INVENTUM ENGINEERING, PC

July 15, 2021

To: Benjamin McPherson (NYSDEC)

From: John P. Black (Inventum)

CC: Jon Williams (Riverview); John Yensan (OSC); Marc Romanowski (Rupp Baase); Todd Waldrop and James Edwards (Inventum)

RE: Abandoned Pipeline IRM Construction Completion Report
Riverview Innovation & Technology Campus, Inc.
Brownfield Cleanup Program Site No. C915353
Town of Tonawanda, New York

Inventum Engineering, P.C. (Engineering), on behalf of Riverview Innovation & Technology Campus, Inc. (Riverview), is submitting this Construction Completion Report (CCR) for the Out of Service "Abandoned" Pipeline Interim Remedial Measure (IRM) to the New York State Department of Environmental Conservation (NYSDEC) for the Riverview Brownfield Cleanup Program (BCP) Site (#C915353) located at 3875 River Road, Tonawanda, New York. This report documents the excavation of test pits to locate, inspect, and install documented obstructions across four out of service pipelines at the BCP Property boundary.

Background and Purpose

Two pipes were used between the start of operations and through the 1970s to convey river water to the then operating coke plant and return the combined non-contact cooling and process water to the river. The discharge line was replaced at some point early in the operations, so the IRM was developed to identify both former discharge lines and the river water supply line. The first reference to the right-of- way for these pipes is 1921, but it included references to the "original pipe", so a pipe is believed to have been in use before the 1921 installation of discharge piping. The right- of- way crossed property owned by the Lake Erie Rolling Mill (later known as Wickwire Spencer Steel, Colorado Fuel & Iron, Roblin Steel, now Swift River and currently Niagara River World). The pipes were either upgraded, supplemented, or replaced in 1926. To the best of all site knowledge, the right-of-way and pipes still exist but have not been used for decades. It is probable that the water and discharge lines were cut during construction of the North South Storm Sewer that crosses both the water and discharge line rights- of-way[1] or when they were taken out of service in the 1970s. After the 1970s, the water and discharge lines at these locations were taken out of service and replaced with a river water line and a plant discharge that was located and crossed Site 109.

The water pipe route was from a pump house located on the Niagara River (4008 River Road) to a valve pit on the BCP Site. The water pipe is listed as a 20-inch diameter pipe on Drawing T-M-57A-F (n.d.) and according to the figure was supplemented with an emergency 8-inch diameter pipe along the railroad

[1] The water and discharge rights of way appear to be filed as a single right of way, even though the two pipes diverge as they approach the BCP Site. Solely for purposes of this work plan they are referred to as rights of way.

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Suite 202
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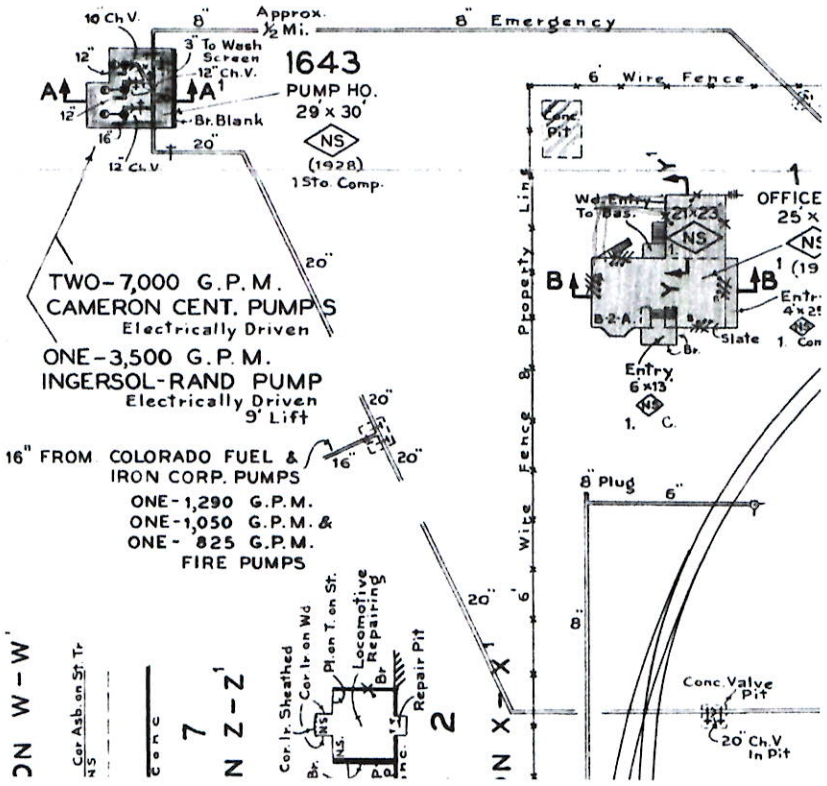
tracks north of the site that entered the property northeast of the Mansion. An emergency 16-inch diameter supply pipe from Colorado Fuel & Iron (a/k/a CF&I) joined the 20-inch line at some point west of River Road. It is likely that the CF&I emergency pipe joined the 20-inch diameter pipe west of the Erie Canal on property that would have been owned by the steel mill.



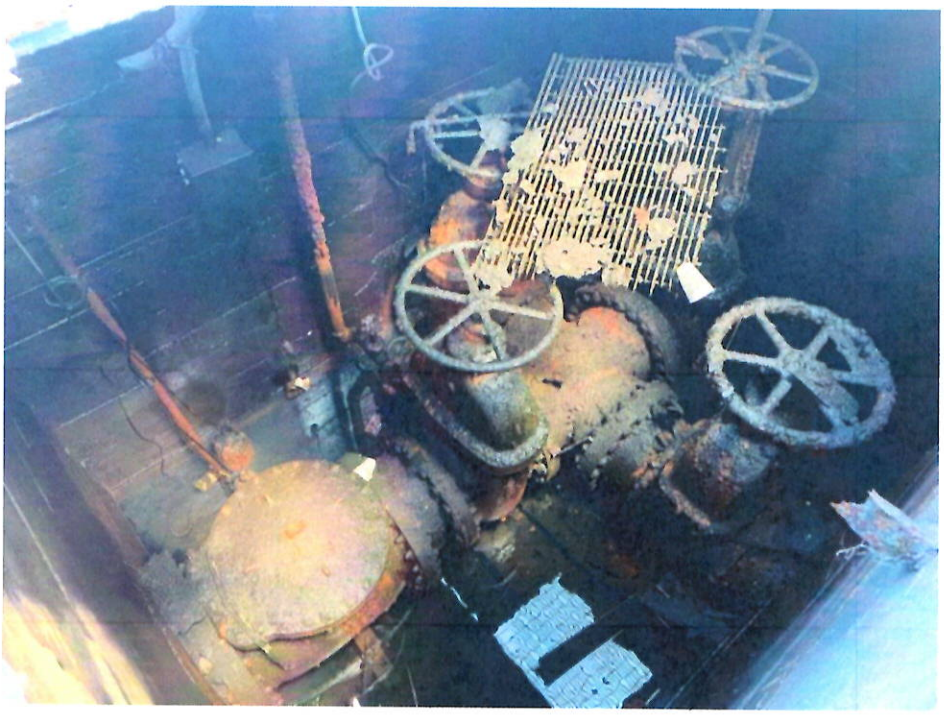
Excerpt from T-M-57A-F

(Not to Scale)

Notes:

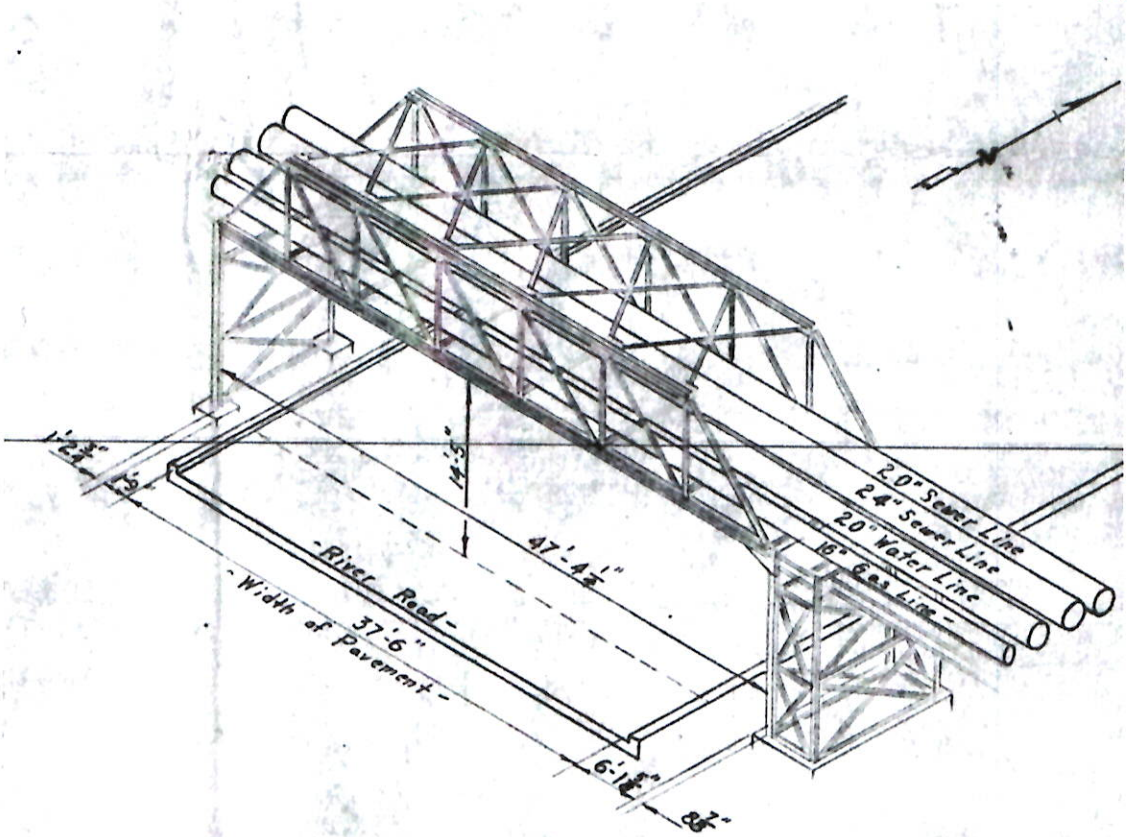
1. Break Lines, indicating the sections of pipe on former Wickwire Spencer property.
2. The property line shown on this excerpt was before the parking lot that was purchased from Wickwire Spencer.

The valve pit for the water pipe contains four valves (three are closed) and a check valve (Photograph No. 1). This combination of closed valves eliminated any risk that there had been flow through the water supply line toward River Road prior to the IRM.



Photograph No. 1
Valve Pit – Former Water Supply Junction
Immediately West of the Maintenance Building (Building No. 8)
(Note: three valves closed and check valve)

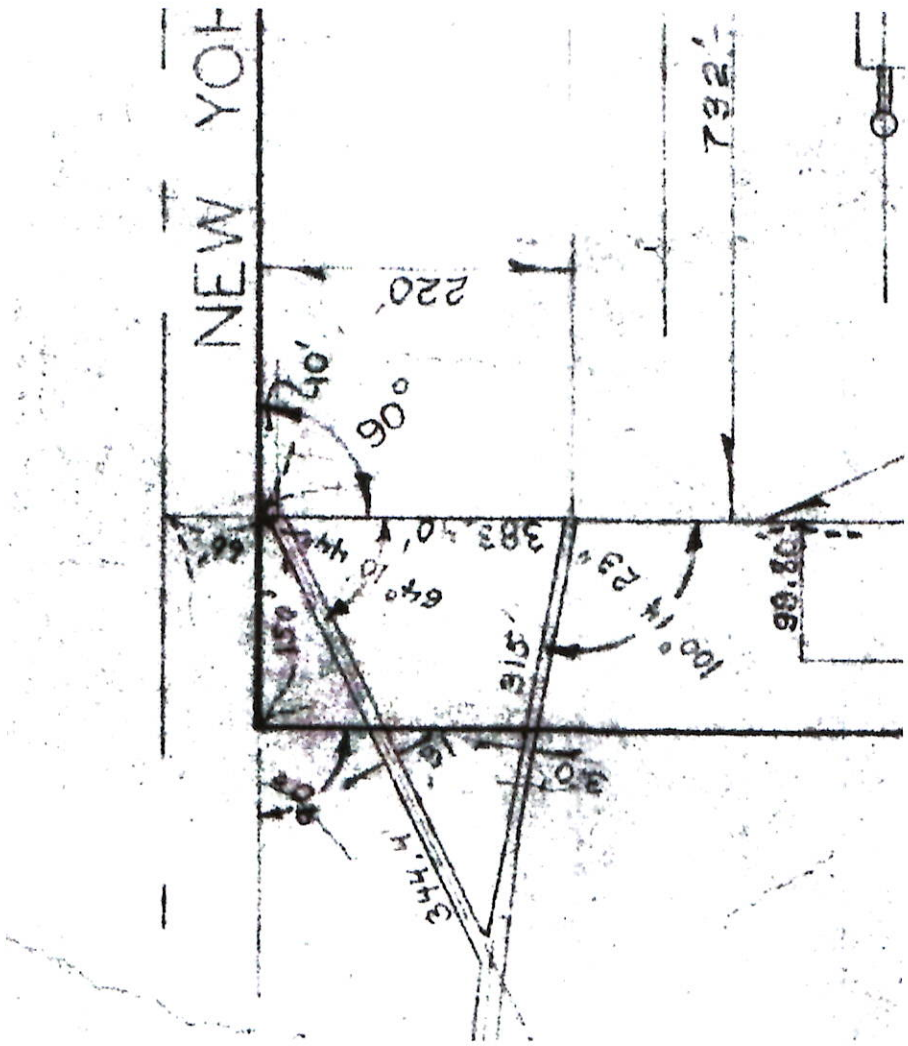
West of the property, the water pipe is carried over a pipe bridge above River Road which shows there was and is no possibility of flow along the outside or inside pipe reaching the former Erie Canal or the Niagara River.



Isometric View OF
Pipe Bridge Across River Road
1"=1'-0"

The discharge pipe(s) flowed from the northwest corner of the site from the northwest corner of the Mansion Sump. There was no flow from the Mansion Sump to the pipe at that location prior to the IRM, and an additional plug has been installed downstream of the sump during the IRM. The point the pipe is blocked was not visible from the Mansion Sump, but the lack of flow at the sump indicated there was a plug. This IRM located the pipe and installed a second known verified seal. All flow from the Mansion Sump currently enters the North South Storm Sewer and flows to the Concrete Lined Settling Ponds on Site 109.

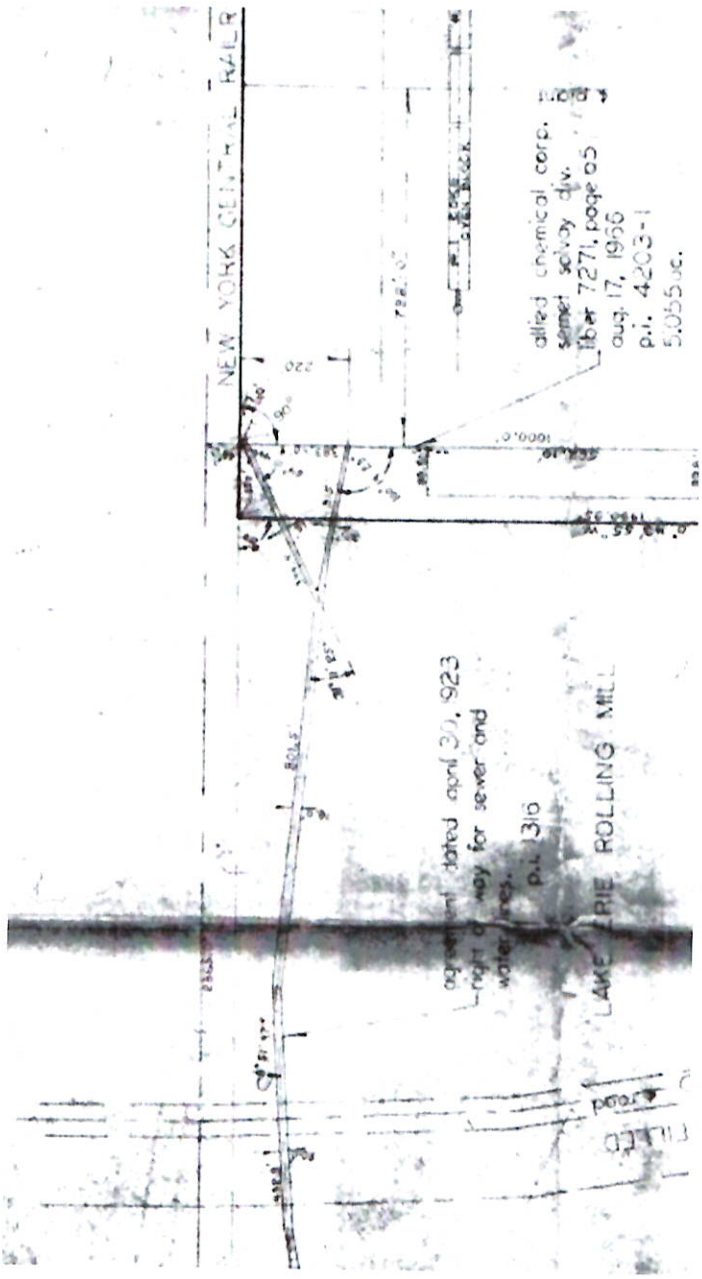
According to Figure T-R-25, the right- of-way for the discharge pipe and the water pipe join 344.4-feet west at an alignment 31-degrees 11-minutes south of the corner of the Mansion Sump. From that point, the two pipes share a common right- of- way to the River Road Bridge. The alignment of the North South Storm Sewer crosses the former water supply line and discharge line rights of way. The clay tile discharge "20-inch- and 24-inch Sewer Lines" on the isometric drawing were cut at the bridge. It is likely that the abandoned water and discharge lines were cut to allow the new construction, but no documentation of when that was completed is available.



Excerpt from T-R-25

Notes:

1. North is to the left.
2. The rights of way are shown from the Wickwire Property west.
3. The North (Left) fork of the right of way is the location of the former discharge lines.
4. The South (Right) fork of the of the right of way is the location of the former primary mill water line.



Excerpt from T-R-25

Notes:

1. North is to the left.
2. The rights of way are shown from the Wickwire Property west to River Road.
3. The pipes are above ground across River Road, therefore no possible transport along the outside of the pipelines.

Purposes and Objectives

The purposes and objectives of the abandoned pipe IRM were:

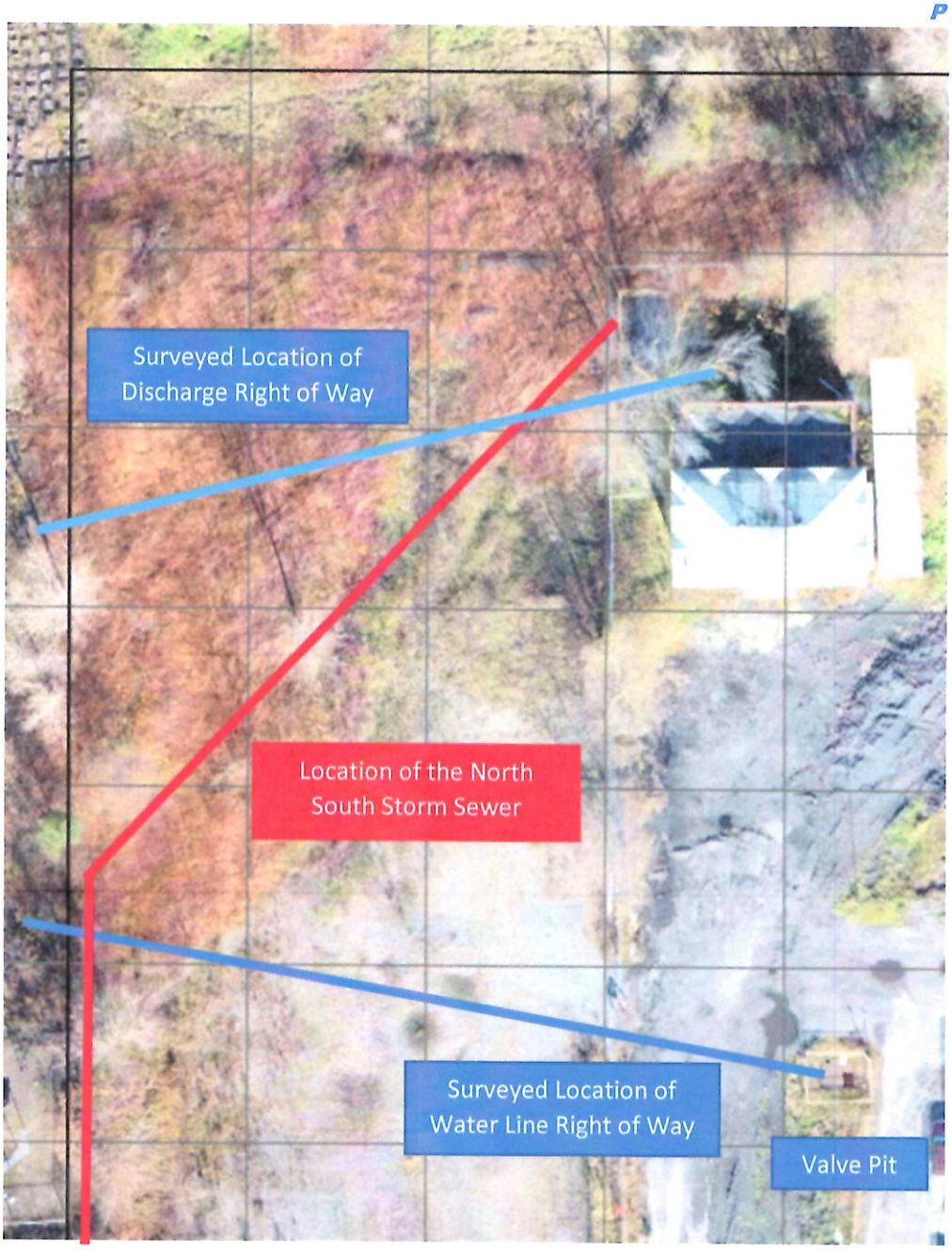
1. To verify the locations of the water and discharge pipes prior to the Remedial Investigation, the MW-BCP-01 location is in the vicinity of the discharge pipe;
2. To confirm there is no flow to or from the Niagara River within the water supply or discharge pipes;
3. To identify the conditions surrounding the pipes to confirm there is no potential offsite exposure associated with transport along these lines; and
4. To create and document a gap (likely a second gap as the pipes were probably cut for the construction of the North South Storm Sewer Line) in the pipes at the property boundaries to confirm there is no question that in the future these lines could become migration pathways.

All these objectives were achieved:

1. The water and discharge lines were all located, and test pits were advanced to expose the lines;
2. There was no flow from the site. There was some return flow from one discharge line from the Swift River property to the BCP Site;
3. At the property line, the discharge pipes were installed in clay with no gravel bedding. The fill around the pipes was intact, relatively dry, and do not represent a preferential flow path; and
4. All pipes were cut, and the upstream and downstream ends were bricked closed, and clay was compacted between the brick seals.

Scope of Work

The scope of work provided the opportunity for definitive observations at the locations where the pipes crossed the western property line shared with Swift River Associates Inc. (Swift River) and the north boundary with the railroad right of way. The three locations that pipes cross the property line, as confirmed during this IRM, are shown on the partial aerial photographs (Niagara Boundary, 2019) below.



Location of Water and Discharge Rights-of- Way

Notes:

1. The surveyed rights-of- way do not exactly coincide with the Drawings available from the plant.
2. The location of the junction of the pipe from the former steel mill is unknown but is most likely on the Niagara River World property.

A utility locator was used to trace the location of the water and discharge pipes. The signal generator was attached to the pipes in the valve pit and to the pipe in the northwest corner of the Mansion Sump. The expected path of each pipe was marked at the ground surface at a minimum of 20-foot center-to-center spacing, from the signal source to the fence line. The marked locations were found to be off the pipe, likely due to interference from the fill. The location of the pipe in each test pit was surveyed. The survey data (Points 1 through 23) have been added to and are shown on Figures 8A and 9A of the Surface Water Improvement IRM (Attachment A).

Test pits were advanced to locate the pipes. The pits were excavated in increments until the sewer and water lines were exposed. Each test pit was completed after it had been excavated to a depth 1-foot below the pipe as possible. The test pits allowed access by having 1-foot vertical to 1-foot horizontal side slopes. The stockpiled soil was placed away from the top of the slope. The following was noted and documented with Photographs and on the Test Pit Logs (Attachments B and C):

- Depth;
- Soil classification, color, consistency;
- Moisture content (field classification);
- Presence of free liquids;
- Odor or other visual indications of fill; and
- Utilities.

A description of each of the three pipelines is given including:

- Material of construction;
- Backfill surrounding the pipe;
- Contents, solid and liquid;
- Length of break; and
- Plug/Cap Construction.

There was no evidence (visual or olfactory) of contamination in the base of the test pits. The fill around the pipes was consistent with the overlying and surrounding materials. There was no select granular fill around the pipes that could have provided a preferential migration pathway.

Six test pits were required to locate, attempt to identify the water pipe alignment, and seal the 8-inch diameter emergency water line (Figure 8-A). The North South Storm Sewer was not encountered in the emergency water line test pits.

The test pits across the discharge lines were along the western property line in the Northwest corner of the BCP Site (North 1087763.8, East 4055319.6, and North 1087762.1, East 1055306.1). These locations were north and west of the North South Storm Sewer. There were two brick structures that were identified as part of the abandoned discharge lines. The area between the brick structures (one located under the metal plate in the next picture), and the property line was the area where the discharge lines were found during this IRM. Soil samples were collected from the base of the Discharge Line Test Pits (Samples Soil-TPDL1-09082020 and Soil-TPDL2-09082020, Tables 1 through 3). Neither sample contained a constituent above the Commercial Restricted Use Criteria (Tables 1 through 3 and Attachment D).

Brick Structure

Notes:

1. The brick structure shown (prior to test pit excavation) is approximately 4 feet square. There is a second brick structure near this structure (please see Photograph B-7, in Attachment B).
2. The Mansion and Mansion Sump are directly east of the sump location (the photograph above was taken looking east).

The test pits for the 8-inch diameter emergency water pipe required more investigation as there was no known exposed pipe or valve box. Six Test Pits were required. The excavations started between the office trailer next to the Mansion and proceeded east across Grid E-2. A soil sample was collected from the base of the test pit and a sample of sediment from a 16-inch abandoned pipeline (likely a former process sewer) were collected. The soil sample contained Arsenic at a concentration of 21.5 milligrams per Kilogram (mg/Kg) over the Commercial Restricted Use Standard of 16 mg/Kg. The sediment sample also contained Arsenic, although slightly below the Commercial Restricted Use Criteria at 10.5 mg/Kg (Table 1). No Volatile Organic Compounds (VOCs) were detected (Table 2). Eight Semi-volatile Organic Compounds (SVOCs) were detected in the fill sample from the Northern Property Line Test Pit TP-EW1-09082020; three above the Commercial Restricted Use Standards – Benzo(a) Anthracene, Benzo (a) Pyrene, and Benzo (b) Fluoranthene (Table 3).

The excavation of the test pits addressed all the objectives of the Work Plan:

1. Verified the locations of the water and discharge lines prior to the Remedial Investigation, MW-BCP-01 was drilled in the vicinity of the discharge line;
    a. The test pits were advanced to expose the discharge and water pipes within 10 feet of the west property line.

b. The emergency water line test pits were excavated on both sides of the northern fence line. The emergency water line was located approximately 20 feet north of the fence line.

c. Each test pit allowed physical access to the discharge and water pipes. The water line test pit was more than 15 feet long, a ladder provided alternative access and egress.

2. The test pits, observations of the plugs placed by others before the test pit program (date unknown) and opening the pipes, confirmed there is no flow to or from the Niagara River or the former Erie Canal within or around the water or discharge lines;

    a. Each of the pipes was opened to confirm there is no liquid flowing from the BCP Site in the pipes.

        i. The plug in the water line was approximately 20 feet east of the test pit as observed and measured from the test pit.

        ii. The northern discharge line was plugged with flowable fill at the test pit location.

        iii. The southern discharge pipe was ruptured by the excavator bucket during the investigation of the northern pipe. Water flowed from the west (offsite) into the test pit. The pipe was previously plugged, by others, with flowable fill east of the test pit, so the only possible source of the water in the line was offsite on the Swift River property. The water stopped flowing after a short period. The water was pumped to a weir tank to allow settling of sediment and testing. A second fill plug was placed after the test pit was dewatered.

        iv. An abandoned 16-inch diameter pipe was encountered in TP-EW2. There was no liquid in the pipe, but there was 2- to 3-inches of sediment in the pipe. The sediment was tested as sample "Soil TPEL2-09082020"

        v. The emergency water line was dry.

    b. The water from the discharge pipe has been collected, pumped to a weir tank mobilized for this IRM (the water from the IRM was not comingled with water from other ongoing site management activities).

        i. Samples of the liquid were tested for the POTW suite of analyses including, Volatile Organic Compounds, Semi-volatile Organic Compounds, and Metals (Table 5, Attachment D).

        ii. The liquid was discharged to the POTW following approval by the Town of Tonawanda Pre-treatment coordinator, filtering, and conveyance to the sewer system manhole. The volume of water was less than 2,000 gallons.

3. Identified the conditions surrounding the pipes to confirm there is no offsite exposure associated with these lines; and

    a. The test pits allowed direct observation of the backfill conditions around the pipes. There is no select granular fill, the pipes were surrounded with silty clay, and therefore no preferential pathways.

b. Specific observations of the soil type(s), groundwater elevation, and moisture content of the soils were made. Groundwater was not observed in any of the test pits. The soil surrounding the pipes was typical of the brown silty clay identified across the BCP Site.

4. Created gaps in the lines and capped each near the property boundaries so there is no question in the future that these lines could become migration pathways from the BCP Site.

    a. The water and discharge lines were each cut and a plugged with a brick cap placed in the downstream and upstream side of the pipes and hydraulic cement was used to create the seal.

    b. The 8-inch emergency water line was plugged with brick and hydraulic cement.

    c. The pipe gaps were all more than 2-feet wide.

    d. Photographs of the plugs set are included in Attachment B.

Summary

Four pipelines that had served the plant from the 1920s through the 1970s were located along the north and west property boundaries. The exact point where the 8-inch line enters the Site was not identified, but the line is sealed and cannot serve as a flow path, achieving the ultimate objective of the IRM Work Plan. There is no flow in or around the pipe, so the primary objective of this work plan has been achieved. During the Remedial Action or a future Utility IRM, the location of the 8-inch emergency water pipe at the property line will be located, and the pipe will be severed.

All pipes had been blocked prior to the IRM. Additional plugs were added during the IRM (Figures 8A and 9A). Only one pipe contained liquid, the southern discharge line. The liquid flowed from the west and was collected, tested, and discharged under Permit No. 331. The pipe was blocked immediately east of the test pit so the water could only have accumulated west of the site and does not reach the River Road bridge as this line is broken at the bridge, no flow was observed at that location. There was no water in the line on the BCP Site[2].

There were no flow pathways outside or along the pipes. The circumference of the pipes were inspected and all had been backfilled with silty Clay.

The data for the soil and fill samples collected will be incorporated into the Remedial Investigation Report.

[2] Subsequent to implementation of this work plan the pipes at the River Road bridge crossing were tapped. There was no liquid in the pipes at that downhill location providing additional evidence that the pipes are not a migration pathway.

Certification

I, John P. Black, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the interim remedial action activities, and I certify that the IRM Work Plans were implemented and that all construction activities were completed in substantial conformance with the Department-approved IRM Work Plans.

I certify that the data submitted to the Department with this Construction Completion Report demonstrates that the remediation requirements set forth in the IRM Work Plans and in all applicable statutes and regulations have been or will be achieved in accordance with the time frame established for the IRM.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, John Black, of 481 Carlisle Drive, Herndon, Virginia, am certifying as Owner's Designated Site Representative for the site.

NYS Professional Engineer # 062818-1

Signature

Date July 15, 2021

Tables

Table 1
Inorganic Data - Soilds
Test Pits - Abandoned Pipeline IRM

Riverview Innovation Technology Campus
Site # C915353
Town of Tonawanda, New York

Analytes	CAS Number		Soil-TPDL1-09082020		Soil-TPDL2-09082020		Soil-TPEL2-09082020		Abandoned Pipeline-09162020	
			Grab		Grab		Grab		Grab	
Total Inorganics (mg/kg)		**Commercial Restricted Use Standards**								
ALUMINUM	7429-90-5	-	**13,100**		**13,600**		**11,200**		**19,400**	
ANTIMONY	7440-36-0	-	7.9	U	6.7	U	8.6	U	7.7	U
ARSENIC	7440-38-2	16	**4.4**		**5.4**		**21.5**		**10.5**	
BARIUM	7440-39-3	27,000	**82.7**		**107**		**141**		**184**	
BERYLIUM	7440-41-7	400	**0.62**		**0.67**		**0.97**		**1.45**	
CADMIUM	7440-43-9	9.3	0.66	U	0.56	U	0.71	U	0.65	U
CALCIUM	7440-70-2	-	**61,700**		**58,300**		**6,140**		**12,800**	
CHROMIUM, TOTAL	7440-47-3	180	**19.2**		**18.8**		**21.7**		**28.5**	
COBALT	7440-48-4	-	**10.1**		**8.5**		**7.3**		**12.5**	
COPPER	7440-50-8	270	**19.4**		**19.6**		**86.9**		**44.8**	
IRON	7439-89-6	-	**24,300**		**25,400**		**38,400**		**73,200**	
LEAD	7439-92-1	1,000	**10.9**		**12.4**		**258**		**56.6**	
MAGNESIUM	7439-95-4	-	**15,600**		**14,500**		**1,650**		**5,870**	
MANGANESE	7439-96-5	10,000	**598**		**716**		**395**		**510**	
MERCURY	7439-97-6	2.8	0.041	U	**0.091**		**3.06**		**0.086**	
NICKEL	7440-02-0	310	**22.7**		**21.1**		**26.3**		**29.5**	
POTASSIUM	7440-09-7	-	**2,820**		**2,420**		**910**		**2,570**	
SELENIUM	7782-49-2	1,500	**13**	U	1.1	U	14	U	13	U
SILVER	7440-22-4	1,500	**1.3**	U	1.1	U	1.4	U	1.3	U
SODIUM	7440-23-5	-	**250**		**310**		**220**		**130**	
THALLIUM	7440-28-0	-	**1.3**	U	1.1	U	1.4	U	1.3	U
VANADIUM	7440-62-2	-	**27.4**		**27.9**		**79.2**		**47.9**	
ZINC	7440-66-6	10,000	**78.4**		**67.4**		**345**		**284**	
Cyanide			N.A.		N.A.		N.A.		N.A.	

