

**Phase II Environmental Site Assessment
703 South Nordic Drive
Petersburg, Alaska**

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
AST	Aboveground storage tank
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
DQO	Data quality objective
DRO	Diesel range organics
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
GRO	Gasoline range organics
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MS/MSD	Matrix spike/matrix spike duplicate
OWS	Oil/water separator
PAH	Polynuclear aromatic hydrocarbon
PCB	Polychlorinated biphenyls
PID	Photoionization detector
PVC	Polyvinyl chloride
ppm	Parts per million
REC	Recognized environmental conditions
RCRA	Resource Conservation Recovery Act
RPD	Relative percent difference
RRO	Residual range organics
SGS	SGS North America, Inc.
SIM	Selective ion method
VOCs	Volatile Organic Compounds

**PHASE II ENVIRONMENTAL SITE ASSESSMENT
703 SOUTH NORDIC DRIVE
PETERSBURG, ALASKA**

1.0 INTRODUCTION

This report presents the results of Shannon & Wilson's Phase II Environmental Site Assessment (ESA) activities conducted at 703 South Nordic Drive in Petersburg, Alaska. A vicinity map is included as Figure 1. A bulk fuel storage facility was located on the southeast portion of the property from about 1996 and 2006. The aboveground storage tanks (ASTs), which were removed by 2016, were located within a concrete containment area, shown on Figure 2.

2.0 BACKGROUND

A tank farm operated on the western portion of the property from the 1940s until approximately 1996. Petroleum-impacted soil was identified on the western portion of the site during site characterization activities beginning in 1994 and continuing through 2012. Following additional site characterization and cleanup activities, the Alaska Department of Environmental Conservation (ADEC) generated a Decision Document dated September 20, 2012 granting the site a "cleanup complete" determination. This determination was made even though contaminant concentrations exceeding the ADEC's most stringent soil cleanup levels remained onsite. In addition, it is noted that the former bulk fuel storage facility was located on the eastern portion of the property was not included in the site characterization and cleanup activities.

Shannon & Wilson prepared a Phase I Environmental Site Assessment (ESA) for the property in 2019. As documented in our October 10, 2019 *Phase I Environmental Site Assessment, 703 South Nordic Drive, Petersburg, Alaska* report, two recognized environmental conditions (RECs), one historical REC, and several Other Environmental Conditions were identified. Based on discussions with the Petersburg Borough, the following two RECs and one of the Other Environmental Conditions were further evaluated as part of this project.

- During our September 16, 2019 site visit, sumps were observed in the floor of the AST containment area. Effluent piping from the sumps outflow to an oil/water separator (OWS) adjacent north of the AST containment area. Depending upon the discharge point of the sumps/OWS, there is a potential that petroleum products have discharged to the subsurface and/or the local sanitary sewer system. There is also a potential that the sumps, OWS, and/or tank farm containment area have leaked and impacted the soil and/or groundwater at the site.

- Multiple 55-gallon drums were formerly located in the vicinity of the warehouse. There is a potential that releases from the drums could impact the soil and/or groundwater at the site.
- An on-site 550-gallon heating oil AST located along the southern exterior wall of the warehouse. There is a potential that releases from the AST could impact the soil and/or groundwater at the site.

The project was conducted in material accordance with our October 31, 2019 *Proposal to Conduct a Phase II ESA, 703 South Nordic Drive, Petersburg, Alaska* signed by Mr. Jason Werner of Petro 49 Inc. on October 31, 2019.

3.0 FIELD ACTIVITIES

The Phase II ESA activities consisted of advancing eight test pits, installing four temporary groundwater monitoring wells, and collecting field soil and groundwater samples. Test pit and temporary well locations are shown on Figure 2.

Shannon & Wilson provided a Qualified Environmental Professional to collect field screening readings and analytical soil and groundwater samples. The Petersburg Public Works Department provided the equipment and personnel to advance the test pits and install the temporary monitoring wells. SGS North America, Inc. (SGS) of Anchorage, Alaska conducted the analytical testing of the soil and groundwater samples. SGS was subcontracted to Shannon & Wilson. Photographs of the site activities are included in Appendix A and Field Notes are included in Appendix B.

