-	
	Di-n-octyl phthalate	µg/L	0.71	-	-	-	-	-	
	Fluoranthene	µg/L	0.063	-	-	-	-	-	
	Fluorene	µg/L	0.072	-	-	-	-	-	
	Hexachlorobenzene	µg/L	0.058	-	-	-	-	-	
	Hexachlorobutadiene	µg/L	0.072	-	-	-	-	-	
	Hexachlorocyclopentadiene	µg/L	0.52	-	-	-	-	-	
Hexachloroethane	µg/L	0.065	-	-	-	-	-		
Indeno(1,2,3-c,d)pyrene	µg/L	0.089	-	-	-	-	-		
Isophorone	µg/L	0.056	-	-	-	-	-		
Naphthalene	µg/L	0.061	-	-	-	-	-		
Nitrobenzene	µg/L	0.52	-	-	-	-	-		
N-nitrosodi-n-propylamine	µg/L	0.074	-	-	-	-	-		
n-Nitrosodiphenylamine	µg/L	0.12	-	-	-	-	-		
Pentachlorophenol	µg/L	0.88	-	-	-	-	-		
Phenanthrene	µg/L	0.057	-	-	-	-	-		
Phenol	µg/L	0.51	-	-	-	-	-		
Pyrene	µg/L	0.056	-	-	-	-	-		
PAHs (Sum of total)	µg/L		-	-	-	-	-		
Oil Range Organics	mg/L	0.25	-	-	-	-	-		
Diesel Range Organics	mg/L	0.24	-	-	-	-	-		
	1,4-Dioxane	µg/L	0.17	-	-	-	<0.17U	<0.17U	

TABLE 5
Groundwater Sample Results
AOC 18
Former Sperry Remington Site - North
Elmira, New York

Class	Chemical	Units	EQL	Location				
				SSHS-B3201B	SSHS-B3202A	SSHS-B3202B	SSHS-B3205A	SSHS-B3205B
				Sample Date	9/14/2019	9/14/2019	9/14/2019	9/14/2019
				Screen Interval (ft bgs)	22-32	14-24	22-32	13-23
Lab Report Number				180-95745-1	180-95745-1	180-95745-1	180-95745-1	180-95745-1
VOCs	1,1,1-trichloroethane	µg/L	0.6	<0.6U	<0.6U	<0.6U	<0.6U	<0.6U
	1,1,2,2-tetrachloroethane	µg/L	0.6	<0.6U	<0.6U	<0.6U	<0.6U	<0.6U
	1,1,2-trichloroethane	µg/L	0.45	<0.45U	<0.45U	<0.45U	<0.45U	<0.45U
	1,1-dichloroethane	µg/L	0.63	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U
	1,1-dichloroethene	µg/L	0.55	<0.55U	<0.55U	<0.55U	<0.55U	<0.55U
	1,2,3-trichlorobenzene	µg/L	0.83	<0.83U	<0.83U	<0.83U	<0.83U	<0.83U
	1,2,4-trichlorobenzene	µg/L	0.77	<0.77U	<0.77U	<0.77U	<0.77U	<0.77U
	1,2-dibromo-3-chloropropane	µg/L	0.89	<0.89U	<0.89U	<0.89U	<0.89U	<0.89U
	1,2-dibromoethane	µg/L	0.5	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
	1,2-dichlorobenzene	µg/L	0.36	<0.36U	<0.36U	<0.36U	<0.36U	<0.36U
	1,2-dichloroethane	µg/L	0.57	<0.57U	<0.57U	<0.57U	<0.57U	<0.57U
	1,2-Dichloroethene	µg/L	1.3	<1.3U	<1.3U	<1.3U	<1.3U	<1.3U
	1,2-dichloropropane	µg/L	0.66	<0.66U	<0.66U	<0.66U	<0.66U	<0.66U
	1,3-dichlorobenzene	µg/L	0.5	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
	1,4-dichlorobenzene	µg/L	0.54	<0.54U	<0.54U	<0.54U	<0.54U	<0.54U
	Methyl Ethyl Ketone	µg/L	2.6	<2.6U	<2.6U	<2.6U	<2.6U	<2.6U
	2-hexanone (MBK)	µg/L	3.3	<3.3U	<3.3U	<3.3U	<3.3U	<3.3U
	4-Methyl-2-pentanone	µg/L	3.1	<3.1UJ	<3.1UJ	<3.1UJ	<3.1UJ	<3.1UJ
	Acetone	µg/L	3.4	<3.4U	<3.4U	<3.4U	<3.4U	<3.4U
	Benzene	µg/L	0.6	<0.6U	<0.6U	<0.6U	<0.6U	<0.6U
	Bromochloromethane	µg/L	0.63	<0.63U	<0.63U	<0.63U	<0.63U	<0.63U
	Bromodichloromethane	µg/L	0.64	<0.64U	<0.64U	<0.64U	<0.64U	<0.64U
	Bromoform	µg/L	0.98	<0.98U	<0.98U	<0.98U	<0.98U	<0.98U
	Bromomethane	µg/L	0.89	<0.89U	<0.89U	<0.89U	<0.89U	<0.89U
	Carbon disulfide	µg/L	0.88	<0.88U	<0.88U	<0.88U	<0.88U	<0.88U
	Carbon tetrachloride	µg/L	0.88	<0.88U	<0.88U	<0.88U	<0.88U	<0.88U
	Chlorobenzene	µg/L	0.5	<0.5U	<0.5U	<0.5U	<0.5U	<0.5U
	Chlorodibromomethane	µg/L	0.84	<0.84U	<0.84U	<0.84U	<0.84U	<0.84U
	Chloroethane	µg/L	0.9	<0.9U	<0.9U	<0.9U	<0.9U	<0.9U
	Chloroform	µg/L	0.6	<0.6U	<0.6U	<0.6U	<0.6U	<0.6U
	Chloromethane	µg/L	0.9	<0.9U	<0.9U	<0.9U	<0.9U	<0.9U
	cis-1,2-dichloroethene	µg/L	0.71	<0.71U	<0.71U	<0.71U	<0.71U	<0.71U
	cis-1,3-dichloropropene	µg/L	0.59	<0.59U	<0.59U	<0.59U	<0.59U	<0.59U
	Cyclohexane	mg/L	0.00063	<0.00063U	<0.00063U	<0.00063U	<0.00063U	<0.00063U
	Dichlorodifluoromethane	µg/L	0.83	<0.83U	<0.83U	<0.83U	<0.83U	<0.83U
	Dichloromethane	µg/L	0.89	<0.89U	<0.89U	<0.89U	<0.89U	<0.89U
	Ethylbenzene	µg/L	0.51	<0.51U	<0.51U	<0.51U	<0.51U	<0.51U
	Freon 113	µg/L	0.86	<0.86U	<0.86U	<0.86U	<0.86U	<0.86U
	Isopropylbenzene	µg/L	0.34	<0.34U	<0.34U	<0.34U	<0.34U	<0.34U
	Methyl acetate	µg/L	1.7	<1.7U	<1.7U	<1.7U	<1.7U	<1.7U
	Methylcyclohexane	µg/L	0.61	<0.61U	<0.61U	<0.61U	<0.61U	<0.61U
	Methyl-tert-butyl ether	mg/L	0.00059	<0.00059U	<0.00059U	<0.00059U	<0.00059U	<0.00059U
Styrene	µg/L	0.47	<0.47U	<0.47U	<0.47U	<0.47U	<0.47U	
Trichloroethene	µg/L	0.69	<0.69U	<0.69U	<0.69U	<0.69U	<0.69U	
Tetrachloroethene	µg/L	0.47	<0.47U	<0.47U	<0.47U	<0.47U	<0.47U	
Toluene	µg/L	0.46	<0.46U	<0.46U	<0.46U	<0.46U	<0.46U	
trans-1,2-dichloroethene	µg/L	0.67	<0.67U	<0.67U	<0.67U	<0.67U	<0.67U	
trans-1,3-dichloropropene	µg/L	0.58	<0.58U	<0.58U	<0.58U	<0.58U	<0.58U	
Trichlorofluoromethane	µg/L	0.87	<0.87U	<0.87U	<0.87U	<0.87U	<0.87U	
Vinyl chloride	µg/L	0.88	<0.88U	<0.88U	<0.88U	<0.88U	<0.88U	
Xylene (m & p)	µg/L	0.48	<0.48U	<0.48U	<0.48U	<0.48U	<0.48U	
Xylene (o)	µg/L	0.41	<0.41U	<0.41U	<0.41U	<0.41U	<0.41U	
Xylene Total	µg/L	0.89	<0.89U	<0.89U	<0.89U	<0.89U	<0.89U	
PFCs	8:2-Fluorotelomersulfonic acid	ng/l	1.9	-	-	-	<1.9U	<2U
	NEtFOSAA	ng/l	1.8	-	-	-	<1.8U	<1.9U
	NMeFOSAA	ng/l	2.9	-	-	-	<2.9U	<3.1U
	6:2 Fluorotelomer Sulfonate (6:2 FtS)	ng/L	1.9	-	-	-	<1.9U	<2U
	Perfluorobutanesulfonic acid	ng/l	1.9	-	-	-	3	3.2
	Perfluorobutanoic acid	ng/l	1.9	-	-	-	2	2.3
	Perfluorodecanesulfonic acid	ng/l	0.3	-	-	-	<0.3U	0.35J
	Perfluorodecanoic acid	ng/l	0.29	-	-	-	<0.29U	<0.31U
	Perfluorododecanoic acid	ng/l	0.51	-	-	-	<0.51U	<0.55U
	Perfluoroheptanesulfonic acid	ng/l	0.18	-	-	-	<0.18U	<0.19U
	Perfluoroheptanoic acid	ng/l	1.9	-	-	-	1.5J	2.1
	Perfluorohexanesulfonic acid	ng/l	1.9	-	-	-	2.1B	2.4B
	Perfluorohexanoic acid	ng/l	1.9	-	-	-	2.8	4.2
	Perfluorononanoic acid	ng/l	0.25	-	-	-	<0.25U	0.47J
	Perfluorooctanesulfonamide	ng/l	0.33	-	-	-	<0.33U	<0.35U
	Perfluorooctanesulfonic acid	ng/l	1.9	-	-	-	7.8B	11B
	Perfluorooctanoate	ng/l	1.9	-	-	-	3.6	5.4
	Perfluoropentanoic acid	ng/l	1.9	-	-	-	3.2	5
	Perfluorotetradecanoic acid	ng/l	0.27	-	-	-	<0.27U	<0.29U
	Perfluorotridecanoic acid	ng/l	1.2	-	-	-	<1.2U	<1.3U
Perfluoroundecanoic acid	ng/l	1	-	-	-	<1U	<1.1U	