Table 2
Analytical Data - Volitile Organic Compounds
Test Pits - Abandoned Pipeline IRM
Riverview Innovation Technology Campus
Site # C915353
Town of Tonawanda, New York

Analytes	CAS Number		Soil-TPDL1-09082020		Soil-TPDL2-09082020		Soil-TPEL2-09082020		Abandoned Pipeline-09162020	
			Grab		Grab		Grab		Grab	
Volatile Organic Compounds (ug/kg)		Commercial Restiricted Use Standards								
1,1,1-TRICHLOROETHANE	71-55-6	500,000	6.6	U	6.1	U	7.7	U	6.8	U
1,1,2,2-TETRACHLOROETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
1,1,2-TRICHLOROETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
1,1-DICHLOROETHANE	75-34-3	240,000	6.6	U	6.1	U	7.7	U	6.8	U
1,1-DICHLOROETHENE	75-35-4	500,000	6.6	U	6.1	U	7.7	U	6.8	U
1,2,3-TRICHLOROBENZENE		-	6.6	U	6.1	U	7.7	U	6.8	U
1,2,4-TRICHLOROBENZENE		-	6.6	U	6.1	U	7.7	U	6.8	U
1,2-DIBROMO-3-CHLOROPROPANE		-	6.6	U	6.1	U	7.7	U	6.8	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)		-	6.6	U	6.1	U	7.7	U	6.8	U
1,2-DICHLOROBENZENE	95-50-1	500,000	6.6	U	6.1	U	7.7	U	6.8	U
1,2-DICHLOROETHANE	107-06-2	30,000	6.6	U	6.1	U	7.7	U	6.8	U
1,2-DICHLOROPROPANE		-	6.6	U	6.1	U	7.7	U	6.8	U
1,3-DICHLOROBENZENE	541-73-1	280,000	6.6	U	6.1	U	7.7	U	6.8	U
1,4-DICHLOROBENZENE	106-46-7	130,000	6.6	U	6.1	U	7.7	U	6.8	U
1,4-DIOXANE	123-91-1	250,000	130	U	120	U	150	U	140	U
2-BUTANONE		-	6.6	U	6.1	U	7.7	U	6.8	U
2-HEXANONE		-	6.6	U	6.1	U	7.7	U	6.8	U
4-METHYL-2-PENTANONE		-	6.6	U	6.1	U	7.7	U	6.8	U
ACETONE	67-64-1	500,000	**18**		**40**		7.7	U	6.8	U
BENZENE	71-43-2	44,000	6.6	U	6.1	U	7.7	U	6.8	U
BROMOCHLOROMETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
BROMODICHLOROMETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
BROMOFORM		-	6.6	U	6.1	U	7.7	U	6.8	U
BROMOMETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
CARBON DISULFIDE		-	6.6	U	6.1	U	7.7	U	6.8	U
CARBON TETRACHLORIDE	56-23-5	22,000	6.6	U	6.1	U	7.7	U	6.8	U
CHLOROBENZENE	108-90-7	500,000	6.6	U	6.1	U	7.7	U	6.8	U
CHLOROETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
CHLOROFORM	67-66-3	350,000	6.6	U	6.1	U	7.7	U	6.8	U
CHLOROMETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
CIS-1,2-DICHLOROETHYLENE		-	6.6	U	6.1	U	7.7	U	6.8	U
CIS-1,3-DICHLOROPROPENE		-	6.6	U	6.1	U	7.7	U	6.8	U
CYCLOHEXANE		-	6.6	U	6.1	U	7.7	U	6.8	U
DIBROMOCHLOROMETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
DICHLORODIFLUOROMETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
ETHYLBENZENE	100-41-4	390,000	6.6	U	6.1	U	7.7	U	6.8	U
ISOPROPYLBENZENE (CUMENE)		-	6.6	U	6.1	U	7.7	U	6.8	U
M,P-XYLENE	1330-20-7	500,000	13	U	12	U	15	U	14	U
METHYL ACETATE		-	6.6	U	6.1	U	7.7	U	6.8	U
METHYL TERT-BUTYL ETHER	1634-04-4	500,000	6.6	U	6.1	U	7.7	U	6.8	U
METHYLCYCLOHEXANE		-	6.6	U	6.1	U	7.7	U	6.8	U
METHYLENE CHLORIDE	75-09-2	500,000	6.6	U	6.1	U	7.7	U	6.8	U
O-XYLENE	1330-20-7	500,000	6.6	U	6.1	U	7.7	U	6.8	U
STYRENE		-	6.6	U	6.1	U	7.7	U	6.8	U
TETRACHLOROETHYLENE (PCE)	127-18-4	150,000	6.6	U	6.1	U	7.7	U	6.8	U
TOLUENE	108-88-3	500,000	6.6	U	6.1	U	7.7	U	6.8	U
TRANS-1,2-DICHLOROETHENE		-	6.6	U	6.1	U	7.7	U	6.8	U
TRANS-1,3-DICHLOROPROPENE		-	6.6	U	6.1	U	7.7	U	6.8	U
TRICHLOROETHENE (TCE)	79-01-6	200,000	6.6	U	6.1	U	7.7	U	6.8	U
TRICHLOROFLUOROMETHANE		-	6.6	U	6.1	U	7.7	U	6.8	U
VINYL CHLORIDE	75-01-4	13,000	6.6	U	6.1	U	7.7	U	6.8	U

Table 3
Semi-Volitile Organic Compound Data - Soilds
Abandoned Pipeline IRM
Riverview Innovation Technology Campus
Site # C915353
Town of Tonawanda, New York

Analytes	CAS Number		Soil-TPDL1-09082020		Soil-TPDL2-09082020		Soil-TPEL2-09082020		Abandoned Pipeline-09162020	
			Grab		Grab		Grab		Grab	
Semi-volatile Organic Compounds (ug/kg)		Commercial Restiricted Use Standards								
1,2,4-TRICHLOROBENZENE		-	420	U	410	U	2,600	U	450	U
1,2-DICHLOROBENZENE	95-50-1	500,000	420	U	410	U	2,600	U	450	U
1,3-DICHLOROBENZENE	541-73-1	280,000	420	U	410	U	2,600	U	450	U
1,4-DICHLOROBENZENE	106-46-7	130,000	420	U	410	U	2,600	U	450	U
2,2-OXYBIS (1-CHLOROBENZENE)		-	420	U	410	U	2,600	U	450	U
2,4,5-TRICHLOROPHENOL		-	420	U	410	U	2,600	U	450	U
2,4,6-TRICHLOROPHENOL		-	420	U	410	U	2,600	U	450	U
2,4-DICHLOROPHENOL		-	420	U	410	U	2,600	U	450	U
2,4-DIMETHYLPHENOL		-	420	U	410	U	2,600	U	450	U
2,4-DINITROPHENOL		-	2,220	U	2,100	U	13,000	U	2,300	U
2,4-DINITROTOLUENE		-	420	U	410	U	2,600	U	450	U
2,6-DINITROTOLUENE		-	420	U	410	U	2,600	U	450	U
2-CHLORONAPHTHALENE		-	420	U	410	U	2,600	U	450	U
2-CHLOROPHENOL		-	420	U	410	U	2,600	U	450	U
2-METHYLNAPHTHALENE		-	420	U	410	U	2,600	U	450	U
2-METHYLPHENOL (O-CRESOL)		-	420	U	410	U	2,600	U	450	U
2-NITROANILINE		-	420	U	410	U	2,600	U	450	U
2-NITROPHENOL		-	420	U	410	U	2,600	U	450	U
3&4-METHYLPHENOL		-	420	U	410	U	2,600	U	450	U
3,3'-DICHLOROBENZIDINE		-	420	U	410	U	2,600	U	450	U
3-NITROANILINE		-	420	U	410	U	2,600	U	450	U
4,6-DINITRO-2-METHYLPHENOL		-	2,220	U	2,100	U	13,000	U	2,300	U
4-BROMOPHENYL PHENYL ETHER		-	420	U	410	U	2,600	U	450	U
4-CHLORO-3-METHYLPHENOL		-	420	U	410	U	2,600	U	450	U
4-CHLOROANILINE		-	420	U	410	U	2,600	U	450	U
4-CHLOROPHENYL PHENYL ETHER		-	420	U	410	U	2,600	U	450	U
4-NITROANILINE		-	420	U	410	U	2,600	U	450	U
4-NITROPHENOL		-	2,220	U	2,100	U	13,000	U	2,300	U
ACENAPHTHENE	208-96-8	500,000	420	U	410	U	2,600	U	450	U
ACENAPHTHYLENE	83-32-9	500,000	420	U	410	U	7,000		450	U
ACETOPHENONE		-	420	U	410	U	2,600	U	450	U
ANTHRACENE	120-12-7	500,000	420	U	410	U	2,600	U	450	U
BENZO(A)ANTHRACENE	56-55-3	5,600	420	U	410	U	**7,000**		450	U
BENZO(A)PYRENE	50-32-8	1,000	420	U	410	U	**11,000**		450	U
BENZO(B)FLUORANTHENE	205-99-2	5,600	420	U	410	U	**15,000**		450	U
BENZO(G,H,I)PERYLENE		500,000	420	U	410	U	**8,000**		450	U
BENZO(K)FLUORANTHENE	207-08-9	56,000	420	U	410	U	**5,300**		450	U
BIS (2-CHLOROETHOXY) METHANE		-	420	U	410	U	2,600	U	450	U
BIS (2-CHLOROETHYL) ETHER		-	420	U	410	U	2,600	U	450	U
BIS (2-ETHYLHEXYL) PHTHALATE		-	640	U	620	U	2,600	U	450	U
BENZYL BUTYL PHTHALATE (BUTYLBENZYLPHTHALATE)		-	420	U	410	U	2,600	U	450	U
CARBAZOLE		-	420	U	410	U	2,600	U	450	U

Table 3
Semi-Volitile Organic Compound Data - Soilds
Abandoned Pipeline IRM
Riverview Innovation Technology Campus
Site # C915353
Town of Tonawanda, New York

Analytes	CAS Number		Soil-TPDL1-09082020		Soil-TPDL2-09082020		Soil-TPEL2-09082020		Abandoned Pipeline-09162020	
			Grab		Grab		Grab		Grab	
Semi-volatile Organic Compounds (ug/kg)		**Commercial Restricted Use Standards**								
CHRYSENE	218-01-9	56,000	420	U	410	U	**7,400**		450	U
DIBENZ(A,H)ANTHRACENE	53-70-3	560	420	U	410	U	2,600	U	450	U
DIBENZOFURAN	132-64-9	350,000	420	U	410	U	2,600	U	450	U
DIETHYL PHTHALATE		-	420	U	410	U	2,600	U	450	U
DIMETHYL PHTHALATE		-	420	U	410	U	2,600	U	450	U
DI-N-BUTYL PHTHALATE		-	420	U	410	U	2,600	U	450	U
DI-N-OCTYLPHTHALATE		-	420	U	410	U	2,600	U	450	U
FLUORANTHENE	206-44-0	500,000	420	U	410	U	**10,000**		450	U
FLUORENE	86-73-7	500,000	420	U	410	U	2,600	U	450	U
HEXACHLOROBENZENE		-	420	U	410	U	2,600	U	450	U
HEXACHLOROBUTADIENE		-	420	U	410	U	2,600	U	450	U
HEXACHLOROCYCLOPENTADIENE		-	420	U	410	U	2,600	U	450	U
HEXACHLOROETHANE		-	420	U	410	U	2,600	U	450	U
INDENO(1,2,3-CD)PYRENE	193-39-5	5,600	420	U	410	U	**9,200**		450	U
ISOPHORONE		-	420	U	410	U	2,600	U	450	U
NAPHTHALENE	91-20-3	500,000	420	U	410	U	**5,900**		450	U
NITROBENZENE		-	420	U	410	U	2,600	U	450	U
N-NITROSO-DI-N-PROPYLAMINE		-	420	U	410	U	2,600	U	450	U
N-NITROSODIPHENYLAMINE		-	420	U	410	U	2,600	U	450	U
PENTACHLOROPHENOL	87-86-5	6,700	2,220	U	2,100	U	13,000	U	2,300	U
PHENANTHRENE	85-01-8	500,000	420	U	410	U	2,600	U	450	U
PHENOL	108-95-2	500,000	420	U	410	U	2,600	U	450	U
PYRENE	129-00-0	500,000	420	U	410	U	9,200	U	450	U

Table 4
Water From Pipe at Test Pit TP-DL2
Riverview Innovation Technology Campus
Site # C915353
Town of Tonawanda, New York

Analytes	CAS Number	Water Quality Standards	Units	Result	Interpreted Qualifiers
		GA			
624.1					
1,1,1-Trichloroethane (TCA)	71-55-6	5	ug/l	0.2	U
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	0.2	U
1,1,2-Trichloroethane	79-00-5	1	ug/l	0.2	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	5	ug/l	0.2	U
1,1-Dichloroethane	75-34-3	5	ug/l	0.2	U
1,1-Dichloroethene	75-35-4	5	ug/l	0.2	U
1,2,3-Trichlorobenzene	87-61-6	5	ug/l	0.2	U
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	0.2	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04	ug/l	0.2	U
1,2-Dibromoethane (Ethylene Dibromide)	106-93-4	0.0006	ug/l	0.2	U
1,2-Dichlorobenzene	95-50-1	3	ug/l	0.2	U
1,2-Dichloroethane	107-06-2	0.6	ug/l	0.2	U
1,2-Dichloropropane	78-87-5	1	ug/l	0.2	U
1,3-Dichlorobenzene	541-73-1	3	ug/l	0.2	U
1,4-Dichlorobenzene	106-46-7	3	ug/l		
1,4-Dioxane (P-Dioxane)	123-91-1		ug/l		
Methyl Ethyl Ketone (2-Butanone)	78-93-3	50	ug/l		
2-Hexanone	591-78-6	50	ug/l		
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1		ug/l		
Acetone	67-64-1	50	ug/l		
Benzene	71-43-2	1	ug/l	**2.03**	
Bromochloromethane	74-97-5	5	ug/l		
Bromodichloromethane	75-27-4	50	ug/l	0.2	U
Bromoform	75-25-2	50	ug/l	0.25	U
Bromomethane	74-83-9	5	ug/l	0.7	U
Carbon Disulfide	75-15-0		ug/l		
Carbon Tetrachloride	56-23-5	5	ug/l	0.34	U
Chlorobenzene	108-90-7	5	ug/l	0.2	U
Chloroethane	75-00-3	5	ug/l	0.23	U
Chloroform	67-66-3	7	ug/l	0.24	U
Chloromethane	74-87-3	5	ug/l	0.28	U
Cyclohexane	110-82-7		ug/l		
Dibromochloromethane	124-48-1	50	ug/l	0.2	U
Dichlorodifluoromethane	75-71-8	5	ug/l		
Methylene Chloride	75-09-2	5	ug/l		
Ethylbenzene	100-41-4	5	ug/l	0.2	U
Isopropylbenzene (Cumene)	98-82-8	5	ug/l		
Methyl Acetate	79-20-9		ug/l		
Tert-Butyl Methyl Ether	1634-04-4		ug/l		
Methylcyclohexane	108-87-2		ug/l		
Styrene	100-42-5	5	ug/l		
Tetrachloroethylene (PCE)	127-18-4	5	ug/l	0.21	U
Toluene	108-88-3	5	ug/l	0.2	U
Trichloroethylene (TCE)	79-01-6	5	ug/l	0.2	U
Trichlorofluoromethane	75-69-4	5	ug/l	0.24	U
Vinyl Chloride	75-01-4	2	ug/l	0.2	U
Cis-1,2-Dichloroethylene	156-59-2	5	ug/l		
Cis-1,3-Dichloropropene	10061-01-5	0.4	ug/l	0.2	U
m,p-Xylene	179601-23-1		ug/l	**0.2**	U
O-Xylene (1,2-Dimethylbenzene)	95-47-6	5	ug/l	0.2	U
Trans-1,2-Dichloroethene	156-60-5	5	ug/l	0.2	U
Trans-1,3-Dichloropropene	10061-02-6	0.4	ug/l	0.23	U

Table 4
Water From Pipe at Test Pit TP-DL2
Riverview Innovation Technology Campus
Site # C915353
Town of Tonawanda, New York

Analytes	CAS Number	Water Quality Standards	Units	Result	Interpreted Qualifiers
		GA			
SW8270D					
1,4-Dioxane (P-Dioxane)	123-91-1		ug/l		
625.1					
1,2,4-Trichlorobenzene			ug/l	1.02	U
1,2-Diphenylhydrzine			ug/l	1.26	U
1,2,4,5-Tetrachlorobenzene	95-94-3	5	ug/l		
2,3,4,6-Tetrachlorophenol	58-90-2		ug/l		
2,4,5-Trichlorophenol	95-95-4		ug/l		
2,4,6-Trichlorophenol	88-06-2		ug/l	**1.23**	U
2,4-Dichlorophenol	120-83-2	5	ug/l	1.13	U
2,4-Dimethylphenol	105-67-9	50	ug/l	1.25	U
2,4-Dinitrophenol	51-28-5	10	ug/l	**18.2**	U
2,4-Dinitrotoluene	121-14-2	5	ug/l	2.13	U
2,6-Dinitrotoluene	606-20-2	5	ug/l	1.19	U
2-Chloronaphthalene	91-58-7	10	ug/l	1.24	U
2-Chlorophenol	95-57-8		ug/l	**0.964**	U
2-Methylnaphthalene	91-57-6	NC	ug/l		
2-Methylphenol (O-Cresol)	95-48-7		ug/l		
2-Nitroaniline	88-74-4	5	ug/l		
2-Nitrophenol	88-75-5		ug/l	**1.36**	U
3,3'-Dichlorobenzidine	91-94-1	5	ug/l	1.1	U
Cresols, M & P	MEPH1314		ug/l		
3-Nitroaniline	99-09-2	5	ug/l		
4,6-Dinitro-2-Methylphenol	534-52-1		ug/l	**17.4**	U
4-Bromophenyl Phenyl Ether	101-55-3		ug/l	**1.49**	U
4-Chloro-3-Methylphenol	59-50-7		ug/l	**0.975**	U
4-Chloroaniline	106-47-8	5	ug/l		
4-Chlorophenyl Phenyl Ether	7005-72-3		ug/l	**1.35**	U
4-Nitroaniline	100-01-6	5	ug/l		
4-Nitrophenol	100-02-7		ug/l	**5.75**	U
Acenaphthene	83-32-9	20	ug/l	1.22	U
Acenaphthylene	208-96-8		ug/l	**1.22**	U
Acetophenone	98-86-2		ug/l		
Anthracene	120-12-7	50	ug/l		
Atrazine	1912-24-9	7.5	ug/l	1.14	U
Benzo(A)Anthracene	56-55-3	0.002	ug/l	**1.43**	U
Benzidine			ug/l	**1.13**	U
Benzaldehyde	100-52-7		ug/l		

Table 4
Water From Pipe at Test Pit TP-DL2
Riverview Innovation Technology Campus
Site # C915353
Town of Tonawanda, New York

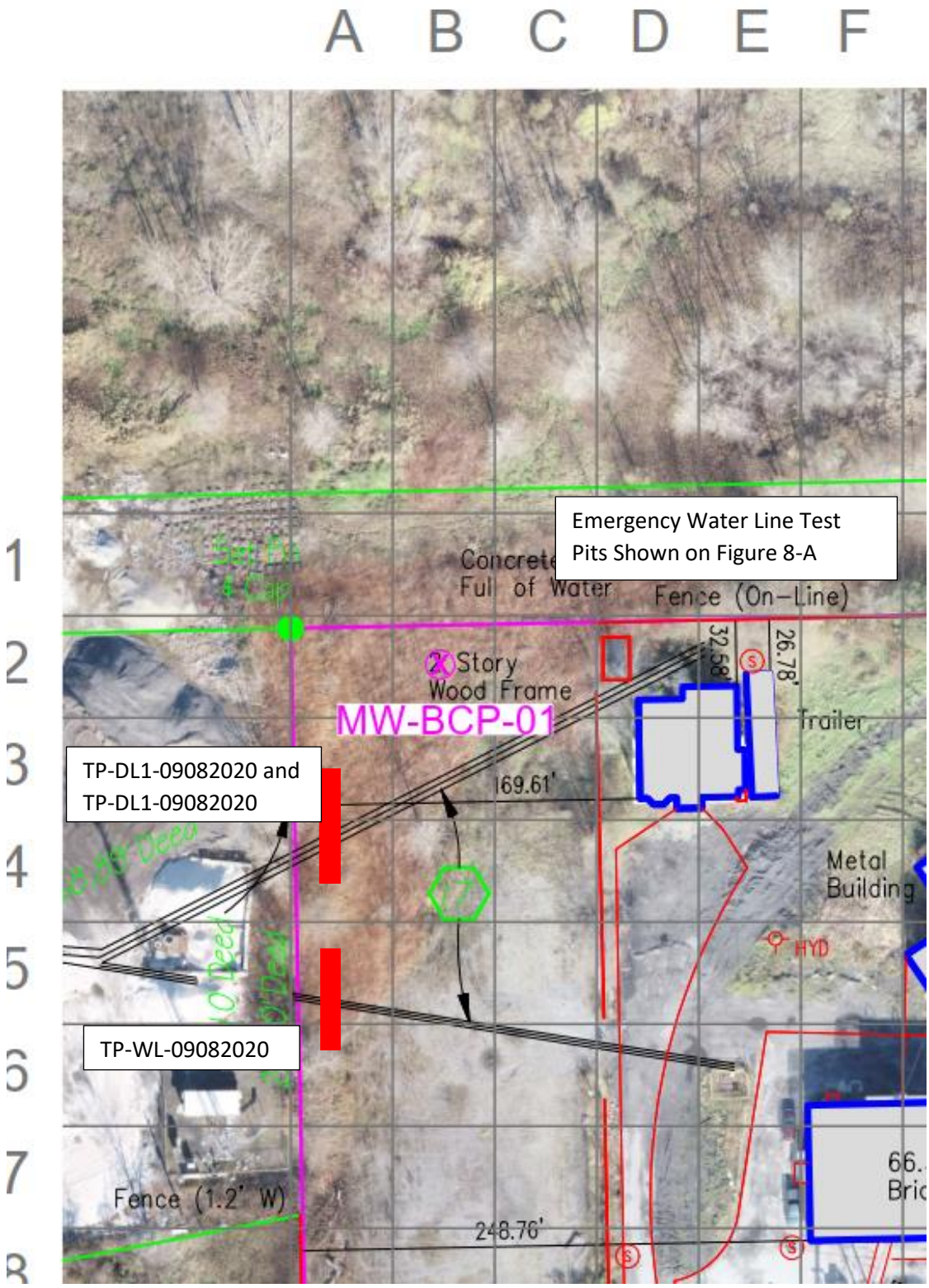
Analytes	CAS Number	Water Quality Standards	Units	Result	Interpreted Qualifiers
		GA			
Benzo(A)Pyrene	50-32-8	NC	ug/l	**1.02**	U
Benzo(B)Fluoranthene	205-99-2	0.002	ug/l	**1.01**	U
Benzo(G,H,I)Perylene	191-24-2		ug/l	**0.91**	U
Benzo(K)Fluoranthene	207-08-9	0.002	ug/l	**1.1**	U
Biphenyl (Diphenyl)	92-52-4	5	ug/l		
Bis(1-Chloroisopropyl) Ether			ug/l	**1.28**	U
Bis(2-Chloroethoxy) Methane	111-91-1	5	ug/l	1.73	U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	111-44-4	1	ug/l	**1.12**	U
Bis(2-Ethylhexyl) Phthalate	117-81-7	5	ug/l	0.91	U
Benzyl Butyl Phthalate	85-68-7	50	ug/l	1.27	U
Caprolactam	105-60-2		ug/l		
Carbazole	86-74-8		ug/l		
Chrysene	218-01-9	0.002	ug/l	**1.06**	U
Di-N-Butyl Phthalate	84-74-2	50	ug/l	**4.6**	
Di-N-Octylphthalate	117-84-0	50	ug/l	2.93	U
Dibenz(A,H)Anthracene	53-70-3		ug/l	**0.928**	U
Dibenzofuran	132-64-9		ug/l		
Diethyl Phthalate	84-66-2	50	ug/l	0.975	U
Dimethyl Phthalate	131-11-3	50	ug/l	1.12	U
Fluoranthene	206-44-0	50	ug/l	1.33	U
Fluorene	86-73-7	50	ug/l	1.12	U
Hexachlorobenzene	118-74-1	0.04	ug/l	**1.4**	U
Hexachlorobutadiene	87-68-3	0.5	ug/l	**0.91**	U
Hexachlorocyclopentadiene	77-47-4	5	ug/l	1.95	U
Hexachloroethane	67-72-1	5	ug/l	0.957	U
Indeno(1,2,3-C,D)Pyrene	193-39-5	0.002	ug/l	**1.6**	U
Isophorone	78-59-1	50	ug/l	1.23	U
N-Nitrosodi-N-Propylamine	621-64-7		ug/l	**1.04**	U
N-Nitrosodiphenylamine	86-30-6	50	ug/l	2.4	U
Naphthalene	91-20-3	10	ug/l	1.07	U
Nitrobenzene	98-95-3	0.4	ug/l	**1.33**	U
Pentachlorophenol	87-86-5	1	ug/l	**8.84**	U
Phenanthrene	85-01-8	50	ug/l	1.22	U
Phenol	108-95-2	1	ug/l	0.91	U
Pyrene	129-00-0	50	ug/l	1.3	U
200.7					
Arsenic	7440-38-2	25	ug/l	10	U
245.1					
Mercury	7439-97-6	0.7	ug/l	0.2	U

Table 4
Water From Pipe at Test Pit TP-DL2
Riverview Innovation Technology Campus
Site # C915353
Town of Tonawanda, New York

Analytes	CAS Number	Water Quality Standards	Units	Result	Interpreted Qualifiers
		GA			
SW9012B					
Cyanide	57-12-5	200	mg/l	0.005	U
SOLIDS					
Total Solids	TSS		mg/L	**15.6**	
GENERAL CHEMISTRY					
Ammonia (as Nitrogen)			mg/L	0.248	
Biological Oxygen Demand			mg/L	6.1	
Oil & Grease (SGT-HEM)			mg/L	4.7	U
Oil and Grease, Total (HEM)			mg/L	4.8	U
Phenolic, Total Recoverable			mg/L	0.005	U
Phosphorous, Total			mg/L	0.05	U

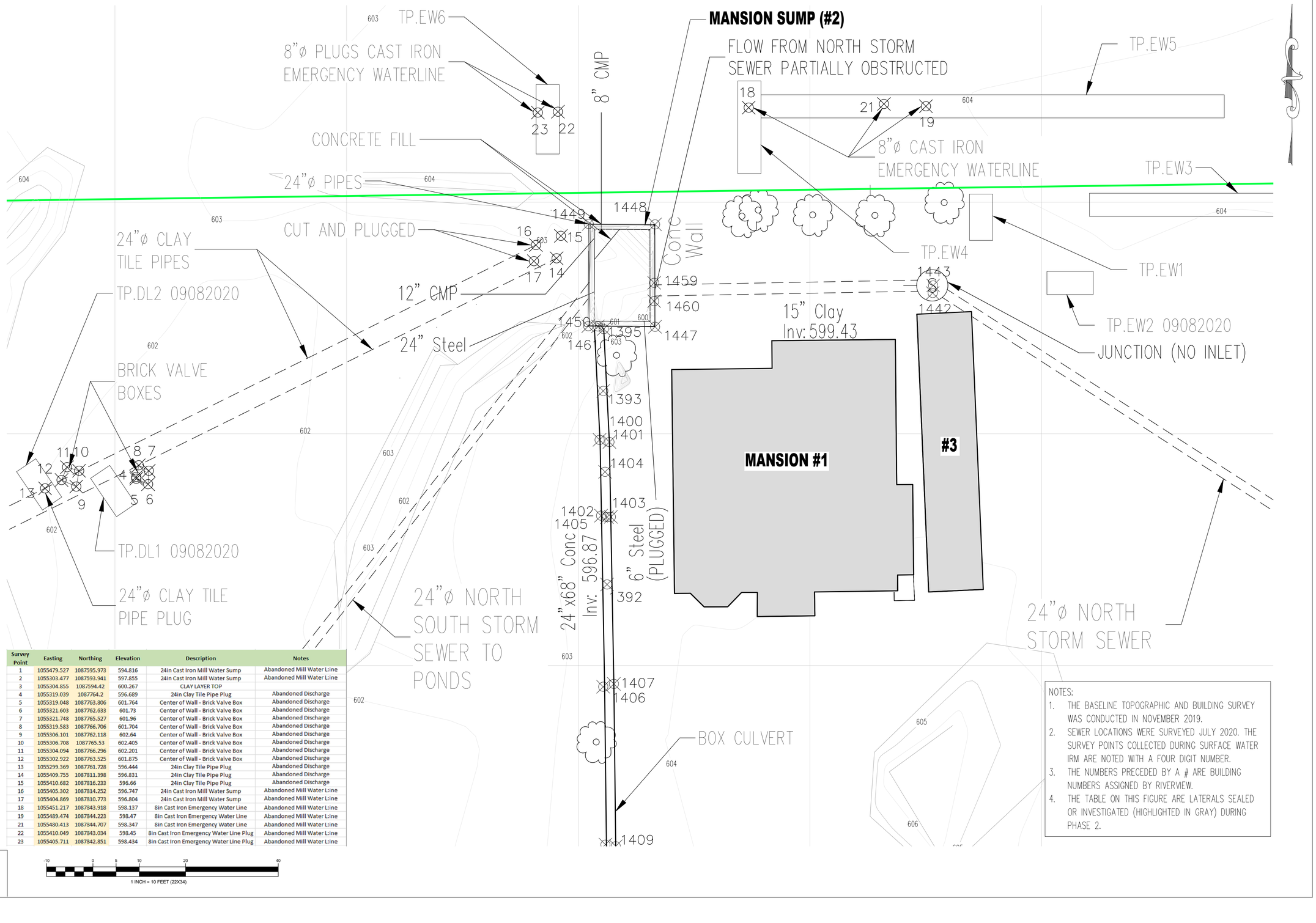
Figures

Figure 1


A B C D E F
1
2
3
4
5
6
7
8
Emergency Water Line Test Pits Shown on Figure 8-A
Concrete Ful of Water
Fence (On-Line)
32.58'
26.78'
2 Story Wood Frame
MW-BCP-01
Trailer
TP-DL1-09082020 and TP-DL1-09082020
169.61'
Metal Building
HYD
TP-WL-09082020
Fence (1.2' W)
248.76'

Attachments

Attachment A – Figure 8 – Surface Water IRM



Survey Point	Easting	Northing	Elevation	Description	Notes
1	1055479.527	1087595.973	594.816	24in Cast Iron Mill Water Sump	Abandoned Mill Water Line
2	1055303.477	1087593.941	597.855	24in Cast Iron Mill Water Sump	Abandoned Mill Water Line
3	1055304.855	1087594.42	600.267	CLAY LAYER TOP	
4	1055319.039	1087764.2	596.689	24in Clay Tile Pipe Plug	Abandoned Discharge
5	1055319.048	1087763.806	601.764	Center of Wall - Brick Valve Box	Abandoned Discharge
6	1055321.603	1087762.633	601.73	Center of Wall - Brick Valve Box	Abandoned Discharge
7	1055321.748	1087765.527	601.96	Center of Wall - Brick Valve Box	Abandoned Discharge
8	1055319.583	1087766.706	601.704	Center of Wall - Brick Valve Box	Abandoned Discharge
9	1055306.101	1087762.118	602.64	Center of Wall - Brick Valve Box	Abandoned Discharge
10	1055306.708	1087765.53	602.405	Center of Wall - Brick Valve Box	Abandoned Discharge
11	1055304.094	1087766.296	602.201	Center of Wall - Brick Valve Box	Abandoned Discharge
12	1055302.922	1087763.525	601.875	Center of Wall - Brick Valve Box	Abandoned Discharge
13	1055299.369	1087761.728	596.444	24in Clay Tile Pipe Plug	Abandoned Discharge
14	1055409.755	1087811.398	596.831	24in Clay Tile Pipe Plug	Abandoned Discharge
15	1055410.682	1087816.233	596.66	24in Clay Tile Pipe Plug	Abandoned Discharge
16	1055405.302	1087814.252	596.747	24in Cast Iron Mill Water Sump	Abandoned Mill Water Line
17	1055404.869	1087810.773	596.804	24in Cast Iron Mill Water Sump	Abandoned Mill Water Line
18	1055451.217	1087843.918	598.137	8in Cast Iron Emergency Water Line	Abandoned Mill Water Line
19	1055489.474	1087844.223	598.47	8in Cast Iron Emergency Water Line	Abandoned Mill Water Line
21	1055480.413	1087844.707	598.347	8in Cast Iron Emergency Water Line	Abandoned Mill Water Line
22	1055410.049	1087843.034	598.45	8in Cast Iron Emergency Water Line Plug	Abandoned Mill Water Line
23	1055405.711	1087842.851	598.434	8in Cast Iron Emergency Water Line Plug	Abandoned Mill Water Line

-10 0 5 10 20 40

1 INCH = 10 FEET (22X34)

NOTES:
1. THE BASELINE TOPOGRAPHIC AND BUILDING SURVEY WAS CONDUCTED IN NOVEMBER 2019.
2. SEWER LOCATIONS WERE SURVEYED JULY 2020. THE SURVEY POINTS COLLECTED DURING SURFACE WATER IRM ARE NOTED WITH A FOUR DIGIT NUMBER.
3. THE NUMBERS PRECEDED BY A # ARE BUILDING NUMBERS ASSIGNED BY RIVERVIEW.
4. THE TABLE ON THIS FIGURE ARE LATERALS SEALED OR INVESTIGATED (HIGHLIGHTED IN GRAY) DURING PHASE 2.