3.1 Test Pits

Eight test pits, designated Test Pits TP1 through TP8, were advanced on December 17, 2019 using a Bobcat E50 track-mounted excavator. Prior to advancing the test pits, the Petersburg City office was contacted to mark buried utilities within the project area. The test pits were advanced to depths of between about 3.5 feet (Test Pit TP6) and 8.2 feet (Test Pit TP2) below ground surface (bgs). Test Pits TP1 and TP2 were located west of the former bulk AST concrete containment area (Photo 1). Test Pit TP3 was placed southwest of the 550-gallon heating oil AST located along the southern exterior wall of the warehouse and northeast of the oil/water separator (Photo 2). Test Pit TP4 was advanced in the area of the former drum storage area and a former cover parking area west of the warehouse. Test Pits TP5, TP6, and TP7 were positioned northwest, north, and east of the warehouse, respectively. Test Pit TP8 was placed approximately 30 feet west of Test Pit TP4 (Photo 3). A Shannon & Wilson field representative was present during the field activities to identify the test pit locations, log the soil encountered in

the test pits, and screen and sample the subsurface soils. A description of the soil sample locations, depths, and headspace screening results are provided in Table 1.

Beginning at about 2 feet bgs, soil screening samples were collected at about 2-foot intervals until the bottom of the test pits. The bottom of each test pit varied depending on groundwater depth, refusal, and/or the reach of the excavator. Each soil sample was visually described and “screened” for volatile organic compounds (VOCs) using a photoionization detector (PID) and ADEC-approved headspace screening techniques. The field screening samples were collected in re-sealable plastic bags, warmed to at least 40 degrees Fahrenheit, and tested within 60 minutes of collection. To screen, the sample was agitated for about 15 seconds, the seal of the bag was opened slightly, the instrument probe was inserted into the air space above the soil, and the bag held closed around the probe. The maximum ionization response as the PID draws vapor from the sample bag was recorded. The PID was calibrated with 100 parts per million (ppm) isobutylene in air standard gas.

One analytical sample was selected from Test Pits TP1 through TP3 and TP5 through TP8. Two analytical samples and one duplicate sample were collected from Test Pit TP4. The samples were collected from the highest field screening results. Analytical samples were collected by quickly and completely filling laboratory-provided glass jars in decreasing order of volatility. For each volatile sample, at least 25 grams of soil, but no more than what can be completely submerged with 25-milliliters of methanol, was placed into a pre-weighed, 4-ounce jar with a septa lid. A 25-milliliter aliquot of methanol containing laboratory-added surrogates was added to the sample jar to submerge the soil sample. For each non-volatile sample, the laboratory-supplied jar was completely filled with soil, taking care to exclude gravel and debris. Sample jars were filled using dedicated stainless-steel spoons, placed in coolers with ice packs, and transferred to the laboratory using chain of custody procedures.

Following the collection of soil samples, the excavated material was placed back into the respective test pits. The backfill was compacted with the excavator bucket.

3.2 Temporary Wells and Groundwater Sampling

Temporary Monitoring Wells TMW1 through TMW4 were installed in Test Pits TP8, TP4, TP3, and TP7, respectively. The wells were installed by advancing the test pits approximately 3 feet below the observed soil/groundwater interface, placing the temporary wells within the test pits, and backfilling the test pits with the excavated material from the associated test pit. The temporary wells consisted of 2-inch diameter, polyvinyl chloride (PVC) pipe (Photo 4). The bottom section of each well consisted of a 5-foot section of 2-inch diameter, slotted, PVC pipe. The temporary wells were left undisturbed in the bottom of the soil borings for approximately 12 hours to allow groundwater to accumulate.

Grab groundwater samples were collected with disposable polyethylene bailers from the temporary wells. Prior to sampling, groundwater levels within the wells were recorded using an electronic water level indicator. The wells were not purged or developed prior to sampling; therefore the groundwater samples collected from the temporary wells are of screening level quality to assess the presence or absence of petroleum-impacted groundwater. Analytical samples were collected by transferring water directly from the bailer into the laboratory supplied containers. The sample jars were filled in decreasing order of volatility. Following groundwater sampling, the temporary wells were removed, and the void space was backfilled with soil excavated from the associated test pit. The monitoring well locations are shown on Figure 2.