TABLE 5
Groundwater Sample Results
AOC 18
Former Sperry Remington Site - North
Elmira, New York

	Location				SSHS-B3201B	SSHS-B3202A	SSHS-B3202B	SSHS-B3205A	SSHS-B3205B
	Sample Date				9/14/2019	9/14/2019	9/14/2019	9/14/2019	9/14/2019
	Screen Interval (ft bgs)				22-32	14-24	22-32	13-23	18-28
	Lab Report Number				180-95745-1	180-95745-1	180-95745-1	180-95745-1	180-95745-1
Class	Chemical	Units	EQL						
Metals	Aluminum	mg/L	0.036	-	-	-	-	-	-
	Aluminum (Filtered)	mg/L	0.036	-	-	-	-	-	-
	Antimony	mg/L	0.0034	-	-	-	-	-	-
	Antimony (Filtered)	mg/L	0.0034	-	-	-	-	-	-
	Arsenic	mg/L	0.0041	-	-	-	-	-	-
	Arsenic (Filtered)	mg/L	0.0041	-	-	-	-	-	-
	Barium	mg/L	0.2	-	-	-	-	-	-
	Barium (Filtered)	mg/L	0.2	-	-	-	-	-	-
	Beryllium	mg/L	0.00033	-	-	-	-	-	-
	Beryllium (Filtered)	mg/L	0.00033	-	-	-	-	-	-
	Cadmium	mg/L	0.00028	-	-	-	-	-	-
	Cadmium (Filtered)	mg/L	0.00028	-	-	-	-	-	-
	Calcium	mg/L	5	-	-	-	-	-	-
	Calcium (Filtered)	mg/L	5	-	-	-	-	-	-
	Chromium (III+VI)	mg/L	0.00078	-	-	-	-	-	-
	Chromium (III+VI) (Filtered)	mg/L	0.00078	-	-	-	-	-	-
	Cobalt	mg/L	0.00055	-	-	-	-	-	-
	Cobalt (Filtered)	mg/L	0.00055	-	-	-	-	-	-
	Copper	mg/L	0.0022	-	-	-	-	-	-
	Copper (Filtered)	mg/L	0.0022	-	-	-	-	-	-
	Iron	mg/L	0.1	-	-	-	-	-	-
	Iron (Filtered)	mg/L	0.031	-	-	-	-	-	-
	Lead	mg/L	0.0029	-	-	-	-	-	-
	Lead (Filtered)	mg/L	0.0029	-	-	-	-	-	-
	Magnesium	mg/L	5	-	-	-	-	-	-
	Magnesium (Filtered)	mg/L	5	-	-	-	-	-	-
	Manganese	mg/L	0.015	-	-	-	-	-	-
	Manganese (Filtered)	mg/L	0.015	-	-	-	-	-	-
	Mercury	mg/L	0.0001	-	-	-	-	-	-
	Mercury (Filtered)	mg/L	0.0001	-	-	-	-	-	-
	Nickel	mg/L	0.0015	-	-	-	-	-	-
	Nickel (Filtered)	mg/L	0.0015	-	-	-	-	-	-
	Potassium	mg/L	5	-	-	-	-	-	-
	Potassium (Filtered)	mg/L	5	-	-	-	-	-	-
Selenium	mg/L	0.0036	-	-	-	-	-	-	
Selenium (Filtered)	mg/L	0.0036	-	-	-	-	-	-	
Silver	mg/L	0.00085	-	-	-	-	-	-	
Silver (Filtered)	mg/L	0.00085	-	-	-	-	-	-	
Sodium	mg/L	5	-	-	-	-	-	-	
Sodium (Filtered)	mg/L	5	-	-	-	-	-	-	
Thallium	mg/L	0.0033	-	-	-	-	-	-	
Thallium (Filtered)	mg/L	0.0033	-	-	-	-	-	-	
Vanadium	mg/L	0.0037	-	-	-	-	-	-	
Vanadium (Filtered)	mg/L	0.0037	-	-	-	-	-	-	
Zinc	mg/L	0.02	-	-	-	-	-	-	
Zinc (Filtered)	mg/L	0.02	-	-	-	-	-	-	