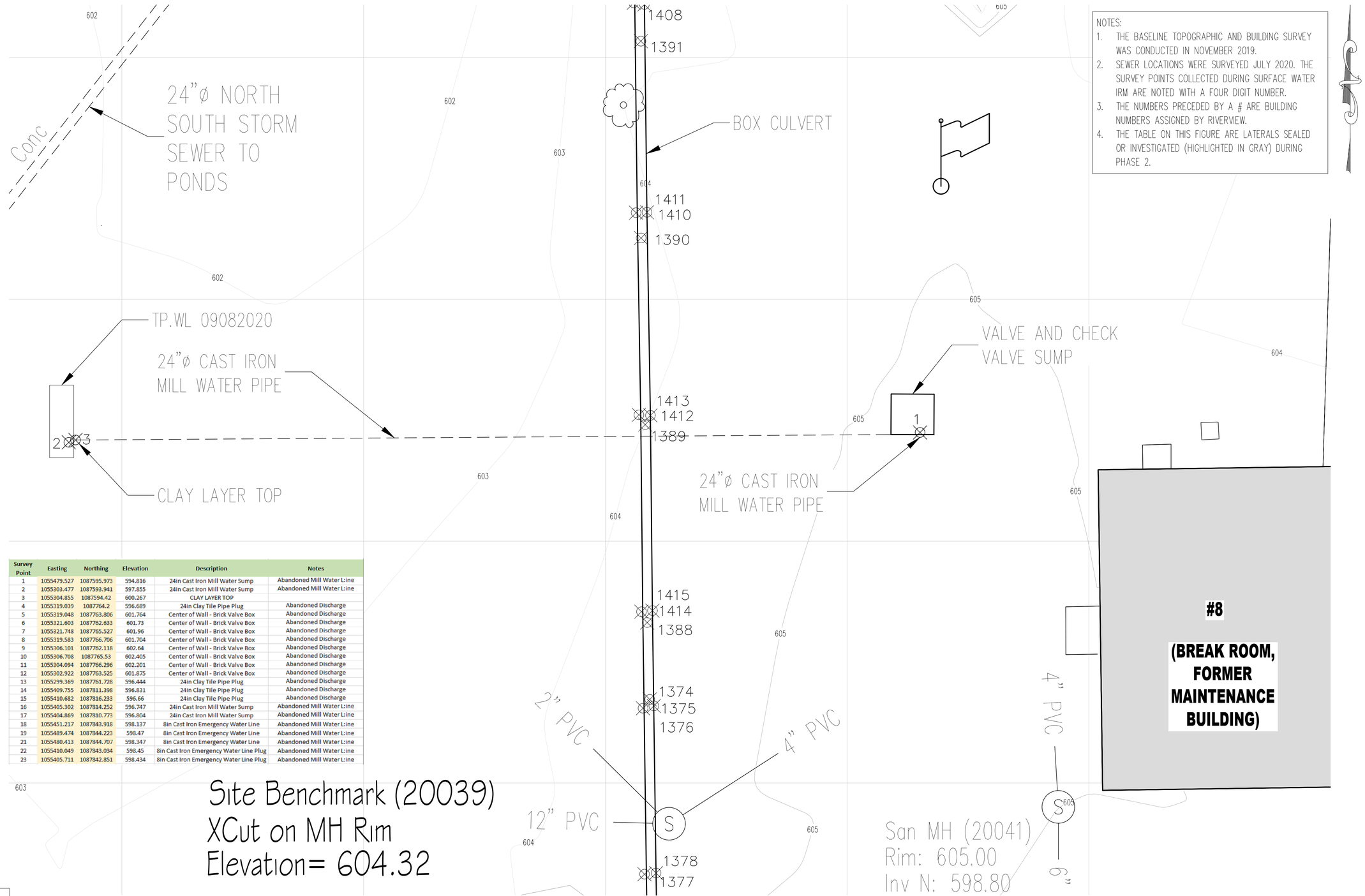
DRAWING BY | CHECKED | APPROVED | AUD

MANSION SUMP AREA SURFACE WATER MANAGEMENT AND ABANDONED PIPE IRM
RIVERVIEW INNOVATION & TECHNOLOGY CAMPUS TONAWANDA, NEW YORK

INVENTUM ENGINEERING
481 CARLISLE DRIVE
SUITE 202
HERNDON, VIRGINIA 20170
(703) 722-6049
www.InventumEng.com

FIGURE 8-A

DRAWING NUMBER
NEW SET



Survey Point	Easting	Northing	Elevation	Description	Notes
1	1055479.527	1087595.973	594.816	24in Cast Iron Mill Water Sump	Abandoned Mill Water Line
2	1055303.477	1087593.941	597.855	24in Cast Iron Mill Water Sump	Abandoned Mill Water Line
3	1055304.855	1087594.42	600.267	CLAY LAYER TOP	
4	1055319.039	1087764.2	596.689	24in Clay Tile Pipe Plug	Abandoned Discharge
5	1055319.048	1087763.806	601.764	Center of Wall - Brick Valve Box	Abandoned Discharge
6	1055321.603	1087762.633	601.73	Center of Wall - Brick Valve Box	Abandoned Discharge
7	1055321.748	1087765.527	601.96	Center of Wall - Brick Valve Box	Abandoned Discharge
8	1055319.583	1087766.706	601.704	Center of Wall - Brick Valve Box	Abandoned Discharge
9	1055306.101	1087762.118	602.64	Center of Wall - Brick Valve Box	Abandoned Discharge
10	1055306.708	1087765.53	602.405	Center of Wall - Brick Valve Box	Abandoned Discharge
11	1055304.094	1087766.296	602.201	Center of Wall - Brick Valve Box	Abandoned Discharge
12	1055302.922	1087763.525	601.875	Center of Wall - Brick Valve Box	Abandoned Discharge
13	1055299.369	1087761.728	596.444	24in Clay Tile Pipe Plug	Abandoned Discharge
14	1055409.755	1087811.398	596.831	24in Clay Tile Pipe Plug	Abandoned Discharge
15	1055410.682	1087816.233	596.66	24in Clay Tile Pipe Plug	Abandoned Discharge
16	1055405.302	1087814.252	596.747	24in Cast Iron Mill Water Sump	Abandoned Mill Water Line
17	1055404.869	1087810.773	596.804	24in Cast Iron Mill Water Sump	Abandoned Mill Water Line
18	1055451.217	1087843.918	598.137	8in Cast Iron Emergency Water Line	Abandoned Mill Water Line
19	1055489.474	1087844.223	598.47	8in Cast Iron Emergency Water Line	Abandoned Mill Water Line
21	1055480.413	1087844.707	598.347	8in Cast Iron Emergency Water Line	Abandoned Mill Water Line
22	1055410.049	1087843.034	598.45	8in Cast Iron Emergency Water Line Plug	Abandoned Mill Water Line
23	1055405.711	1087842.851	598.434	8in Cast Iron Emergency Water Line Plug	Abandoned Mill Water Line

NOTES:
1. THE BASELINE TOPOGRAPHIC AND BUILDING SURVEY WAS CONDUCTED IN NOVEMBER 2019.
2. SEWER LOCATIONS WERE SURVEYED JULY 2020. THE SURVEY POINTS COLLECTED DURING SURFACE WATER IRM ARE NOTED WITH A FOUR DIGIT NUMBER.
3. THE NUMBERS PRECEDED BY A # ARE BUILDING NUMBERS ASSIGNED BY RIVERVIEW.
4. THE TABLE ON THIS FIGURE ARE LATERALS SEALED OR INVESTIGATED (HIGHLIGHTED IN GRAY) DURING PHASE 2.

N

DRAWING BY: AUD
CHECKED:
APPROVED:

MANSION SUMP AREA SURFACE WATER MANAGEMENT AND ABANDONED PIPE IRM
RIVERVIEW INNOVATION & TECHNOLOGY CAMPUS TONAWANDA, NEW YORK

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FIGURE 9-A

DRAWING NUMBER
NEW SET

Attachment B – Photographs

Photograph B-1

Abandoned Pipeline Investigation Location

Notes: (1) Water Line Test Pit (TP-WL) in center of image;

(2) Hydraulic excavator at the discharge line test pit locations;

(3) Wier Tank staged in front (south) of the Mansion; and

(4) Valve Pit surrounded by guard rails in right (east) side of image.

Photograph B-2

Water Line Investigation Location (Looking West)

Note: The cell tower and stockpiles of aggregate are offsite.

Photograph B-3

Water Line Test Pit Location (Looking South)

Photograph B-4

Initial Excavation at Water Line Test Pit

Photograph B-5

Water Line Test Pit Looking North Northeast

Photograph B-6

Discharge Line Test Pit Location

Note: Mansion sump is in the lower right corner of the image.

Photograph B-7

TP-DL1

Discharge Line Test Pit

Note: The two valve pits are over the two former discharge lines.

Photograph B-8

TP-DL1

Discharge Line Test Pit

Note: The valve pit on the left side of the test pit.

Photograph B-9

TP-DL1

Discharge Line Test Pit

Notes:

(1) The vitrified clay discharge line in the upper right (Southwest) corner.

(2) The dark material in the lower right is flowable fill that had been placed by others blocking the pipelines.

Photograph B-10

South and North Discharge line seals at Mansion Sump

Hydraulic Cement filled behind formwork

(East and Mansion Sump are to the right)

Photograph B-11

TP-EW1

Emergency Water Line Test Pit

North Property Boundary to Left (North)

Photograph B-12

Test Pit TP-EW6 – Showing cut in 8-inch water line (looking Northwest)

Note: Both ends of pipe were sealed with hydraulic cement.

Attachment C – Test Pit Logs

Project:	Project Number:	Client:	Location ID:
RITC BCP	IRM Task 10	RITC	TP-WL-09082020
Address, City, State		Excavation Contractor:	Excavator Type:
3875 River Road, Tonawanda, New York		OSC	Hydraulic
Logged By: JB	Test Pit Date — Started: 9/8/2020	Northing (x) 1087594.4	
	Completed: 9/8/2020	Easting (y) 1055304.9	
	Backfilled: 9/9/2020	Coordinate System	
	Groundwater Depth: None	Elevation: ~602	Total Length of Test Pit (Ft): 30

Depth (feet)	Sample Type	PID (PPM)	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Laboratory Samples (ID/Analysis)
	Length (Ft.)			
0.5		0	Mixed Black silty sandy Gravel and Coke Fill. Dense, Dry	
1		0	Light Gray Concrete/Dense Slag Slab Hard, Dry	
2		0	Black silty sandy Gravel Fill, Medium Dense, Dry	
7		0	Brown silty Clay, some Gray mottling in south end of test pit. Stiff, Moist.	
			Note: The top of the 20-inch diameter former water line was uncovered at 5-feet below ground surface.	

Test Pit Log: Sheet 1 of 1

General Comments:

1. There was no water in the test pit at or near the water Line.
2. The pipe was surrounded with silty Clay backfill. There was no granular material to provide a migration pathhway.
3. The pipe had been previously broken and filled with flowable fill. Following the test pit excavation an second section of the pipe was opened and an additonal seal was installed.

Project:	Project Number:	Client:	Location ID:
RITC BCP	IRM Task 10	RITC	TP-DL1-09082020
Address, City, State: 3875 River Road, Tonawanda, New York		Excavation Contractor: OSC	Excavator Type: Hydraulic
Logged By: JB	Test Pit Date — Started: 9/8/2020	Northing (x): 1087764.2	
	Completed: 9/8/2020	Easting (y): 1055319	
	Backfilled: 9/9/2020	Coordinate System	
	Groundwater Depth: None	Elevation: 601.8	Total Length of Test Pit (Ft): 10

Depth (feet)	Sample Type	PID (PPM)	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Laboratory Samples (ID/Analysis)
	Length (Ft.)			
		0	Mixed Black silty sandy Gravel and Coke Fill. Dense, Dry	
5				Soil-TP-DL1-09082020
			Note: The top of the 20-inch diameter former discharge line (vitrified clay tile) was uncovered at 5-feet below ground surface.	

Test Pit Log: Sheet 1 of 1

General Comments:

1. There was no water in the test pit at or near the water line prior to breaking the pipe.
2. The pipe was surrounded with silty Clay backfill. There was no granular material to provide a migration pathhway.
3. The pipe had been previously broken and filled with flowable fill. The pipe was broken and flow from downstream (west) of the plug flowed into the test pit. The water came to equilibruim in the pit, indicaating it was not under pressure.
4. The water was pumped from the test pit to a weir tank, tested, and discharged ffrollowing treatment, with the approval of the Pre-treatment coordinator of the Town of Tonawanda.

Project:	Project Number:	Client:	Location ID:
RITC BCP	IRM Task 10	RITC	TP-DL2-09082020
Address, City, State: 3875 River Road, Tonawanda, New York		Excavation Contractor: OSC	Excavator Type: Hydraulic
Logged By: JB	Test Pit Date — Started: 9/8/2020	Northing (x): 1087762.1	
	Completed: 9/8/2020	Easting (y): 1055306.1	
	Backfilled: 9/9/2020	Coordinate System	
	Groundwater Depth: None	Elevation: 601.8	Total Length of Test Pit (Ft): 10

Depth (feet)	Sample Type	PID (PPM)	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Laboratory Samples (ID/Analysis)
	Length (Ft.)			
		0	Mixed Black silty sandy Gravel and Coke Fill. Dense, Dry	
5				Soil-TP-DL2-09082020
			Note: The top of the 20-inch diameter formerdischarge line (vitrified clay tile) e was uncovered at 5-feet below ground surface.	

Test Pit Log: Sheet 1 of 1

General Comments:

1. There was no water in the test pit at or near the water line..
2. The pipe was surrounded with silty Clay backfill. There was no granular material to provide a migration pathhway.
3. The pipe had been previously broken and filled with flowable fill. The pipe was broken and there was no water in the pipe.

Project: RITC BCP	Project Number: IRM Task 10	Client: RITC	Location ID: TP-EW1-09092020	
Address, City, State: 3875 River Road, Tonawanda, New York		Excavation Contractor: OSC	Excavator Type: Hydraulic	
Logged By: JB	Test Pit Date — Started: 9/9/2020	Northing (x): 1087842.9		
	Completed: 9/9/2020	Easting (y): 1055405.7		
	Backfilled: 9/10/2020	Coordinate System		
	Groundwater Depth: None	Elevation: ~ 601	Total Length of Test Pit (Ft): 10	

Depth (feet)	Sample Type	PID (PPM)	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Laboratory Samples (ID/Analysis)
	Length (Ft.)			
3		0	Mixed Black silty sandy Gravel and Coke Fill. Dense, Dry	
5			Brown silty Clay, Moist. Small (12-inch by 12-inch) inclusion of gray slag crossed pit at a diagonal (utility line backfill). No free water.	

Test Pit Log: Sheet 1 of 1

General Comments:

1. There was no water or other liquid.
2. The top one foot of the silty Clay appeared to have been reworked.

Project:	Project Number:	Client:	Location ID:
RITC BCP	IRM Task 10	RITC	TP-EW2-09092020
Address, City, State		Excavation Contractor:	Excavator Type:
3875 River Road, Tonawanda, New York		OSC	Hydraulic
Logged By: JB	Test Pit Date — Started: 9/9/2020	Northing (x) 1087843.9	
	Completed: 9/9/2020	Easting (y) 1055451.2	
	Backfilled: 9/10/2020	Coordinate System	
	Groundwater Depth: None	Elevation: ~ 601	Total Length of Test Pit (Ft): 10

Depth (feet)	Sample Type	PID (PPM)	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	Laboratory Samples (ID/Analysis)
	Length (Ft.)			
		0	Mixed Black silty sandy Gravel and Coke Fill. Dense, Dry	
3				Soil-TP-EL2-09092020
			Note: A 16-inch Diameter clay tile pipe was encountered (Top of pipe at 2-feet Below Ground Surface)	
			The pipe contained 2-3 inches of dry sediment. Collected a sediment sample.	Abandoned Pipeline - 09162020

Test Pit Log: Sheet 1 of 1

General Comments:

1. There was no water or other liquid.

Attachment D – Laboratory Data

Note: Sample results for BO-R-09142020 and PURIFIERS-09142020 are associated with the building demolition IRM Work Plan and are addressed in that Work Plan, not in this CCR.

September 25, 2020 Service Request No:R2008431

Mr. Todd Waldrop
Inventum Engineering
481 Carlisle Drive
Herndon, VA 20170

Laboratory Results for: Riverview

Dear Mr.Waldrop,

Enclosed are the results of the sample(s) submitted to our laboratory September 12, 2020
For your reference, these analyses have been assigned our service request number **R2008431.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7475. You may also contact me via email at Meghan.Pedro@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008431
Date Received: 09/12/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Three soil samples were received for analysis at ALS Environmental on 09/12/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D, 09/17/2020: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Method 8270D, 09/17/2020: The control limit was exceeded for one or more surrogates in the Continuing Calibration Verification (CCV). The surrogates were within acceptance limits for the associated field samples. The data quality was not significantly affected and no further corrective action was taken.

2,4-Dinitrophenol has been reported as zero percent recovery in the MS/MSD due to a limitation in LIMs. 2,4-Dinitrophenol was detected at 4% and 9% recovery, respectively, outside laboratory limits. The MS/MSD is not acceptable and should be flagged on the summary form.

Hexachlorocyclopentadiene has been reported as zero percent recovery in the MS/MSD due to a limitation in LIMs. Hexachlorocyclopentadiene was detected at 0% and #% recovery, outside laboratory limits. The MS/MSD is not acceptable and should be flagged on the summary form. The precision is also outside laboratory control limits.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

Method 8260C, 09/21/2020: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Method 8260C, 09/21/2020, R2008431-003: The recovery of one or more internal standards was outside control limits because of suspected matrix interference. The sample was re-extracted and reanalyzed, but produced similar results. No further corrective action was appropriate.

Method 8260C, 09/21/2020: The upper control criterion was exceeded for one or more analytes in the Laboratory Control Sample (LCS). There were no detections of the analyte(s) above the MRL in the associated field samples. The error associated with elevated recovery equates to a high bias. The sample data is not significantly affected. No further corrective action was appropriate.

Approved by Meghan Pedro Date 09/25/2020

Approved by _____ Date 09/25/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: Soil-TPDL1-09082020	Lab ID: R2008431-001					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Total Solids	75.7				Percent	ALS SOP
Aluminum, Total	13100			26	mg/Kg	6010C
Arsenic, Total	4.4			1.3	mg/Kg	6010C
Barium, Total	82.7			2.6	mg/Kg	6010C
Beryllium, Total	0.62			0.40	mg/Kg	6010C
Calcium, Total	61700			1300	mg/Kg	6010C
Chromium, Total	19.2			1.3	mg/Kg	6010C
Cobalt, Total	10.1			6.6	mg/Kg	6010C
Copper, Total	19.4			2.6	mg/Kg	6010C
Iron, Total	24300			260	mg/Kg	6010C
Lead, Total	10.9			6.6	mg/Kg	6010C
Magnesium, Total	15600			130	mg/Kg	6010C
Manganese, Total	598			2.6	mg/Kg	6010C
Nickel, Total	22.7			5.3	mg/Kg	6010C
Potassium, Total	2820			260	mg/Kg	6010C
Sodium, Total	250			130	mg/Kg	6010C
Vanadium, Total	27.4			6.6	mg/Kg	6010C
Zinc, Total	78.4			2.6	mg/Kg	6010C
Acetone	18			6.6	ug/Kg	8260C

CLIENT ID: Soil-TPDL2-09082020	Lab ID: R2008431-002					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Total Solids	82.6				Percent	ALS SOP
Aluminum, Total	13600			22	mg/Kg	6010C
Arsenic, Total	5.4			1.1	mg/Kg	6010C
Barium, Total	107			2.2	mg/Kg	6010C
Beryllium, Total	0.67			0.34	mg/Kg	6010C
Calcium, Total	58300			1100	mg/Kg	6010C
Chromium, Total	18.8			1.1	mg/Kg	6010C
Cobalt, Total	8.5			5.6	mg/Kg	6010C
Copper, Total	19.6			2.2	mg/Kg	6010C
Iron, Total	25400			220	mg/Kg	6010C
Lead, Total	12.4			5.6	mg/Kg	6010C
Magnesium, Total	14500			110	mg/Kg	6010C
Manganese, Total	716			2.2	mg/Kg	6010C
Mercury, Total	0.091			0.037	mg/Kg	7471B
Nickel, Total	21.1			4.5	mg/Kg	6010C
Potassium, Total	2420			220	mg/Kg	6010C
Sodium, Total	310			110	mg/Kg	6010C
Vanadium, Total	27.9			5.6	mg/Kg	6010C
Zinc, Total	67.4			2.2	mg/Kg	6010C
Acetone	40			6.1	ug/Kg	8260C

SAMPLE DETECTION SUMMARY

CLIENT ID: Soil-TPDL2-09082020			Lab ID: R2008431-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**

CLIENT ID: Soil-TPEL2-09082020			Lab ID: R2008431-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Total Solids	64.9				Percent	ALS SOP
Aluminum, Total	11200			29	mg/Kg	6010C
Arsenic, Total	21.5			1.4	mg/Kg	6010C
Barium, Total	141			2.9	mg/Kg	6010C
Beryllium, Total	0.97			0.43	mg/Kg	6010C
Calcium, Total	6140			140	mg/Kg	6010C
Chromium, Total	21.7			1.4	mg/Kg	6010C
Cobalt, Total	7.3			7.1	mg/Kg	6010C
Copper, Total	86.9			2.9	mg/Kg	6010C
Iron, Total	38400			290	mg/Kg	6010C
Lead, Total	258			7.1	mg/Kg	6010C
Magnesium, Total	1650			140	mg/Kg	6010C
Manganese, Total	395			2.9	mg/Kg	6010C
Mercury, Total	3.06			0.25	mg/Kg	7471B
Nickel, Total	26.3			5.7	mg/Kg	6010C
Potassium, Total	910			290	mg/Kg	6010C
Sodium, Total	220			140	mg/Kg	6010C
Vanadium, Total	79.2			7.1	mg/Kg	6010C
Zinc, Total	345			2.9	mg/Kg	6010C
Acenaphthylene	7000			2600	ug/Kg	8270D
Benz(a)anthracene	7000			2600	ug/Kg	8270D
Benzo(a)pyrene	11000			2600	ug/Kg	8270D
Benzo(b)fluoranthene	15000			2600	ug/Kg	8270D
Benzo(g,h,i)perylene	8800			2600	ug/Kg	8270D
Benzo(k)fluoranthene	5300			2600	ug/Kg	8270D
Chrysene	7400			2600	ug/Kg	8270D
Fluoranthene	10000			2600	ug/Kg	8270D
Indeno(1,2,3-cd)pyrene	9200			2600	ug/Kg	8270D
Naphthalene	5900			2600	ug/Kg	8270D
Phenanthrene	5600			2600	ug/Kg	8270D
Pyrene	9200			2600	ug/Kg	8270D

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Inventum Engineering **Service Request:**R2008431
Project: Riverview

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2008431-001	Soil-TPDL1-09082020	9/8/2020	
R2008431-002	Soil-TPDL2-09082020	9/8/2020	
R2008431-003	Soil-TPEL2-09082020	9/8/2020	

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 003603

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE _____ OF _____

Project Name	Project Number	ANALYSIS REQUESTED (Include Method Number and Container Preservative)
Project Manager: Todd Waldrop	Report CC	PRESERVATIVE
Company/Address: 481 Carlisle Dr. Herndon VA. 20170		NUMBER OF CONTAINERS
Phone #: (571)217-3627	Email: todd.waldrop@inventumeng.com	
Sampler's Signature: Keith Adderley	Sampler's Printed Name: Keith Adderley	

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	TCL VOCs	TCL SVOCs	TAL Metals
SOIL-TPDL1-09082020		9/8/20										✓	✓	✓
SOIL-TPDL2-09082020		9/8/20										✓	✓	✓
SOIL-TPEL2-09082020		9/8/20										✓	✓	✓

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
✓ Standard (10 business days-No Surcharge)

REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
✓ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION
PO # _____
BILL TO: Same as Company address

STATE WHERE SAMPLES WERE COLLECTED

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Keith Adderley	Signature:	Signature:	Signature:	Signature:	Signature:
Printed Name: Keith Adderley	Printed Name: Daniel Ward	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm:	Firm: ALS	Firm:	Firm:	Firm:	Firm:
Date/Time:	Date/Time: 9/12/2020 / 0850	Date/Time:	Date/Time:	Date/Time:	Date/Time:

R200831 5
Inventum Engineering
Riverview

Distribution: White - Lab Copy; Yellow - Return to Originator

R2008431 5
Inventum Engineering
Riverview

Cooler Receipt and Preservation Check Form

Project/Client_____ Folder Number_____

Cooler received on 9/12/2020 by: DW

COURIER: ALS UPS ~~FEDEX~~ VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y ~~N~~
2	**Custody papers** properly completed (ink, signed)?	Y N
3	Did all bottles arrive in good **condition** (unbroken)?	Y N
4	Circle: **Wet Ice** **Dry Ice** **Gel packs** present?	Y N

5a	**Perchlorate** samples have required headspace?	Y N ~~NA~~
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N NA
6	Where did the bottles originate?	ALS/ROC CLIENT
7	Soil VOA received as:	Bulk Encore 5035set ~~NA~~

8. Temperature Readings Date: 9/12/2020 Time: 0855 ID: IR#7 ~~IR#10~~ From: ~~Temp Blank~~ Sample Bottle

Observed Temp (°C)	2.1	6.0					
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-007 by DW on 9/12/2020 at 0855
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 9/15/2020 Time: 0845 by: ~~AD~~

9.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
10.	Did all bottle labels and tags agree with custody papers?	YES	NO
11.	Were correct containers used for the tests indicated?	YES	NO
12.	Were 5035 vials acceptable (no extra labels, not leaking)?	YES	NO ~~N/A~~
13.	Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized		Tedlar® Bags Inflated ~~N/A~~

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: _____
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: _____
PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Inventum Engineering **Service Request:** R2008431
Project: Riverview

Non-Certified Analytes

Certifying Agency: New York Department of Health

Method	Matrix	Analyte
ALS SOP	Soil	Total Solids

Client: Inventum Engineering **Service Request:** R2008431
Project: Riverview/

Sample Name: Soil-TPDL1-09082020 **Date Collected:** 09/8/20
Lab Code: R2008431-001 **Date Received:** 09/12/20
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	NMANSEN
7471B	AKONZEL	KMCLAEN
8260C		FNAEGLER
8270D	KSERCU	JMISIUREWICZ
ALS SOP		KAWONG

Sample Name: Soil-TPDL2-09082020 **Date Collected:** 09/8/20
Lab Code: R2008431-002 **Date Received:** 09/12/20
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	NMANSEN
7471B	AKONZEL	KMCLAEN
8260C		FNAEGLER
8270D	KSERCU	JMISIUREWICZ
ALS SOP		KAWONG

Sample Name: Soil-TPEL2-09082020 **Date Collected:** 09/8/20
Lab Code: R2008431-003 **Date Received:** 09/12/20
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	NMANSEN
7471B	AKONZEL	KMCLAEN
8260C		FNAEGLER
8270D	KSERCU	JMISIUREWICZ
ALS SOP		KAWONG

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview/		

Sample Name:	Soil-TPEL2-09082020	**Date Collected:**	09/8/20
Lab Code:	R2008431-003.R01	**Date Received:**	09/12/20
Sample Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		FNAEGLER

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Volatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL1-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-001	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	6.6 U	6.6	1	09/16/20 18:30	
1,1,2,2-Tetrachloroethane	6.6 U	6.6	1	09/16/20 18:30	
1,1,2-Trichloroethane	6.6 U	6.6	1	09/16/20 18:30	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.6 U	6.6	1	09/16/20 18:30	
1,1-Dichloroethane (1,1-DCA)	6.6 U	6.6	1	09/16/20 18:30	
1,1-Dichloroethene (1,1-DCE)	6.6 U	6.6	1	09/16/20 18:30	
1,2,3-Trichlorobenzene	6.6 U	6.6	1	09/16/20 18:30	
1,2,4-Trichlorobenzene	6.6 U	6.6	1	09/16/20 18:30	
1,2-Dibromo-3-chloropropane (DBCP)	6.6 U	6.6	1	09/16/20 18:30	
1,2-Dibromoethane	6.6 U	6.6	1	09/16/20 18:30	
1,2-Dichlorobenzene	6.6 U	6.6	1	09/16/20 18:30	
1,2-Dichloroethane	6.6 U	6.6	1	09/16/20 18:30	
1,2-Dichloropropane	6.6 U	6.6	1	09/16/20 18:30	
1,3-Dichlorobenzene	6.6 U	6.6	1	09/16/20 18:30	
1,4-Dichlorobenzene	6.6 U	6.6	1	09/16/20 18:30	
1,4-Dioxane	130 U	130	1	09/16/20 18:30	
2-Butanone (MEK)	6.6 U	6.6	1	09/16/20 18:30	
2-Hexanone	6.6 U	6.6	1	09/16/20 18:30	
4-Methyl-2-pentanone	6.6 U	6.6	1	09/16/20 18:30	
Acetone	**18**	6.6	1	09/16/20 18:30	
Benzene	6.6 U	6.6	1	09/16/20 18:30	
Bromochloromethane	6.6 U	6.6	1	09/16/20 18:30	
Bromodichloromethane	6.6 U	6.6	1	09/16/20 18:30	
Bromoform	6.6 U	6.6	1	09/16/20 18:30	
Bromomethane	6.6 U	6.6	1	09/16/20 18:30	
Carbon Disulfide	6.6 U	6.6	1	09/16/20 18:30	
Carbon Tetrachloride	6.6 U	6.6	1	09/16/20 18:30	
Chlorobenzene	6.6 U	6.6	1	09/16/20 18:30	
Chloroethane	6.6 U	6.6	1	09/16/20 18:30	
Chloroform	6.6 U	6.6	1	09/16/20 18:30	
Chloromethane	6.6 U	6.6	1	09/16/20 18:30	
Cyclohexane	6.6 U	6.6	1	09/16/20 18:30	
Dibromochloromethane	6.6 U	6.6	1	09/16/20 18:30	
Dichlorodifluoromethane (CFC 12)	6.6 U	6.6	1	09/16/20 18:30	
Dichloromethane	6.6 U	6.6	1	09/16/20 18:30	
Ethylbenzene	6.6 U	6.6	1	09/16/20 18:30	
Isopropylbenzene (Cumene)	6.6 U	6.6	1	09/16/20 18:30	
Methyl Acetate	6.6 U	6.6	1	09/16/20 18:30	
Methyl tert-Butyl Ether	6.6 U	6.6	1	09/16/20 18:30	
Methylcyclohexane	6.6 U	6.6	1	09/16/20 18:30	
Styrene	6.6 U	6.6	1	09/16/20 18:30	
Tetrachloroethene (PCE)	6.6 U	6.6	1	09/16/20 18:30	
Tetrahydrofuran (THF)	6.6 U	6.6	1	09/16/20 18:30	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL1-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-001	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Toluene	6.6	U	6.6	1	09/16/20 18:30	
Trichloroethene (TCE)	6.6	U	6.6	1	09/16/20 18:30	
Trichlorofluoromethane (CFC 11)	6.6	U	6.6	1	09/16/20 18:30	
Vinyl Chloride	6.6	U	6.6	1	09/16/20 18:30	
cis-1,2-Dichloroethene	6.6	U	6.6	1	09/16/20 18:30	
cis-1,3-Dichloropropene	6.6	U	6.6	1	09/16/20 18:30	
m,p-Xylenes	13	U	13	1	09/16/20 18:30	
o-Xylene	6.6	U	6.6	1	09/16/20 18:30	
trans-1,2-Dichloroethene	6.6	U	6.6	1	09/16/20 18:30	
trans-1,3-Dichloropropene	6.6	U	6.6	1	09/16/20 18:30	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	31 - 154	09/16/20 18:30	
Dibromofluoromethane	103	63 - 138	09/16/20 18:30	
Toluene-d8	102	66 - 138	09/16/20 18:30	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-002	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	6.1 U	6.1	1	09/16/20 18:53	
1,1,2,2-Tetrachloroethane	6.1 U	6.1	1	09/16/20 18:53	
1,1,2-Trichloroethane	6.1 U	6.1	1	09/16/20 18:53	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.1 U	6.1	1	09/16/20 18:53	
1,1-Dichloroethane (1,1-DCA)	6.1 U	6.1	1	09/16/20 18:53	
1,1-Dichloroethene (1,1-DCE)	6.1 U	6.1	1	09/16/20 18:53	
1,2,3-Trichlorobenzene	6.1 U	6.1	1	09/16/20 18:53	
1,2,4-Trichlorobenzene	6.1 U	6.1	1	09/16/20 18:53	
1,2-Dibromo-3-chloropropane (DBCP)	6.1 U	6.1	1	09/16/20 18:53	
1,2-Dibromoethane	6.1 U	6.1	1	09/16/20 18:53	
1,2-Dichlorobenzene	6.1 U	6.1	1	09/16/20 18:53	
1,2-Dichloroethane	6.1 U	6.1	1	09/16/20 18:53	
1,2-Dichloropropane	6.1 U	6.1	1	09/16/20 18:53	
1,3-Dichlorobenzene	6.1 U	6.1	1	09/16/20 18:53	
1,4-Dichlorobenzene	6.1 U	6.1	1	09/16/20 18:53	
1,4-Dioxane	120 U	120	1	09/16/20 18:53	
2-Butanone (MEK)	6.1 U	6.1	1	09/16/20 18:53	
2-Hexanone	6.1 U	6.1	1	09/16/20 18:53	
4-Methyl-2-pentanone	6.1 U	6.1	1	09/16/20 18:53	
Acetone	**40**	6.1	1	09/16/20 18:53	
Benzene	6.1 U	6.1	1	09/16/20 18:53	
Bromochloromethane	6.1 U	6.1	1	09/16/20 18:53	
Bromodichloromethane	6.1 U	6.1	1	09/16/20 18:53	
Bromoform	6.1 U	6.1	1	09/16/20 18:53	
Bromomethane	6.1 U	6.1	1	09/16/20 18:53	
Carbon Disulfide	6.1 U	6.1	1	09/16/20 18:53	
Carbon Tetrachloride	6.1 U	6.1	1	09/16/20 18:53	
Chlorobenzene	6.1 U	6.1	1	09/16/20 18:53	
Chloroethane	6.1 U	6.1	1	09/16/20 18:53	
Chloroform	6.1 U	6.1	1	09/16/20 18:53	
Chloromethane	6.1 U	6.1	1	09/16/20 18:53	
Cyclohexane	6.1 U	6.1	1	09/16/20 18:53	
Dibromochloromethane	6.1 U	6.1	1	09/16/20 18:53	
Dichlorodifluoromethane (CFC 12)	6.1 U	6.1	1	09/16/20 18:53	
Dichloromethane	6.1 U	6.1	1	09/16/20 18:53	
Ethylbenzene	6.1 U	6.1	1	09/16/20 18:53	
Isopropylbenzene (Cumene)	6.1 U	6.1	1	09/16/20 18:53	
Methyl Acetate	6.1 U	6.1	1	09/16/20 18:53	
Methyl tert-Butyl Ether	6.1 U	6.1	1	09/16/20 18:53	
Methylcyclohexane	6.1 U	6.1	1	09/16/20 18:53	
Styrene	6.1 U	6.1	1	09/16/20 18:53	
Tetrachloroethene (PCE)	6.1 U	6.1	1	09/16/20 18:53	
Tetrahydrofuran (THF)	6.1 U	6.1	1	09/16/20 18:53	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-002	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Toluene	6.1	U	6.1	1	09/16/20 18:53	
Trichloroethene (TCE)	6.1	U	6.1	1	09/16/20 18:53	
Trichlorofluoromethane (CFC 11)	6.1	U	6.1	1	09/16/20 18:53	
Vinyl Chloride	6.1	U	6.1	1	09/16/20 18:53	
cis-1,2-Dichloroethene	6.1	U	6.1	1	09/16/20 18:53	
cis-1,3-Dichloropropene	6.1	U	6.1	1	09/16/20 18:53	
m,p-Xylenes	12	U	12	1	09/16/20 18:53	
o-Xylene	6.1	U	6.1	1	09/16/20 18:53	
trans-1,2-Dichloroethene	6.1	U	6.1	1	09/16/20 18:53	
trans-1,3-Dichloropropene	6.1	U	6.1	1	09/16/20 18:53	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	31 - 154	09/16/20 18:53	
Dibromofluoromethane	101	63 - 138	09/16/20 18:53	
Toluene-d8	101	66 - 138	09/16/20 18:53	