4.0 LABORATORY ANALYSES

Ten soil samples, including one duplicate, and five groundwater samples, including one duplicate, were collected and selectively analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101; diesel range organics (DRO) by AK 102; residual range organics (RRO) by AK 103; benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B; polychlorinated biphenyls (PCBs) by EPA Method 8082; Resource Conservation Recovery Act (RCRA) metals by EPA Method 6020; and polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D selective ion method (SIM). Four soil samples, including the duplicate sample, were analyzed for VOCs by EPA 8260C in lieu of BTEX. A methanol soil trip blank and a water trip blank accompanied the samples and were analyzed for GRO by AK 101 and VOCs by EPA Method 8260C.

The samples were submitted to SGS for analytical testing, using chain-of-custody procedures. The laboratory report and completed ADEC Laboratory Data Review Checklist are provided in Appendix C. The analytical soil and groundwater sample results are summarized in Tables 3 and 4, respectively.

5.0 SUBSURFACE CONDITIONS

The subsurface soil at the site generally consists of sand with varying amounts of silt and gravel to about 6 feet bgs. A gray silt was observed at 6 feet bgs to the base of the test pits. Groundwater was observed between approximately 4.5 feet bgs in Test Pit TP4 to about 6 feet bgs in Test Pit TP3. Depth to groundwater measured in the four temporary wells on December 17, 2019 ranged from 2.8 feet bgs in Temporary Well TMW2 to 5.4 feet bgs in Temporary Well TMW1. Groundwater was not encountered in Test Pits TP1, TP2, TP5, and TP6. Based on previous work conducted by others at the site, groundwater at the site is tidally influenced by the Wrangell Narrows to the north.

6.0 DISCUSSION OF ANALYTICAL RESULTS

The analytical soil results were compared to the most stringent ADEC Method Two cleanup levels listed in Tables B1 and B2 of 18 Alaska Administrative Code (AAC) 75.341, for the “over 40-inch (precipitation) zone (November 2018). The groundwater cleanup levels are presented in Table C of 18 AAC 75.341. The applicable soil and groundwater cleanup levels are listed in Tables 3 and 4, respectively.

6.1 Soil Samples

Duplicate Sample Set TP4S2/TP4S12 and Sample TP4S3 contained concentrations of DRO (maximum of 8,790 milligrams per kilogram [mg/kg]) exceeding the ADEC Method Two migration to groundwater cleanup level of 230 mg/kg. The samples collected from Test Pit TP4 also contained concentrations of ethylbenzene, 1,2,4-trimethylbenzene, naphthalene, and/or multiple PAHs greater than the applicable ADEC Method Two cleanup levels. The remaining target analytes were either not detected or were detected below ADEC cleanup levels.

Concentrations of arsenic (maximum of 4.37 mg/kg) and chromium (maximum of 29.5 mg/kg) greater than the applicable ADEC Method Two cleanup levels of 0.20 mg/kg and 0.089 mg/kg, respectively, were also detected in the samples from Test Pit TP4. Although the arsenic and chromium concentrations exceed the ADEC cleanup levels, it is our opinion that the reported arsenic concentrations are consistent with background levels present within the Petersburg, Alaska area.

6.2 Groundwater Samples

Groundwater samples from Temporary Wells TMW1 and TMW2 contained DRO concentrations greater than the ADEC cleanup level of 1.5 milligrams per liter (mg/L), with concentrations of 4.93 mg/L in Well TMW1 and a maximum of 54.1 mg/L in Well TMW2. The groundwater sample from Well TMW2 contained a maximum RRO concentration of 7.38 mg/L, which is greater than the ADEC cleanup level of 1.5 mg/L. The duplicate sample set TMW2/TMW12 collected from Well TMW2 contained concentrations of several PAHs, arsenic, chromium, and lead that were greater than the applicable ADEC cleanup levels. The remaining tested analytes were either not detected or reported at concentrations less than the applicable ADEC cleanup levels.