Notes:
 J: estimated value
 U: non-detect
 UJ - compound not detected at an estimated value
 ng/l: nanograms per liter
 mg/L: milligrams per liter
 µg/L: micrograms per liter
 -: not analyzed
 PCBs: polychlorinated biphenyls
 SVOCs: semi-volatile organic compounds
 VOCs: volatile organic compounds

Attachment A

CLIENT Unisys Corporation	PROJECT NAME Former Sperry Remington
PROJECT NUMBER MN0832G	PROJECT LOCATION Elmira, New York
DATE STARTED 9/12/19	COMPLETED 9/12/19
DRILLER Cascade Technical Services, LLC	NORTHING 76194.8 ft
DRILLING METHOD Direct Push	EASTING 753883.2 ft
SAMPLING METHOD 2" x 5' Macrocore	GROUND ELEVATION ---
RIG TYPE Geoprobe	BORING DIAMETER 2 in
	TOP OF CASING ELEVATION ---
	UTILITY CONTRACTOR GPRS
	LOGGED BY S. Perdziola
	CHECKED BY R. Arcuri






NOTES Dup 1 (0.17-2) ft, Contains log for temp. wells B3200a (screen set 11'-21'), B3200b (screen set 21'-31')

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PIID (ppm)
0				SANDY SILT, fine sand, moist, reddish brown, poorly graded	
0.17-2		SSHS-B3172-SUB-0.17-2		Medium dense, SANDY GRAVEL, clay, moist, light brown to dark brown and gray, well graded, subangular	0.3
2.5		SSHS-B3172-SUB-2-4			1.5
5.0		SSHS-B3172-SUB-4-6		Very dense, CLAYEY SAND, gravel, fine sand, moist, light brown to dark brown, poorly graded, subangular	2
7.5		SSHS-B3172-SUB-6-8			2.2
		SSHS-B3172-SUB-8-10			2.4

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York




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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		SSHS-B3172-SUB-10-12		Very dense, CLAYEY SAND, gravel, fine sand, moist, light brown to dark brown, poorly graded, subangular (continued)	1.1
12.5		SSHS-B3172-SUB-12-14		Very dense, CLAYEY SAND, gravel, fine sand, wet, light brown to dark brown, poorly graded, subangular	1
15.0		SSHS-B3172-SUB-14-16		Very loose, SANDY GRAVEL, clay, fine sand, wet, brown, poorly graded, subrounded	1.1
17.5		SSHS-B3172-SUB-16-20			2.6
20.0		SSHS-B3172-SUB-20-25		Very loose, SAND, gravel, fine to medium grained, saturated, well graded, subangular	3.1

(Continued Next Page)

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	
22.5				Very loose, SAND, gravel, fine to medium grained, saturated, well graded, subangular <i>(continued)</i>		
25.0		SSHS-B3172-SUB-25-30		Very loose, GRAVELLY SAND, medium to coarse grained, light brown to dark brown and gray, poorly graded, subrounded, Sand grading into gravel	2.5	
27.5				Very stiff, CLAY, light brown to gray, high plasticity		
30.0		Bottom of borehole at 30.0 feet.				
32.5						

CLIENT Unisys Corporation	PROJECT NAME Former Sperry Remington
PROJECT NUMBER MN0832G	PROJECT LOCATION Elmira, New York
DATE STARTED 9/14/19	COMPLETED 9/14/19
DRILLER Cascade Technical Services, LLC	NORTHING 762045.119 ft
DRILLING METHOD Direct Push	EASTING 753883.216 ft
SAMPLING METHOD 2" x 5' Macrocore	GROUND ELEVATION ---
RIG TYPE Geoprobe	BORING DIAMETER 2 in
NOTES Dup 2 (0.17-2)	TOP OF CASING ELEVATION ---
	UTILITY CONTRACTOR GPRS
	LOGGED BY S. Perdziola
	CHECKED BY R. Arcuri

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PIID (ppm)
0.0		SSHS-B3174-SUB-0-0.17		ASPHALT	1.6
0.17		SSHS-B3174-SUB-0.17-2			
2.5		SSHS-B3174-SUB-2-4		SANDY GRAVEL, with clay, fine to coarse grained, moist, light brown to dark black, (GP) well graded, subangular	4.5
5.0		SSHS-B3174-SUB-4-6		Stiff, CLAY, with sand, and gravel, fine grained, moist, brown, (CL)	1.8
5.0		SSHS-B3174-SUB-4-6		Loose, SAND, with gravel, and clay, moist, light brown, (SW-SC) well graded, subangular	1.8
5.0		SSHS-B3174-SUB-4-6		Very dense, CLAY, with sand, and gravel, fine to coarse grained, moist, brown, (CL) subangular	1.6
7.5		SSHS-B3174-SUB-6-8		Loose, SANDY GRAVEL, with clay, moist, light black and gray, (GW) well graded, subangular	2.3
8.0		SSHS-B3174-SUB-8-10			1.6

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5		SSHS-B3174-SUB-10-12		Loose, SANDY GRAVEL, with clay, moist, light black and gray, (GW) well graded, subangular <i>(continued)</i> 	
Bottom of borehole at 14.0 feet.					
15.0					
17.5					
20.0					

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CLIENT Unisys Corporation	PROJECT NAME Former Sperry Remington
PROJECT NUMBER MN0832G	PROJECT LOCATION Elmira, New York
DATE STARTED 11/6/19 COMPLETED 11/6/19	NORTHING 762014.98 ft EASTING 753897.168 ft
DRILLER Cascade Technical Services, LLC	GROUND ELEVATION --- BORING DIAMETER 2 in
DRILLING METHOD Direct Push	TOP OF CASING ELEVATION ---
SAMPLING METHOD 2" x 5' Macrocore	UTILITY CONTRACTOR ---
RIG TYPE Geoprobe	LOGGED BY S. Perdziola CHECKED BY R. Arcuri
NOTES	

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PIID (ppm)
0				ASPHALT	
1.5		SSHS-B3175-SUB-0.17-2		Loose, SAND, with gravel, fine to coarse sand, moist, light brown, well graded, subangular	1.5
2.5		SSHS-B3175-SUB-2-4			0
5.0		SSHS-B3175-SUB-4-6			0
7.5		SSHS-B3175-SUB-6-8		Loose, GRAVEL, with fine to coarse sand, and clay, light brown to brown, well graded, subangular, wet at 12'	0.1
8.0		SSHS-B3175-SUB-8-10			0



Bottom of borehole at 10.0 feet.