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPEL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-003	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	7.7 U	7.7	1	09/16/20 19:16	
1,1,2,2-Tetrachloroethane	7.7 U	7.7	1	09/16/20 19:16	
1,1,2-Trichloroethane	7.7 U	7.7	1	09/16/20 19:16	
1,1,2-Trichloro-1,2,2-trifluoroethane	7.7 U	7.7	1	09/16/20 19:16	
1,1-Dichloroethane (1,1-DCA)	7.7 U	7.7	1	09/16/20 19:16	
1,1-Dichloroethene (1,1-DCE)	7.7 U	7.7	1	09/16/20 19:16	
1,2,3-Trichlorobenzene	7.7 U	7.7	1	09/16/20 19:16	
1,2,4-Trichlorobenzene	7.7 U	7.7	1	09/16/20 19:16	
1,2-Dibromo-3-chloropropane (DBCP)	7.7 U	7.7	1	09/16/20 19:16	
1,2-Dibromoethane	7.7 U	7.7	1	09/16/20 19:16	
1,2-Dichlorobenzene	7.7 U	7.7	1	09/16/20 19:16	
1,2-Dichloroethane	7.7 U	7.7	1	09/16/20 19:16	
1,2-Dichloropropane	7.7 U	7.7	1	09/16/20 19:16	
1,3-Dichlorobenzene	7.7 U	7.7	1	09/16/20 19:16	
1,4-Dichlorobenzene	7.7 U	7.7	1	09/16/20 19:16	
1,4-Dioxane	150 U	150	1	09/16/20 19:16	
2-Butanone (MEK)	7.7 U	7.7	1	09/16/20 19:16	
2-Hexanone	7.7 U	7.7	1	09/16/20 19:16	
4-Methyl-2-pentanone	7.7 U	7.7	1	09/16/20 19:16	
Acetone	7.7 U	7.7	1	09/16/20 19:16	
Benzene	7.7 U	7.7	1	09/16/20 19:16	
Bromochloromethane	7.7 U	7.7	1	09/16/20 19:16	
Bromodichloromethane	7.7 U	7.7	1	09/16/20 19:16	
Bromoform	7.7 U	7.7	1	09/16/20 19:16	
Bromomethane	7.7 U	7.7	1	09/16/20 19:16	
Carbon Disulfide	7.7 U	7.7	1	09/16/20 19:16	
Carbon Tetrachloride	7.7 U	7.7	1	09/16/20 19:16	
Chlorobenzene	7.7 U	7.7	1	09/16/20 19:16	
Chloroethane	7.7 U	7.7	1	09/16/20 19:16	
Chloroform	7.7 U	7.7	1	09/16/20 19:16	
Chloromethane	7.7 U	7.7	1	09/16/20 19:16	
Cyclohexane	7.7 U	7.7	1	09/16/20 19:16	
Dibromochloromethane	7.7 U	7.7	1	09/16/20 19:16	
Dichlorodifluoromethane (CFC 12)	7.7 U	7.7	1	09/16/20 19:16	
Dichloromethane	7.7 U	7.7	1	09/16/20 19:16	
Ethylbenzene	7.7 U	7.7	1	09/16/20 19:16	
Isopropylbenzene (Cumene)	7.7 U	7.7	1	09/16/20 19:16	
Methyl Acetate	7.7 U	7.7	1	09/16/20 19:16	
Methyl tert-Butyl Ether	7.7 U	7.7	1	09/16/20 19:16	
Methylcyclohexane	7.7 U	7.7	1	09/16/20 19:16	
Styrene	7.7 U	7.7	1	09/16/20 19:16	
Tetrachloroethene (PCE)	7.7 U	7.7	1	09/16/20 19:16	
Tetrahydrofuran (THF)	7.7 U	7.7	1	09/16/20 19:16	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPEL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-003	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Toluene	7.7	U	7.7	1	09/16/20 19:16	
Trichloroethene (TCE)	7.7	U	7.7	1	09/16/20 19:16	
Trichlorofluoromethane (CFC 11)	7.7	U	7.7	1	09/16/20 19:16	
Vinyl Chloride	7.7	U	7.7	1	09/16/20 19:16	
cis-1,2-Dichloroethene	7.7	U	7.7	1	09/16/20 19:16	
cis-1,3-Dichloropropene	7.7	U	7.7	1	09/16/20 19:16	
m,p-Xylenes	15	U	15	1	09/16/20 19:16	
o-Xylene	7.7	U	7.7	1	09/16/20 19:16	
trans-1,2-Dichloroethene	7.7	U	7.7	1	09/16/20 19:16	
trans-1,3-Dichloropropene	7.7	U	7.7	1	09/16/20 19:16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	39	31 - 154	09/16/20 19:16	
Dibromofluoromethane	120	63 - 138	09/16/20 19:16	
Toluene-d8	91	66 - 138	09/16/20 19:16	

Semivolatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL1-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-001	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	420 U	420	1	09/17/20 22:46	9/16/20	
1,2-Dichlorobenzene	420 U	420	1	09/17/20 22:46	9/16/20	
1,3-Dichlorobenzene	420 U	420	1	09/17/20 22:46	9/16/20	
1,4-Dichlorobenzene	420 U	420	1	09/17/20 22:46	9/16/20	
2,4,5-Trichlorophenol	420 U	420	1	09/17/20 22:46	9/16/20	
2,4,6-Trichlorophenol	420 U	420	1	09/17/20 22:46	9/16/20	
2,4-Dichlorophenol	420 U	420	1	09/17/20 22:46	9/16/20	
2,4-Dimethylphenol	420 U	420	1	09/17/20 22:46	9/16/20	
2,4-Dinitrophenol	2200 U	2200	1	09/17/20 22:46	9/16/20	
2,4-Dinitrotoluene	420 U	420	1	09/17/20 22:46	9/16/20	
2,6-Dinitrotoluene	420 U	420	1	09/17/20 22:46	9/16/20	
2-Chloronaphthalene	420 U	420	1	09/17/20 22:46	9/16/20	
2-Chlorophenol	420 U	420	1	09/17/20 22:46	9/16/20	
2-Methylnaphthalene	420 U	420	1	09/17/20 22:46	9/16/20	
2-Methylphenol	420 U	420	1	09/17/20 22:46	9/16/20	
2-Nitroaniline	420 U	420	1	09/17/20 22:46	9/16/20	
2-Nitrophenol	420 U	420	1	09/17/20 22:46	9/16/20	
3,3'-Dichlorobenzidine	420 U	420	1	09/17/20 22:46	9/16/20	
3- and 4-Methylphenol Coelution	420 U	420	1	09/17/20 22:46	9/16/20	
3-Nitroaniline	420 U	420	1	09/17/20 22:46	9/16/20	
4,6-Dinitro-2-methylphenol	2200 U	2200	1	09/17/20 22:46	9/16/20	
4-Bromophenyl Phenyl Ether	420 U	420	1	09/17/20 22:46	9/16/20	
4-Chloro-3-methylphenol	420 U	420	1	09/17/20 22:46	9/16/20	
4-Chloroaniline	420 U	420	1	09/17/20 22:46	9/16/20	
4-Chlorophenyl Phenyl Ether	420 U	420	1	09/17/20 22:46	9/16/20	
4-Nitroaniline	420 U	420	1	09/17/20 22:46	9/16/20	
4-Nitrophenol	2200 U	2200	1	09/17/20 22:46	9/16/20	
Acenaphthene	420 U	420	1	09/17/20 22:46	9/16/20	
Acenaphthylene	420 U	420	1	09/17/20 22:46	9/16/20	
Anthracene	420 U	420	1	09/17/20 22:46	9/16/20	
Benz(a)anthracene	420 U	420	1	09/17/20 22:46	9/16/20	
Benzo(a)pyrene	420 U	420	1	09/17/20 22:46	9/16/20	
Benzo(b)fluoranthene	420 U	420	1	09/17/20 22:46	9/16/20	
Benzo(g,h,i)perylene	420 U	420	1	09/17/20 22:46	9/16/20	
Benzo(k)fluoranthene	420 U	420	1	09/17/20 22:46	9/16/20	
Benzyl Alcohol	420 U	420	1	09/17/20 22:46	9/16/20	
2,2'-Oxybis(1-chloropropane)	420 U	420	1	09/17/20 22:46	9/16/20	
Bis(2-chloroethoxy)methane	420 U	420	1	09/17/20 22:46	9/16/20	
Bis(2-chloroethyl) Ether	420 U	420	1	09/17/20 22:46	9/16/20	
Bis(2-ethylhexyl) Phthalate	640 U	640	1	09/17/20 22:46	9/16/20	
Butyl Benzyl Phthalate	420 U	420	1	09/17/20 22:46	9/16/20	
Carbazole	420 U	420	1	09/17/20 22:46	9/16/20	
Chrysene	420 U	420	1	09/17/20 22:46	9/16/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL1-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-001	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Di-n-butyl Phthalate	420 U	420	1	09/17/20 22:46	9/16/20	
Di-n-octyl Phthalate	420 U	420	1	09/17/20 22:46	9/16/20	
Dibenz(a,h)anthracene	420 U	420	1	09/17/20 22:46	9/16/20	
Dibenzofuran	420 U	420	1	09/17/20 22:46	9/16/20	
Diethyl Phthalate	420 U	420	1	09/17/20 22:46	9/16/20	
Dimethyl Phthalate	420 U	420	1	09/17/20 22:46	9/16/20	
Fluoranthene	420 U	420	1	09/17/20 22:46	9/16/20	
Fluorene	420 U	420	1	09/17/20 22:46	9/16/20	
Hexachlorobenzene	420 U	420	1	09/17/20 22:46	9/16/20	
Hexachlorobutadiene	420 U	420	1	09/17/20 22:46	9/16/20	
Hexachlorocyclopentadiene	420 U	420	1	09/17/20 22:46	9/16/20	
Hexachloroethane	420 U	420	1	09/17/20 22:46	9/16/20	
Indeno(1,2,3-cd)pyrene	420 U	420	1	09/17/20 22:46	9/16/20	
Isophorone	420 U	420	1	09/17/20 22:46	9/16/20	
N-Nitrosodi-n-propylamine	420 U	420	1	09/17/20 22:46	9/16/20	
N-Nitrosodimethylamine	420 U	420	1	09/17/20 22:46	9/16/20	
N-Nitrosodiphenylamine	420 U	420	1	09/17/20 22:46	9/16/20	
Naphthalene	420 U	420	1	09/17/20 22:46	9/16/20	
Nitrobenzene	420 U	420	1	09/17/20 22:46	9/16/20	
Pentachlorophenol (PCP)	2200 U	2200	1	09/17/20 22:46	9/16/20	
Phenanthrene	420 U	420	1	09/17/20 22:46	9/16/20	
Phenol	420 U	420	1	09/17/20 22:46	9/16/20	
Pyrene	420 U	420	1	09/17/20 22:46	9/16/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	65	10 - 109	09/17/20 22:46	
2-Fluorobiphenyl	47	10 - 102	09/17/20 22:46	
2-Fluorophenol	49	10 - 88	09/17/20 22:46	
Nitrobenzene-d5	56	10 - 95	09/17/20 22:46	
Phenol-d6	49	10 - 145	09/17/20 22:46	
p-Terphenyl-d14	52	10 - 106	09/17/20 22:46	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-002	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	410 U	410	1	09/17/20 23:15	9/16/20	
1,2-Dichlorobenzene	410 U	410	1	09/17/20 23:15	9/16/20	
1,3-Dichlorobenzene	410 U	410	1	09/17/20 23:15	9/16/20	
1,4-Dichlorobenzene	410 U	410	1	09/17/20 23:15	9/16/20	
2,4,5-Trichlorophenol	410 U	410	1	09/17/20 23:15	9/16/20	
2,4,6-Trichlorophenol	410 U	410	1	09/17/20 23:15	9/16/20	
2,4-Dichlorophenol	410 U	410	1	09/17/20 23:15	9/16/20	
2,4-Dimethylphenol	410 U	410	1	09/17/20 23:15	9/16/20	
2,4-Dinitrophenol	2100 U	2100	1	09/17/20 23:15	9/16/20	
2,4-Dinitrotoluene	410 U	410	1	09/17/20 23:15	9/16/20	
2,6-Dinitrotoluene	410 U	410	1	09/17/20 23:15	9/16/20	
2-Chloronaphthalene	410 U	410	1	09/17/20 23:15	9/16/20	
2-Chlorophenol	410 U	410	1	09/17/20 23:15	9/16/20	
2-Methylnaphthalene	410 U	410	1	09/17/20 23:15	9/16/20	
2-Methylphenol	410 U	410	1	09/17/20 23:15	9/16/20	
2-Nitroaniline	410 U	410	1	09/17/20 23:15	9/16/20	
2-Nitrophenol	410 U	410	1	09/17/20 23:15	9/16/20	
3,3'-Dichlorobenzidine	410 U	410	1	09/17/20 23:15	9/16/20	
3- and 4-Methylphenol Coelution	410 U	410	1	09/17/20 23:15	9/16/20	
3-Nitroaniline	410 U	410	1	09/17/20 23:15	9/16/20	
4,6-Dinitro-2-methylphenol	2100 U	2100	1	09/17/20 23:15	9/16/20	
4-Bromophenyl Phenyl Ether	410 U	410	1	09/17/20 23:15	9/16/20	
4-Chloro-3-methylphenol	410 U	410	1	09/17/20 23:15	9/16/20	
4-Chloroaniline	410 U	410	1	09/17/20 23:15	9/16/20	
4-Chlorophenyl Phenyl Ether	410 U	410	1	09/17/20 23:15	9/16/20	
4-Nitroaniline	410 U	410	1	09/17/20 23:15	9/16/20	
4-Nitrophenol	2100 U	2100	1	09/17/20 23:15	9/16/20	
Acenaphthene	410 U	410	1	09/17/20 23:15	9/16/20	
Acenaphthylene	410 U	410	1	09/17/20 23:15	9/16/20	
Anthracene	410 U	410	1	09/17/20 23:15	9/16/20	
Benz(a)anthracene	410 U	410	1	09/17/20 23:15	9/16/20	
Benzo(a)pyrene	410 U	410	1	09/17/20 23:15	9/16/20	
Benzo(b)fluoranthene	410 U	410	1	09/17/20 23:15	9/16/20	
Benzo(g,h,i)perylene	410 U	410	1	09/17/20 23:15	9/16/20	
Benzo(k)fluoranthene	410 U	410	1	09/17/20 23:15	9/16/20	
Benzyl Alcohol	410 U	410	1	09/17/20 23:15	9/16/20	
2,2'-Oxybis(1-chloropropane)	410 U	410	1	09/17/20 23:15	9/16/20	
Bis(2-chloroethoxy)methane	410 U	410	1	09/17/20 23:15	9/16/20	
Bis(2-chloroethyl) Ether	410 U	410	1	09/17/20 23:15	9/16/20	
Bis(2-ethylhexyl) Phthalate	620 U	620	1	09/17/20 23:15	9/16/20	
Butyl Benzyl Phthalate	410 U	410	1	09/17/20 23:15	9/16/20	
Carbazole	410 U	410	1	09/17/20 23:15	9/16/20	
Chrysene	410 U	410	1	09/17/20 23:15	9/16/20	

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-002	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Di-n-butyl Phthalate	410 U	410	1	09/17/20 23:15	9/16/20	
Di-n-octyl Phthalate	410 U	410	1	09/17/20 23:15	9/16/20	
Dibenz(a,h)anthracene	410 U	410	1	09/17/20 23:15	9/16/20	
Dibenzofuran	410 U	410	1	09/17/20 23:15	9/16/20	
Diethyl Phthalate	410 U	410	1	09/17/20 23:15	9/16/20	
Dimethyl Phthalate	410 U	410	1	09/17/20 23:15	9/16/20	
Fluoranthene	410 U	410	1	09/17/20 23:15	9/16/20	
Fluorene	410 U	410	1	09/17/20 23:15	9/16/20	
Hexachlorobenzene	410 U	410	1	09/17/20 23:15	9/16/20	
Hexachlorobutadiene	410 U	410	1	09/17/20 23:15	9/16/20	
Hexachlorocyclopentadiene	410 U	410	1	09/17/20 23:15	9/16/20	
Hexachloroethane	410 U	410	1	09/17/20 23:15	9/16/20	
Indeno(1,2,3-cd)pyrene	410 U	410	1	09/17/20 23:15	9/16/20	
Isophorone	410 U	410	1	09/17/20 23:15	9/16/20	
N-Nitrosodi-n-propylamine	410 U	410	1	09/17/20 23:15	9/16/20	
N-Nitrosodimethylamine	410 U	410	1	09/17/20 23:15	9/16/20	
N-Nitrosodiphenylamine	410 U	410	1	09/17/20 23:15	9/16/20	
Naphthalene	410 U	410	1	09/17/20 23:15	9/16/20	
Nitrobenzene	410 U	410	1	09/17/20 23:15	9/16/20	
Pentachlorophenol (PCP)	2100 U	2100	1	09/17/20 23:15	9/16/20	
Phenanthrene	410 U	410	1	09/17/20 23:15	9/16/20	
Phenol	410 U	410	1	09/17/20 23:15	9/16/20	
Pyrene	410 U	410	1	09/17/20 23:15	9/16/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	70	10 - 109	09/17/20 23:15	
2-Fluorobiphenyl	51	10 - 102	09/17/20 23:15	
2-Fluorophenol	49	10 - 88	09/17/20 23:15	
Nitrobenzene-d5	58	10 - 95	09/17/20 23:15	
Phenol-d6	48	10 - 145	09/17/20 23:15	
p-Terphenyl-d14	54	10 - 106	09/17/20 23:15	

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPEL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-003	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result		MRL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	2600	U	2600	5	09/23/20 01:08	9/16/20	
1,2-Dichlorobenzene	2600	U	2600	5	09/23/20 01:08	9/16/20	
1,3-Dichlorobenzene	2600	U	2600	5	09/23/20 01:08	9/16/20	
1,4-Dichlorobenzene	2600	U	2600	5	09/23/20 01:08	9/16/20	
2,4,5-Trichlorophenol	2600	U	2600	5	09/23/20 01:08	9/16/20	
2,4,6-Trichlorophenol	2600	U	2600	5	09/23/20 01:08	9/16/20	
2,4-Dichlorophenol	2600	U	2600	5	09/23/20 01:08	9/16/20	
2,4-Dimethylphenol	2600	U	2600	5	09/23/20 01:08	9/16/20	
2,4-Dinitrophenol	13000	U	13000	5	09/23/20 01:08	9/16/20	
2,4-Dinitrotoluene	2600	U	2600	5	09/23/20 01:08	9/16/20	
2,6-Dinitrotoluene	2600	U	2600	5	09/23/20 01:08	9/16/20	
2-Chloronaphthalene	2600	U	2600	5	09/23/20 01:08	9/16/20	
2-Chlorophenol	2600	U	2600	5	09/23/20 01:08	9/16/20	
2-Methylnaphthalene	2600	U	2600	5	09/23/20 01:08	9/16/20	
2-Methylphenol	2600	U	2600	5	09/23/20 01:08	9/16/20	
2-Nitroaniline	2600	U	2600	5	09/23/20 01:08	9/16/20	
2-Nitrophenol	2600	U	2600	5	09/23/20 01:08	9/16/20	
3,3'-Dichlorobenzidine	2600	U	2600	5	09/23/20 01:08	9/16/20	
3- and 4-Methylphenol Coelution	2600	U	2600	5	09/23/20 01:08	9/16/20	
3-Nitroaniline	2600	U	2600	5	09/23/20 01:08	9/16/20	
4,6-Dinitro-2-methylphenol	13000	U	13000	5	09/23/20 01:08	9/16/20	
4-Bromophenyl Phenyl Ether	2600	U	2600	5	09/23/20 01:08	9/16/20	
4-Chloro-3-methylphenol	2600	U	2600	5	09/23/20 01:08	9/16/20	
4-Chloroaniline	2600	U	2600	5	09/23/20 01:08	9/16/20	
4-Chlorophenyl Phenyl Ether	2600	U	2600	5	09/23/20 01:08	9/16/20	
4-Nitroaniline	2600	U	2600	5	09/23/20 01:08	9/16/20	
4-Nitrophenol	13000	U	13000	5	09/23/20 01:08	9/16/20	
Acenaphthene	2600	U	2600	5	09/23/20 01:08	9/16/20	
Acenaphthylene	**7000**		2600	5	09/23/20 01:08	9/16/20	
Anthracene	2600	U	2600	5	09/23/20 01:08	9/16/20	
Benz(a)anthracene	**7000**		2600	5	09/23/20 01:08	9/16/20	
Benzo(a)pyrene	**11000**		2600	5	09/23/20 01:08	9/16/20	
Benzo(b)fluoranthene	**15000**		2600	5	09/23/20 01:08	9/16/20	
Benzo(g,h,i)perylene	**8800**		2600	5	09/23/20 01:08	9/16/20	
Benzo(k)fluoranthene	**5300**		2600	5	09/23/20 01:08	9/16/20	
Benzyl Alcohol	2600	U	2600	5	09/23/20 01:08	9/16/20	
2,2'-Oxybis(1-chloropropane)	2600	U	2600	5	09/23/20 01:08	9/16/20	
Bis(2-chloroethoxy)methane	2600	U	2600	5	09/23/20 01:08	9/16/20	
Bis(2-chloroethyl) Ether	2600	U	2600	5	09/23/20 01:08	9/16/20	
Bis(2-ethylhexyl) Phthalate	3900	U	3900	5	09/23/20 01:08	9/16/20	
Butyl Benzyl Phthalate	2600	U	2600	5	09/23/20 01:08	9/16/20	
Carbazole	2600	U	2600	5	09/23/20 01:08	9/16/20	
Chrysene	**7400**		2600	5	09/23/20 01:08	9/16/20	

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPEL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-003	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Di-n-butyl Phthalate	2600 U	2600	5	09/23/20 01:08	9/16/20	
Di-n-octyl Phthalate	2600 U	2600	5	09/23/20 01:08	9/16/20	
Dibenz(a,h)anthracene	2600 U	2600	5	09/23/20 01:08	9/16/20	
Dibenzofuran	2600 U	2600	5	09/23/20 01:08	9/16/20	
Diethyl Phthalate	2600 U	2600	5	09/23/20 01:08	9/16/20	
Dimethyl Phthalate	2600 U	2600	5	09/23/20 01:08	9/16/20	
Fluoranthene	**10000**	2600	5	09/23/20 01:08	9/16/20	
Fluorene	2600 U	2600	5	09/23/20 01:08	9/16/20	
Hexachlorobenzene	2600 U	2600	5	09/23/20 01:08	9/16/20	
Hexachlorobutadiene	2600 U	2600	5	09/23/20 01:08	9/16/20	
Hexachlorocyclopentadiene	2600 U	2600	5	09/23/20 01:08	9/16/20	
Hexachloroethane	2600 U	2600	5	09/23/20 01:08	9/16/20	
Indeno(1,2,3-cd)pyrene	**9200**	2600	5	09/23/20 01:08	9/16/20	
Isophorone	2600 U	2600	5	09/23/20 01:08	9/16/20	
N-Nitrosodi-n-propylamine	2600 U	2600	5	09/23/20 01:08	9/16/20	
N-Nitrosodimethylamine	2600 U	2600	5	09/23/20 01:08	9/16/20	
N-Nitrosodiphenylamine	2600 U	2600	5	09/23/20 01:08	9/16/20	
Naphthalene	**5900**	2600	5	09/23/20 01:08	9/16/20	
Nitrobenzene	2600 U	2600	5	09/23/20 01:08	9/16/20	
Pentachlorophenol (PCP)	13000 U	13000	5	09/23/20 01:08	9/16/20	
Phenanthrene	**5600**	2600	5	09/23/20 01:08	9/16/20	
Phenol	2600 U	2600	5	09/23/20 01:08	9/16/20	
Pyrene	**9200**	2600	5	09/23/20 01:08	9/16/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	40	10 - 109	09/23/20 01:08	
2-Fluorobiphenyl	37	10 - 102	09/23/20 01:08	
2-Fluorophenol	22	10 - 88	09/23/20 01:08	
Nitrobenzene-d5	32	10 - 95	09/23/20 01:08	
Phenol-d6	29	10 - 145	09/23/20 01:08	
p-Terphenyl-d14	29	10 - 106	09/23/20 01:08	

Metals

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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL1-09082020	**Basis:**	Dry
Lab Code:	R2008431-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**13100**		mg/Kg	26	1	09/18/20 00:42	09/17/20	
Antimony, Total	6010C	7.9	U	mg/Kg	7.9	1	09/18/20 00:42	09/17/20	
Arsenic, Total	6010C	**4.4**		mg/Kg	1.3	1	09/18/20 00:42	09/17/20	
Barium, Total	6010C	**82.7**		mg/Kg	2.6	1	09/18/20 00:42	09/17/20	
Beryllium, Total	6010C	**0.62**		mg/Kg	0.40	1	09/18/20 00:42	09/17/20	
Cadmium, Total	6010C	0.66	U	mg/Kg	0.66	1	09/18/20 00:42	09/17/20	
Calcium, Total	6010C	**61700**		mg/Kg	1300	10	09/18/20 02:13	09/17/20	
Chromium, Total	6010C	**19.2**		mg/Kg	1.3	1	09/18/20 00:42	09/17/20	
Cobalt, Total	6010C	**10.1**		mg/Kg	6.6	1	09/18/20 00:42	09/17/20	
Copper, Total	6010C	**19.4**		mg/Kg	2.6	1	09/18/20 00:42	09/17/20	
Iron, Total	6010C	**24300**		mg/Kg	260	10	09/18/20 02:13	09/17/20	
Lead, Total	6010C	**10.9**		mg/Kg	6.6	1	09/18/20 00:42	09/17/20	
Magnesium, Total	6010C	**15600**		mg/Kg	130	1	09/18/20 00:42	09/17/20	
Manganese, Total	6010C	**598**		mg/Kg	2.6	1	09/18/20 00:42	09/17/20	
Mercury, Total	7471B	0.041	U	mg/Kg	0.041	1	09/16/20 12:58	09/15/20	
Nickel, Total	6010C	**22.7**		mg/Kg	5.3	1	09/18/20 00:42	09/17/20	
Potassium, Total	6010C	**2820**		mg/Kg	260	1	09/18/20 00:42	09/17/20	
Selenium, Total	6010C	13	U	mg/Kg	13	10	09/18/20 02:13	09/17/20	
Silver, Total	6010C	1.3	U	mg/Kg	1.3	1	09/18/20 00:42	09/17/20	
Sodium, Total	6010C	**250**		mg/Kg	130	1	09/18/20 00:42	09/17/20	
Thallium, Total	6010C	1.3	U	mg/Kg	1.3	1	09/18/20 00:42	09/17/20	
Vanadium, Total	6010C	**27.4**		mg/Kg	6.6	1	09/18/20 00:42	09/17/20	
Zinc, Total	6010C	**78.4**		mg/Kg	2.6	1	09/18/20 00:42	09/17/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL2-09082020	**Basis:**	Dry
Lab Code:	R2008431-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**13600**	mg/Kg	22	1	09/18/20 00:46	09/17/20	
Antimony, Total	6010C	6.7 U	mg/Kg	6.7	1	09/18/20 00:46	09/17/20	
Arsenic, Total	6010C	**5.4**	mg/Kg	1.1	1	09/18/20 00:46	09/17/20	
Barium, Total	6010C	**107**	mg/Kg	2.2	1	09/18/20 00:46	09/17/20	
Beryllium, Total	6010C	**0.67**	mg/Kg	0.34	1	09/18/20 00:46	09/17/20	
Cadmium, Total	6010C	0.56 U	mg/Kg	0.56	1	09/18/20 00:46	09/17/20	
Calcium, Total	6010C	**58300**	mg/Kg	1100	10	09/18/20 02:17	09/17/20	
Chromium, Total	6010C	**18.8**	mg/Kg	1.1	1	09/18/20 00:46	09/17/20	
Cobalt, Total	6010C	**8.5**	mg/Kg	5.6	1	09/18/20 00:46	09/17/20	
Copper, Total	6010C	**19.6**	mg/Kg	2.2	1	09/18/20 00:46	09/17/20	
Iron, Total	6010C	**25400**	mg/Kg	220	10	09/18/20 02:17	09/17/20	
Lead, Total	6010C	**12.4**	mg/Kg	5.6	1	09/18/20 00:46	09/17/20	
Magnesium, Total	6010C	**14500**	mg/Kg	110	1	09/18/20 00:46	09/17/20	
Manganese, Total	6010C	**716**	mg/Kg	2.2	1	09/18/20 00:46	09/17/20	
Mercury, Total	7471B	**0.091**	mg/Kg	0.037	1	09/16/20 13:00	09/15/20	
Nickel, Total	6010C	**21.1**	mg/Kg	4.5	1	09/18/20 00:46	09/17/20	
Potassium, Total	6010C	**2420**	mg/Kg	220	1	09/18/20 00:46	09/17/20	
Selenium, Total	6010C	1.1 U	mg/Kg	1.1	1	09/18/20 00:46	09/17/20	
Silver, Total	6010C	1.1 U	mg/Kg	1.1	1	09/18/20 00:46	09/17/20	
Sodium, Total	6010C	**310**	mg/Kg	110	1	09/18/20 00:46	09/17/20	
Thallium, Total	6010C	1.1 U	mg/Kg	1.1	1	09/18/20 00:46	09/17/20	
Vanadium, Total	6010C	**27.9**	mg/Kg	5.6	1	09/18/20 00:46	09/17/20	
Zinc, Total	6010C	**67.4**	mg/Kg	2.2	1	09/18/20 00:46	09/17/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPEL2-09082020	**Basis:**	Dry
Lab Code:	R2008431-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**11200**	mg/Kg	29	1	09/18/20 00:49	09/17/20	
Antimony, Total	6010C	8.6 U	mg/Kg	8.6	1	09/18/20 00:49	09/17/20	
Arsenic, Total	6010C	**21.5**	mg/Kg	1.4	1	09/18/20 00:49	09/17/20	
Barium, Total	6010C	**141**	mg/Kg	2.9	1	09/18/20 00:49	09/17/20	
Beryllium, Total	6010C	**0.97**	mg/Kg	0.43	1	09/18/20 00:49	09/17/20	
Cadmium, Total	6010C	0.71 U	mg/Kg	0.71	1	09/18/20 00:49	09/17/20	
Calcium, Total	6010C	**6140**	mg/Kg	140	1	09/18/20 00:49	09/17/20	
Chromium, Total	6010C	**21.7**	mg/Kg	1.4	1	09/18/20 00:49	09/17/20	
Cobalt, Total	6010C	**7.3**	mg/Kg	7.1	1	09/18/20 00:49	09/17/20	
Copper, Total	6010C	**86.9**	mg/Kg	2.9	1	09/18/20 00:49	09/17/20	
Iron, Total	6010C	**38400**	mg/Kg	290	10	09/18/20 02:20	09/17/20	
Lead, Total	6010C	**258**	mg/Kg	7.1	1	09/18/20 00:49	09/17/20	
Magnesium, Total	6010C	**1650**	mg/Kg	140	1	09/18/20 00:49	09/17/20	
Manganese, Total	6010C	**395**	mg/Kg	2.9	1	09/18/20 00:49	09/17/20	
Mercury, Total	7471B	**3.06**	mg/Kg	0.25	5	09/16/20 13:44	09/15/20	
Nickel, Total	6010C	**26.3**	mg/Kg	5.7	1	09/18/20 00:49	09/17/20	
Potassium, Total	6010C	**910**	mg/Kg	290	1	09/18/20 00:49	09/17/20	
Selenium, Total	6010C	14 U	mg/Kg	14	10	09/18/20 02:20	09/17/20	
Silver, Total	6010C	1.4 U	mg/Kg	1.4	1	09/18/20 00:49	09/17/20	
Sodium, Total	6010C	**220**	mg/Kg	140	1	09/18/20 00:49	09/17/20	
Thallium, Total	6010C	1.4 U	mg/Kg	1.4	1	09/18/20 00:49	09/17/20	
Vanadium, Total	6010C	**79.2**	mg/Kg	7.1	1	09/18/20 00:49	09/17/20	
Zinc, Total	6010C	**345**	mg/Kg	2.9	1	09/18/20 00:49	09/17/20	

General Chemistry

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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL1-09082020	**Basis:**	As Received
Lab Code:	R2008431-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	**75.7**	Percent	-	1	09/18/20 06:15	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPDL2-09082020	**Basis:**	As Received
Lab Code:	R2008431-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	**82.6**	Percent	-	1	09/18/20 06:15	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20 08:50
Sample Name:	Soil-TPEL2-09082020	**Basis:**	As Received
Lab Code:	R2008431-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	**64.9**	Percent	-	1	09/18/20 06:15	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

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Client: Inventum Engineering **Service Request:** R2008431
Project: Riverview
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Extraction Method: EPA 5030C

Sample Name	Lab Code	4-Bromofluorobenzene 31-154	Dibromofluoromethane 63-138	Toluene-d8 66-138
Soil-TPDL1-09082020	R2008431-001	90	103	102
Soil-TPDL2-09082020	R2008431-002	90	101	101
Soil-TPEL2-09082020	R2008431-003	39	120	91
Method Blank	RQ2010822-04	97	99	102
Lab Control Sample	RQ2010822-03	101	103	103

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2010822-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	5.0 U	5.0	1	09/16/20 14:20	
1,1,2,2-Tetrachloroethane	5.0 U	5.0	1	09/16/20 14:20	
1,1,2-Trichloroethane	5.0 U	5.0	1	09/16/20 14:20	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0 U	5.0	1	09/16/20 14:20	
1,1-Dichloroethane (1,1-DCA)	5.0 U	5.0	1	09/16/20 14:20	
1,1-Dichloroethene (1,1-DCE)	5.0 U	5.0	1	09/16/20 14:20	
1,2,3-Trichlorobenzene	5.0 U	5.0	1	09/16/20 14:20	
1,2,4-Trichlorobenzene	5.0 U	5.0	1	09/16/20 14:20	
1,2-Dibromo-3-chloropropane (DBCP)	5.0 U	5.0	1	09/16/20 14:20	
1,2-Dibromoethane	5.0 U	5.0	1	09/16/20 14:20	
1,2-Dichlorobenzene	5.0 U	5.0	1	09/16/20 14:20	
1,2-Dichloroethane	5.0 U	5.0	1	09/16/20 14:20	
1,2-Dichloropropane	5.0 U	5.0	1	09/16/20 14:20	
1,3-Dichlorobenzene	5.0 U	5.0	1	09/16/20 14:20	
1,4-Dichlorobenzene	5.0 U	5.0	1	09/16/20 14:20	
1,4-Dioxane	100 U	100	1	09/16/20 14:20	
2-Butanone (MEK)	5.0 U	5.0	1	09/16/20 14:20	
2-Hexanone	5.0 U	5.0	1	09/16/20 14:20	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/16/20 14:20	
Acetone	5.0 U	5.0	1	09/16/20 14:20	
Benzene	5.0 U	5.0	1	09/16/20 14:20	
Bromochloromethane	5.0 U	5.0	1	09/16/20 14:20	
Bromodichloromethane	5.0 U	5.0	1	09/16/20 14:20	
Bromoform	5.0 U	5.0	1	09/16/20 14:20	
Bromomethane	5.0 U	5.0	1	09/16/20 14:20	
Carbon Disulfide	5.0 U	5.0	1	09/16/20 14:20	
Carbon Tetrachloride	5.0 U	5.0	1	09/16/20 14:20	
Chlorobenzene	5.0 U	5.0	1	09/16/20 14:20	
Chloroethane	5.0 U	5.0	1	09/16/20 14:20	
Chloroform	5.0 U	5.0	1	09/16/20 14:20	
Chloromethane	5.0 U	5.0	1	09/16/20 14:20	
Cyclohexane	5.0 U	5.0	1	09/16/20 14:20	
Dibromochloromethane	5.0 U	5.0	1	09/16/20 14:20	
Dichlorodifluoromethane (CFC 12)	5.0 U	5.0	1	09/16/20 14:20	
Dichloromethane	5.0 U	5.0	1	09/16/20 14:20	
Ethylbenzene	5.0 U	5.0	1	09/16/20 14:20	
Isopropylbenzene (Cumene)	5.0 U	5.0	1	09/16/20 14:20	
Methyl Acetate	5.0 U	5.0	1	09/16/20 14:20	
Methyl tert-Butyl Ether	5.0 U	5.0	1	09/16/20 14:20	
Methylcyclohexane	5.0 U	5.0	1	09/16/20 14:20	
Styrene	5.0 U	5.0	1	09/16/20 14:20	
Tetrachloroethene (PCE)	5.0 U	5.0	1	09/16/20 14:20	
Tetrahydrofuran (THF)	5.0 U	5.0	1	09/16/20 14:20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2010822-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Toluene	5.0	U	5.0	1	09/16/20 14:20	
Trichloroethene (TCE)	5.0	U	5.0	1	09/16/20 14:20	
Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1	09/16/20 14:20	
Vinyl Chloride	5.0	U	5.0	1	09/16/20 14:20	
cis-1,2-Dichloroethene	5.0	U	5.0	1	09/16/20 14:20	
cis-1,3-Dichloropropene	5.0	U	5.0	1	09/16/20 14:20	
m,p-Xylenes	10	U	10	1	09/16/20 14:20	
o-Xylene	5.0	U	5.0	1	09/16/20 14:20	
trans-1,2-Dichloroethene	5.0	U	5.0	1	09/16/20 14:20	
trans-1,3-Dichloropropene	5.0	U	5.0	1	09/16/20 14:20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	31 - 154	09/16/20 14:20	
Dibromofluoromethane	99	63 - 138	09/16/20 14:20	
Toluene-d8	102	66 - 138	09/16/20 14:20	