6.3 Quality Control Samples

The project laboratory follows on-going quality assurance/quality control procedures to evaluate conformance to applicable ADEC data quality objectives (DQOs). Internal laboratory controls

to assess data quality for this project include surrogates, method blanks, matrix spike/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to assess precision, accuracy, and matrix bias. If a DQO was not met, the project laboratory provides a brief narrative concerning the problem in the case narrative of their laboratory reports (see Appendix C).

Field quality control samples included trip blanks and field duplicate samples. Laboratory-prepared trip blank samples accompanied the project sample jars from the laboratory to the site during sampling activities and back again to SGS. The trip blanks did not contain detected concentrations of target analytes; therefore, it does not appear that cross contamination occurred during transport of the project samples.

Estimated concentrations of methylene chloride (0.0355 mg/kg) and DRO (7.88 mg/kg) were detected in method blanks associated with the soil project samples. The project samples did not contain detectable concentrations of methylene chloride, therefore are not considered affected by the method blank. Samples TP1S1, TP2S4, and TP8S2 contained estimated DRO concentrations, therefore the concentrations are reported as non-detect at the LOQ in these samples and are “B” flagged on Table 3. The concentrations of DRO in Samples TP3S3, TP5S1, and TP7S2 are greater than the LOQ but less than 5 times the method blank detection, therefore the sample concentrations are reported as non-detect at the reported concentration and are “B” flagged on Table 4. The concentration of DRO in Samples TP4S2, TP4S12, TP4S3, and TP6S1 is greater than 10 times the method blank detection, therefore these results are considered unaffected by the method blank detections and not flagged. The results of the affected samples are at least an order of magnitude below the applicable ADEC cleanup levels and it is our opinion that data usability not impacted by the method blank detection.

An estimated concentration of toluene (0.490 mg/L) was detected in the method blank associated with the groundwater project samples. Samples TMW1, TMW3, and TMW4 contained estimated toluene concentrations, therefore the concentrations are reported as non-detect at the LOQ in these samples and are “B” flagged on Table 4. The concentrations of toluene in Samples TMW2 and TMW12 are greater than the LOQ but less than 5 times the method blank detection, therefore the sample concentrations are reported as non-detect at the reported concentration and are “B” flagged on Table 4. The results of the affected samples are at least an order of magnitude below the applicable ADEC cleanup levels and it is our opinion that data usability not impacted by the method blank detection.

The relative percent difference (RPD) between the project sample and associated duplicate results is a measure of precision affected by matrix heterogeneity, sampling technique, and laboratory analyses. The ADEC recommends an RPD of less than 50 percent for duplicate soil

samples and 30 percent for duplicate groundwater samples. For duplicate soil sample set TP4S2/TP4S12, the lead RPD (170 percent) is greater than the ADEC's DQO of 50 percent. For duplicate groundwater sample set TMW2/TMW12, the DRO (51.6 percent), RRO (56.9 percent), benzo[k]fluoranthene (31.3 percent), and chrysene (30.5 percent) RPDs are greater than the ADEC's DQO of 30 percent. Therefore, these results are flagged "E" on Table 2 to indicate that the sample results are estimated due to the RPD failures.

Shannon & Wilson conducted a limited data assessment to review the laboratory's compliance with precision, accuracy, sensitivity, and completeness to the data quality objectives. Shannon & Wilson reviewed the SGS data deliverables and completed the ADEC's Laboratory Data Review Checklist, which is included in Appendix C. No non-conformances that would adversely affect the quality or usability of the data were noted.

7.0 CONCLUSIONS

During the Phase II ESA excavation activities, soil impacted with DRO and multiple VOCs and PAHs concentrations greater than the most stringent ADEC cleanup levels was documented in Test Pit TP4, which was advanced west of the warehouse. Target analytes were either not detected or detected at concentrations less than the applicable ADEC Method Two cleanup levels in samples collected from the remaining test pits. Based on these results, the contaminated soil identified in Test Pit TP4 is bound to the north, southeast, and west by Test Pits TP5, TP3, and TP8, respectively. The documented contamination is not bound to the east (beneath the warehouse) or south (beneath the OWS and tank containment area). It is also noted that other, undocumented releases could have occurred beneath the tank containment area.