CLIENT Unisys Corporation	PROJECT NAME Former Sperry Remington
PROJECT NUMBER MN0832G	PROJECT LOCATION Elmira, New York
DATE STARTED 9/14/19	COMPLETED 9/14/19
DRILLER Cascade Technical Services, LLC	NORTHING 762031.427 ft
DRILLING METHOD Direct Push	EASTING 753857.869 ft
SAMPLING METHOD 2" x 5' Macrocore	GROUND ELEVATION ---
RIG TYPE Geoprobe	BORING DIAMETER 2 in
NOTES Dup 3 (2-4)	TOP OF CASING ELEVATION ---
	UTILITY CONTRACTOR GPRS
	LOGGED BY S. Perdziola
	CHECKED BY R. Arcuri

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PIID (ppm)
0		SSHS-B3176-Sub-0-0.17		Dense, SANDY SILT, some fine sand, moist, reddish brown, low to medium plasticity	
		SSHS-B3176-Sub-0.17-2		SANDY GRAVEL, with clay, brown	1.9
2.5		Dup-03 (V) SSHS-B3176-Sub-2-4		Becomes with rock fragments, moist, well graded, subangular	0.5
		Dup-04 (V) SSHS-B3176-Sub-4-6		Soft, CLAY, trace medium to coarse sand, and gravel, moist, light brown, well graded	0.3
5.0		SSHS-B3176-Sub-6-8			0.3
7.5		SSHS-B3176-Sub-8-10			0.9


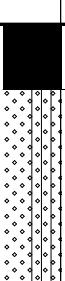
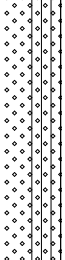
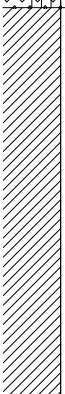
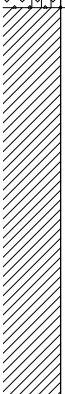



CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5		SSHS-B3176-Sub-10-12		Loose, SANDY GRAVEL, with clay, wet, well graded, subangular	
Bottom of borehole at 14.0 feet.					
15.0					
17.5					
20.0					



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CLIENT Unisys Corporation	PROJECT NAME Former Sperry Remington
PROJECT NUMBER MN0832G	PROJECT LOCATION Elmira, New York
DATE STARTED 9/14/19	COMPLETED 9/14/19
DRILLER Cascade Technical Services, LLC	NORTHING 761990.689 ft
DRILLING METHOD Direct Push	EASTING 753877.934 ft
SAMPLING METHOD 2" x 5' Macrocore	GROUND ELEVATION ---
RIG TYPE Geoprobe	BORING DIAMETER 2 in
NOTES MS/MSD 3 (10-12), Dup5 (6-8)	TOP OF CASING ELEVATION ---
	UTILITY CONTRACTOR GPRS
	LOGGED BY S. Perdziola
	CHECKED BY R. Arcuri

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PIID (ppm)
0		SSHS-B3177-Sub-0-0.17		ASPHALT	
0.17-2		SSHS-B3177-Sub-0.17-2		Very loose, SILTY SAND, with gravel, fine grained, light brown, well graded, subangular	2.5
2.5		SSHS-B3177-Sub-2-4			1.1
3.4		SSHS-B3177-Sub-4-6		Very dense, CLAY, light brown	3.4
5.0		SSHS-B3177-Sub-4-6			0.8
6.8		SSHS-B3177-Sub-6-8		Medium dense, SANDY GRAVEL, with clay, moist, light gray and brown, well graded, subangular	0.8
7.5		SSHS-B3177-Sub-6-8			0.8
8-10		SSHS-B3177-Sub-8-10			0.8

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		SSHS-B3177-Sub-10-12		Medium dense, SANDY GRAVEL, with clay, moist, light gray and brown, well graded, subangular (continued)	1.3
12.5					0
15.0				Bottom of borehole at 14.0 feet.	
17.5					
20.0					




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CLIENT Unisys Corporation	PROJECT NAME Former Sperry Remington
PROJECT NUMBER MN0832G	PROJECT LOCATION Elmira, New York
DATE STARTED 9/14/19	COMPLETED 9/14/19
DRILLER Cascade Technical Services, LLC	NORTHING 761966.699 ft
DRILLING METHOD Direct Push	EASTING 753867.366 ft
SAMPLING METHOD 2" x 5' Macrocore	GROUND ELEVATION ---
RIG TYPE Geoprobe	BORING DIAMETER 2 in
NOTES MS/MSD 1 (0.17-2)	TOP OF CASING ELEVATION ---
	UTILITY CONTRACTOR GPRS
	LOGGED BY S. Perdziola
	CHECKED BY R. Arcuri

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
0		SSHS-B3179-Sub-0-0.17		ASPHALT	0
0.17		SSHS-B3179-Sub-0.17-2			0
2.5		SSHS-B3179-Sub-2-4		Loose, SILTY SAND, with gravel, fine to medium grained, moist, dark brown and gray, well graded	0
5.0		SSHS-B3179-Sub-4-6		Loose, SAND, with silt, trace, gravel, fine to medium grained, moist, light brown, well graded, subangular	0
7.5		SSHS-B3179-Sub-6-8			0
8.0		SSHS-B3179-Sub-8-10			0

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5		SSHS-B3179-Sub-10-12		Loose, SANDY GRAVEL, with clay, fine to medium grained, moist, well graded, subangular 	0
Bottom of borehole at 14.0 feet.					
15.0					
17.5					
20.0					

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CLIENT Unisys Corporation	PROJECT NAME Former Sperry Remington
PROJECT NUMBER MN0832G	PROJECT LOCATION Elmira, New York
DATE STARTED 9/14/19	COMPLETED 9/14/19
DRILLER Cascade Technical Services, LLC	NORTHING 761988.67 ft
DRILLING METHOD Direct Push	EASTING 761988.67 ft
SAMPLING METHOD 2" x 5' Macrocore	GROUND ELEVATION ---
RIG TYPE Geoprobe	BORING DIAMETER 2 in
NOTES MS/MSD 2 (8-10)	TOP OF CASING ELEVATION ---
	UTILITY CONTRACTOR GPRS
	LOGGED BY S. Perdziola
	CHECKED BY R. Arcuri

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
0.0				SANDY SILT, moist, reddish brown	
1.7		SSHS-B3180-SUB-0.17-2		Medium dense, SANDY GRAVEL, clay, fine sand, moist, brown and gray, well graded, subangular	1.9
2.5		SSHS-B3180-SUB-2-4			1.5
5.0		SSHS-B3180-SUB-4-6			0.8
6.8		SSHS-B3180-SUB-6-8		SANDY GRAVEL, clay, brown and light gray, well graded	
7.5				Loose, SANDY GRAVEL, clay, fine to coarse sand, brown and light gray, well graded	2.8
8.0				SANDY GRAVEL, clay, brown and light gray, well graded	
8.10		SSHS-B3180-SUB-8-10		Loose, SANDY GRAVEL, clay, fine to coarse sand, moist, dark brown and gray, well graded, subangular	2.3

Bottom of borehole at 10.0 feet.