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008431
Date Analyzed: 09/16/20

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unp

Units:ug/Kg
Basis: Dry

Lab Control Sample
RQ2010822-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	8260C	16.9	20.0	85	68-123
1,1,2,2-Tetrachloroethane	8260C	22.4	20.0	112	78-121
1,1,2-Trichloroethane	8260C	19.5	20.0	97	84-117
1,1,2-Trichloro-1,2,2-trifluoroethane	8260C	17.0	20.0	85	54-121
1,1-Dichloroethane (1,1-DCA)	8260C	19.0	20.0	95	76-123
1,1-Dichloroethene (1,1-DCE)	8260C	20.1	20.0	101	65-115
1,2,3-Trichlorobenzene	8260C	19.7	20.0	99	60-128
1,2,4-Trichlorobenzene	8260C	20.3	20.0	102	62-130
1,2-Dibromo-3-chloropropane (DBCP)	8260C	17.2	20.0	86	54-135
1,2-Dibromoethane	8260C	18.5	20.0	92	77-117
1,2-Dichlorobenzene	8260C	18.9	20.0	94	75-116
1,2-Dichloroethane	8260C	19.2	20.0	96	74-116
1,2-Dichloropropane	8260C	19.3	20.0	97	79-112
1,3-Dichlorobenzene	8260C	19.1	20.0	96	72-118
1,4-Dichlorobenzene	8260C	19.0	20.0	95	72-117
1,4-Dioxane	8260C	299	400	75	59-147
2-Butanone (MEK)	8260C	19.6	20.0	98	67-129
2-Hexanone	8260C	20.2	20.0	101	68-118
4-Methyl-2-pentanone	8260C	17.5	20.0	88	64-123
Acetone	8260C	24.3	20.0	121	32-154
Benzene	8260C	18.4	20.0	92	77-114
Bromochloromethane	8260C	18.3	20.0	91	78-117
Bromodichloromethane	8260C	17.4	20.0	87	72-118
Bromoform	8260C	16.6	20.0	83	55-134
Bromomethane	8260C	16.4	20.0	82	10-150
Carbon Disulfide	8260C	18.0	20.0	90	44-139
Carbon Tetrachloride	8260C	15.9	20.0	80	51-123
Chlorobenzene	8260C	18.8	20.0	94	79-115
Chloroethane	8260C	19.7	20.0	99	10-140
Chloroform	8260C	19.0	20.0	95	76-115
Chloromethane	8260C	19.6	20.0	98	10-131
Cyclohexane	8260C	22.1	20.0	111	67-122
Dibromochloromethane	8260C	18.0	20.0	90	68-121

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008431
Date Analyzed: 09/16/20

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unp

Units:ug/Kg
Basis: Dry

Lab Control Sample
RQ2010822-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Dichlorodifluoromethane (CFC 12)	8260C	19.9	20.0	100	51-144
Dichloromethane	8260C	17.6	20.0	88	72-118
Ethylbenzene	8260C	18.6	20.0	93	64-118
Isopropylbenzene (Cumene)	8260C	18.6	20.0	93	60-123
Methyl Acetate	8260C	15.1	20.0	75	31-122
Methyl tert-Butyl Ether	8260C	18.6	20.0	93	76-118
Methylcyclohexane	8260C	21.7	20.0	108	70-124
Styrene	8260C	18.6	20.0	93	74-117
Tetrachloroethene (PCE)	8260C	17.6	20.0	88	58-124
Tetrahydrofuran (THF)	8260C	16.6	20.0	83	63-126
Toluene	8260C	18.4	20.0	92	72-116
Trichloroethene (TCE)	8260C	16.1	20.0	80	69-118
Trichlorofluoromethane (CFC 11)	8260C	17.7	20.0	89	52-127
Vinyl Chloride	8260C	18.8	20.0	94	59-153
cis-1,2-Dichloroethene	8260C	18.9	20.0	95	79-113
cis-1,3-Dichloropropene	8260C	17.7	20.0	88	66-117
m,p-Xylenes	8260C	37.3	40.0	93	68-118
o-Xylene	8260C	19.0	20.0	95	71-116
trans-1,2-Dichloroethene	8260C	19.7	20.0	98	73-114
trans-1,3-Dichloropropene	8260C	17.5	20.0	88	57-135

Semivolatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Inventum Engineering **Service Request:** R2008431
Project: Riverview
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3541

Sample Name	Lab Code	2,4,6-Tribromophenol 10-109	2-Fluorobiphenyl 10-102	2-Fluorophenol 10-88
Soil-TPDL1-09082020	R2008431-001	65	47	49
Soil-TPDL2-09082020	R2008431-002	70	51	49
Soil-TPEL2-09082020	R2008431-003	40	37	22
Method Blank	RQ2010797-01	39	28	29
Lab Control Sample	RQ2010797-02	68	47	38
Duplicate Lab Control Sample	RQ2010797-03	72	46	36
Soil-TPDL2-09082020 MS	RQ2010797-04	59	38	41
Soil-TPDL2-09082020 DMS	RQ2010797-05	62	41	42

Client: Inventum Engineering **Service Request:** R2008431
Project: Riverview
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3541

Sample Name	Lab Code	Nitrobenzene-d5 10-95	Phenol-d6 10-145	p-Terphenyl-d14 10-106
Soil-TPDL1-09082020	R2008431-001	56	49	52
Soil-TPDL2-09082020	R2008431-002	58	48	54
Soil-TPEL2-09082020	R2008431-003	32	29	29
Method Blank	RQ2010797-01	33	34	45
Lab Control Sample	RQ2010797-02	47	42	50
Duplicate Lab Control Sample	RQ2010797-03	46	41	52
Soil-TPDL2-09082020 MS	RQ2010797-04	51	40	50
Soil-TPDL2-09082020 DMS	RQ2010797-05	42	43	49

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20
		Date Analyzed:	09/17/20
		Date Extracted:	09/16/20

Duplicate Matrix Spike Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	Soil-TPDL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-002	**Basis:**	Dry
Analysis Method:	8270D		
Prep Method:	EPA 3541		

		Matrix Spike RQ2010797-04			Duplicate Matrix Spike RQ2010797-05				
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,4-Trichlorobenzene	400 U	631	2020	31	829	2010	41	11-89	28	30
1,2-Dichlorobenzene	400 U	513	2020	25	705	2010	35	14-77	33*	30
1,3-Dichlorobenzene	400 U	422	2020	21	635	2010	32	10-75	42*	30
1,4-Dichlorobenzene	400 U	447	2020	22	654	2010	33	10-84	40*	30
2,4,5-Trichlorophenol	400 U	889	2020	44	1070	2010	53	12-109	19	30
2,4,6-Trichlorophenol	400 U	829	2020	41	942	2010	47	13-149	14	30
2,4-Dichlorophenol	400 U	891	2020	44	971	2010	48	16-98	9	30
2,4-Dimethylphenol	400 U	867	2020	43	952	2010	47	10-98	9	30
2,4-Dinitrophenol	2100 U	2100 U	2020	0 *	2000 U	2010	0 *	10-129	NC	30
2,4-Dinitrotoluene	400 U	1270	2020	63	1220	2010	61	10-124	3	30
2,6-Dinitrotoluene	400 U	1160	2020	57	1090	2010	54	13-112	5	30
2-Chloronaphthalene	400 U	772	2020	38	926	2010	46	10-94	19	30
2-Chlorophenol	400 U	822	2020	41	874	2010	44	14-99	7	30
2-Methylnaphthalene	400 U	734	2020	36	879	2010	44	10-90	20	30
2-Methylphenol	400 U	839	2020	42	939	2010	47	10-86	11	30
2-Nitroaniline	400 U	1480	2020	73	1270	2010	63	10-109	15	30
2-Nitrophenol	400 U	1060	2020	52	847	2010	42	10-90	21	30
3,3'-Dichlorobenzidine	400 U	1300	2020	65	1450	2010	72	10-118	10	30
3- and 4-Methylphenol Coelution	400 U	829	2020	41	960	2010	48	11-101	16	30
3-Nitroaniline	400 U	1410	2020	70	1170	2010	58	10-104	19	30
4,6-Dinitro-2-methylphenol	2100 U	244 J	2020	12	273 J	2010	14	10-123	15	30
4-Bromophenyl Phenyl Ether	400 U	812	2020	40	1040	2010	52	10-99	26	30
4-Chloro-3-methylphenol	400 U	854	2020	42	1020	2010	51	10-108	19	30
4-Chloroaniline	400 U	610	2020	30	725	2010	36	10-91	18	30
4-Chlorophenyl Phenyl Ether	400 U	671	2020	33	887	2010	44	10-95	29	30
4-Nitroaniline	400 U	1570	2020	78	1510	2010	75	10-137	4	30
4-Nitrophenol	2100 U	1180 J	2020	58	1220 J	2010	61	10-130	5	30
Acenaphthene	400 U	755	2020	37	931	2010	46	10-100	22	30
Acenaphthylene	400 U	877	2020	43	1030	2010	51	10-102	17	30
Anthracene	400 U	1100	2020	55	1310	2010	65	10-129	17	30
Benz(a)anthracene	400 U	1240	2020	62	1470	2010	73	10-122	16	30
Benzo(a)pyrene	400 U	1470	2020	73	1770	2010	88	10-122	19	30
Benzo(b)fluoranthene	400 U	1390	2020	69	1700	2010	84	10-112	20	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20
		Date Analyzed:	09/17/20
		Date Extracted:	09/16/20

Duplicate Matrix Spike Summary
Semivolatile Organic Compounds by GC/MS

Sample Name:	Soil-TPDL2-09082020	**Units:**	ug/Kg
Lab Code:	R2008431-002	**Basis:**	Dry
Analysis Method:	8270D		
Prep Method:	EPA 3541		

		Matrix Spike RQ2010797-04			Duplicate Matrix Spike RQ2010797-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Benzo(g,h,i)perylene	400 U	1400	2020	69	1530	2010	76	10-136	10	30
Benzo(k)fluoranthene	400 U	1450	2020	72	1720	2010	86	10-112	18	30
Benzyl Alcohol	400 U	835	2020	41	1030	2010	51	10-101	22	30
2,2'-Oxybis(1-chloropropane)	400 U	531	2020	26	627	2010	31	10-87	18	30
Bis(2-chloroethoxy)methane	400 U	806	2020	40	846	2010	42	16-93	5	30
Bis(2-chloroethyl) Ether	400 U	679	2020	34	757	2010	38	10-79	11	30
Bis(2-ethylhexyl) Phthalate	610 U	1370	2020	68	1510	2010	75	10-116	10	30
Butyl Benzyl Phthalate	400 U	1320	2020	65	1530	2010	76	10-128	16	30
Carbazole	400 U	1510	2020	75	1640	2010	81	10-138	8	30
Chrysene	400 U	1320	2020	65	1580	2010	79	10-113	19	30
Di-n-butyl Phthalate	400 U	1390	2020	69	1650	2010	82	10-119	17	30
Di-n-octyl Phthalate	400 U	1600	2020	79	1790	2010	89	10-121	12	30
Dibenz(a,h)anthracene	400 U	1400	2020	69	1640	2010	82	10-130	17	30
Dibenzofuran	400 U	816	2020	40	995	2010	50	10-102	22	30
Diethyl Phthalate	400 U	875	2020	43	1040	2010	52	10-101	19	30
Dimethyl Phthalate	400 U	914	2020	45	1060	2010	53	10-113	16	30
Fluoranthene	400 U	1360	2020	67	1670	2010	83	10-125	21	30
Fluorene	400 U	792	2020	39	1010	2010	50	10-109	25	30
Hexachlorobenzene	400 U	968	2020	48	1240	2010	62	10-106	25	30
Hexachlorobutadiene	400 U	555	2020	27	840	2010	42	10-142	43*	30
Hexachlorocyclopentadiene	400 U	400 U	2020	0 *	90.6 J	2010	5 *	10-133	NC	30
Hexachloroethane	400 U	320 J	2020	16	516	2010	26	10-129	48*	30
Indeno(1,2,3-cd)pyrene	400 U	1280	2020	64	1500	2010	74	10-124	14	30
Isophorone	400 U	655	2020	32	716	2010	36	10-81	12	30
N-Nitrosodi-n-propylamine	400 U	792	2020	39	832	2010	41	10-76	5	30
N-Nitrosodimethylamine	400 U	779	2020	39	752	2010	37	10-67	5	30
N-Nitrosodiphenylamine	400 U	1200	2020	59	1270	2010	63	10-114	7	30
Naphthalene	400 U	761	2020	38	903	2010	45	10-89	17	30
Nitrobenzene	400 U	928	2020	46	877	2010	44	10-77	4	30
Pentachlorophenol (PCP)	2100 U	990 J	2020	49	1370 J	2010	68	10-118	32*	30
Phenanthrene	400 U	1090	2020	54	1320	2010	66	10-137	20	30
Phenol	400 U	807	2020	40	900	2010	45	10-144	12	30
Pyrene	400 U	1350	2020	67	1620	2010	81	10-118	19	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2010797-01	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result		MRL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	330	U	330	1	09/17/20 18:03	9/16/20	
1,2-Dichlorobenzene	330	U	330	1	09/17/20 18:03	9/16/20	
1,3-Dichlorobenzene	330	U	330	1	09/17/20 18:03	9/16/20	
1,4-Dichlorobenzene	330	U	330	1	09/17/20 18:03	9/16/20	
2,4,5-Trichlorophenol	330	U	330	1	09/17/20 18:03	9/16/20	
2,4,6-Trichlorophenol	330	U	330	1	09/17/20 18:03	9/16/20	
2,4-Dichlorophenol	330	U	330	1	09/17/20 18:03	9/16/20	
2,4-Dimethylphenol	330	U	330	1	09/17/20 18:03	9/16/20	
2,4-Dinitrophenol	1700	U	1700	1	09/17/20 18:03	9/16/20	
2,4-Dinitrotoluene	330	U	330	1	09/17/20 18:03	9/16/20	
2,6-Dinitrotoluene	330	U	330	1	09/17/20 18:03	9/16/20	
2-Chloronaphthalene	330	U	330	1	09/17/20 18:03	9/16/20	
2-Chlorophenol	330	U	330	1	09/17/20 18:03	9/16/20	
2-Methylnaphthalene	330	U	330	1	09/17/20 18:03	9/16/20	
2-Methylphenol	330	U	330	1	09/17/20 18:03	9/16/20	
2-Nitroaniline	330	U	330	1	09/17/20 18:03	9/16/20	
2-Nitrophenol	330	U	330	1	09/17/20 18:03	9/16/20	
3,3'-Dichlorobenzidine	330	U	330	1	09/17/20 18:03	9/16/20	
3- and 4-Methylphenol Coelution	330	U	330	1	09/17/20 18:03	9/16/20	
3-Nitroaniline	330	U	330	1	09/17/20 18:03	9/16/20	
4,6-Dinitro-2-methylphenol	1700	U	1700	1	09/17/20 18:03	9/16/20	
4-Bromophenyl Phenyl Ether	330	U	330	1	09/17/20 18:03	9/16/20	
4-Chloro-3-methylphenol	330	U	330	1	09/17/20 18:03	9/16/20	
4-Chloroaniline	330	U	330	1	09/17/20 18:03	9/16/20	
4-Chlorophenyl Phenyl Ether	330	U	330	1	09/17/20 18:03	9/16/20	
4-Nitroaniline	330	U	330	1	09/17/20 18:03	9/16/20	
4-Nitrophenol	1700	U	1700	1	09/17/20 18:03	9/16/20	
Acenaphthene	330	U	330	1	09/17/20 18:03	9/16/20	
Acenaphthylene	330	U	330	1	09/17/20 18:03	9/16/20	
Anthracene	330	U	330	1	09/17/20 18:03	9/16/20	
Benz(a)anthracene	330	U	330	1	09/17/20 18:03	9/16/20	
Benzo(a)pyrene	330	U	330	1	09/17/20 18:03	9/16/20	
Benzo(b)fluoranthene	330	U	330	1	09/17/20 18:03	9/16/20	
Benzo(g,h,i)perylene	330	U	330	1	09/17/20 18:03	9/16/20	
Benzo(k)fluoranthene	330	U	330	1	09/17/20 18:03	9/16/20	
Benzyl Alcohol	330	U	330	1	09/17/20 18:03	9/16/20	
2,2'-Oxybis(1-chloropropane)	330	U	330	1	09/17/20 18:03	9/16/20	
Bis(2-chloroethoxy)methane	330	U	330	1	09/17/20 18:03	9/16/20	
Bis(2-chloroethyl) Ether	330	U	330	1	09/17/20 18:03	9/16/20	
Bis(2-ethylhexyl) Phthalate	500	U	500	1	09/17/20 18:03	9/16/20	
Butyl Benzyl Phthalate	330	U	330	1	09/17/20 18:03	9/16/20	
Carbazole	330	U	330	1	09/17/20 18:03	9/16/20	
Chrysene	330	U	330	1	09/17/20 18:03	9/16/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2010797-01	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result		MRL	Dil.	Date Analyzed	Date Extracted	Q
Di-n-butyl Phthalate	330	U	330	1	09/17/20 18:03	9/16/20	
Di-n-octyl Phthalate	330	U	330	1	09/17/20 18:03	9/16/20	
Dibenz(a,h)anthracene	330	U	330	1	09/17/20 18:03	9/16/20	
Dibenzofuran	330	U	330	1	09/17/20 18:03	9/16/20	
Diethyl Phthalate	330	U	330	1	09/17/20 18:03	9/16/20	
Dimethyl Phthalate	330	U	330	1	09/17/20 18:03	9/16/20	
Fluoranthene	330	U	330	1	09/17/20 18:03	9/16/20	
Fluorene	330	U	330	1	09/17/20 18:03	9/16/20	
Hexachlorobenzene	330	U	330	1	09/17/20 18:03	9/16/20	
Hexachlorobutadiene	330	U	330	1	09/17/20 18:03	9/16/20	
Hexachlorocyclopentadiene	330	U	330	1	09/17/20 18:03	9/16/20	
Hexachloroethane	330	U	330	1	09/17/20 18:03	9/16/20	
Indeno(1,2,3-cd)pyrene	330	U	330	1	09/17/20 18:03	9/16/20	
Isophorone	330	U	330	1	09/17/20 18:03	9/16/20	
N-Nitrosodi-n-propylamine	330	U	330	1	09/17/20 18:03	9/16/20	
N-Nitrosodimethylamine	330	U	330	1	09/17/20 18:03	9/16/20	
N-Nitrosodiphenylamine	330	U	330	1	09/17/20 18:03	9/16/20	
Naphthalene	330	U	330	1	09/17/20 18:03	9/16/20	
Nitrobenzene	330	U	330	1	09/17/20 18:03	9/16/20	
Pentachlorophenol (PCP)	1700	U	1700	1	09/17/20 18:03	9/16/20	
Phenanthrene	330	U	330	1	09/17/20 18:03	9/16/20	
Phenol	330	U	330	1	09/17/20 18:03	9/16/20	
Pyrene	330	U	330	1	09/17/20 18:03	9/16/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	39	10 - 109	09/17/20 18:03	
2-Fluorobiphenyl	28	10 - 102	09/17/20 18:03	
2-Fluorophenol	29	10 - 88	09/17/20 18:03	
Nitrobenzene-d5	33	10 - 95	09/17/20 18:03	
Phenol-d6	34	10 - 145	09/17/20 18:03	
p-Terphenyl-d14	45	10 - 106	09/17/20 18:03	

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008431
Date Analyzed: 09/17/20

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/Kg
Basis: Dry

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2010797-02			RQ2010797-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,4-Trichlorobenzene	8270D	618	1680	37	569	1650	34	17-80	8	30
1,2-Dichlorobenzene	8270D	566	1680	34	508	1650	31	14-77	9	30
1,3-Dichlorobenzene	8270D	553	1680	33	484	1650	29	12-75	13	30
1,4-Dichlorobenzene	8270D	552	1680	33	487	1650	30	13-74	10	30
2,4,5-Trichlorophenol	8270D	872	1680	52	882	1650	53	29-97	2	30
2,4,6-Trichlorophenol	8270D	834	1680	50	808	1650	49	26-97	2	30
2,4-Dichlorophenol	8270D	756	1680	45	714	1650	43	25-90	5	30
2,4-Dimethylphenol	8270D	754	1680	45	700	1650	42	26-89	7	30
2,4-Dinitrophenol	8270D	925 J	1680	55	920 J	1650	56	10-128	2	30
2,4-Dinitrotoluene	8270D	1490	1680	89	1480	1650	90	30-111	1	30
2,6-Dinitrotoluene	8270D	1410	1680	84	1380	1650	84	28-105	<1	30
2-Chloronaphthalene	8270D	788	1680	47	744	1650	45	21-88	4	30
2-Chlorophenol	8270D	631	1680	38	578	1650	35	18-87	8	30
2-Methylnaphthalene	8270D	714	1680	43	665	1650	40	21-83	7	30
2-Methylphenol	8270D	741	1680	44	694	1650	42	22-86	5	30
2-Nitroaniline	8270D	1380	1680	82	1340	1650	81	27-105	1	30
2-Nitrophenol	8270D	940	1680	56	891	1650	54	20-88	4	30
3- and 4-Methylphenol Coelution	8270D	745	1680	44	701	1650	42	27-92	5	30
3-Nitroaniline	8270D	1300	1680	78	1310	1650	79	27-98	1	30
4,6-Dinitro-2-methylphenol	8270D	1400 J	1680	84	1410 J	1650	85	11-96	1	30
4-Bromophenyl Phenyl Ether	8270D	943	1680	56	915	1650	55	25-96	2	30
4-Chloro-3-methylphenol	8270D	893	1680	53	861	1650	52	29-92	2	30
4-Chloroaniline	8270D	703	1680	42	676	1650	41	21-72	2	30
4-Chlorophenyl Phenyl Ether	8270D	804	1680	48	794	1650	48	25-92	<1	30
4-Nitroaniline	8270D	1360	1680	81	1360	1650	82	27-102	1	30
4-Nitrophenol	8270D	1190 J	1680	71	1200 J	1650	73	10-130	3	30
Acenaphthene	8270D	832	1680	50	809	1650	49	25-92	2	30
Acenaphthylene	8270D	914	1680	55	879	1650	53	27-93	4	30
Anthracene	8270D	1150	1680	69	1130	1650	68	32-106	1	30
Benz(a)anthracene	8270D	1100	1680	66	1090	1650	66	33-109	<1	30
Benzo(a)pyrene	8270D	1370	1680	81	1340	1650	81	34-115	<1	30
Benzo(b)fluoranthene	8270D	1260	1680	75	1220	1650	74	31-107	1	30
Benzo(g,h,i)perylene	8270D	1510	1680	90	1490	1650	90	30-127	<1	30

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008431
Date Analyzed: 09/17/20

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/Kg
Basis: Dry

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2010797-02			RQ2010797-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Benzo(k)fluoranthene	8270D	1350	1680	80	1320	1650	80	34-111	<1	30
Benzyl Alcohol	8270D	717	1680	43	697	1650	42	21-100	2	30
2,2'-Oxybis(1-chloropropane)	8270D	511	1680	30	467	1650	28	10-82	7	30
Bis(2-chloroethoxy)methane	8270D	670	1680	40	625	1650	38	17-85	5	30
Bis(2-chloroethyl) Ether	8270D	553	1680	33	489	1650	30	10-79	10	30
Bis(2-ethylhexyl) Phthalate	8270D	1320	1680	79	1310	1650	80	31-115	1	30
Butyl Benzyl Phthalate	8270D	1260	1680	75	1220	1650	74	31-115	1	30
Carbazole	8270D	1380	1680	82	1370	1650	83	23-129	1	30
Chrysene	8270D	1160	1680	69	1160	1650	71	34-108	3	30
Di-n-butyl Phthalate	8270D	1270	1680	76	1270	1650	77	33-114	1	30
Di-n-octyl Phthalate	8270D	1540	1680	92	1500	1650	91	32-116	1	30
Dibenz(a,h)anthracene	8270D	1440	1680	86	1410	1650	86	23-122	<1	30
Dibenzofuran	8270D	904	1680	54	880	1650	53	27-94	2	30
Diethyl Phthalate	8270D	1020	1680	61	1000	1650	61	26-101	<1	30
Dimethyl Phthalate	8270D	1010	1680	60	980	1650	59	27-98	2	30
Fluoranthene	8270D	1250	1680	75	1220	1650	74	34-111	1	30
Fluorene	8270D	943	1680	56	929	1650	56	27-95	<1	30
Hexachlorobenzene	8270D	1110	1680	66	1090	1650	66	30-104	<1	30
Hexachlorobutadiene	8270D	636	1680	38	573	1650	35	10-142	8	30
Hexachlorocyclopentadiene	8270D	502	1680	30	464	1650	28	10-133	7	30
Hexachloroethane	8270D	532	1680	32	471	1650	29	10-129	10	30
Indeno(1,2,3-cd)pyrene	8270D	1300	1680	77	1280	1650	78	33-121	1	30
Isophorone	8270D	578	1680	34	542	1650	33	21-79	3	30
N-Nitrosodi-n-propylamine	8270D	700	1680	42	648	1650	39	15-78	7	30
N-Nitrosodimethylamine	8270D	611	1680	36	561	1650	34	15-76	6	30
N-Nitrosodiphenylamine	8270D	1260	1680	75	1230	1650	74	29-108	1	30
Naphthalene	8270D	649	1680	39	606	1650	37	18-81	5	30
Nitrobenzene	8270D	725	1680	43	669	1650	41	14-80	5	30
Pentachlorophenol (PCP)	8270D	1180 J	1680	70	1220 J	1650	74	13-117	6	30
Phenanthrene	8270D	1110	1680	66	1080	1650	65	33-103	2	30
Phenol	8270D	690	1680	41	647	1650	39	10-144	5	30
Pyrene	8270D	1200	1680	72	1180	1650	72	33-111	<1	30

Metals

ALS Environmental—Rochester Laboratory
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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	R2008431-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	20	U	mg/Kg	20	1	09/18/20 00:36	09/17/20	
Antimony, Total	6010C	6.0	U	mg/Kg	6.0	1	09/18/20 00:36	09/17/20	
Arsenic, Total	6010C	1.0	U	mg/Kg	1.0	1	09/18/20 00:36	09/17/20	
Barium, Total	6010C	2.0	U	mg/Kg	2.0	1	09/18/20 00:36	09/17/20	
Beryllium, Total	6010C	0.30	U	mg/Kg	0.30	1	09/18/20 00:36	09/17/20	
Cadmium, Total	6010C	0.50	U	mg/Kg	0.50	1	09/18/20 00:36	09/17/20	
Calcium, Total	6010C	100	U	mg/Kg	100	1	09/18/20 00:36	09/17/20	
Chromium, Total	6010C	1.0	U	mg/Kg	1.0	1	09/18/20 00:36	09/17/20	
Cobalt, Total	6010C	5.0	U	mg/Kg	5.0	1	09/18/20 00:36	09/17/20	
Copper, Total	6010C	2.0	U	mg/Kg	2.0	1	09/18/20 00:36	09/17/20	
Iron, Total	6010C	20	U	mg/Kg	20	1	09/18/20 00:36	09/17/20	
Lead, Total	6010C	5.0	U	mg/Kg	5.0	1	09/18/20 00:36	09/17/20	
Magnesium, Total	6010C	100	U	mg/Kg	100	1	09/18/20 00:36	09/17/20	
Manganese, Total	6010C	2.0	U	mg/Kg	2.0	1	09/18/20 00:36	09/17/20	
Mercury, Total	7471B	0.033	U	mg/Kg	0.033	1	09/16/20 12:37	09/15/20	
Nickel, Total	6010C	4.0	U	mg/Kg	4.0	1	09/18/20 00:36	09/17/20	
Potassium, Total	6010C	200	U	mg/Kg	200	1	09/18/20 00:36	09/17/20	
Selenium, Total	6010C	1.0	U	mg/Kg	1.0	1	09/18/20 00:36	09/17/20	
Silver, Total	6010C	1.0	U	mg/Kg	1.0	1	09/18/20 00:36	09/17/20	
Sodium, Total	6010C	100	U	mg/Kg	100	1	09/18/20 00:36	09/17/20	
Thallium, Total	6010C	1.0	U	mg/Kg	1.0	1	09/18/20 00:36	09/17/20	
Vanadium, Total	6010C	5.0	U	mg/Kg	5.0	1	09/18/20 00:36	09/17/20	
Zinc, Total	6010C	2.0	U	mg/Kg	2.0	1	09/18/20 00:36	09/17/20	

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008431
Date Analyzed: 09/16/20 - 09/18/20

Lab Control Sample Summary
Inorganic Parameters

Units:mg/Kg
Basis: Dry

Lab Control Sample
R2008431-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	195	200	97	80-120
Antimony, Total	6010C	46.6	50.0	93	80-120
Arsenic, Total	6010C	3.66	4.0	92	80-120
Barium, Total	6010C	204	200	102	80-120
Beryllium, Total	6010C	4.89	5.00	98	80-120
Cadmium, Total	6010C	5.05	5.00	101	80-120
Calcium, Total	6010C	202	200	101	80-120
Chromium, Total	6010C	20.3	20.0	102	80-120
Cobalt, Total	6010C	50.7	50.0	101	80-120
Copper, Total	6010C	25.2	25.0	101	80-120
Iron, Total	6010C	100	100	100	80-120
Lead, Total	6010C	50.2	50.0	100	80-120
Magnesium, Total	6010C	195	200	98	80-120
Manganese, Total	6010C	49.5	50.0	99	80-120
Mercury, Total	7471B	0.170	0.167	102	80-120
Nickel, Total	6010C	50.6	50.0	101	80-120
Potassium, Total	6010C	1860	2000	93	80-120
Selenium, Total	6010C	85.2	101	84	80-120
Silver, Total	6010C	4.78	5.0	96	80-120
Sodium, Total	6010C	1990	2000	99	80-120
Thallium, Total	6010C	189	200	94	80-120
Vanadium, Total	6010C	50.0	50.0	100	80-120
Zinc, Total	6010C	48.3	50.0	97	80-120

General Chemistry

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www.alsglobal.com

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Inventum Engineering	**Service Request:**	R2008431
Project	Riverview	**Date Collected:**	09/08/20
Sample Matrix:	Soil	**Date Received:**	09/12/20
		Date Analyzed:	09/18/20

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Soil-TPEL2-09082020	**Units:**	Percent
Lab Code:	R2008431-003	**Basis:**	As Received

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample R2008431-003DUP Result	Average	RPD	RPD Limit
Total Solids	ALS SOP	-	64.9	62.7	63.8	3	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

October 07, 2020 Service Request No:R2008610

Mr. Todd Waldrop
Inventum Engineering
481 Carlisle Drive
Herndon, VA 20170

Laboratory Results for: POTW Monthly

Dear Mr.Waldrop,

Enclosed are the results of the sample(s) submitted to our laboratory September 17, 2020
For your reference, these analyses have been assigned our service request number **R2008610.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7475. You may also contact me via email at Meghan.Pedro@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
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Client: Inventum Engineering
Project: POTW Monthly
Sample Matrix: Water

Service Request: R2008610
Date Received: 09/17/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 09/17/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

No significant anomalies were noted with this analysis.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

Method SM 2540 D-1997(2011), One or more samples were received within the recommended holding time, but due to a laboratory error, one or more samples were not analyzed within the recommended holding time. The analysis was performed as soon as possible after the error was discovered. The data is flagged to indicate the holding time exceedance.

Volatiles by GC/MS:

Acrolein was analyzed after the recommended 3 day holding time. The report list was changed after the sample had been here. Project has been updated so this will no longer be an issue moving forward.

Approved by _____ Date 10/06/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: POTW-FT-09152020			Lab ID: R2008610-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Ammonia as Nitrogen, undistilled	0.248			0.050	mg/L	350.1
Biochemical Oxygen Demand (BOD)	6.1			2.0	mg/L	SM 5210 B-2001 (2011)
Solids, Total Suspended (TSS)	15.6			4.0	mg/L	SM 2540 D-1997 (2011)
Benzene	2.03		0.200	1.00	ug/L	624.1
Di-n-butyl Phthalate	4.60		1.82	4.55	ug/L	625.1

Sample Receipt Information

ALS Environmental—Rochester Laboratory
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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Inventum Engineering **Service Request:**R2008610
Project: POTW Monthly

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2008610-001	POTW-FT-09152020	9/15/2020	

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

003601

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE _____ OF _____

Project Name	Project Number
Project Manager: Todd Waldrop	Report CC
Company/Address: 481 Carlisle Dr. Herndon VA, 20170	
Phone #: (571) 217-3627	Email: todd.waldrop@inventumeng.com
Sampler's Signature: Keith Adderley	Sampler's Printed Name: Keith Adderley

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GCMS VOAs ○ 8260 ○ 624 ○ CLP	GCMS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)								
POTW-FT-09152020		9/15/20				✓	✓	✓	✓	✓	✓	✓	✓	✓						

Analyses: O&G-HEM; T. Cyanide; BOD's; TSS; NH3; As (200.7); Hg (245.1); Priority Pollutants Vol (624); Priority Pollutants 12M's (625); T. Phosphorus; T. Phenols

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
✓ Standard (10 business days-No Surcharge)

REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
_____ I. Results Only
✓ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data

Edata _____ Yes _____ No

INVOICE INFORMATION
PO # _____
BILL TO: Same address of company

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Keith Adderley	Signature:	Signature	Signature	Signature	
Printed Name: Keith Adderley	Printed Name: Gary Lafon	Printed Name	Printed Name	Printed Name	
Firm: Inventum Eng.	Firm: ARC	Firm	Firm	Firm	
Date/Time: 9/16/20	Date/Time: 9/17/2020 0930	Date/Time	Date/Time	Date/Time	

R2008610 5
Inventum Engineering
POTW Monthly

Distribution: White - Lab Copy; Yellow - Return to Originator

R2008610 5
Inventum Engineering
POTW Monthly

Cooler Receipt and Preservation Check Form

Project/Client Inventum Folder Number

Cooler received on 9/17/2020 by: @ COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y (N) NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 9/17/2020 Time: 1005 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	4.1	3.5					
Within 0-6°C?	(Y) N	(Y) N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-032 by @ on 9/17/2020 at 1030
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 9/18/2020 Time: 1525 by: @

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) (NO)
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO N/A
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12	223419	NaOH	✓		208385	8/21				
≤2	↓	HNO_3	✓		Fisher 1120221					
≤2		H_2SO_4	✓		J0616-11	7/21				
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For (CN), Phenol, (625), 608pest, 522	✓		If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: 0-132-001, 20-07-07, 051120-1BNIC, 80720-09, 20-08-11
Explain all Discrepancies/ Other Comments:

no phenol bottle vial.