Groundwater impacted with DRO, RRO, and several PAHs above the ADEC cleanup level was documented in Temporary Monitoring Wells TMW1 and TMW2. The limits of the groundwater contamination is currently undefined.

8.0 CLOSURE/LIMITATIONS

This report is prepared for the exclusive use of our client and their representatives in the study of this site. The findings presented within this report are based on the limited research, sampling, and analyses that were conducted. They should not be construed as definite conclusions regarding the site's soil or groundwater quality. It is possible that our tests missed higher levels of contaminants, although our intention was to collect samples in accordance with the ADEC-approved work plan. As a result, the sampling, analyses, and data interpretations can provide you with only our professional judgment as to the environmental characteristics of this site, and in no way guarantee that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of

our site activities. Changes in site conditions can occur over time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

You are advised that various state and federal agencies (ADEC, EPA, etc.) may require the reporting of this information. Shannon & Wilson does not assume the responsibility for reporting these findings and therefore has not, and will not, disclose the results of this study, unless specifically requested and authorized by Petro 49 Inc., or as required by law.

Shannon & Wilson has prepared the attachments in Appendix D, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our report. We appreciate this opportunity to be of service and your continued confidence in our firm. If you have questions or comments concerning this submittal, please contact the undersigned at (907) 561-2120.

SHANNON & WILSON, INC.



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TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 2)	Depth (feet bgs)	Headspace (ppm) ^	Sample Description
Soil Samples					
Test Pit TP1					
* TP1S1	12/17/2019	Test Pit TP1, Sample S1	1.8-2.2	1.8	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
TP1S2	12/17/2019	Test Pit TP1, Sample S2	3.8-4.2	1.5	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
TP1S3	12/17/2019	Test Pit TP1, Sample S3	5.8-6.2	0.8	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
Test Pit TP2					
TP2S1	12/17/2019	Test Pit TP2, Sample S1	1.8-2.2	1.1	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
TP2S2	12/17/2019	Test Pit TP2, Sample S2	3.8-4.2	0.5	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
TP2S3	12/17/2019	Test Pit TP2, Sample S3	5.8-6.2	0.1	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
* TP2S4	12/17/2019	Test Pit TP2, Sample S4	7.8-8.2	1.2	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
Test Pit TP3					
TP3S1	12/17/2019	Test Pit TP3, Sample S1	1.8-2.2	1.6	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
TP3S2	12/17/2019	Test Pit TP3, Sample S2	3.8-4.2	0.8	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
* TP3S3	12/17/2019	Test Pit TP3, Sample S3	5.8-6.2	1.9	Brown, <i>Organic Soil (OL)</i> ; moist to wet
TP3S4	12/17/2019	Test Pit TP3, Sample S4	7.8-8.2	1.4	Gray, <i>Silt (ML)</i> ; moist
Test Pit TP4					
TP4S1	12/17/2019	Test Pit TP4, Sample S1	1.8-2.2	54.2	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist
* TP4S2	12/17/2019	Test Pit TP7, Sample S2	2.8-3.2	152	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; moist, hydrocarbon odor
* TP4S12	12/17/2019	Duplicate of Sample TP4S2	2.8-3.2	152	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; wet, hydrocarbon odor
* TP4S3	12/17/2019	Test Pit TP7, Sample S3	4.1-4.5	70.4	Black, <i>Pooly Graded Sand with Gravel (SP)</i> ; wet, hydrocarbon odor
Test Pit TP5					
* TP5S1	12/17/2019	Test Pit TP5, Sample S1	1.8-2.2	2.6	Brown to Gray, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
TP5S2	12/17/2019	Test Pit TP5, Sample S2	3.8-4.2	1.5	Brown to Gray, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
TP5S3	12/17/2019	Test Pit TP5, Sample S3	5.8-6.2	1.6	Gray, <i>Silt (ML)</i> ; moist
TP5S4	12/17/2019	Test Pit TP5, Sample S4	7.0-7.5	1.2	Gray, <i>Silt (ML)</i> ; moist
Test Pit TP6					
* TP6S1	12/17/2019	Test Pit TP6, Sample S1	1.8-2.2	3.0	Brown to Gray, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
TP6S2	12/17/2019	Test Pit TP6, Sample S2	3.0-3.5	1.2	Gray, <i>Silt (ML)</i> ; moist
Test Pit TP7					
TP7S1	12/17/2019	Test Pit TP7, Sample S1	1.8-2.2	1.1	Brown to Gray, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
* TP7S2	12/17/2019	Test Pit TP7, Sample S2	3.8-4.2	1.3	Brown to Gray, <i>Poorly Graded Sand with Gravel (SP)</i> ; wet
TP7S3	12/17/2019	Test Pit TP7, Sample S3	5.8-6.2	0.5	Gray, <i>Silt (ML)</i> ; moist
Test Pit TP8					
TP8S1	12/17/2019	Test Pit TP8, Sample S1	1.8-2.2	1.2	Brown to Gray, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
* TP8S2	12/17/2019	Test Pit TP8, Sample S2	3.8-4.2	2.0	Brown to Gray, <i>Poorly Graded Sand with Gravel (SP)</i> ; wet
TP8S3	12/17/2019	Test Pit TP8, Sample S3	5.8-6.2	1.5	Gray, <i>Silt (ML)</i> ; moist