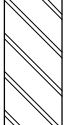
CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York
DATE STARTED 9/12/19 **COMPLETED** 9/12/19 **NORTHING** 761914.422 ft **EASTING** 753881.802 ft
DRILLER Cascade Technical Services, LLC **GROUND ELEVATION** --- **BORING DIAMETER** 2 in
DRILLING METHOD Direct Push **TOP OF CASING ELEVATION** ---
SAMPLING METHOD 2" x 5' Macrocore **UTILITY CONTRACTOR** ---
RIG TYPE Geoprobe **LOGGED BY** J.T. **CHECKED BY** R. Arcuri
NOTES Borehole logged 25'-30' for temp. wells B3200a (screen set at 11'-21'), B3200b (screen set at 21'-30'); same as bottom of B3172

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
0 2.5 5.0 7.5					0 2 5 7

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ


DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
22.5					
25.0		SSHS-B3172-SUB-25-30		Very loose, GRAVELLY SAND, medium to coarse grained, light brown to dark brown and gray, poorly graded, subrounded, Sand grading into gravel	2.5
27.5				Very stiff, CLAY, light brown to gray, high plasticity	
30.0				Bottom of borehole at 30.0 feet.	
32.5					

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
22.5					
25.0				Loose, SAND, medium to coarse grained, saturated, poorly graded, subrounded	
			GRAVEL		
		SSHS-B3201-SUB-25-30		Loose, SAND, medium to coarse grained, saturated, poorly graded, subrounded	
			GRAVEL		0
27.5				Loose, SAND, medium to coarse grained, saturated, poorly graded, subrounded	
30.0		N/A 30-35		CLAY	
				Very stiff, CLAY, moist, gray, high plasticity	
32.5					

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
35.0				Very stiff, CLAY, moist, gray, high plasticity (<i>continued</i>)	
Bottom of borehole at 35.0 feet.					
37.5					
40.0					
42.5					
45.0					

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CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York
DATE STARTED 9/12/19 **COMPLETED** 9/12/19 **NORTHING** 761963.258 ft **EASTING** 753774.898 ft
DRILLER Cascade Technical Services, LLC **GROUND ELEVATION** --- **BORING DIAMETER** 2 in
DRILLING METHOD Direct Push **TOP OF CASING ELEVATION** ---
SAMPLING METHOD 2" x 5' Macrocore **UTILITY CONTRACTOR** GPRS
RIG TYPE Geoprobe **LOGGED BY** J.T. **CHECKED BY** R. Arcuri
NOTES Borehole logged 25'-30' for temp. wells B3202a (screen set at 14'-24'), B3202b (screen set at 22'-32')

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DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
0					
2.5					
5.0					
7.5					

CLIENT Unisys Corporation

PROJECT NAME Former Sperry Remington

PROJECT NUMBER MN0832G



PROJECT LOCATION Elmira, New York

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
<p>12.5</p> <p>15.0</p> <p>17.5</p> <p>20.0</p>					<p>10</p> <p>12</p> <p>15</p> <p>17</p> <p>20</p>

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
22.5					
25.0		SSHS-B3202-SUB-25-30		Very loose, SAND, gravel, medium to coarse grained, saturated, light gray to dark gray and brown, poorly graded, subrounded, medium to coarse sand from 25-26, grading into coarse sand and gravel. fining upwards.	0
27.5					
30.0		N/A 30-35		Very stiff, moist, light brown and gray, high plasticity	
				Bottom of borehole at 30.0 feet.	
32.5					

CLIENT Unisys Corporation

PROJECT NAME Former Sperry Remington



PROJECT NUMBER MN0832G

PROJECT LOCATION Elmira, New York

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5					10
15.0					12
17.5					15
20.0					17
					20

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
22.5					
25.0				Very loose, SAND, clay, fine to coarse grained, wet	
27.5		SSHS-B3203-SUB-25-30			0
				Very loose, SAND, clay, trace gravel, fine to coarse grained, wet	
30.0				Very stiff, CLAY, gray, high plasticity	
32.5		SSHS-B3203-SUB-30-35			

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
35.0				Very stiff, CLAY, gray, high plasticity (<i>continued</i>)	
Bottom of borehole at 35.0 feet.					
37.5					
40.0					
42.5					
45.0					

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5					
15.0					
17.5					
20.0					



PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
22.5					
25.0		SSHS-B3204-SUB-25-30		GRAVEL, wet, dark brown and dark gray, poorly graded, subrounded, fining upwards, with very loose, fine sand on top, likely slumped material	0
27.5					
30.0				CLAY, moist, gray, high plasticity	
32.5		SSHS-B3204-SUB-30-35			

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
35.0				CLAY, moist, gray, high plasticity (<i>continued</i>)	
Bottom of borehole at 35.0 feet.					
37.5					
40.0					
42.5					
45.0					

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York
DATE STARTED 9/13/19 **COMPLETED** 9/13/19 **NORTHING** 761992.938 ft **EASTING** 753844.871 ft
DRILLER Cascade Technical Services, LLC **GROUND ELEVATION** --- **BORING DIAMETER** 2 in
DRILLING METHOD Direct Push **TOP OF CASING ELEVATION** ---
SAMPLING METHOD 2" x 5' Macrocore **UTILITY CONTRACTOR** ---
RIG TYPE Geoprobe **LOGGED BY** J.T. **CHECKED BY** R. Arcuri
NOTES Borehole logged 25'-30' for temp. wells B3205a (screen set at 13'-23'), B3205b (18'-23')

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
0					
2.5					
5.0					
7.5					

CLIENT Unisys Corporation

PROJECT NAME Former Sperry Remington

PROJECT NUMBER MN0832G

PROJECT LOCATION Elmira, New York

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
12.5					10
15.0					15
17.5					17
20.0					20

CLIENT Unisys Corporation **PROJECT NAME** Former Sperry Remington
PROJECT NUMBER MN0832G **PROJECT LOCATION** Elmira, New York

DEPTH (ft)	RUN RECOVERY	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
22.5					
25.0				Loose, SAND, medium to coarse grained, saturated, dark brown to light brown and gray, poorly graded, subrounded	
				Loose, SAND, trace gravel, medium to coarse grained, saturated, dark brown to light brown and gray, poorly graded, subrounded	
27.5		SSHS-B3205-SUB-25-30		Very stiff, CLAY, moist, gray, high plasticity	0
30.0		N/A 30-35		Bottom of borehole at 30.0 feet.	
32.5					

PAULS BH / TP / WELL - DEFAULT.GDT - 1/17/20 08:34 - \\COLUMBIA-01\DATA\GINT\PROJECTS\ELMIRA BORING LOGS 2018\ELMIRA-RWARRIER\ELMIRA - MN0832.GPJ