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: @
PC Secondary Review: lvp

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

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REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly/		

Sample Name:	POTW-FT-09152020	**Date Collected:**	09/15/20
Lab Code:	R2008610-001	**Date Received:**	09/17/20
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
1664A		STALARICO
200.7	AKONZEL	KMCLAEN
245.1	AKONZEL	KMCLAEN
350.1		SMEDBURY
365.1	KWONG	GNITAJOUPPI
420.4		BBOWE
624		FNAEGLER
625	KSERCU	JMISIUREWICZ
Kelada-01		CWOODS
SM 2540 D-1997(2011)		KAWONG
SM 5210 B-2001(2011)		KMENGS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

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Volatile Organic Compounds by GC/MS

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Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	09/15/20
Sample Matrix:	Water	**Date Received:**	09/17/20 09:50
Sample Name:	POTW-FT-09152020	**Units:**	ug/L
Lab Code:	R2008610-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624.1
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,1,2,2-Tetrachloroethane	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,1,2-Trichloroethane	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,1-Dichloroethane (1,1-DCA)	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,1-Dichloroethene (1,1-DCE)	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,2-Dichlorobenzene	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,2-Dichloroethane	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,2-Dichloropropane	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,3-Dichlorobenzene	0.200 U	1.00	0.200	1	09/21/20 14:22	
1,4-Dichlorobenzene	0.200 U	1.00	0.200	1	09/21/20 14:22	
2-Chloroethyl Vinyl Ether	0.530 U	10.0	0.530	1	09/21/20 14:22	
Acrolein	0.900 U	-	0.900	1	09/21/20 14:22	
Acrylonitrile	0.900 U	10.0	0.900	1	09/21/20 14:22	
Benzene	**2.03**	1.00	0.200	1	09/21/20 14:22	
Bromodichloromethane	0.200 U	1.00	0.200	1	09/21/20 14:22	
Bromoform	0.250 U	1.00	0.250	1	09/21/20 14:22	
Bromomethane	0.700 U	1.00	0.700	1	09/21/20 14:22	
Carbon Tetrachloride	0.340 U	1.00	0.340	1	09/21/20 14:22	
Chlorobenzene	0.200 U	1.00	0.200	1	09/21/20 14:22	
Chloroethane	0.230 U	1.00	0.230	1	09/21/20 14:22	
Chloroform	0.240 U	1.00	0.240	1	09/21/20 14:22	
Chloromethane	0.280 U	1.00	0.280	1	09/21/20 14:22	
Dibromochloromethane	0.200 U	1.00	0.200	1	09/21/20 14:22	
Dichloromethane	0.650 U	1.00	0.650	1	09/21/20 14:22	
Ethylbenzene	0.200 U	1.00	0.200	1	09/21/20 14:22	
Tetrachloroethene (PCE)	0.210 U	1.00	0.210	1	09/21/20 14:22	
Toluene	0.200 U	1.00	0.200	1	09/21/20 14:22	
Trichloroethene (TCE)	0.200 U	1.00	0.200	1	09/21/20 14:22	
Trichlorofluoromethane (CFC 11)	0.240 U	1.00	0.240	1	09/21/20 14:22	
Vinyl Chloride	0.200 U	1.00	0.200	1	09/21/20 14:22	
Xylenes, Total	0.400 U	2.00	0.400	1	09/21/20 14:22	
cis-1,3-Dichloropropene	0.200 U	1.00	0.200	1	09/21/20 14:22	
m,p-Xylenes	0.200 U	2.00	0.200	1	09/21/20 14:22	
o-Xylene	0.200 U	1.00	0.200	1	09/21/20 14:22	
trans-1,2-Dichloroethene	0.200 U	1.00	0.200	1	09/21/20 14:22	
trans-1,3-Dichloropropene	0.230 U	1.00	0.230	1	09/21/20 14:22	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	09/15/20
Sample Matrix:	Water	**Date Received:**	09/17/20 09:50
Sample Name:	POTW-FT-09152020	**Units:**	ug/L
Lab Code:	R2008610-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624.1
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85 - 122	09/21/20 14:22	
Dibromofluoromethane	106	89 - 119	09/21/20 14:22	
Toluene-d8	111	87 - 121	09/21/20 14:22	

Semivolatile Organic Compounds by GC/MS

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Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	09/15/20
Sample Matrix:	Water	**Date Received:**	09/17/20 09:50
Sample Name:	POTW-FT-09152020	**Units:**	ug/L
Lab Code:	R2008610-001	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 625.1
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	1.02 U	4.55	1.02	1	09/24/20 21:12	9/21/20	
1,2-Diphenylhydrazine	1.26 U	4.55	1.26	1	09/24/20 21:12	9/21/20	
2,4,6-Trichlorophenol	1.23 U	4.55	1.23	1	09/24/20 21:12	9/21/20	
2,4-Dichlorophenol	1.13 U	4.55	1.13	1	09/24/20 21:12	9/21/20	
2,4-Dimethylphenol	1.25 U	4.55	1.25	1	09/24/20 21:12	9/21/20	
2,4-Dinitrophenol	18.2 U	45.5	18.2	1	09/24/20 21:12	9/21/20	
2,4-Dinitrotoluene	2.13 U	4.55	2.13	1	09/24/20 21:12	9/21/20	
2,6-Dinitrotoluene	1.19 U	4.55	1.19	1	09/24/20 21:12	9/21/20	
2-Chloronaphthalene	1.24 U	4.55	1.24	1	09/24/20 21:12	9/21/20	
2-Chlorophenol	0.964 U	4.55	0.964	1	09/24/20 21:12	9/21/20	
2-Nitrophenol	1.36 U	4.55	1.36	1	09/24/20 21:12	9/21/20	
3,3'-Dichlorobenzidine	1.10 U	4.55	1.10	1	09/24/20 21:12	9/21/20	
4,6-Dinitro-2-methylphenol	17.4 U	45.5	17.4	1	09/24/20 21:12	9/21/20	
4-Bromophenyl Phenyl Ether	1.49 U	4.55	1.49	1	09/24/20 21:12	9/21/20	
4-Chloro-3-methylphenol	0.975 U	4.55	0.975	1	09/24/20 21:12	9/21/20	
4-Chlorophenyl Phenyl Ether	1.35 U	4.55	1.35	1	09/24/20 21:12	9/21/20	
4-Nitrophenol	5.75 U	45.5	5.75	1	09/24/20 21:12	9/21/20	
Acenaphthene	1.22 U	4.55	1.22	1	09/24/20 21:12	9/21/20	
Acenaphthylene	1.22 U	4.55	1.22	1	09/24/20 21:12	9/21/20	
Anthracene	1.14 U	4.55	1.14	1	09/24/20 21:12	9/21/20	
Benz(a)anthracene	1.43 U	4.55	1.43	1	09/24/20 21:12	9/21/20	
Benzidine	11.3 U	90.9	11.3	1	09/24/20 21:12	9/21/20	
Benzo(a)pyrene	1.02 U	4.55	1.02	1	09/24/20 21:12	9/21/20	
Benzo(b)fluoranthene	1.01 U	4.55	1.01	1	09/24/20 21:12	9/21/20	
Benzo(g,h,i)perylene	0.910 U	4.55	0.910	1	09/24/20 21:12	9/21/20	
Benzo(k)fluoranthene	1.10 U	4.55	1.10	1	09/24/20 21:12	9/21/20	
Bis(1-chloroisopropyl) Ether	1.28 U	4.55	1.28	1	09/24/20 21:12	9/21/20	
Bis(2-chloroethoxy)methane	1.73 U	4.55	1.73	1	09/24/20 21:12	9/21/20	
Bis(2-chloroethyl) Ether	1.12 U	4.55	1.12	1	09/24/20 21:12	9/21/20	
Bis(2-ethylhexyl) Phthalate	0.910 U	9.09	0.910	1	09/24/20 21:12	9/21/20	
Butyl Benzyl Phthalate	1.27 U	4.55	1.27	1	09/24/20 21:12	9/21/20	
Chrysene	1.06 U	4.55	1.06	1	09/24/20 21:12	9/21/20	
Di-n-butyl Phthalate	**4.60**	4.55	1.82	1	09/24/20 21:12	9/21/20	
Di-n-octyl Phthalate	2.93 U	18.2	2.93	1	09/24/20 21:12	9/21/20	
Dibenz(a,h)anthracene	0.928 U	4.55	0.928	1	09/24/20 21:12	9/21/20	
Diethyl Phthalate	0.975 U	4.55	0.975	1	09/24/20 21:12	9/21/20	
Dimethyl Phthalate	1.12 U	4.55	1.12	1	09/24/20 21:12	9/21/20	
Fluoranthene	1.33 U	4.55	1.33	1	09/24/20 21:12	9/21/20	
Fluorene	1.12 U	4.55	1.12	1	09/24/20 21:12	9/21/20	
Hexachlorobenzene	1.40 U	4.55	1.40	1	09/24/20 21:12	9/21/20	
Hexachlorobutadiene	0.910 U	4.55	0.910	1	09/24/20 21:12	9/21/20	
Hexachlorocyclopentadiene	1.95 U	4.55	1.95	1	09/24/20 21:12	9/21/20	
Hexachloroethane	0.957 U	4.55	0.957	1	09/24/20 21:12	9/21/20	

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	09/15/20
Sample Matrix:	Water	**Date Received:**	09/17/20 09:50
Sample Name:	POTW-FT-09152020	**Units:**	ug/L
Lab Code:	R2008610-001	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 625.1
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Indeno(1,2,3-cd)pyrene	1.60 U	4.55	1.60	1	09/24/20 21:12	9/21/20	
Isophorone	1.23 U	4.55	1.23	1	09/24/20 21:12	9/21/20	
N-Nitrosodi-n-propylamine	1.04 U	4.55	1.04	1	09/24/20 21:12	9/21/20	
N-Nitrosodimethylamine	0.910 U	4.55	0.910	1	09/24/20 21:12	9/21/20	
N-Nitrosodiphenylamine	2.40 U	7.27	2.40	1	09/24/20 21:12	9/21/20	
Naphthalene	1.07 U	4.55	1.07	1	09/24/20 21:12	9/21/20	
Nitrobenzene	1.33 U	4.55	1.33	1	09/24/20 21:12	9/21/20	
Pentachlorophenol (PCP)	8.84 U	45.5	8.84	1	09/24/20 21:12	9/21/20	
Phenanthrene	1.22 U	4.55	1.22	1	09/24/20 21:12	9/21/20	
Phenol	0.910 U	4.55	0.910	1	09/24/20 21:12	9/21/20	
Pyrene	1.30 U	4.55	1.30	1	09/24/20 21:12	9/21/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	81	35 - 141	09/24/20 21:12	
2-Fluorobiphenyl	53	31 - 118	09/24/20 21:12	
2-Fluorophenol	26	10 - 105	09/24/20 21:12	
Nitrobenzene-d5	50	31 - 110	09/24/20 21:12	
Phenol-d6	20	10 - 107	09/24/20 21:12	
p-Terphenyl-d14	54	10 - 165	09/24/20 21:12	

Metals

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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	09/15/20
Sample Matrix:	Water	**Date Received:**	09/17/20 09:50
Sample Name:	POTW-FT-09152020	**Basis:**	NA
Lab Code:	R2008610-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	200.7	10 U	ug/L	10	1	09/21/20 18:13	09/21/20	
Mercury, Total	245.1	0.20 U	ug/L	0.20	1	09/24/20 10:44	09/22/20	

General Chemistry

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Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	09/15/20
Sample Matrix:	Water	**Date Received:**	09/17/20 09:50
Sample Name:	POTW-FT-09152020	**Basis:**	NA
Lab Code:	R2008610-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Ammonia as Nitrogen, undistilled	350.1	**0.248**		mg/L	0.050	1	09/26/20 21:25	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	**6.1**		mg/L	2.0	1	09/17/20 14:47	NA	
Cyanide, Total	Kelada-01	0.0050	U	mg/L	0.0050	1	09/23/20 15:44	NA	
Oil and Grease, Nonpolar (SGT-HEM)	1664A	4.7	U	mg/L	4.7	1	10/01/20 10:00	NA	
Oil and Grease, Total (HEM)	1664A	4.8	U	mg/L	4.8	1	09/28/20 10:45	NA	
Phenolics, Total Recoverable	420.4	0.0050	U	mg/L	0.0050	1	09/21/20 15:18	NA	
Phosphorus, Total	365.1	0.050	U	mg/L	0.050	1	09/24/20 16:28	09/23/20	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	**15.6**		mg/L	4.0	1	09/23/20 07:45	NA	*

QC Summary Forms

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Volatile Organic Compounds by GC/MS

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Client: Inventum Engineering **Service Request:** R2008610
Project: POTW Monthly
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624.1
Extraction Method: EPA 5030C

Sample Name	Lab Code	4-Bromofluorobenzene 85-122	Dibromofluoromethane 89-119	Toluene-d8 87-121
POTW-FT-09152020	R2008610-001	102	106	111
Method Blank	RQ2011047-05	96	100	103
Lab Control Sample	RQ2011047-03	99	101	102

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2011047-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624.1
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,1,2,2-Tetrachloroethane	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,1,2-Trichloroethane	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,1-Dichloroethane (1,1-DCA)	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,1-Dichloroethene (1,1-DCE)	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,2-Dichlorobenzene	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,2-Dichloroethane	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,2-Dichloropropane	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,3-Dichlorobenzene	0.200 U	1.00	0.200	1	09/21/20 11:50	
1,4-Dichlorobenzene	0.200 U	1.00	0.200	1	09/21/20 11:50	
2-Chloroethyl Vinyl Ether	0.530 U	10.0	0.530	1	09/21/20 11:50	
Acrolein	0.900 U	-	0.900	1	09/21/20 11:50	
Acrylonitrile	0.900 U	10.0	0.900	1	09/21/20 11:50	
Benzene	0.200 U	1.00	0.200	1	09/21/20 11:50	
Bromodichloromethane	0.200 U	1.00	0.200	1	09/21/20 11:50	
Bromoform	0.250 U	1.00	0.250	1	09/21/20 11:50	
Bromomethane	0.700 U	1.00	0.700	1	09/21/20 11:50	
Carbon Tetrachloride	0.340 U	1.00	0.340	1	09/21/20 11:50	
Chlorobenzene	0.200 U	1.00	0.200	1	09/21/20 11:50	
Chloroethane	0.230 U	1.00	0.230	1	09/21/20 11:50	
Chloroform	0.240 U	1.00	0.240	1	09/21/20 11:50	
Chloromethane	0.280 U	1.00	0.280	1	09/21/20 11:50	
Dibromochloromethane	0.200 U	1.00	0.200	1	09/21/20 11:50	
Dichloromethane	0.650 U	1.00	0.650	1	09/21/20 11:50	
Ethylbenzene	0.200 U	1.00	0.200	1	09/21/20 11:50	
Tetrachloroethene (PCE)	0.210 U	1.00	0.210	1	09/21/20 11:50	
Toluene	0.200 U	1.00	0.200	1	09/21/20 11:50	
Trichloroethene (TCE)	0.200 U	1.00	0.200	1	09/21/20 11:50	
Trichlorofluoromethane (CFC 11)	0.240 U	1.00	0.240	1	09/21/20 11:50	
Vinyl Chloride	0.200 U	1.00	0.200	1	09/21/20 11:50	
Xylenes, Total	0.400 U	2.00	0.400	1	09/21/20 11:50	
cis-1,3-Dichloropropene	0.200 U	1.00	0.200	1	09/21/20 11:50	
m,p-Xylenes	0.200 U	2.00	0.200	1	09/21/20 11:50	
o-Xylene	0.200 U	1.00	0.200	1	09/21/20 11:50	
trans-1,2-Dichloroethene	0.200 U	1.00	0.200	1	09/21/20 11:50	
trans-1,3-Dichloropropene	0.230 U	1.00	0.230	1	09/21/20 11:50	

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2011047-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 624.1
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85 - 122	09/21/20 11:50	
Dibromofluoromethane	100	89 - 119	09/21/20 11:50	
Toluene-d8	103	87 - 121	09/21/20 11:50	

Client: Inventum Engineering
Project: POTW Monthly
Sample Matrix: Water

Service Request: R2008610
Date Analyzed: 09/21/20

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Units:ug/L
Basis:NA

Lab Control Sample
RQ2011047-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	624.1	19.2	20.0	96	70-130
1,1,2,2-Tetrachloroethane	624.1	20.3	20.0	101	60-140
1,1,2-Trichloroethane	624.1	18.1	20.0	90	70-130
1,1-Dichloroethane (1,1-DCA)	624.1	20.9	20.0	105	70-130
1,1-Dichloroethene (1,1-DCE)	624.1	23.7	20.0	118	50-150
1,2-Dichlorobenzene	624.1	18.4	20.0	92	65-135
1,2-Dichloroethane	624.1	18.9	20.0	95	70-130
1,2-Dichloropropane	624.1	18.6	20.0	93	35-165
1,3-Dichlorobenzene	624.1	19.6	20.0	98	70-130
1,4-Dichlorobenzene	624.1	18.4	20.0	92	65-135
2-Chloroethyl Vinyl Ether	624.1	20.6	20.0	103	1-225
Acrylonitrile	624.1	95.3	100	95	60-140
Benzene	624.1	20.6	20.0	103	65-135
Bromodichloromethane	624.1	18.4	20.0	92	65-135
Bromoform	624.1	16.7	20.0	83	70-130
Bromomethane	624.1	18.4	20.0	92	15-185
Carbon Tetrachloride	624.1	19.4	20.0	97	70-130
Chlorobenzene	624.1	19.7	20.0	98	65-135
Chloroethane	624.1	17.9	20.0	90	40-160
Chloroform	624.1	19.6	20.0	98	70-135
Chloromethane	624.1	21.2	20.0	106	1-205
Dibromochloromethane	624.1	19.7	20.0	98	70-135
Dichloromethane	624.1	19.3	20.0	96	60-140
Ethylbenzene	624.1	19.7	20.0	99	60-140
Tetrachloroethene (PCE)	624.1	17.9	20.0	90	70-130
Toluene	624.1	20.0	20.0	100	70-130
Trichloroethene (TCE)	624.1	18.7	20.0	94	65-135
Trichlorofluoromethane (CFC 11)	624.1	19.8	20.0	99	50-150
Vinyl Chloride	624.1	22.0	20.0	110	5-195
cis-1,3-Dichloropropene	624.1	19.5	20.0	97	25-175
m,p-Xylenes	624.1	41.7	40.0	104	80-126
o-Xylene	624.1	19.8	20.0	99	79-123
trans-1,2-Dichloroethene	624.1	22.4	20.0	112	70-130

Client: Inventum Engineering
Project: POTW Monthly
Sample Matrix: Water

Service Request: R2008610
Date Analyzed: 09/21/20

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Units:ug/L
Basis:NA

Lab Control Sample
RQ2011047-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
trans-1,3-Dichloropropene	624.1	18.4	20.0	92	50-150

Semivolatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Inventum Engineering **Service Request:** R2008610
Project: POTW Monthly
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 625.1
Extraction Method: EPA 3510C

Sample Name	Lab Code	2,4,6-Tribromophenol 35-141	2-Fluorobiphenyl 31-118	2-Fluorophenol 10-105
POTW-FT-09152020	R2008610-001	81	53	26
Method Blank	RQ2011016-01	77	54	35
Lab Control Sample	RQ2011016-02	74	64	36
Duplicate Lab Control Sample	RQ2011016-03	81	70	35

Client: Inventum Engineering **Service Request:** R2008610
Project: POTW Monthly
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 625.1
Extraction Method: EPA 3510C

Sample Name	Lab Code	Nitrobenzene-d5 31-110	Phenol-d6 10-107	p-Terphenyl-d14 10-165
POTW-FT-09152020	R2008610-001	50	20	54
Method Blank	RQ2011016-01	54	25	84
Lab Control Sample	RQ2011016-02	60	29	71
Duplicate Lab Control Sample	RQ2011016-03	64	28	74

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2011016-01	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 625.1
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	1.12 U	5.00	1.12	1	09/23/20 14:30	9/21/20	
1,2-Diphenylhydrazine	1.38 U	5.00	1.38	1	09/23/20 14:30	9/21/20	
2,4,6-Trichlorophenol	1.35 U	5.00	1.35	1	09/23/20 14:30	9/21/20	
2,4-Dichlorophenol	1.24 U	5.00	1.24	1	09/23/20 14:30	9/21/20	
2,4-Dimethylphenol	1.37 U	5.00	1.37	1	09/23/20 14:30	9/21/20	
2,4-Dinitrophenol	20.0 U	50.0	20.0	1	09/23/20 14:30	9/21/20	
2,4-Dinitrotoluene	2.34 U	5.00	2.34	1	09/23/20 14:30	9/21/20	
2,6-Dinitrotoluene	1.31 U	5.00	1.31	1	09/23/20 14:30	9/21/20	
2-Chloronaphthalene	1.36 U	5.00	1.36	1	09/23/20 14:30	9/21/20	
2-Chlorophenol	1.06 U	5.00	1.06	1	09/23/20 14:30	9/21/20	
2-Nitrophenol	1.49 U	5.00	1.49	1	09/23/20 14:30	9/21/20	
3,3'-Dichlorobenzidine	1.20 U	5.00	1.20	1	09/23/20 14:30	9/21/20	
4,6-Dinitro-2-methylphenol	19.1 U	50.0	19.1	1	09/23/20 14:30	9/21/20	
4-Bromophenyl Phenyl Ether	1.64 U	5.00	1.64	1	09/23/20 14:30	9/21/20	
4-Chloro-3-methylphenol	1.08 U	5.00	1.08	1	09/23/20 14:30	9/21/20	
4-Chlorophenyl Phenyl Ether	1.48 U	5.00	1.48	1	09/23/20 14:30	9/21/20	
4-Nitrophenol	6.32 U	50.0	6.32	1	09/23/20 14:30	9/21/20	
Acenaphthene	1.34 U	5.00	1.34	1	09/23/20 14:30	9/21/20	
Acenaphthylene	1.34 U	5.00	1.34	1	09/23/20 14:30	9/21/20	
Anthracene	1.25 U	5.00	1.25	1	09/23/20 14:30	9/21/20	
Benz(a)anthracene	1.58 U	5.00	1.58	1	09/23/20 14:30	9/21/20	
Benzidine	12.4 U	100	12.4	1	09/23/20 14:30	9/21/20	
Benzo(a)pyrene	1.12 U	5.00	1.12	1	09/23/20 14:30	9/21/20	
Benzo(b)fluoranthene	1.11 U	5.00	1.11	1	09/23/20 14:30	9/21/20	
Benzo(g,h,i)perylene	1.00 U	5.00	1.00	1	09/23/20 14:30	9/21/20	
Benzo(k)fluoranthene	1.21 U	5.00	1.21	1	09/23/20 14:30	9/21/20	
Bis(1-chloroisopropyl) Ether	1.40 U	5.00	1.40	1	09/23/20 14:30	9/21/20	
Bis(2-chloroethoxy)methane	1.90 U	5.00	1.90	1	09/23/20 14:30	9/21/20	
Bis(2-chloroethyl) Ether	1.23 U	5.00	1.23	1	09/23/20 14:30	9/21/20	
Bis(2-ethylhexyl) Phthalate	1.00 U	10.0	1.00	1	09/23/20 14:30	9/21/20	
Butyl Benzyl Phthalate	1.40 U	5.00	1.40	1	09/23/20 14:30	9/21/20	
Chrysene	1.17 U	5.00	1.17	1	09/23/20 14:30	9/21/20	
Di-n-butyl Phthalate	2.00 U	5.00	2.00	1	09/23/20 14:30	9/21/20	
Di-n-octyl Phthalate	3.22 U	20.0	3.22	1	09/23/20 14:30	9/21/20	
Dibenz(a,h)anthracene	1.02 U	5.00	1.02	1	09/23/20 14:30	9/21/20	
Diethyl Phthalate	1.08 U	5.00	1.08	1	09/23/20 14:30	9/21/20	
Dimethyl Phthalate	1.23 U	5.00	1.23	1	09/23/20 14:30	9/21/20	
Fluoranthene	1.46 U	5.00	1.46	1	09/23/20 14:30	9/21/20	
Fluorene	1.24 U	5.00	1.24	1	09/23/20 14:30	9/21/20	
Hexachlorobenzene	1.54 U	5.00	1.54	1	09/23/20 14:30	9/21/20	
Hexachlorobutadiene	1.00 U	5.00	1.00	1	09/23/20 14:30	9/21/20	
Hexachlorocyclopentadiene	2.14 U	5.00	2.14	1	09/23/20 14:30	9/21/20	
Hexachloroethane	1.06 U	5.00	1.06	1	09/23/20 14:30	9/21/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ2011016-01	**Basis:**	NA

Semivolatile Organic Compounds by GC/MS

Analysis Method: 625.1
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Indeno(1,2,3-cd)pyrene	1.76 U	5.00	1.76	1	09/23/20 14:30	9/21/20	
Isophorone	1.35 U	5.00	1.35	1	09/23/20 14:30	9/21/20	
N-Nitrosodi-n-propylamine	1.14 U	5.00	1.14	1	09/23/20 14:30	9/21/20	
N-Nitrosodimethylamine	1.00 U	5.00	1.00	1	09/23/20 14:30	9/21/20	
N-Nitrosodiphenylamine	2.64 U	8.00	2.64	1	09/23/20 14:30	9/21/20	
Naphthalene	1.17 U	5.00	1.17	1	09/23/20 14:30	9/21/20	
Nitrobenzene	1.46 U	5.00	1.46	1	09/23/20 14:30	9/21/20	
Pentachlorophenol (PCP)	9.72 U	50.0	9.72	1	09/23/20 14:30	9/21/20	
Phenanthrene	1.34 U	5.00	1.34	1	09/23/20 14:30	9/21/20	
Phenol	1.00 U	5.00	1.00	1	09/23/20 14:30	9/21/20	
Pyrene	1.42 U	5.00	1.42	1	09/23/20 14:30	9/21/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	77	35 - 141	09/23/20 14:30	
2-Fluorobiphenyl	54	31 - 118	09/23/20 14:30	
2-Fluorophenol	35	10 - 105	09/23/20 14:30	
Nitrobenzene-d5	54	31 - 110	09/23/20 14:30	
Phenol-d6	25	10 - 107	09/23/20 14:30	
p-Terphenyl-d14	84	10 - 165	09/23/20 14:30	

Client: Inventum Engineering
Project: POTW Monthly
Sample Matrix: Water

Service Request: R2008610
Date Analyzed: 09/23/20

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2011016-02			RQ2011016-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,4-Trichlorobenzene	625.1	36.8	80.0	46	40.6	80.0	51	44-142	10	50
1,2-Diphenylhydrazine	625.1	65.5	80.0	82	71.2	80.0	89	51-110	8	30
2,4,6-Trichlorophenol	625.1	53.7	80.0	67	58.2	80.0	73	37-144	8	58
2,4-Dichlorophenol	625.1	51.9	80.0	65	56.5	80.0	71	39-135	8	50
2,4-Dimethylphenol	625.1	50.9	80.0	64	54.4	80.0	68	32-120	7	58
2,4-Dinitrophenol	625.1	46.9 J	80.0	59	50.9	80.0	64	1-191	8	132
2,4-Dinitrotoluene	625.1	74.4	80.0	93	80.7	80.0	101	39-139	8	42
2,6-Dinitrotoluene	625.1	72.1	80.0	90	78.2	80.0	98	50-158	8	48
2-Chloronaphthalene	625.1	48.4	80.0	61	55.4	80.0	69	60-120	13	24
2-Chlorophenol	625.1	41.6	80.0	52	43.1	80.0	54	23-134	4	61
2-Nitrophenol	625.1	56.2	80.0	70	61.1	80.0	76	29-182	8	55
3,3'-Dichlorobenzidine	625.1	61.8	80.0	77	66.3	80.0	83	1-262	7	108
4,6-Dinitro-2-methylphenol	625.1	54.6	80.0	68	62.4	80.0	78	1-181	13	203
4-Bromophenyl Phenyl Ether	625.1	60.5	80.0	76	67.7	80.0	85	53-127	11	43
4-Chloro-3-methylphenol	625.1	57.0	80.0	71	61.6	80.0	77	22-147	8	73
4-Chlorophenyl Phenyl Ether	625.1	51.9	80.0	65	58.5	80.0	73	25-158	12	61
4-Nitrophenol	625.1	29.5 J	80.0	37	31.6 J	80.0	40	1-132	7	131
Acenaphthene	625.1	52.4	80.0	65	59.9	80.0	75	47-145	14	48
Acenaphthylene	625.1	56.0	80.0	70	62.8	80.0	79	33-145	11	74
Anthracene	625.1	61.9	80.0	77	69.4	80.0	87	27-133	11	66
Benz(a)anthracene	625.1	57.3	80.0	72	62.9	80.0	79	33-143	9	53
Benzidine	625.1	46.9 J	120	39	29.7 J	120	25	10-99	45*	30
Benzo(a)pyrene	625.1	65.1	80.0	81	70.9	80.0	89	17-163	9	72
Benzo(b)fluoranthene	625.1	58.5	80.0	73	65.5	80.0	82	24-159	11	71
Benzo(g,h,i)perylene	625.1	66.2	80.0	83	72.5	80.0	91	1-219	9	97
Benzo(k)fluoranthene	625.1	64.7	80.0	81	71.4	80.0	89	11-162	10	63
Bis(1-chloroisopropyl) Ether	625.1	36.5	80.0	46	40.2	80.0	50	36-166	10	76
Bis(2-chloroethoxy)methane	625.1	50.1	80.0	63	54.5	80.0	68	33-184	8	54
Bis(2-chloroethyl) Ether	625.1	41.2	80.0	51	44.9	80.0	56	12-158	9	108
Bis(2-ethylhexyl) Phthalate	625.1	62.1	80.0	78	67.3	80.0	84	8-158	8	82
Butyl Benzyl Phthalate	625.1	59.3	80.0	74	64.9	80.0	81	1-152	9	60
Chrysene	625.1	61.1	80.0	76	66.8	80.0	84	17-168	9	87
Di-n-butyl Phthalate	625.1	72.1	80.0	90	80.1	80.0	100	1-120	10	47

Client: Inventum Engineering
Project: POTW Monthly
Sample Matrix: Water

Service Request: R2008610
Date Analyzed: 09/23/20

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2011016-02			RQ2011016-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Di-n-octyl Phthalate	625.1	62.5	80.0	78	70.2	80.0	88	4-146	12	69
Dibenz(a,h)anthracene	625.1	62.8	80.0	79	68.0	80.0	85	1-200	8	126
Diethyl Phthalate	625.1	56.2	80.0	70	59.5	80.0	74	1-120	6	100
Dimethyl Phthalate	625.1	63.2	80.0	79	68.6	80.0	86	1-120	8	183
Fluoranthene	625.1	68.9	80.0	86	76.1	80.0	95	26-137	10	66
Fluorene	625.1	60.2	80.0	75	65.8	80.0	82	59-121	9	38
Hexachlorobenzene	625.1	67.3	80.0	84	72.1	80.0	90	1-152	7	55
Hexachlorobutadiene	625.1	38.9	80.0	49	44.5	80.0	56	24-120	13	62
Hexachlorocyclopentadiene	625.1	8.59	80.0	11	10.8	80.0	14	10-99	23	30
Hexachloroethane	625.1	29.4	80.0	37 *	30.7	80.0	38 *	40-120	5	52
Indeno(1,2,3-cd)pyrene	625.1	63.7	80.0	80	68.1	80.0	85	1-171	7	99
Isophorone	625.1	44.4	80.0	56	48.6	80.0	61	21-196	9	93
N-Nitrosodi-n-propylamine	625.1	50.8	80.0	63	56.8	80.0	71	1-200	11	87
N-Nitrosodimethylamine	625.1	28.9	80.0	36	25.6	80.0	32	31-70	12	30
N-Nitrosodiphenylamine	625.1	70.4	80.0	88	78.2	80.0	98	45-123	11	30
Naphthalene	625.1	42.6	80.0	53	48.9	80.0	61	21-133	14	65
Nitrobenzene	625.1	47.5	80.0	59	51.8	80.0	65	35-180	9	62
Pentachlorophenol (PCP)	625.1	47.8 J	80.0	60	51.6	80.0	64	14-176	8	86
Phenanthrene	625.1	61.7	80.0	77	67.2	80.0	84	54-120	8	39
Phenol	625.1	26.8	80.0	33	26.3	80.0	33	5-120	2	64
Pyrene	625.1	60.7	80.0	76	67.5	80.0	84	52-120	11	49

Metals

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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2008610-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic, Total	200.7	10	U	ug/L	10	1	09/21/20 17:52	09/21/20	
Mercury, Total	245.1	0.20	U	ug/L	0.20	1	09/24/20 10:13	09/22/20	

Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	09/15/20
Sample Matrix:	Water	**Date Received:**	09/17/20
		Date Analyzed:	09/24/20
		Date Extracted:	09/22/20

Duplicate Matrix Spike Summary
Inorganic Parameters

Sample Name:	POTW-FT-09152020	**Units:**	ug/L
Lab Code:	R2008610-001	**Basis:**	NA
Analysis Method:	245.1		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		R2008610-001MS			R2008610-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Mercury, Total	0.08 U	0.94	1.00	94	0.94	1.00	94	70-130	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client: Inventum Engineering
Project: POTW Monthly
Sample Matrix: Water

Service Request: R2008610
Date Analyzed: 09/21/20 - 09/24/20

Lab Control Sample Summary
Inorganic Parameters

Units:ug/L
Basis:NA

Lab Control Sample
R2008610-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic, Total	200.7	35.6	40	89	85-115
Mercury, Total	245.1	1.0	1.00	100	85-115

General Chemistry

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
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Client:	Inventum Engineering	**Service Request:**	R2008610
Project:	POTW Monthly	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	R2008610-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Ammonia as Nitrogen, undistilled	350.1	0.050	U	mg/L	0.050	1	09/26/20 20:06	NA	
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	2.0	U	mg/L	2.0	1	09/17/20 15:24	NA	
Cyanide, Total	Kelada-01	0.0050	U	mg/L	0.0050	1	09/23/20 14:36	NA	
Oil and Grease, Nonpolar (SGT-HEM)	1664A	5.1	U	mg/L	5.1	1	10/01/20 10:00	NA	
Oil and Grease, Total (HEM)	1664A	5.2	U	mg/L	5.2	1	09/28/20 10:45	NA	
Phenolics, Total Recoverable	420.4	0.0050	U	mg/L	0.0050	1	09/21/20 13:10	NA	
Phosphorus, Total	365.1	0.050	U	mg/L	0.050	1	09/24/20 16:19	09/23/20	
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	1.0	U	mg/L	1.0	1	09/23/20 07:45	NA	

Client: Inventum Engineering
Project: POTW Monthly
Sample Matrix: Water

Service Request: R2008610
Date Analyzed: 09/17/20 - 09/28/20

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
R2008610-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Ammonia as Nitrogen, undistilled	350.1	0.508	0.500	102	90-110
Biochemical Oxygen Demand (BOD)	SM 5210 B-2001(2011)	177	198	89	85-115
Cyanide, Total	Kelada-01	0.101	0.100	101	90-110
Oil and Grease, Total (HEM)	1664A	33.8	41.5	81	78-114
Phenolics, Total Recoverable	420.4	0.0391	0.0400	98	90-110
Phosphorus, Total	365.1	0.748	0.800	93	90-110
Solids, Total Suspended (TSS)	SM 2540 D-1997(2011)	190	214	89	80-120

Client: Inventum Engineering
Project: POTW Monthly
Sample Matrix: Water

Service Request: R2008610
Date Analyzed: 10/01/20

Duplicate Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		R2008610-LCS1			R2008610-DLCS1					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Oil and Grease, Nonpolar (SGT-HEM)	1664A	34.9	40.4	86	35.0	41.5	84	64-132	<1	34

October 06, 2020 Service Request No:R2008677

Mr. Todd Waldrop
Inventum Engineering
481 Carlisle Drive
Herndon, VA 20170

Laboratory Results for: Riverview

Dear Mr.Waldrop,

Enclosed are the results of the sample(s) submitted to our laboratory September 18, 2020
For your reference, these analyses have been assigned our service request number **R2008677.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7475. You may also contact me via email at Meghan.Pedro@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
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ALS Environmental

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008677
Date Received: 09/18/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Three soil samples were received for analysis at ALS Environmental on 09/18/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D, 10/02/2020: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). Since there were no detections of the analyte(s) above the MRL in the associated field samples, the quantitation is not affected. The data quality was not significantly affected and no further corrective action was taken.