Notes:

* = Sample analyzed by the project laboratory (See Tables 3 and 4)

^ = Field screening instrument was a Thermo Environmental Instruments 580B photoionization detector (PID).

bgs = below ground surface

ppm = parts per million

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 2)	Depth (feet bgs)	Headspace (ppm)	Sample Description
<u>Water Samples</u>					
* TMW1	12/18/2019	Temporary Monitoring Well TMW1	5.4	-	Groundwater
* TMW2	12/18/2019	Temporary Monitoring Well TMW2	2.8	-	Groundwater
* TMW12	12/18/2019	Duplicate of Sample TMW2	2.8	-	Groundwater
* TMW3	12/18/2019	Temporary Monitoring Well TMW3	2.9	-	Groundwater
* TMW4	12/18/2019	Temporary Monitoring Well TMW4	3.4	-	Groundwater
<u>Quality Control Samples</u>					
* STB	12/17/2019	Soil Trip Blank	-	-	Ottawa sand with methanol added in the laboratory
* WTB	12/18/2019	Water Trip Blank	-	-	Organic-free water supplied by the laboratory

Notes:

* = Sample analyzed by the project laboratory (See Tables 3 and 4)

- = Measurement not recorded or not applicable

ppm = parts per million

bgs = below ground surface

**TABLE 2
WELL SAMPLING LOG**

	Monitoring Well Number			
	TMW1	TMW2	TMW3	TMW4
Water Level Measurement Data				
Date Water Level Measured	12/18/2019	12/18/2019	12/18/2019	12/18/2019
Time Water Level Measured	9:00	9:20	9:15	9:10
Measured Depth to Water (ft bgs)	5.4	2.8	2.9	3.4
Sampling Data				
Date Sampled	12/18/2019	12/18/2019	12/18/2019	12/18/2019
Time Sampled	9:30	10:00	11:00	11:30
Measured Depth to Water (ft bgs)	5.4	2.8	2.9	3.4
Total Depth of Well (ft bgs)	5.7	4.7	6.2	5.4
Water Column in Well (ft)	0.3	1.9	3.3	2.0
Gallons per Foot	0.16	0.16	0.16	0.16
Water Column Volume (gallons)	0.048	0.30	0.53	0.32
Sampling Method	Bailer	Bailer	Bailer	Bailer
Diameter of Well Casing	2-inch	2-inch	2-inch	2-inch
Remarks		Duplicate Sample TMW12		