Attachment B

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9 / 15 / 19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 12.89
 Depth Measurement Location Surface DTB (feet) _____
 Location ID SSHS-B3200a Screen Interval (ft) 11-21
 Duplicate ID DUP-01 Well Diameter (inches) 10 Pump Setting (feet) 16

Purge Method	Peristaltic	Rate (mL/min)	Time - Start			Time-End		
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	
930	well surge							
935	well surge							
940	12.9	6.62	756	16.34	93.7	152.2	13.56	
945	12.9	6.66	753	16.20	92.6	156.0	13.64	
950	12.9	6.71	752	16.28	91.8	167.6	13.57	
955	12.9	6.74	751	16.24	71.8	150.1	13.69	
1000	12.9	6.75	750	16.11	59.9	146.8	13.76	
1005	12.9	6.75	751	16.14	45.5	145.3	13.70	
1010	12.9	6.77	751	16.10	36.6	140.2	13.78	
1015	12.9	6.75	750	16.13	27.5	136.7	13.73	
1020	12.9	6.76	750	16.13	25.2	132.6	13.73	
1025	12.9	6.76	749	16.15	17.4	125.2	13.70	
1030	12.9	6.75	750	16.22	12.8	119.5	13.63	

Sample Method	Peristaltic	Rate (mL/min)	Date		Time
Final/Sample Field Parameters			Stabilization Guidance		NOTES
pH			0.1	met? Y / N	Duplicate (V,P,T,S,M, EC) MS/MSD-01
Conductivity (uS)			3%	met? Y / N	
Temp. (oC)			none		
Turbidity (NTU)			10%	met? Y / N	
ORP (mV)			10	met? Y / N	
DO (mg/L)			10%	met? Y / N	
			Sampling		V, P, T, S, M, EC

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n
SVOC + 1,4 dioxane	827D	250 ml Amber Glass (2)	none	n
PCBs	8082A	1 L Amber Glass (2)	none	n
TAL Metals	6010C	250 ml Plastic (1)	nitric acid	n
Diss. TAL Metals	6010C	250 ml Plastic (1)	nitric acid	Y
1,4 dioxane - edison	8270D	250 ml Amber Glass (2)	none	n
PFAS	537.1	250 ml Plastic (1)	trizma	n
TPH	8015D	250 ml Amber Glass (2)	hcl	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9/15/19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) _____
 Depth Measurement Location Surface DTB (feet) _____
 Location ID SSHS-B3200a Screen Interval (ft) 10 Pump Setting (feet) _____
 Duplicate ID DUP-01 Well Diameter (inches) _____

Purge Method	Peristaltic	Rate (mL/min)	Time - Start			Time-End	
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
1035	12.9	6.74	749	16.15	8.43	111.9	13.79
1040	12.9	6.74	751	16.26	7.10	107.0	13.56
1045	12.9	6.73	751	16.27	7.72	97.8	13.56
1050	12.9	6.71	752	16.33	6.91	90.6	13.52
1055	12.9	6.68	752	16.41	7.14	85.9	13.40
1100	12.9	6.65	752	16.32	6.11	83.6	13.51

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
			9/15/19	1105
Final/Sample Field Parameters			Stabilization Guidance	
pH			0.1	met? Y / N
Conductivity (uS)			3%	met? Y / N
Temp. (oC)			none	
Turbidity (NTU)			10%	met? Y / N
ORP (mV)			10	met? Y / N
DO (mg/L)			10%	met? Y / N
			NOTES	Duplicate (V,P,T,S,M, EC) MS/MSD-01
			Sampling	V, P, T, S, M, EC

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n
SVOC + 1,4 dioxane	827D	250 ml Amber Glass (2)	none	n
PCBs	8082A	1 L Amber Glass (2)	none	n
TAL Metals	6010C	250 ml Plastic (1)	nitric acid	n
Diss. TAL Metals	6010C	250 ml Plastic (1)	nitric acid	Y
1,4 dioxane - edison	8270D	250 ml Amber Glass (2)	none	n
PFAS	537.1	250 ml Plastic (1)	trizma	n
TPH	8015D	250 ml Amber Glass (2)	hcl	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9/15/19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 12.40
 Depth Measurement Location Surface DTB (feet) 31.70
 Location ID SSHS-B3200b Screen Interval (ft) 21-31 Pump Setting (feet) 26 ft
 Duplicate ID _____ Well Diameter (inches) 1"

Purge Method	Peristaltic	Rate (mL/min)	Time - Start	Time-End			
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
1210	well surge						
1215	well surge						
1225	well surge						
1235	12.4	6.86	742	14.8	351	28.6	15.29
1240	12.4	6.88	740	14.74	154	6.5	15.24
1245	12.4	6.91	742	14.75	84.5	-11.8	15.25
1250	12.4	6.91	743	14.72	55.3	-16.9	15.37
1255	12.4	6.83	738	14.46	31.8	-21.0	15.63
1300	12.4	6.94	748	14.84	45.8	-25.5	15.19
1305	12.4	6.97	748	14.93	41.8	-24.6	15.10
1310	12.4	6.91	745	14.74	2.34	-27.3	15.33
1315	12.4	6.93	747	14.98	5.65	-21.9	15.03
1320	12.4	6.93	749	15.01	4.69	-20.4	15.01

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES Sampling V, EC
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n
1,4 dioxane - edison	8270D	250 ml Amber Glass (2)	none	n
PFAS	537.1	250 ml Plastic (1)	trizma	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9 15 19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 13.6
 Depth Measurement Location Surface DTB (feet) 22.9
 Location ID SSHS-B3201a Screen Interval (ft) 13-23 Pump Setting (feet) 18
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method	Peristaltic	Rate (mL/min)	Time - Start		Time-End		
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
0815	well surge						
0820	well surge						
0825	13.6	6.65	742	16.19	6.98	188.0	5.11
0830	13.6	6.72	751	16.25	5.18	187.9	4.80
0835	13.6	6.73	754	16.29	3.12	189.1	4.78
0840	13.6	6.74	755	16.31	2.28	188.6	4.61

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES
pH		0.1	met? Y / N	Duplicate (V) Sampling V
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9/14/19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 13.06
 Depth Measurement Location Surface DTB (feet) 32.02
 Location ID SSHS-B3201b Screen Interval (ft) 22-32 Pump Setting (feet) 27
 Duplicate ID DUP-02 Well Diameter (inches) 1

Purge Method	Peristaltic	Rate (mL/min)	Time - Start	Time-End				
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	
1700	well surged							
1715	well surged							
1725	13.05	7.11	754	15.25	43.4	53.9	3.32	
1730	13.05	7.12	752	15.14	34.7	36.3	3.66	
1735	13.05	7.18	747	15.11	22.5	6.6	3.42	
1740	13.05	7.20	751	15.41	15.3	-7.8	3.26	
1745	13.05	7.24	755	15.51	10.8	-18.9	3.53	
1750	13.05	7.25	755	15.49	6.64	-30.6	3.25	
1755	13.05	7.25	759	15.93	6.59	-35.0	3.26	
1800	13.05	7.26	763	15.91	4.37	-37.8	3.98	