2,4-Dinitrophenol has been reported as zero percent recovery in the LCS/LCSD due to a limitation in LIMs. 2,4-Dinitrophenol was detected at 20% and 21% recovery, respectively, within laboratory limits. The LCS/LCSD is acceptable and should not be flagged on the summary form. The precision is also outside laboratory control limits.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

Subcontracted Analytical Parameters:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

Method 8260C, 09/23/2020: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Method 8260C, 09/23/2020: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). Since there were no detections of the analyte(s) above the MRL in the associated field samples, the quantitation is not affected. The data quality was not significantly affected and no further corrective action was taken.

Method 8260C, 09/23/2020: The upper control criterion was exceeded for one or more analytes in the Laboratory Control Sample (LCS). There were no detections of the analyte(s) above the MRL in the associated field samples. The error associated with elevated recovery equates to a high bias. The sample data is not significantly affected. No further corrective action was appropriate.

Approved by Meghan Pedro Date 10/06/2020

SAMPLE DETECTION SUMMARY

CLIENT ID: BO-R-09142020			Lab ID: R2008677-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Total Solids	89.5				Percent	ALS SOP
Aluminum, Total	1160			20	mg/Kg	6010C
Arsenic, Total	4.5			1.0	mg/Kg	6010C
Barium, Total	19.3			2.0	mg/Kg	6010C
Cadmium, Total	0.94			0.51	mg/Kg	6010C
Calcium, Total	1420			100	mg/Kg	6010C
Chromium, Total	15.8			1.0	mg/Kg	6010C
Copper, Total	10.0			2.0	mg/Kg	6010C
Iron, Total	14500			200	mg/Kg	6010C
Lead, Total	14.9			5.1	mg/Kg	6010C
Magnesium, Total	310			100	mg/Kg	6010C
Manganese, Total	123			2.0	mg/Kg	6010C
Nickel, Total	8.5			4.1	mg/Kg	6010C
Potassium, Total	520			200	mg/Kg	6010C
Sodium, Total	1660			100	mg/Kg	6010C
Zinc, Total	137			2.0	mg/Kg	6010C

CLIENT ID: PUIFIERS-09142020			Lab ID: R2008677-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Cyanide, Total	1280			18	mg/Kg	9012B
Total Solids	65.7				Percent	ALS SOP
Aluminum, Total	736			30	mg/Kg	6010C
Antimony, Total	12.6			9.1	mg/Kg	6010C
Arsenic, Total	29.8			1.5	mg/Kg	6010C
Barium, Total	160			3.0	mg/Kg	6010C
Cadmium, Total	2.01			0.76	mg/Kg	6010C
Calcium, Total	1120			150	mg/Kg	6010C
Chromium, Total	179			1.5	mg/Kg	6010C
Cobalt, Total	18.6			7.6	mg/Kg	6010C
Copper, Total	743			3.0	mg/Kg	6010C
Iron, Total	238000			6100	mg/Kg	6010C
Lead, Total	543			7.6	mg/Kg	6010C
Manganese, Total	819			3.0	mg/Kg	6010C
Mercury, Total	13.5			0.48	mg/Kg	7471B
Nickel, Total	206			6.1	mg/Kg	6010C
Selenium, Total	5.6			1.5	mg/Kg	6010C
Silver, Total	2.4			1.5	mg/Kg	6010C
Sodium, Total	2440			150	mg/Kg	6010C
Vanadium, Total	53.1			7.6	mg/Kg	6010C
Zinc, Total	712			30	mg/Kg	6010C

SAMPLE DETECTION SUMMARY

CLIENT ID: Abandoned Pipeline-09162020			Lab ID: R2008677-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Total Solids	73.1				Percent	ALS SOP
Aluminum, Total	19400			26	mg/Kg	6010C
Arsenic, Total	10.5			1.3	mg/Kg	6010C
Barium, Total	184			2.6	mg/Kg	6010C
Beryllium, Total	1.45			0.39	mg/Kg	6010C
Calcium, Total	12800			130	mg/Kg	6010C
Chromium, Total	28.5			1.3	mg/Kg	6010C
Cobalt, Total	12.5			6.5	mg/Kg	6010C
Copper, Total	44.8			2.6	mg/Kg	6010C
Iron, Total	73200			520	mg/Kg	6010C
Lead, Total	56.6			6.5	mg/Kg	6010C
Magnesium, Total	5870			130	mg/Kg	6010C
Manganese, Total	510			2.6	mg/Kg	6010C
Mercury, Total	0.086			0.042	mg/Kg	7471B
Nickel, Total	29.5			5.2	mg/Kg	6010C
Potassium, Total	2570			260	mg/Kg	6010C
Sodium, Total	130			130	mg/Kg	6010C
Vanadium, Total	47.9			6.5	mg/Kg	6010C
Zinc, Total	284			2.6	mg/Kg	6010C

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Inventum Engineering **Service Request:**R2008677
Project: Riverview

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R2008677-001	BO-R-09142020	9/14/2020	
R2008677-002	PUIFIERS-09142020	9/14/2020	
R2008677-003	Abandoned Pipeline-09162020	9/16/2020	

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

003684

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE _____ OF _____

Project Name	Project Number
Project Manager: Todd Waldrop	Report CC
Company/Address: ~~Herndon VA, 20171~~ 481 Carlisle Dr. Herndon VA 20170	
Phone #: (571) 217-3627	Email: todd.waldrop@inventumeng.com
Sampler's Signature: Keith Adderley	Sampler's Printed Name: Keith Adderley

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	GCMS VOAs ○ 8260 ○ 824 ○ CLP	GCMS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)										
					Hexavalent Chromium	Asbestos	TAL Metals	TCLP Metals	T. Cyanide	TCL VOCs	TCL SVOCs										
BO-R-09142020		9/14/20			✓		✓	✓	✓												
Purifiers-09142020		9/14/20				✓	✓	✓	✓												
Abandoned Pipeline-09162020		9/16/20					✓			✓	✓										

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
✓ Standard (10 business days-No Surcharge)

REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
_____ I. Results Only
✓ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data

Edata _____Yes _____No

INVOICE INFORMATION
PO # _____
BILL TO: Same as company address

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Keith Adderley	Signature:	Signature	Signature	Signature	
Printed Name: Keith Adderley	Printed Name:	Printed Name	Printed Name	Printed Name	
Firm: Inventum Eng.	Firm: AMT	Firm	Firm	Firm	
Date/Time: 9/17/20	Date/Time: 9/18/2020 0931	Date/Time	Date/Time	Date/Time	

R2008677 5
Inventum Engineering
Riverview

Distribution: White - Lab Copy; Yellow - Return to Originator

R2008677 5
Inventum Engineering
Riverview

Cooler Receipt and Preservation Check Form

Project/Client Inventum Folder Number .

Cooler received on 9/18/2020 by: @ **COURIER:** ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate? ALS/ROC	(CLIENT)
4	Circle: (Wet Ice) **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: (Bulk) Encore 5035set NA	

8. Temperature Readings Date: 9/18/2020 Time: 1118 ID: IR#7 IR#10 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	5.3						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by @ on 9/18/20 at 1120
5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 9/21/2020 Time: 1100 by: @

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (N/A)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (N/A)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2		HNO_3								
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-			**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).			
		HCl	**	**						

Bottle lot numbers: Client
Explain all Discrepancies/ Other Comments:

HPROD	BULK
(HTR)	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: @
PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

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Phone (585) 288-5380 Fax (585) 288-8475
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REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Inventum Engineering **Service Request:** R2008677
Project: Riverview/

Sample Name: BO-R-09142020 **Date Collected:** 09/14/20
Lab Code: R2008677-001 **Date Received:** 09/18/20
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7199	CWOODS	CWOODS
7471B	AKONZEL	KMCLAEN
9012B	MROGERSON	MROGERSON
ALS SOP		KAWONG

Sample Name: PUIFIERS-09142020 **Date Collected:** 09/14/20
Lab Code: R2008677-002 **Date Received:** 09/18/20
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7471B	AKONZEL	KMCLAEN
9012B	MROGERSON	MROGERSON
ALS SOP		KAWONG

Sample Name: Abandoned Pipeline-09162020 **Date Collected:** 09/16/20
Lab Code: R2008677-003 **Date Received:** 09/18/20
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7471B	AKONZEL	KMCLAEN
8260C		FNAEGLER
8270D	KSERCU	JMISIUREWICZ
ALS SOP		KAWONG

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
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Volatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/16/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	Abandoned Pipeline-09162020	**Units:**	ug/Kg
Lab Code:	R2008677-003	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	6.8 U	6.8	1	09/23/20 16:57	
1,1,2,2-Tetrachloroethane	6.8 U	6.8	1	09/23/20 16:57	
1,1,2-Trichloroethane	6.8 U	6.8	1	09/23/20 16:57	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.8 U	6.8	1	09/23/20 16:57	
1,1-Dichloroethane (1,1-DCA)	6.8 U	6.8	1	09/23/20 16:57	
1,1-Dichloroethene (1,1-DCE)	6.8 U	6.8	1	09/23/20 16:57	
1,2,3-Trichlorobenzene	6.8 U	6.8	1	09/23/20 16:57	
1,2,4-Trichlorobenzene	6.8 U	6.8	1	09/23/20 16:57	
1,2-Dibromo-3-chloropropane (DBCP)	6.8 U	6.8	1	09/23/20 16:57	
1,2-Dibromoethane	6.8 U	6.8	1	09/23/20 16:57	
1,2-Dichlorobenzene	6.8 U	6.8	1	09/23/20 16:57	
1,2-Dichloroethane	6.8 U	6.8	1	09/23/20 16:57	
1,2-Dichloropropane	6.8 U	6.8	1	09/23/20 16:57	
1,3-Dichlorobenzene	6.8 U	6.8	1	09/23/20 16:57	
1,4-Dichlorobenzene	6.8 U	6.8	1	09/23/20 16:57	
1,4-Dioxane	140 U	140	1	09/23/20 16:57	
2-Butanone (MEK)	6.8 U	6.8	1	09/23/20 16:57	
2-Hexanone	6.8 U	6.8	1	09/23/20 16:57	
4-Methyl-2-pentanone	6.8 U	6.8	1	09/23/20 16:57	
Acetone	6.8 U	6.8	1	09/23/20 16:57	
Benzene	6.8 U	6.8	1	09/23/20 16:57	
Bromochloromethane	6.8 U	6.8	1	09/23/20 16:57	
Bromodichloromethane	6.8 U	6.8	1	09/23/20 16:57	
Bromoform	6.8 U	6.8	1	09/23/20 16:57	
Bromomethane	6.8 U	6.8	1	09/23/20 16:57	
Carbon Disulfide	6.8 U	6.8	1	09/23/20 16:57	
Carbon Tetrachloride	6.8 U	6.8	1	09/23/20 16:57	
Chlorobenzene	6.8 U	6.8	1	09/23/20 16:57	
Chloroethane	6.8 U	6.8	1	09/23/20 16:57	
Chloroform	6.8 U	6.8	1	09/23/20 16:57	
Chloromethane	6.8 U	6.8	1	09/23/20 16:57	
Cyclohexane	6.8 U	6.8	1	09/23/20 16:57	
Dibromochloromethane	6.8 U	6.8	1	09/23/20 16:57	
Dichlorodifluoromethane (CFC 12)	6.8 U	6.8	1	09/23/20 16:57	
Dichloromethane	6.8 U	6.8	1	09/23/20 16:57	
Ethylbenzene	6.8 U	6.8	1	09/23/20 16:57	
Isopropylbenzene (Cumene)	6.8 U	6.8	1	09/23/20 16:57	
Methyl Acetate	6.8 U	6.8	1	09/23/20 16:57	
Methyl tert-Butyl Ether	6.8 U	6.8	1	09/23/20 16:57	
Methylcyclohexane	6.8 U	6.8	1	09/23/20 16:57	
Styrene	6.8 U	6.8	1	09/23/20 16:57	
Tetrachloroethene (PCE)	6.8 U	6.8	1	09/23/20 16:57	
Tetrahydrofuran (THF)	6.8 U	6.8	1	09/23/20 16:57	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/16/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	Abandoned Pipeline-09162020	**Units:**	ug/Kg
Lab Code:	R2008677-003	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result		MRL	Dil.	Date Analyzed	Q
Toluene	6.8	U	6.8	1	09/23/20 16:57	
Trichloroethene (TCE)	6.8	U	6.8	1	09/23/20 16:57	
Trichlorofluoromethane (CFC 11)	6.8	U	6.8	1	09/23/20 16:57	
Vinyl Chloride	6.8	U	6.8	1	09/23/20 16:57	
cis-1,2-Dichloroethene	6.8	U	6.8	1	09/23/20 16:57	
cis-1,3-Dichloropropene	6.8	U	6.8	1	09/23/20 16:57	
m,p-Xylenes	14	U	14	1	09/23/20 16:57	
o-Xylene	6.8	U	6.8	1	09/23/20 16:57	
trans-1,2-Dichloroethene	6.8	U	6.8	1	09/23/20 16:57	
trans-1,3-Dichloropropene	6.8	U	6.8	1	09/23/20 16:57	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	31 - 154	09/23/20 16:57	
Dibromofluoromethane	104	63 - 138	09/23/20 16:57	
Toluene-d8	103	66 - 138	09/23/20 16:57	

Semivolatile Organic Compounds by GC/MS

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Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/16/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	Abandoned Pipeline-09162020	**Units:**	ug/Kg
Lab Code:	R2008677-003	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	450 U	450	1	10/02/20 12:38	9/25/20	
1,2-Dichlorobenzene	450 U	450	1	10/02/20 12:38	9/25/20	
1,3-Dichlorobenzene	450 U	450	1	10/02/20 12:38	9/25/20	
1,4-Dichlorobenzene	450 U	450	1	10/02/20 12:38	9/25/20	
2,4,5-Trichlorophenol	450 U	450	1	10/02/20 12:38	9/25/20	
2,4,6-Trichlorophenol	450 U	450	1	10/02/20 12:38	9/25/20	
2,4-Dichlorophenol	450 U	450	1	10/02/20 12:38	9/25/20	
2,4-Dimethylphenol	450 U	450	1	10/02/20 12:38	9/25/20	
2,4-Dinitrophenol	2300 U	2300	1	10/02/20 12:38	9/25/20	
2,4-Dinitrotoluene	450 U	450	1	10/02/20 12:38	9/25/20	
2,6-Dinitrotoluene	450 U	450	1	10/02/20 12:38	9/25/20	
2-Chloronaphthalene	450 U	450	1	10/02/20 12:38	9/25/20	
2-Chlorophenol	450 U	450	1	10/02/20 12:38	9/25/20	
2-Methylnaphthalene	450 U	450	1	10/02/20 12:38	9/25/20	
2-Methylphenol	450 U	450	1	10/02/20 12:38	9/25/20	
2-Nitroaniline	450 U	450	1	10/02/20 12:38	9/25/20	
2-Nitrophenol	450 U	450	1	10/02/20 12:38	9/25/20	
3,3'-Dichlorobenzidine	450 U	450	1	10/02/20 12:38	9/25/20	
3- and 4-Methylphenol Coelution	450 U	450	1	10/02/20 12:38	9/25/20	
3-Nitroaniline	450 U	450	1	10/02/20 12:38	9/25/20	
4,6-Dinitro-2-methylphenol	2300 U	2300	1	10/02/20 12:38	9/25/20	
4-Bromophenyl Phenyl Ether	450 U	450	1	10/02/20 12:38	9/25/20	
4-Chloro-3-methylphenol	450 U	450	1	10/02/20 12:38	9/25/20	
4-Chloroaniline	450 U	450	1	10/02/20 12:38	9/25/20	
4-Chlorophenyl Phenyl Ether	450 U	450	1	10/02/20 12:38	9/25/20	
4-Nitroaniline	450 U	450	1	10/02/20 12:38	9/25/20	
4-Nitrophenol	2300 U	2300	1	10/02/20 12:38	9/25/20	
Acenaphthene	450 U	450	1	10/02/20 12:38	9/25/20	
Acenaphthylene	450 U	450	1	10/02/20 12:38	9/25/20	
Anthracene	450 U	450	1	10/02/20 12:38	9/25/20	
Benz(a)anthracene	450 U	450	1	10/02/20 12:38	9/25/20	
Benzo(a)pyrene	450 U	450	1	10/02/20 12:38	9/25/20	
Benzo(b)fluoranthene	450 U	450	1	10/02/20 12:38	9/25/20	
Benzo(g,h,i)perylene	450 U	450	1	10/02/20 12:38	9/25/20	
Benzo(k)fluoranthene	450 U	450	1	10/02/20 12:38	9/25/20	
Benzyl Alcohol	450 U	450	1	10/02/20 12:38	9/25/20	
2,2'-Oxybis(1-chloropropane)	450 U	450	1	10/02/20 12:38	9/25/20	
Bis(2-chloroethoxy)methane	450 U	450	1	10/02/20 12:38	9/25/20	
Bis(2-chloroethyl) Ether	450 U	450	1	10/02/20 12:38	9/25/20	
Bis(2-ethylhexyl) Phthalate	680 U	680	1	10/02/20 12:38	9/25/20	
Butyl Benzyl Phthalate	450 U	450	1	10/02/20 12:38	9/25/20	
Carbazole	450 U	450	1	10/02/20 12:38	9/25/20	
Chrysene	450 U	450	1	10/02/20 12:38	9/25/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/16/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	Abandoned Pipeline-09162020	**Units:**	ug/Kg
Lab Code:	R2008677-003	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Di-n-butyl Phthalate	450 U	450	1	10/02/20 12:38	9/25/20	
Di-n-octyl Phthalate	450 U	450	1	10/02/20 12:38	9/25/20	
Dibenz(a,h)anthracene	450 U	450	1	10/02/20 12:38	9/25/20	
Dibenzofuran	450 U	450	1	10/02/20 12:38	9/25/20	
Diethyl Phthalate	450 U	450	1	10/02/20 12:38	9/25/20	
Dimethyl Phthalate	450 U	450	1	10/02/20 12:38	9/25/20	
Fluoranthene	450 U	450	1	10/02/20 12:38	9/25/20	
Fluorene	450 U	450	1	10/02/20 12:38	9/25/20	
Hexachlorobenzene	450 U	450	1	10/02/20 12:38	9/25/20	
Hexachlorobutadiene	450 U	450	1	10/02/20 12:38	9/25/20	
Hexachlorocyclopentadiene	450 U	450	1	10/02/20 12:38	9/25/20	
Hexachloroethane	450 U	450	1	10/02/20 12:38	9/25/20	
Indeno(1,2,3-cd)pyrene	450 U	450	1	10/02/20 12:38	9/25/20	
Isophorone	450 U	450	1	10/02/20 12:38	9/25/20	
N-Nitrosodi-n-propylamine	450 U	450	1	10/02/20 12:38	9/25/20	
N-Nitrosodimethylamine	450 U	450	1	10/02/20 12:38	9/25/20	
N-Nitrosodiphenylamine	450 U	450	1	10/02/20 12:38	9/25/20	
Naphthalene	450 U	450	1	10/02/20 12:38	9/25/20	
Nitrobenzene	450 U	450	1	10/02/20 12:38	9/25/20	
Pentachlorophenol (PCP)	2300 U	2300	1	10/02/20 12:38	9/25/20	
Phenanthrene	450 U	450	1	10/02/20 12:38	9/25/20	
Phenol	450 U	450	1	10/02/20 12:38	9/25/20	
Pyrene	450 U	450	1	10/02/20 12:38	9/25/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	45	10 - 109	10/02/20 12:38	
2-Fluorobiphenyl	22	10 - 102	10/02/20 12:38	
2-Fluorophenol	22	10 - 88	10/02/20 12:38	
Nitrobenzene-d5	21	10 - 95	10/02/20 12:38	
Phenol-d6	24	10 - 145	10/02/20 12:38	
p-Terphenyl-d14	47	10 - 106	10/02/20 12:38	

Metals

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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/14/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	BO-R-09142020	**Basis:**	Dry
Lab Code:	R2008677-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**1160**	mg/Kg	20	1	09/23/20 14:14	09/21/20	
Antimony, Total	6010C	6.1 U	mg/Kg	6.1	1	09/23/20 14:14	09/21/20	
Arsenic, Total	6010C	**4.5**	mg/Kg	1.0	1	09/23/20 14:14	09/21/20	
Barium, Total	6010C	**19.3**	mg/Kg	2.0	1	09/23/20 14:14	09/21/20	
Beryllium, Total	6010C	0.30 U	mg/Kg	0.30	1	09/23/20 14:14	09/21/20	
Cadmium, Total	6010C	**0.94**	mg/Kg	0.51	1	09/23/20 14:14	09/21/20	
Calcium, Total	6010C	**1420**	mg/Kg	100	1	09/23/20 14:14	09/21/20	
Chromium, Total	6010C	**15.8**	mg/Kg	1.0	1	09/23/20 14:14	09/21/20	
Cobalt, Total	6010C	5.1 U	mg/Kg	5.1	1	09/23/20 14:14	09/21/20	
Copper, Total	6010C	**10.0**	mg/Kg	2.0	1	09/23/20 14:14	09/21/20	
Iron, Total	6010C	**14500**	mg/Kg	200	10	09/23/20 14:56	09/21/20	
Lead, Total	6010C	**14.9**	mg/Kg	5.1	1	09/23/20 14:14	09/21/20	
Magnesium, Total	6010C	**310**	mg/Kg	100	1	09/23/20 14:14	09/21/20	
Manganese, Total	6010C	**123**	mg/Kg	2.0	1	09/23/20 14:14	09/21/20	
Mercury, Total	7471B	0.035 U	mg/Kg	0.035	1	09/23/20 12:12	09/21/20	
Nickel, Total	6010C	**8.5**	mg/Kg	4.1	1	09/23/20 14:14	09/21/20	
Potassium, Total	6010C	**520**	mg/Kg	200	1	09/23/20 14:14	09/21/20	
Selenium, Total	6010C	1.0 U	mg/Kg	1.0	1	09/23/20 14:14	09/21/20	
Silver, Total	6010C	1.0 U	mg/Kg	1.0	1	09/23/20 14:14	09/21/20	
Sodium, Total	6010C	**1660**	mg/Kg	100	1	09/23/20 14:14	09/21/20	
Thallium, Total	6010C	1.0 U	mg/Kg	1.0	1	09/23/20 14:14	09/21/20	
Vanadium, Total	6010C	5.1 U	mg/Kg	5.1	1	09/23/20 14:14	09/21/20	
Zinc, Total	6010C	**137**	mg/Kg	2.0	1	09/23/20 14:14	09/21/20	

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/14/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	PUIFIERS-09142020	**Basis:**	Dry
Lab Code:	R2008677-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**736**	mg/Kg	30	1	09/23/20 14:17	09/21/20	
Antimony, Total	6010C	**12.6**	mg/Kg	9.1	1	09/23/20 14:17	09/21/20	
Arsenic, Total	6010C	**29.8**	mg/Kg	1.5	1	09/23/20 14:17	09/21/20	
Barium, Total	6010C	**160**	mg/Kg	3.0	1	09/23/20 14:17	09/21/20	
Beryllium, Total	6010C	0.46 U	mg/Kg	0.46	1	09/23/20 14:17	09/21/20	
Cadmium, Total	6010C	**2.01**	mg/Kg	0.76	1	09/23/20 14:17	09/21/20	
Calcium, Total	6010C	**1120**	mg/Kg	150	1	09/23/20 14:17	09/21/20	
Chromium, Total	6010C	**179**	mg/Kg	1.5	1	09/23/20 14:17	09/21/20	
Cobalt, Total	6010C	**18.6**	mg/Kg	7.6	1	09/23/20 14:17	09/21/20	
Copper, Total	6010C	**743**	mg/Kg	3.0	1	09/23/20 14:17	09/21/20	
Iron, Total	6010C	**238000**	mg/Kg	6100	200	09/25/20 00:01	09/21/20	
Lead, Total	6010C	**543**	mg/Kg	7.6	1	09/23/20 14:17	09/21/20	
Magnesium, Total	6010C	150 U	mg/Kg	150	1	09/23/20 14:17	09/21/20	
Manganese, Total	6010C	**819**	mg/Kg	3.0	1	09/23/20 14:17	09/21/20	
Mercury, Total	7471B	**13.5**	mg/Kg	0.48	10	09/23/20 12:32	09/21/20	
Nickel, Total	6010C	**206**	mg/Kg	6.1	1	09/23/20 14:17	09/21/20	
Potassium, Total	6010C	300 U	mg/Kg	300	1	09/23/20 14:17	09/21/20	
Selenium, Total	6010C	**5.6**	mg/Kg	1.5	1	09/23/20 14:17	09/21/20	
Silver, Total	6010C	**2.4**	mg/Kg	1.5	1	09/23/20 14:17	09/21/20	
Sodium, Total	6010C	**2440**	mg/Kg	150	1	09/23/20 14:17	09/21/20	
Thallium, Total	6010C	15 U	mg/Kg	15	10	09/23/20 14:59	09/21/20	
Vanadium, Total	6010C	**53.1**	mg/Kg	7.6	1	09/23/20 14:17	09/21/20	
Zinc, Total	6010C	**712**	mg/Kg	30	10	09/23/20 14:59	09/21/20	

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/16/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	Abandoned Pipeline-09162020	**Basis:**	Dry
Lab Code:	R2008677-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**19400**		mg/Kg	26	1	09/23/20 14:20	09/21/20	
Antimony, Total	6010C	7.7	U	mg/Kg	7.7	1	09/23/20 14:20	09/21/20	
Arsenic, Total	6010C	**10.5**		mg/Kg	1.3	1	09/23/20 14:20	09/21/20	
Barium, Total	6010C	**184**		mg/Kg	2.6	1	09/23/20 14:20	09/21/20	
Beryllium, Total	6010C	**1.45**		mg/Kg	0.39	1	09/23/20 14:20	09/21/20	
Cadmium, Total	6010C	0.65	U	mg/Kg	0.65	1	09/23/20 14:20	09/21/20	
Calcium, Total	6010C	**12800**		mg/Kg	130	1	09/23/20 14:20	09/21/20	
Chromium, Total	6010C	**28.5**		mg/Kg	1.3	1	09/23/20 14:20	09/21/20	
Cobalt, Total	6010C	**12.5**		mg/Kg	6.5	1	09/23/20 14:20	09/21/20	
Copper, Total	6010C	**44.8**		mg/Kg	2.6	1	09/23/20 14:20	09/21/20	
Iron, Total	6010C	**73200**		mg/Kg	520	20	09/25/20 00:04	09/21/20	
Lead, Total	6010C	**56.6**		mg/Kg	6.5	1	09/23/20 14:20	09/21/20	
Magnesium, Total	6010C	**5870**		mg/Kg	130	1	09/23/20 14:20	09/21/20	
Manganese, Total	6010C	**510**		mg/Kg	2.6	1	09/23/20 14:20	09/21/20	
Mercury, Total	7471B	**0.086**		mg/Kg	0.042	1	09/23/20 12:22	09/21/20	
Nickel, Total	6010C	**29.5**		mg/Kg	5.2	1	09/23/20 14:20	09/21/20	
Potassium, Total	6010C	**2570**		mg/Kg	260	1	09/23/20 14:20	09/21/20	
Selenium, Total	6010C	13	U	mg/Kg	13	10	09/23/20 15:02	09/21/20	
Silver, Total	6010C	1.3	U	mg/Kg	1.3	1	09/23/20 14:20	09/21/20	
Sodium, Total	6010C	**130**		mg/Kg	130	1	09/23/20 14:20	09/21/20	
Thallium, Total	6010C	1.3	U	mg/Kg	1.3	1	09/23/20 14:20	09/21/20	
Vanadium, Total	6010C	**47.9**		mg/Kg	6.5	1	09/23/20 14:20	09/21/20	
Zinc, Total	6010C	**284**		mg/Kg	2.6	1	09/23/20 14:20	09/21/20	

General Chemistry

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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/14/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	BO-R-09142020	**Basis:**	Dry
Lab Code:	R2008677-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chromium, Hexavalent	7199	0.43	U	mg/Kg	0.43	1	09/23/20 15:20	09/22/20	
Chromium, Hexavalent	7199	0.43	U	mg/Kg	0.43	1	09/23/20 15:12	09/22/20	
Cyanide, Total	9012B	0.30	U	mg/Kg	0.30	1	09/25/20 18:26	09/24/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/14/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	BO-R-09142020	**Basis:**	As Received
Lab Code:	R2008677-001		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Total Solids	ALS SOP	**89.5**	Percent	-	1	09/26/20 07:30	NA	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/14/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	PUIFIERS-09142020	**Basis:**	Dry
Lab Code:	R2008677-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cyanide, Total	9012B	**1280**	mg/Kg	18	50	09/25/20 18:48	09/24/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/14/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	PUIFIERS-09142020	**Basis:**	As Received
Lab Code:	R2008677-002		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Total Solids	ALS SOP	**65.7**	Percent	-	1	09/26/20 07:30	NA	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/16/20
Sample Matrix:	Soil	**Date Received:**	09/18/20 11:18
Sample Name:	Abandoned Pipeline-09162020	**Basis:**	As Received
Lab Code:	R2008677-003		

Inorganic Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Total Solids	ALS SOP	**73.1**	Percent	-	1	09/26/20 07:30	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
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www.alsglobal.com

Client: Inventum Engineering **Service Request:** R2008677
Project: Riverview
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Extraction Method: EPA 5030C

Sample Name	Lab Code	4-Bromofluorobenzene 31-154	Dibromofluoromethane 63-138	Toluene-d8 66-138
Abandoned Pipeline-09162020	R2008677-003	90	104	103
Method Blank	RQ2011206-04	101	101	103
Lab Control Sample	RQ2011206-03	105	106	104
Abandoned Pipeline-09162020 MS	RQ2011206-05	102	108	104
Abandoned Pipeline-09162020 DMS	RQ2011206-06	103	108	106

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/16/20
Sample Matrix:	Soil	**Date Received:**	09/18/20
		Date Analyzed:	09/23/20
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unp

Sample Name:	Abandoned Pipeline-09162020	**Units:**	ug/Kg
Lab Code:	R2008677-003	**Basis:**	Dry
Analysis Method:	8260C		
Prep Method:	EPA 5030C		

		Matrix Spike			Duplicate Matrix Spike					
		RQ2011206-05			RQ2011206-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	6.8 U	58.2	68.4	85	55.9	68.4	82	44-124	4	30
1,1,2,2-Tetrachloroethane	6.8 U	70.1	68.4	102	67.5	68.4	99	41-155	3	30
1,1,2-Trichloroethane	6.8 U	55.3	68.4	81	54.0	68.4	79	48-124	3	30
1,1,2-Trichloro-1,2,2-trifluoroethane	6.8 U	57.5	68.4	84	55.5	68.4	81	40-117	4	30
1,1-Dichloroethane (1,1-DCA)	6.8 U	62.6	68.4	92	60.4	68.4	88	41-138	4	30
1,1-Dichloroethene (1,1-DCE)	6.8 U	66.2	68.4	97	64.8	68.4	95	46-124	2	30
1,2,3-Trichlorobenzene	6.8 U	38.8	68.4	57	37.0	68.4	54	10-169	5	30
1,2,4-Trichlorobenzene	6.8 U	43.2	68.4	63	41.2	68.4	60	10-169	5	30
1,2-Dibromo-3-chloropropane (DBCP)	6.8 U	52.6	68.4	77	48.4	68.4	71	30-136	8	30
1,2-Dibromoethane	6.8 U	53.4	68.4	78	52.6	68.4	77	38-129	1	30
1,2-Dichlorobenzene	6.8 U	50.5	68.4	74	48.1	68.4	70	11-152	6	30
1,2-Dichloroethane	6.8 U	58.9	68.4	86	57.9	68.4	85	49-119	1	30
1,2-Dichloropropane	6.8 U	59.8	68.4	87	59.4	68.4	87	60-126	<1	30
1,3-Dichlorobenzene	6.8 U	52.6	68.4	77	49.6	68.4	73	13-151	5	30
1,4-Dichlorobenzene	6.8 U	51.0	68.4	75	48.0	68.4	70	10-151	7	30
1,4-Dioxane	140 U	1070	1370	78	1150	1370	84	49-188	7	30
2-Butanone (MEK)	6.8 U	76.1	68.4	111	72.9	68.4	107	13-176	4	30
2-Hexanone	6.8 U	74.4	68.4	109	73.9	68.4	108	12-163	<1	30
4-Methyl-2-pentanone	6.8 U	75.3	68.4	110	73.2	68.4	107	38-148	3	30
Acetone	6.8 U	118	68.4	172	122	68.4	178	11-183	3	30
Benzene	6.8 U	57.5	68.4	84	55.6	68.4	81	51-123	4	30
Bromochloromethane	6.8 U	56.3	68.4	82	53.1	68.4	78	46-129	5	30
Bromodichloromethane	6.8 U	55.9	68.4	82	54.2	68.4	79	39-122	4	30
Bromoform	6.8 U	50.5	68.4	74	50.2	68.4	73	16-135	1	30
Bromomethane	6.8 U	11.2	68.4	16	14.2	68.4	21	10-150	27	30
Carbon Disulfide	6.8 U	76.5	68.4	112	73.3	68.4	107	44-139	5	30
Carbon Tetrachloride	6.8 U	53.6	68.4	78	52.9	68.4	77	46-137	1	30
Chlorobenzene	6.8 U	53.6	68.4	78	51.7	68.4	76	25-129	3	30
Chloroethane	6.8 U	61.2	68.4	90	60.5	68.4	88	10-166	2	30
Chloroform	6.8 U	59.7	68.4	87	57.9	68.4	85	55-118	2	30
Chloromethane	6.8 U	44.8	68.4	65	45.9	68.4	67	10-139	3	30
Cyclohexane	6.8 U	81.9	68.4	120	77.6	68.4	114	28-126	5	30
Dibromochloromethane	6.8 U	56.5	68.4	83	54.7	68.4	80	36-125	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	09/16/20
Sample Matrix:	Soil	**Date Received:**	09/18/20
		Date Analyzed:	09/23/20
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unp

Sample Name:	Abandoned Pipeline-09162020	**Units:**	ug/Kg
Lab Code:	R2008677-003	**Basis:**	Dry
Analysis Method:	8260C		
Prep Method:	EPA 5030C		