Notes:

bgs = below ground surface
ft = feet

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample ID Number^ and Soil Sample Depth in Feet bgs or Sample Date (See Table 1, Figure 2, and Appendix B)										Trip Blank STB 12/17/2019
			Test Pit Soil Samples										
			TP1S1 1.8-2.2	TP2S4 7.8-8.2	TP3S3 5.8-6.2	TP4S2 2.8-3.2	TP4S12~ 2.8-3.2	TP4S3 4.1-4.5	TP5S1 1.8-2.2	TP6S1 1.8-2.2	TP7S2 3.8-4.2	TP8S2 3.8-4.2	
PID Headspace Reading - ppm	OVM 580B	-	1.8	1.2	1.9	152	152	70.4	2.6	3.0	1.3	2.0	-
Gasoline Range Organics (GRO) - mg/kg	AK 101	260	<1.16	<1.28	<2.11	13.9	10.0	4.67	<1.21	<1.43	<1.30	<1.41	<1.25
Diesel Range Organics (DRO) - mg/kg	AK 102	230	<22.8 B	<22.2 B	<38.0 B	8,790 J+	8,310 J+	740	41.4 B	93.9	<28.9 B	<22.5 B	-
Residual Range Organics (RRO) - mg/kg	AK 103	8,300	<57.0	<55.5	88.1 J	1,010	1,040	137	120	122	220	<56.0	-
Volatile Organic Compounds (VOCs)													
Benzene - mg/kg	EPA 8021B/8260C	0.022	<0.00580	<0.00645	<0.0106	<0.0109	<0.00995	<0.00750	<0.00605	<0.00715	<0.00650	<0.00700	<0.00630
Toluene - mg/kg	EPA 8021B/8260C	6.7	<0.0116	<0.0129	<0.0211	0.0279 J	0.0216 J	0.0132 J	<0.0121	<0.0143	<0.0130	<0.0141	<0.0126
Ethylbenzene - mg/kg	EPA 8021B/8260C	0.13	<0.0116	<0.0129	<0.0211	0.130	0.103	0.0276 J	<0.0121	<0.0143	<0.0130	<0.0141	<0.0126
Xylenes (total) - mg/kg	EPA 8021B/8260C	1.5	<0.0347	<0.0386	<0.0635	0.415	0.309	0.0486 J	<0.0362	<0.0430	<0.0390	<0.0421	<0.0377
1,2,4-Trimethylbenzene - mg/kg	EPA 8260C	0.61	-	-	-	0.830	0.668	0.0486 J	-	<0.0286	-	-	<0.0251
1,3,5-Trimethylbenzene - mg/kg	EPA 8260C	0.66	-	-	-	0.261	0.172	<0.0150	-	<0.0143	-	-	<0.0126
4-Isopropyltoluene - mg/kg	EPA 8260C	-	-	-	-	0.0738 J	0.0629 J	<0.0600	-	<0.0570	-	-	<0.0505
Acetone - mg/kg	EPA 8260C	38	-	-	-	<0.219	0.158 J	<0.150	-	<0.143	-	-	<0.126
Isopropylbenzene (Cumene) - mg/kg	EPA 8260C	5.6	-	-	-	0.152	0.128	0.0404	-	<0.0143	-	-	<0.0126
Naphthalene - mg/kg	EPA 8260C	0.038	-	-	-	18.7	8.65	2.97	-	<0.0143	-	-	<0.0126
n-Prpoylbenzene - mg/kg	EPA 8260C	9.1	-	-	-	0.134	0.131	0.0147 J	-	<0.0143	-	-	<0.0126
sec-Butylbenzene - mg/kg	EPA 8260C	28	-	-	-	0.106	0.106	0.0235 J	-	<0.0143	-	-	<0.0126
Other VOC Analytes -mg/kg	EPA 8260C	Various	-	-	-	ND	ND	ND	-	ND	-	-	ND
Polynuclear Aromatic Hydrocarbons (PAHs)													