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES Sampling V
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n

COMMENTS

3179

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9/14/19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 12.9
 Depth Measurement Location Surface DTB (feet) 23.2
 Location ID SSHS-B3202a Screen Interval (ft) 14-24 Pump Setting (feet) 19
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method Peristaltic Rate (mL/min) 320 Time - Start 845 Time-End _____

Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
<u>845</u>	<u>well surge</u>						
<u>850</u>	<u>well surge</u>						
<u>855</u>	<u>12.9</u>	<u>6.54</u>	<u>667</u>	<u>14.73</u>	<u>54.2</u>	<u>-0.4</u>	<u>6.94</u>
<u>900</u>	<u>12.9</u>	<u>6.54</u>	<u>661</u>	<u>14.72</u>	<u>36.8</u>	<u>0.5</u>	<u>6.85</u>
<u>905</u>	<u>12.9</u>	<u>6.56</u>	<u>655</u>	<u>14.68</u>	<u>25.4</u>	<u>3.4</u>	<u>6.80</u>
<u>910</u>	<u>12.9</u>	<u>6.57</u>	<u>655</u>	<u>14.69</u>	<u>13.0</u>	<u>6.3</u>	<u>6.78</u>
<u>920</u>	<u>12.9</u>	<u>6.61</u>	<u>662</u>	<u>15.02</u>	<u>12.3</u>	<u>8.0</u>	<u>6.38</u>
<u>925</u>	<u>12.9</u>	<u>6.63</u>	<u>664</u>	<u>15.04</u>	<u>7.80</u>	<u>9.0</u>	<u>6.34</u>
<u>930</u>	<u>12.9</u>	<u>6.61</u>	<u>662</u>	<u>14.84</u>	<u>5.23</u>	<u>9.9</u>	<u>6.39</u>
<u>935</u>	<u>12.7</u>	<u>6.60</u>	<u>661</u>	<u>14.80</u>	<u>4.03</u>	<u>10.7</u>	<u>6.34</u>
					<u>3.30</u>		
					<u>2.83</u>		

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters:		Stabilization Guidance		NOTES
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	
				Sampling V

Constituent	Method	Container	Preservative	Filtered?
<u>VOCS</u>	<u>8260C</u>	<u>40 ml VOA Vial (3)</u>	<u>hcl</u>	<u>n</u>

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date / /
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 13.8
 Depth Measurement Location Surface DTB (feet) 33.1
 Location ID SSHS-B3202b Screen Interval (ft) 22-32 Pump Setting (feet) 27
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method	Peristaltic	Rate (mL/min)	320	Time - Start	1105	Time-End		
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	
1105	Surged well							
1110	Surged well							
1115	13.8	6.85	700	14.51	631	42.4	6.81	
1120	13.8	6.75	697	14.40	453	30.6	4.98	
1125	13.8	6.80	699	14.36	263	11.8	4.79	
1130	13.8	6.99	700	14.22	954	-17.8	4.69	
1135	13.8	6.97	700	14.07	79.5	-26.3	4.71	
1140	13.8	6.97	700	14.15	58.7	-33.5	4.59	
1145	13.8	6.98	700	13.94	41.6	-40.4	4.90	
1150	13.8	6.97	698	13.94	32.3	-42.3	5.18	
1155	13.8	6.97	697	13.96	25.1	-50.7	4.56	
1200	13.8	6.97	696	13.95	24.2	-51.0	4.57	
1205	13.8	6.97	697	13.97	22.3	-53.0	4.60	

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES 23.8 20.1 Sampling V
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9.13.19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 11.66
 Depth Measurement Location Surface DTB (feet) 22.66
 Location ID SSHS-B3203a Screen Interval (ft) 14-24 Pump Setting (feet) 19
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method Peristaltic Rate (mL/min) 360 Time - Start 1155 Time-End 1305

Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
1155	Surge	well					
1200	Surge	well					
1205	13.05	6.60	592	16.15	25.5	126.5	7.11
1210	13.05	6.61	588	16.04	11.7	126.1	7.20
1215	13.05	6.62	587	16.02	72.3	125.5	6.85
1230	13.05	6.62	588	16.08	27.5	125.2	6.89
1235	13.05	6.62	588	16.10	14.1	125.8	6.91
1240	13.05	6.67	590	16.19	10.7	126.0	6.32
1245	13.05	6.61	591	16.23	9.3	126.5	7.02
1250	13.05	6.61	591	16.27	7.76	126.7	6.93
1255	13.05	6.60	591	16.22	5.74	126.5	6.95
1300	13.05	6.59	591	16.30	5.56	125.7	6.89
1305	13.05	6.59	597	16.38	5.31	125.5	6.91

Sample Method Peristaltic Rate (mL/min) 360 Date 9/13/19 Time 1310

Final/Sample Field Parameters	Stabilization Guidance	NOTES
pH	0.1 met? Y / N	M/M/G/D (V,P,T,S,M) 5.46 5.67 Sampling V, P, T, S, M
Conductivity (uS)	3% met? Y / N	
Temp. (oC)	none	
Turbidity (NTU)	10% met? Y / N	
ORP (mV)	10 met? Y / N	
DO (mg/L)	10% met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n
SVOC + 1,4 dioxane	827D	250 ml Amber Glass (2)	none	n
PCBs	8082A	1 L Amber Glass (2)	none	n
TAL Metals	6010C	250 ml Plastic (1)	nitric acid	n
Diss. TAL Metals	6010C	250 ml Plastic (1)	nitric acid	Y
TPH	8015D	250 ml Amber Glass (2)	hcl	n

COMMENTS Did not have 1 L Amber for PCBs at time of sampling, grabbed and sampled at

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9/13/19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 12.05
 Depth Measurement Location Surface DTB (feet) 29.75
 Location ID SSHS-B3203b Screen Interval (ft) 25-30 Pump Setting (feet) 28
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method Peristaltic Rate (mL/min) 360 Time - Start 1440 Time-End _____

Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
1440	well surged						
1445	Well surged						
1450	12.9	6.83	613	14.31	509	62.6	7.4
1455	12.9	6.84	607	14.24	305	37.6	8.13
1455 1500	12.9	6.86	606	14.34	136	19.5	8.07
1505	12.7	6.92	615	14.76	122	4.3	7.67
1510	12.7	6.92	615	15.09	98.4	-15.5	6.57
1515	12.7	6.91	616	15.09	94.9	-26.2	6.72
1520	12.8	6.90	614	15.03	77.8	-35.4	6.49
1525	12.8	6.88	605	14.49	53.2	-39.0	6.87
1530	12.8	6.86	602	14.45	42.8	-41.2	6.68
1535	12.8	6.86	601	14.46	34.8	-47.3	6.61
1540	12.8	6.86	601	14.45	30.8	-41.6	6.41