		Matrix Spike			Duplicate Matrix Spike					
		RQ2011206-05			RQ2011206-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Dichlorodifluoromethane (CFC 12)	6.8 U	67.1	68.4	98	64.3	68.4	94	51-144	4	30
Dichloromethane	6.8 U	55.2	68.4	81	53.1	68.4	78	49-125	4	30
Ethylbenzene	6.8 U	56.2	68.4	82	54.2	68.4	79	23-132	4	30
Isopropylbenzene (Cumene)	6.8 U	55.9	68.4	82	54.4	68.4	80	18-133	2	30
Methyl Acetate	6.8 U	68.1	68.4	100	68.6	68.4	100	10-200	<1	30
Methyl tert-Butyl Ether	6.8 U	61.0	68.4	89	60.1	68.4	88	62-130	1	30
Methylcyclohexane	6.8 U	72.5	68.4	106	70.6	68.4	103	12-134	3	30
Styrene	6.8 U	53.1	68.4	78	51.1	68.4	75	15-160	4	30
Tetrachloroethene (PCE)	6.8 U	52.2	68.4	76	51.1	68.4	75	21-137	1	30
Tetrahydrofuran (THF)	6.8 U	57.5	68.4	84	58.4	68.4	85	55-146	1	30
Toluene	6.8 U	55.8	68.4	82	54.2	68.4	79	11-152	4	30
Trichloroethene (TCE)	6.8 U	47.3	68.4	69	46.6	68.4	68	23-140	1	30
Trichlorofluoromethane (CFC 11)	6.8 U	60.7	68.4	89	57.8	68.4	84	47-129	6	30
Vinyl Chloride	6.8 U	60.9	68.4	89	57.7	68.4	84	59-153	6	30
cis-1,2-Dichloroethene	6.8 U	58.1	68.4	85	56.5	68.4	83	42-129	2	30
cis-1,3-Dichloropropene	6.8 U	55.4	68.4	81	53.4	68.4	78	14-139	4	30
m,p-Xylenes	14 U	110	137	80	107	137	78	20-135	3	30
o-Xylene	6.8 U	56.7	68.4	83	54.5	68.4	80	26-137	4	30
trans-1,2-Dichloroethene	6.8 U	61.1	68.4	89	58.9	68.4	86	34-128	3	30
trans-1,3-Dichloropropene	6.8 U	53.7	68.4	79	53.2	68.4	78	17-155	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2011206-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	5.0 U	5.0	1	09/23/20 14:16	
1,1,2,2-Tetrachloroethane	5.0 U	5.0	1	09/23/20 14:16	
1,1,2-Trichloroethane	5.0 U	5.0	1	09/23/20 14:16	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0 U	5.0	1	09/23/20 14:16	
1,1-Dichloroethane (1,1-DCA)	5.0 U	5.0	1	09/23/20 14:16	
1,1-Dichloroethene (1,1-DCE)	5.0 U	5.0	1	09/23/20 14:16	
1,2,3-Trichlorobenzene	5.0 U	5.0	1	09/23/20 14:16	
1,2,4-Trichlorobenzene	5.0 U	5.0	1	09/23/20 14:16	
1,2-Dibromo-3-chloropropane (DBCP)	5.0 U	5.0	1	09/23/20 14:16	
1,2-Dibromoethane	5.0 U	5.0	1	09/23/20 14:16	
1,2-Dichlorobenzene	5.0 U	5.0	1	09/23/20 14:16	
1,2-Dichloroethane	5.0 U	5.0	1	09/23/20 14:16	
1,2-Dichloropropane	5.0 U	5.0	1	09/23/20 14:16	
1,3-Dichlorobenzene	5.0 U	5.0	1	09/23/20 14:16	
1,4-Dichlorobenzene	5.0 U	5.0	1	09/23/20 14:16	
1,4-Dioxane	100 U	100	1	09/23/20 14:16	
2-Butanone (MEK)	5.0 U	5.0	1	09/23/20 14:16	
2-Hexanone	5.0 U	5.0	1	09/23/20 14:16	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/23/20 14:16	
Acetone	5.0 U	5.0	1	09/23/20 14:16	
Benzene	5.0 U	5.0	1	09/23/20 14:16	
Bromochloromethane	5.0 U	5.0	1	09/23/20 14:16	
Bromodichloromethane	5.0 U	5.0	1	09/23/20 14:16	
Bromoform	5.0 U	5.0	1	09/23/20 14:16	
Bromomethane	5.0 U	5.0	1	09/23/20 14:16	
Carbon Disulfide	5.0 U	5.0	1	09/23/20 14:16	
Carbon Tetrachloride	5.0 U	5.0	1	09/23/20 14:16	
Chlorobenzene	5.0 U	5.0	1	09/23/20 14:16	
Chloroethane	5.0 U	5.0	1	09/23/20 14:16	
Chloroform	5.0 U	5.0	1	09/23/20 14:16	
Chloromethane	5.0 U	5.0	1	09/23/20 14:16	
Cyclohexane	5.0 U	5.0	1	09/23/20 14:16	
Dibromochloromethane	5.0 U	5.0	1	09/23/20 14:16	
Dichlorodifluoromethane (CFC 12)	5.0 U	5.0	1	09/23/20 14:16	
Dichloromethane	5.0 U	5.0	1	09/23/20 14:16	
Ethylbenzene	5.0 U	5.0	1	09/23/20 14:16	
Isopropylbenzene (Cumene)	5.0 U	5.0	1	09/23/20 14:16	
Methyl Acetate	5.0 U	5.0	1	09/23/20 14:16	
Methyl tert-Butyl Ether	5.0 U	5.0	1	09/23/20 14:16	
Methylcyclohexane	5.0 U	5.0	1	09/23/20 14:16	
Styrene	5.0 U	5.0	1	09/23/20 14:16	
Tetrachloroethene (PCE)	5.0 U	5.0	1	09/23/20 14:16	
Tetrahydrofuran (THF)	5.0 U	5.0	1	09/23/20 14:16	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2011206-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS, Unp

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Toluene	5.0 U	5.0	1	09/23/20 14:16	
Trichloroethene (TCE)	5.0 U	5.0	1	09/23/20 14:16	
Trichlorofluoromethane (CFC 11)	5.0 U	5.0	1	09/23/20 14:16	
Vinyl Chloride	5.0 U	5.0	1	09/23/20 14:16	
cis-1,2-Dichloroethene	5.0 U	5.0	1	09/23/20 14:16	
cis-1,3-Dichloropropene	5.0 U	5.0	1	09/23/20 14:16	
m,p-Xylenes	10 U	10	1	09/23/20 14:16	
o-Xylene	5.0 U	5.0	1	09/23/20 14:16	
trans-1,2-Dichloroethene	5.0 U	5.0	1	09/23/20 14:16	
trans-1,3-Dichloropropene	5.0 U	5.0	1	09/23/20 14:16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	31 - 154	09/23/20 14:16	
Dibromofluoromethane	101	63 - 138	09/23/20 14:16	
Toluene-d8	103	66 - 138	09/23/20 14:16	

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008677
Date Analyzed: 09/23/20

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unp

Units:ug/Kg
Basis: Dry

Lab Control Sample
RQ2011206-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	8260C	20.4	20.0	102	68-123
1,1,2,2-Tetrachloroethane	8260C	24.6	20.0	123 *	78-121
1,1,2-Trichloroethane	8260C	20.3	20.0	101	84-117
1,1,2-Trichloro-1,2,2-trifluoroethane	8260C	21.1	20.0	106	54-121
1,1-Dichloroethane (1,1-DCA)	8260C	22.0	20.0	110	76-123
1,1-Dichloroethene (1,1-DCE)	8260C	24.2	20.0	121 *	65-115
1,2,3-Trichlorobenzene	8260C	20.1	20.0	100	60-128
1,2,4-Trichlorobenzene	8260C	21.1	20.0	105	62-130
1,2-Dibromo-3-chloropropane (DBCP)	8260C	18.7	20.0	94	54-135
1,2-Dibromoethane	8260C	19.5	20.0	98	77-117
1,2-Dichlorobenzene	8260C	19.7	20.0	98	75-116
1,2-Dichloroethane	8260C	20.9	20.0	105	74-116
1,2-Dichloropropane	8260C	21.5	20.0	108	79-112
1,3-Dichlorobenzene	8260C	20.4	20.0	102	72-118
1,4-Dichlorobenzene	8260C	20.0	20.0	100	72-117
1,4-Dioxane	8260C	379	400	95	59-147
2-Butanone (MEK)	8260C	23.6	20.0	118	67-129
2-Hexanone	8260C	21.3	20.0	106	68-118
4-Methyl-2-pentanone	8260C	21.4	20.0	107	64-123
Acetone	8260C	24.8	20.0	124	32-154
Benzene	8260C	20.7	20.0	103	77-114
Bromochloromethane	8260C	19.7	20.0	99	78-117
Bromodichloromethane	8260C	19.3	20.0	97	72-118
Bromoform	8260C	18.6	20.0	93	55-134
Bromomethane	8260C	13.3	20.0	67	10-150
Carbon Disulfide	8260C	19.3	20.0	96	44-139
Carbon Tetrachloride	8260C	19.1	20.0	95	51-123
Chlorobenzene	8260C	20.2	20.0	101	79-115
Chloroethane	8260C	23.7	20.0	118	10-140
Chloroform	8260C	21.2	20.0	106	76-115
Chloromethane	8260C	21.4	20.0	107	10-131
Cyclohexane	8260C	25.9	20.0	129 *	67-122
Dibromochloromethane	8260C	19.2	20.0	96	68-121

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008677
Date Analyzed: 09/23/20

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unp

Units:ug/Kg
Basis: Dry

Lab Control Sample
RQ2011206-03

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Dichlorodifluoromethane (CFC 12)	8260C	24.3	20.0	122	51-144
Dichloromethane	8260C	19.5	20.0	98	72-118
Ethylbenzene	8260C	20.5	20.0	102	64-118
Isopropylbenzene (Cumene)	8260C	21.3	20.0	107	60-123
Methyl Acetate	8260C	19.3	20.0	97	31-122
Methyl tert-Butyl Ether	8260C	21.2	20.0	106	76-118
Methylcyclohexane	8260C	24.4	20.0	122	70-124
Styrene	8260C	19.9	20.0	99	74-117
Tetrachloroethene (PCE)	8260C	19.9	20.0	99	58-124
Tetrahydrofuran (THF)	8260C	21.3	20.0	106	63-126
Toluene	8260C	20.5	20.0	102	72-116
Trichloroethene (TCE)	8260C	17.9	20.0	89	69-118
Trichlorofluoromethane (CFC 11)	8260C	22.0	20.0	110	52-127
Vinyl Chloride	8260C	22.3	20.0	111	59-153
cis-1,2-Dichloroethene	8260C	21.0	20.0	105	79-113
cis-1,3-Dichloropropene	8260C	19.8	20.0	99	66-117
m,p-Xylenes	8260C	41.0	40.0	103	68-118
o-Xylene	8260C	20.6	20.0	103	71-116
trans-1,2-Dichloroethene	8260C	22.1	20.0	111	73-114
trans-1,3-Dichloropropene	8260C	19.0	20.0	95	57-135

Semivolatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
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Client: Inventum Engineering **Service Request:** R2008677
Project: Riverview
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3541

Sample Name	Lab Code	2,4,6-Tribromophenol 10-109	2-Fluorobiphenyl 10-102	2-Fluorophenol 10-88
Abandoned Pipeline-09162020	R2008677-003	45	22	22
Method Blank	RQ2011309-01	56	54	52
Lab Control Sample	RQ2011309-02	60	56	53
Duplicate Lab Control Sample	RQ2011309-03	54	49	45

Client: Inventum Engineering **Service Request:** R2008677
Project: Riverview
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Extraction Method: EPA 3541

Sample Name	Lab Code	Nitrobenzene-d5 10-95	Phenol-d6 10-145	p-Terphenyl-d14 10-106
Abandoned Pipeline-09162020	R2008677-003	21	24	47
Method Blank	RQ2011309-01	53	55	65
Lab Control Sample	RQ2011309-02	54	56	66
Duplicate Lab Control Sample	RQ2011309-03	46	49	58

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2011309-01	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,2,4-Trichlorobenzene	330 U	330	1	10/02/20 09:52	9/25/20	
1,2-Dichlorobenzene	330 U	330	1	10/02/20 09:52	9/25/20	
1,3-Dichlorobenzene	330 U	330	1	10/02/20 09:52	9/25/20	
1,4-Dichlorobenzene	330 U	330	1	10/02/20 09:52	9/25/20	
2,4,5-Trichlorophenol	330 U	330	1	10/02/20 09:52	9/25/20	
2,4,6-Trichlorophenol	330 U	330	1	10/02/20 09:52	9/25/20	
2,4-Dichlorophenol	330 U	330	1	10/02/20 09:52	9/25/20	
2,4-Dimethylphenol	330 U	330	1	10/02/20 09:52	9/25/20	
2,4-Dinitrophenol	1700 U	1700	1	10/02/20 09:52	9/25/20	
2,4-Dinitrotoluene	330 U	330	1	10/02/20 09:52	9/25/20	
2,6-Dinitrotoluene	330 U	330	1	10/02/20 09:52	9/25/20	
2-Chloronaphthalene	330 U	330	1	10/02/20 09:52	9/25/20	
2-Chlorophenol	330 U	330	1	10/02/20 09:52	9/25/20	
2-Methylnaphthalene	330 U	330	1	10/02/20 09:52	9/25/20	
2-Methylphenol	330 U	330	1	10/02/20 09:52	9/25/20	
2-Nitroaniline	330 U	330	1	10/02/20 09:52	9/25/20	
2-Nitrophenol	330 U	330	1	10/02/20 09:52	9/25/20	
3,3'-Dichlorobenzidine	330 U	330	1	10/02/20 09:52	9/25/20	
3- and 4-Methylphenol Coelution	330 U	330	1	10/02/20 09:52	9/25/20	
3-Nitroaniline	330 U	330	1	10/02/20 09:52	9/25/20	
4,6-Dinitro-2-methylphenol	1700 U	1700	1	10/02/20 09:52	9/25/20	
4-Bromophenyl Phenyl Ether	330 U	330	1	10/02/20 09:52	9/25/20	
4-Chloro-3-methylphenol	330 U	330	1	10/02/20 09:52	9/25/20	
4-Chloroaniline	330 U	330	1	10/02/20 09:52	9/25/20	
4-Chlorophenyl Phenyl Ether	330 U	330	1	10/02/20 09:52	9/25/20	
4-Nitroaniline	330 U	330	1	10/02/20 09:52	9/25/20	
4-Nitrophenol	1700 U	1700	1	10/02/20 09:52	9/25/20	
Acenaphthene	330 U	330	1	10/02/20 09:52	9/25/20	
Acenaphthylene	330 U	330	1	10/02/20 09:52	9/25/20	
Anthracene	330 U	330	1	10/02/20 09:52	9/25/20	
Benz(a)anthracene	330 U	330	1	10/02/20 09:52	9/25/20	
Benzo(a)pyrene	330 U	330	1	10/02/20 09:52	9/25/20	
Benzo(b)fluoranthene	330 U	330	1	10/02/20 09:52	9/25/20	
Benzo(g,h,i)perylene	330 U	330	1	10/02/20 09:52	9/25/20	
Benzo(k)fluoranthene	330 U	330	1	10/02/20 09:52	9/25/20	
Benzyl Alcohol	330 U	330	1	10/02/20 09:52	9/25/20	
2,2'-Oxybis(1-chloropropane)	330 U	330	1	10/02/20 09:52	9/25/20	
Bis(2-chloroethoxy)methane	330 U	330	1	10/02/20 09:52	9/25/20	
Bis(2-chloroethyl) Ether	330 U	330	1	10/02/20 09:52	9/25/20	
Bis(2-ethylhexyl) Phthalate	500 U	500	1	10/02/20 09:52	9/25/20	
Butyl Benzyl Phthalate	330 U	330	1	10/02/20 09:52	9/25/20	
Carbazole	330 U	330	1	10/02/20 09:52	9/25/20	
Chrysene	330 U	330	1	10/02/20 09:52	9/25/20	

Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	RQ2011309-01	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analysis Method: 8270D
Prep Method: EPA 3541

Analyte Name	Result		MRL	Dil.	Date Analyzed	Date Extracted	Q
Di-n-butyl Phthalate	330	U	330	1	10/02/20 09:52	9/25/20	
Di-n-octyl Phthalate	330	U	330	1	10/02/20 09:52	9/25/20	
Dibenz(a,h)anthracene	330	U	330	1	10/02/20 09:52	9/25/20	
Dibenzofuran	330	U	330	1	10/02/20 09:52	9/25/20	
Diethyl Phthalate	330	U	330	1	10/02/20 09:52	9/25/20	
Dimethyl Phthalate	330	U	330	1	10/02/20 09:52	9/25/20	
Fluoranthene	330	U	330	1	10/02/20 09:52	9/25/20	
Fluorene	330	U	330	1	10/02/20 09:52	9/25/20	
Hexachlorobenzene	330	U	330	1	10/02/20 09:52	9/25/20	
Hexachlorobutadiene	330	U	330	1	10/02/20 09:52	9/25/20	
Hexachlorocyclopentadiene	330	U	330	1	10/02/20 09:52	9/25/20	
Hexachloroethane	330	U	330	1	10/02/20 09:52	9/25/20	
Indeno(1,2,3-cd)pyrene	330	U	330	1	10/02/20 09:52	9/25/20	
Isophorone	330	U	330	1	10/02/20 09:52	9/25/20	
N-Nitrosodi-n-propylamine	330	U	330	1	10/02/20 09:52	9/25/20	
N-Nitrosodimethylamine	330	U	330	1	10/02/20 09:52	9/25/20	
N-Nitrosodiphenylamine	330	U	330	1	10/02/20 09:52	9/25/20	
Naphthalene	330	U	330	1	10/02/20 09:52	9/25/20	
Nitrobenzene	330	U	330	1	10/02/20 09:52	9/25/20	
Pentachlorophenol (PCP)	1700	U	1700	1	10/02/20 09:52	9/25/20	
Phenanthrene	330	U	330	1	10/02/20 09:52	9/25/20	
Phenol	330	U	330	1	10/02/20 09:52	9/25/20	
Pyrene	330	U	330	1	10/02/20 09:52	9/25/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	56	10 - 109	10/02/20 09:52	
2-Fluorobiphenyl	54	10 - 102	10/02/20 09:52	
2-Fluorophenol	52	10 - 88	10/02/20 09:52	
Nitrobenzene-d5	53	10 - 95	10/02/20 09:52	
Phenol-d6	55	10 - 145	10/02/20 09:52	
p-Terphenyl-d14	65	10 - 106	10/02/20 09:52	

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008677
Date Analyzed: 10/02/20

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/Kg
Basis: Dry

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2011309-02			RQ2011309-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,2,4-Trichlorobenzene	8270D	789	1650	48	687	1640	42	17-80	13	30
1,2-Dichlorobenzene	8270D	775	1650	47	649	1640	40	14-77	16	30
1,3-Dichlorobenzene	8270D	753	1650	46	639	1640	39	12-75	16	30
1,4-Dichlorobenzene	8270D	753	1650	46	631	1640	39	13-74	16	30
2,4,5-Trichlorophenol	8270D	842	1650	51	730	1640	45	29-97	13	30
2,4,6-Trichlorophenol	8270D	868	1650	53	748	1640	46	26-97	14	30
2,4-Dichlorophenol	8270D	837	1650	51	719	1640	44	25-90	15	30
2,4-Dimethylphenol	8270D	863	1650	52	775	1640	47	26-89	10	30
2,4-Dinitrophenol	8270D	1700 U	1650	0 *	1700 U	1640	0 *	10-128	NC	30
2,4-Dinitrotoluene	8270D	1040	1650	63	923	1640	56	30-111	12	30
2,6-Dinitrotoluene	8270D	1010	1650	61	911	1640	56	28-105	9	30
2-Chloronaphthalene	8270D	891	1650	54	766	1640	47	21-88	14	30
2-Chlorophenol	8270D	813	1650	49	687	1640	42	18-87	15	30
2-Methylnaphthalene	8270D	851	1650	52	734	1640	45	21-83	14	30
2-Methylphenol	8270D	879	1650	53	755	1640	46	22-86	14	30
2-Nitroaniline	8270D	1100	1650	67	961	1640	59	27-105	13	30
2-Nitrophenol	8270D	798	1650	48	695	1640	42	20-88	13	30
3- and 4-Methylphenol Coelution	8270D	806	1650	49	694	1640	42	27-92	15	30
3-Nitroaniline	8270D	957	1650	58	842	1640	51	27-98	13	30
4,6-Dinitro-2-methylphenol	8270D	562 J	1650	34	564 J	1640	34	11-96	<1	30
4-Bromophenyl Phenyl Ether	8270D	896	1650	54	814	1640	50	25-96	8	30
4-Chloro-3-methylphenol	8270D	928	1650	56	825	1640	50	29-92	11	30
4-Chloroaniline	8270D	740	1650	45	645	1640	39	21-72	14	30
4-Chlorophenyl Phenyl Ether	8270D	816	1650	49	727	1640	44	25-92	11	30
4-Nitroaniline	8270D	1070	1650	65	947	1640	58	27-102	11	30
4-Nitrophenol	8270D	970 J	1650	59	904 J	1640	55	10-130	7	30
Acenaphthene	8270D	918	1650	56	807	1640	49	25-92	13	30
Acenaphthylene	8270D	985	1650	60	861	1640	53	27-93	12	30
Anthracene	8270D	1040	1650	63	940	1640	57	32-106	10	30
Benz(a)anthracene	8270D	1020	1650	62	894	1640	55	33-109	12	30
Benzo(a)pyrene	8270D	1210	1650	73	1050	1640	64	34-115	13	30
Benzo(b)fluoranthene	8270D	1050	1650	64	918	1640	56	31-107	13	30
Benzo(g,h,i)perylene	8270D	1280	1650	77	1100	1640	67	30-127	14	30

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008677
Date Analyzed: 10/02/20

Duplicate Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Units:ug/Kg
Basis: Dry

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ2011309-02			RQ2011309-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Benzo(k)fluoranthene	8270D	1170	1650	71	1020	1640	62	34-111	14	30
Benzyl Alcohol	8270D	962	1650	58	826	1640	50	21-100	15	30
2,2'-Oxybis(1-chloropropane)	8270D	680	1650	41	579	1640	35	10-82	16	30
Bis(2-chloroethoxy)methane	8270D	814	1650	49	689	1640	42	17-85	15	30
Bis(2-chloroethyl) Ether	8270D	731	1650	44	620	1640	38	10-79	15	30
Bis(2-ethylhexyl) Phthalate	8270D	1230	1650	74	1070	1640	66	31-115	11	30
Butyl Benzyl Phthalate	8270D	1150	1650	70	987	1640	60	31-115	15	30
Carbazole	8270D	1270	1650	77	1130	1640	69	23-129	11	30
Chrysene	8270D	1110	1650	68	973	1640	59	34-108	14	30
Di-n-butyl Phthalate	8270D	1240	1650	75	1100	1640	67	33-114	11	30
Di-n-octyl Phthalate	8270D	1240	1650	75	1090	1640	66	32-116	13	30
Dibenz(a,h)anthracene	8270D	1250	1650	76	1080	1640	66	23-122	14	30
Dibenzofuran	8270D	950	1650	58	839	1640	51	27-94	13	30
Diethyl Phthalate	8270D	948	1650	57	842	1640	51	26-101	11	30
Dimethyl Phthalate	8270D	949	1650	57	850	1640	52	27-98	9	30
Fluoranthene	8270D	1130	1650	69	989	1640	60	34-111	14	30
Fluorene	8270D	948	1650	57	829	1640	51	27-95	11	30
Hexachlorobenzene	8270D	990	1650	60	885	1640	54	30-104	11	30
Hexachlorobutadiene	8270D	862	1650	52	744	1640	45	10-142	14	30
Hexachlorocyclopentadiene	8270D	663	1650	40	595	1640	36	10-133	11	30
Hexachloroethane	8270D	753	1650	46	630	1640	38	10-129	19	30
Indeno(1,2,3-cd)pyrene	8270D	1210	1650	73	1040	1640	64	33-121	13	30
Isophorone	8270D	697	1650	42	606	1640	37	21-79	13	30
N-Nitrosodi-n-propylamine	8270D	900	1650	55	767	1640	47	15-78	16	30
N-Nitrosodimethylamine	8270D	734	1650	44	648	1640	40	15-76	10	30
N-Nitrosodiphenylamine	8270D	1180	1650	71	1060	1640	64	29-108	10	30
Naphthalene	8270D	845	1650	51	726	1640	44	18-81	15	30
Nitrobenzene	8270D	807	1650	49	678	1640	41	14-80	18	30
Pentachlorophenol (PCP)	8270D	719 J	1650	44	764 J	1640	47	13-117	7	30
Phenanthrene	8270D	1030	1650	62	916	1640	56	33-103	10	30
Phenol	8270D	834	1650	51	714	1640	44	10-144	15	30
Pyrene	8270D	1090	1650	66	956	1640	58	33-111	13	30

Metals

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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	R2008677-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	20	U	mg/Kg	20	1	09/23/20 13:35	09/21/20	
Antimony, Total	6010C	6.0	U	mg/Kg	6.0	1	09/23/20 13:35	09/21/20	
Arsenic, Total	6010C	1.0	U	mg/Kg	1.0	1	09/23/20 13:35	09/21/20	
Barium, Total	6010C	2.0	U	mg/Kg	2.0	1	09/23/20 13:35	09/21/20	
Beryllium, Total	6010C	0.30	U	mg/Kg	0.30	1	09/23/20 13:35	09/21/20	
Cadmium, Total	6010C	0.50	U	mg/Kg	0.50	1	09/23/20 13:35	09/21/20	
Calcium, Total	6010C	100	U	mg/Kg	100	1	09/23/20 13:35	09/21/20	
Chromium, Total	6010C	1.0	U	mg/Kg	1.0	1	09/23/20 13:35	09/21/20	
Cobalt, Total	6010C	5.0	U	mg/Kg	5.0	1	09/23/20 13:35	09/21/20	
Copper, Total	6010C	2.0	U	mg/Kg	2.0	1	09/23/20 13:35	09/21/20	
Iron, Total	6010C	20	U	mg/Kg	20	1	09/23/20 13:35	09/21/20	
Lead, Total	6010C	5.0	U	mg/Kg	5.0	1	09/23/20 13:35	09/21/20	
Magnesium, Total	6010C	100	U	mg/Kg	100	1	09/23/20 13:35	09/21/20	
Manganese, Total	6010C	2.0	U	mg/Kg	2.0	1	09/23/20 13:35	09/21/20	
Mercury, Total	7471B	0.033	U	mg/Kg	0.033	1	09/23/20 11:18	09/21/20	
Nickel, Total	6010C	4.0	U	mg/Kg	4.0	1	09/23/20 13:35	09/21/20	
Potassium, Total	6010C	200	U	mg/Kg	200	1	09/23/20 13:35	09/21/20	
Selenium, Total	6010C	1.0	U	mg/Kg	1.0	1	09/23/20 13:35	09/21/20	
Silver, Total	6010C	1.0	U	mg/Kg	1.0	1	09/23/20 13:35	09/21/20	
Sodium, Total	6010C	100	U	mg/Kg	100	1	09/23/20 13:35	09/21/20	
Thallium, Total	6010C	1.0	U	mg/Kg	1.0	1	09/23/20 13:35	09/21/20	
Vanadium, Total	6010C	5.0	U	mg/Kg	5.0	1	09/23/20 13:35	09/21/20	
Zinc, Total	6010C	2.0	U	mg/Kg	2.0	1	09/23/20 13:35	09/21/20	

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008677
Date Analyzed: 09/23/20

Lab Control Sample Summary
Inorganic Parameters

Units:mg/Kg
Basis: Dry

Lab Control Sample
R2008677-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	194	200	97	80-120
Antimony, Total	6010C	46.3	50.0	93	80-120
Arsenic, Total	6010C	3.6	4.0	89	80-120
Barium, Total	6010C	204	200	102	80-120
Beryllium, Total	6010C	4.86	5.00	97	80-120
Cadmium, Total	6010C	5.04	5.00	101	80-120
Calcium, Total	6010C	200	200	100	80-120
Chromium, Total	6010C	20.4	20.0	102	80-120
Cobalt, Total	6010C	50.4	50.0	101	80-120
Copper, Total	6010C	24.9	25.0	100	80-120
Iron, Total	6010C	100	100	100	80-120
Lead, Total	6010C	48.7	50.0	97	80-120
Magnesium, Total	6010C	190	200	96	80-120
Manganese, Total	6010C	49.3	50.0	99	80-120
Mercury, Total	7471B	0.161	0.167	96	80-120
Nickel, Total	6010C	50.2	50.0	100	80-120
Potassium, Total	6010C	1830	2000	91	80-120
Selenium, Total	6010C	85.1	101	84	80-120
Silver, Total	6010C	4.73	5.0	95	80-120
Sodium, Total	6010C	1930	2000	96	80-120
Thallium, Total	6010C	180	200	90	80-120
Vanadium, Total	6010C	49.6	50.0	99	80-120
Zinc, Total	6010C	48.3	50.0	97	80-120

General Chemistry

ALS Environmental—Rochester Laboratory
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Analytical Report

Client:	Inventum Engineering	**Service Request:**	R2008677
Project:	Riverview	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	R2008677-MB		

Inorganic Parameters

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Chromium, Hexavalent	7199	0.40	U	mg/Kg	0.40	1	09/23/20 10:51	09/22/20	
Chromium, Hexavalent	7199	0.40	U	mg/Kg	0.40	1	09/23/20 10:59	09/22/20	
Cyanide, Total	9012B	0.30	U	mg/Kg	0.30	1	09/25/20 18:03	09/24/20	

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008677
Date Analyzed: 09/23/20 - 09/25/20

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/Kg
Basis: Dry

Lab Control Sample
R2008677-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chromium, Hexavalent	7199	653	656	100	80-120
Chromium, Hexavalent	7199	655	656	100	80-120
Cyanide, Total	9012B	2.98	3.00	99	85-115

Client: Inventum Engineering
Project: Riverview
Sample Matrix: Soil

Service Request: R2008677
Date Analyzed: 09/25/20

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/Kg
Basis: Dry

Lab Control Sample
R2008677-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	9012B	17.5	18.0	97	85-115

Subcontracted Analytical Parameters

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29-Sep-2020

Meghan Pedro
ALS Laboratory Group
1565 Jefferson Road
Building 300
Rochester, NY 14623

Re: **R2008677** Work Order: **20090778**

Dear Meghan,

ALS Environmental received 1 sample on 23-Sep-2020 10:52 AM for the analyses presented in the following report.

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

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 7.

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

Sincerely,

Shawn Smythe

Electronically approved by: Shawn Smythe

Shawn Smythe
Project Manager

Report of Laboratory Analysis

ALS Environmental

Date: 29-Sep-20

Client: ALS Laboratory Group
Project: R2008677
Work Order: **20090778**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
20090778-01	PURIFIERS-09142020	Bulk		9/14/2020	9/23/2020 10:52	☐

It is the responsibility of the client to notify the lab of any certification requirements in writing via the chain of custody as this may determine the preparation and analytical procedures employed.
Laboratory accreditation does not in any way constitute approval or endorsement by any accrediting body or agency of the federal government. Please contact ALS Cincinnati QA/QC Manager for accreditation identifications and certifications.
All sample collection is performed outside of ALS and is the sole responsibility of the client. Sample condition acceptable upon receipt except where noted. Estimates of concentration are semi-quantitative and are made on an area basis. Results apply only to portions of samples analyzed. Samples disposed after 60 days.
All analytical data (results) and technical content (comments) related to the preparation and analysis of the samples stated herein is the responsibility of the analyst. Raw data is reviewed and validated by a qualified peer analyst and imported into the Laboratory Information Management System (LIMS) where it is formatted by the cover letter signatory charged with compiling and sending the final LIMS generated report to the client.
The reporting limit (RL) for asbestos in bulk materials is 1% and is a function of the quantity of sample analyzed, the nature of any matrix interferences, sample preparation, and fiber size and distribution. Results reported as ND indicate that no asbestos was detected. Results reported as Trace indicate that asbestos was detected at some level confidently determined to be <1% which is considered inconclusive according to New York ELAP.
ALS performs variety of PLM methods for asbestos in bulk building materials including EPA 600/R-93/116, NIOSH 9002, ELAP 198.1, and ELAP 198.6. In addition, we perform a modified uncertified version of EPA 600/R-04/004 for asbestos in vermiculite which reports asbestos as present or absent only, an in-house developed uncertified method ALS SOP ENV 004 for asbestos in soil, and asbestos in soil by ASTM D7521.
Regardless of the method requested, all samples are examined according to mandatory method protocol. Any optional method protocol are eliminated from the initial analysis but may be performed upon client request. These may include; insufficient sample volume rejection*, phase separation of layered or heterogeneous samples, ashing to remove organic interferences, acid dissolution to remove mineral carbonate interferences, point counting**, and analysis by transmission electron microscopy (TEM) is recommended to verify all ND PLM results.
All samples are examined by stereomicroscope for the determination of homogeneity, texture, friability, color, and extent of fibrous components. Non-asbestos materials such as foil, paper, metal, plastic, pebbles, or organic debris are ignored and a subsample of the remaining material homogenized by some means for examination by polarized light microscope (PLM). Information obtained via both stereomicroscope and PLM are used in the final qualitative and quantitative analysis of fibrous components.
NOTE: Any visible building debris in soil samples such as pieces of drywall, roofing material,

insulation, concrete, etc., are not included in the soil analysis. If present, these are considered possible asbestos containing materials (ACM) and may be analyzed as separate samples upon client request.
*Sufficient sample volume is material dependent. For samples such as floor tiles, roofing felts, sheet insulation, etc., three to four square inches of the layered material is preferred. For materials such as ceiling tiles, loose fill insulation, pipe insulation, etc., one cubic inch (~15cc) is preferred. For samples of thin coating materials such as paints, mastics, spray plasters, etc., a smaller sample size may be suitable. For vermiculite analysis, a one gallon ziploc bag full of dry, loose material is acceptable. For ENV 004 soil samples, a 4oz jar is recommended. The ASTM D7521 Soil method requires a minimum of 8oz and a maximum of 16oz of homogeneous soil.
**PLM samples at or near the 1% detection limit may be analyzed by the 400 point count analysis which refers to method EPA 600/M4/82/020, or AHERA method EPA 40 CFR Part 763, Sub. E, App. E as these are synonymous

ALS Environmental

Date: *29-Sep-20*

Client: ALS Laboratory Group
Project: R2008677

Work Order: 20090778

Lab ID: 20090778-01A
Client Sample ID: PURIFIERS-09142020

Collection Date: 9/14/2020
Matrix: BULK

Analytical Results

Analyses	Result	Units	
ELAP 198.1 friable by PLM			Date Analyzed **9/28/2020**
Macroscopic Examination	Prep Date: **9/28/2020**		**ELAP198.1** Analyst: **MRS**
Color	Grey		
Description	Material		
Homogeneity	Homogeneous		
Texture	Crumbly		
Other Materials			**ELAP198.1**
Cellulose	>3<=5	%	
Fiberglass	ND	%	
Non-fibrous	>90<=100	%	
Other Fibers	ND	%	
Resin/binder	ND	%	
Asbestiform Minerals			**ELAP198.1**
Amosite	ND	%	
Anthophyllite	ND	%	
Chrysotile	ND	%	
Crocidolite	ND	%	
Tremolite - Actinolite	ND	%	
Total asbestos	**ND**	**%**	

Note:

Client: ALS Laboratory Group
Project: R2008677
WorkOrder: **20090778**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

Acronym	Description
DUP	Method Duplicate
E	EPA Method
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SDL	Sample Detection Limit
SW	SW-846 Method

Units Reported	Description
%	

ALS Environmental

Sample Receipt Checklist

Client Name: **ALS-ROCHESTER** Date/Time Received: **23-Sep-20 10:52**

Work Order: **20090778** Received by: **SNH**

Checklist completed by Shawn Smythe (eSignature) 24-Sep-20 (Date) Reviewed by: Shawn Smythe (eSignature) 24-Sep-20 (Date)

Matrices:

Carrier name: FedEx

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1