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES Sampling V
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9 13 19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) _____
 Depth Measurement Location Surface DTB (feet) _____
 Location ID SSHS-B3203b Screen Interval (ft) _____
 Duplicate ID _____ Well Diameter (inches) _____ Pump Setting (feet) _____

Purge Method	Peristaltic	Rate (mL/min)	Time - Start		Time-End		
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
1545	12.9	6.86	601	14.58	26.7	-41.2	6.27
1550	12.9	6.86	601	14.57	24.2	-41.6	6.33
1555	12.9	6.86	603	14.68	27.9	-43.0	6.86
					25.9		
					23.6		
					24.7		

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	Sampling V

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9 / 13 / 19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 10.75
 Depth Measurement Location Surface DTB (feet) 22.1
 Location ID SSHS-B3204a Screen Interval (ft) 13 - 23 Pump Setting (feet) 18
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method	Peristaltic	Rate (mL/min)	350	Time - Start	745	Time-End	850
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)
750	Surged	well					
755	Surged	well					
810	12.83	6.58	614	15.00	27.0	125.9	23.85
815	12.81	6.67	577	14.98	19.0	132.1	19.34
820	12.81	6.71	572	15.00	11.7	134.3	16.80
825	12.81	6.72	569	14.98	10.6	135.7	14.41
830	12.81	6.73	569	14.98	7.34	136.4	14.15
835	12.81	6.73	568	14.99	7.06	137.1	11.56
840	12.81	6.73	568	14.99	8.16	138.4	11.64
845	12.81	6.73	568	15.00	4.61	139.1	11.55
850							
855	Sample	Collected					

Sample Method	Peristaltic	Rate (mL/min)	350	Date	9/13/19	Time	855
Final/Sample Field Parameters		Stabilization Guidance		NOTES			
pH	6.73	0.1	met? Y / N	3.06			
Conductivity (uS)	568	3%	met? Y / N	2.59			
Temp. (oC)	15.00	none		Turb reading after YSI			
Turbidity (NTU)	4.61	10%	met? Y / N	D:Scrapped,			
ORP (mV)	139.1	10	met? Y / N	Sampling V			
DO (mg/L)	11.55	10%	met? Y / N				

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n

COMMENTS Drawdown DTW measured from TOC. TOC is 2.41 ft off ground (29 in)

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9/13/19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CV

Sample Type G Location Type Temp Well DTW (feet) 11.75
 Depth Measurement Location Surface DTB (feet) 29.05
 Location ID SSHS-B3204b Screen Interval (ft) 25-30 Pump Setting (feet) 28
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method	Peristaltic	Rate (mL/min)	360	Time - Start	945	Time-End		
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	
945	Surge	Well						
950	Surge	Well						
955	17.05	6.76	576	13.83	12.1	141.2	7.59	
1000	17.05	6.75	571	13.68	74.0	140.0	7.59	
1005	17.05	6.76	569	13.61	41.9	138.1	7.55	
1010	17.05	6.77	567	13.56	28.4	134.2	7.45	
1015	17.05	6.78	567	13.68	23.4	131.5	7.44	
1020	17.05	6.80	572	13.86	16.1	128.3	7.44	
1025	17.05	6.80	573	13.93	15.3	126.6	7.41	
1030	17.05	6.80	574	14.01	14.9	124.5	7.28	
1035	17.05	6.80	575	14.06	13.6	122.3	7.26	
1040	17.05	6.79	575	14.09	13.4	119.1	7.34	
1045	17.05	6.79	576	14.19	13.4	116.3	7.11	

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES 13.5 13.4 Sampling V
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9 14 19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 11.5
 Depth Measurement Location Surface DTB (feet) 21.1
 Location ID SSHS-B3205a Screen Interval (ft) 13-23 Pump Setting (feet) 18
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method	Peristaltic	Rate (mL/min)	370	Time - Start	1320	Time-End		
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	
1320	Surged well							
1325	Surged well							
1330	11.5	6.69	742	16.90	192	58.6	10.04	
1335	11.5	6.55	734	16.77	92.1	60.6	4.02	
1340	11.5	6.60	731	16.68	30.5	59.8	3.93	
1345	11.5	6.60	732	16.65	70.0	60.1	3.93	
1350	11.5	6.61	732	16.66	16.9	61.4	3.95	
1355	11.5	6.62	734	16.75	17.5	63.0	4.16	
1400	11.5	6.62	732	16.65	16.6	63.5	4.72	
1405	11.5	6.62	132	16.57	9.99	65.1	4.05	
1410	11.5	6.62	733	16.66	6.00	65.5	4.02	
1415	11.5	6.61	735	16.74	7.30	66.7	4.01	
					5.89			

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES Sampling V, EC
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n
1,4 dioxane - edison	8270D	250 ml Amber Glass (2)	none	n
PFAS	537.1	250 ml Plastic (1)	trizma	n

COMMENTS

GROUNDWATER SAMPLING LOG

Project Name Elmira Date 9 14 19
 Project Number MN0832G Task 2 Phase 5
 Location Elmira, NY Personnel CL

Sample Type G Location Type Temp Well DTW (feet) 11.5
 Depth Measurement Location Surface DTB (feet) 25.1
 Location ID SSHS-B3205b Screen Interval (ft) 18-28 Pump Setting (feet) 23
 Duplicate ID _____ Well Diameter (inches) 1

Purge Method	Peristaltic	Rate (mL/min)	360	Time - Start	3:05	Time-End		
Time	Drawdown (ft)	pH (S.U.)	Conductivity (uS)	Temp. (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	
1305	surged	well						
1310	surged	well						
1515	11.6	6.70	721	16.92	169	116.9	372.24	
1520	11.6	6.55	692	16.40	116	49.4	5.5	
1525	11.6	6.61	691	16.20	75.5	90.4	4.78	
1530	11.6	6.64	688	16.27	42.9	81.2	7.36	
1535	11.6	6.63	685	16.14	33.3	78.0	4.18	
1540	11.6	6.64	685	15.96	22.3	72.2	4.10	
1545	11.6	6.62	682	15.93	17.8	67.7	3.79	
1550	11.6	6.63	679	15.83	11.0	63.3	3.92	
1555	11.6	6.64	680	15.80	8.57	36.3	3.89	
1600	11.6	6.64	679	15.68	8.38	51.2	3.80	
1605	11.6	6.65	678	15.69	6.21	47.0	3.89	

Sample Method	Peristaltic	Rate (mL/min)	Date	Time
Final/Sample Field Parameters		Stabilization Guidance		NOTES 6.58 6.32 Sampling V, EC
pH		0.1	met? Y / N	
Conductivity (uS)		3%	met? Y / N	
Temp. (oC)		none		
Turbidity (NTU)		10%	met? Y / N	
ORP (mV)		10	met? Y / N	
DO (mg/L)		10%	met? Y / N	

Constituent	Method	Container	Preservative	Filtered?
VOCS	8260C	40 ml VOA Vial (3)	hcl	n
1,4 dioxane - edison	8270D	250 ml Amber Glass (2)	none	n
PFAS	537.1	250 ml Plastic (1)	trizma	n

COMMENTS

Attachment C