1-Methylnaphthalene - mg/kg	EPA 8270D SIM	0.41	-	-	-	25.1	27.9	1.89	-	<0.0139	-	-	-
2-Methylnaphthalene - mg/kg	EPA 8270D SIM	1.3	-	-	-	8.48	11.6	0.0682	-	<0.0139	-	-	-
Acenaphthene - mg/kg	EPA 8270D SIM	37	-	-	-	87.1	95.4	4.22	-	0.00964 J	-	-	-
Acenaphthylene - mg/kg	EPA 8270D SIM	18	-	-	-	<3.225	<3.02	<0.0142	-	<0.0139	-	-	-
Anthracene - mg/kg	EPA 8270D SIM	390	-	-	-	18.4	19.4	0.358	-	<0.0139	-	-	-
Benzo(a)Anthracene - mg/kg	EPA 8270D SIM	0.70	-	-	-	10.2	10.2	0.270	-	<0.0139	-	-	-
Benzo[a]pyrene - mg/kg	EPA 8270D SIM	1.2	-	-	-	3.12 J	3.14 J	0.0886	-	<0.0139	-	-	-
Benzo[b]Fluoranthene - mg/kg	EPA 8270D SIM	12	-	-	-	5.11 J	4.97 J	0.143	-	<0.0139	-	-	-
Benzo[g,h,i]perylene - mg/kg	EPA 8270D SIM	1,900	-	-	-	<3.225	<3.02	0.0178 J	-	<0.0139	-	-	-
Benzo[k]fluoranthene - mg/kg	EPA 8270D SIM	120	-	-	-	<3.225	1.77 J	0.0462	-	<0.0139	-	-	-
Chrysene - mg/kg	EPA 8270D SIM	600	-	-	-	7.99	7.71	0.242	-	<0.0139	-	-	-
Dibenzo[a,h]anthracene - mg/kg	EPA 8270D SIM	1.2	-	-	-	<3.225	<3.02	<0.0142	-	<0.0139	-	-	-
Fluoranthene - mg/kg	EPA 8270D SIM	590	-	-	-	60.6	61.1	1.98	-	0.0103 J	-	-	-
Fluorene - mg/kg	EPA 8270D SIM	36	-	-	-	58.2	63.0	2.40	-	<0.0139	-	-	-
Indeno[1,2,3-c,d]pyrene - mg/kg	EPA 8270D SIM	12	-	-	-	<3.225	<3.02	0.0202 J	-	<0.0139	-	-	-
Naphthalene - mg/kg	EPA 8270D SIM	0.038	-	-	-	12.0	17.2	1.54	-	<0.111	-	-	-
Phenanthrene - mg/kg	EPA 8270D SIM	39	-	-	-	130	142	4.62	-	<0.0139	-	-	-
Pyrene - mg/kg	EPA 8270D SIM	87	-	-	-	41.1	41.5	1.36	-	0.0111 J-	-	-	-
Polychlorinated Biphenyls (PCBs) - mg/kg	EPA 8082A	1.0	-	-	-	ND	ND	-	-	-	-	-	-
Total RCRA Metals													
Arsenic - mg/kg	EPA 6020A	0.20	-	-	-	4.05	4.37	-	-	-	-	-	-
Barium - mg/kg	EPA 6020A	2,100	-	-	-	67.3	57.4	-	-	-	-	-	-
Cadmium - mg/kg	EPA 6020A	9.1	-	-	-	0.164 J	0.209 J	-	-	-	-	-	-
Chromium - mg/kg	EPA 6020A	0.089	-	-	-	29.5	25.1	-	-	-	-	-	-
Lead - mg/kg	EPA 6020A	400	-	-	-	8.90 E	111 E	-	-	-	-	-	-
Mercury - mg/kg	EPA 6020A	0.36	-	-	-	<0.192	<0.176	-	-	-	-	-	-
Selenium - mg/kg	EPA 6020A	6.9	-	-	-	0.749 J	0.691 J	-	-	-	-	-	-
Silver - mg/kg	EPA 6020A	11	-	-	-	<0.320	<0.293	-	-	-	-	-	-

*See Page 2 for Notes

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS

Notes:

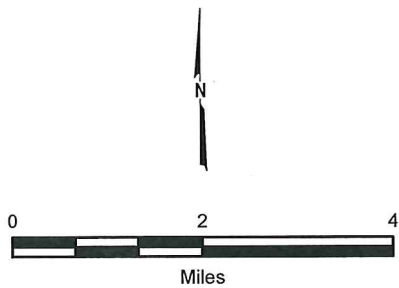
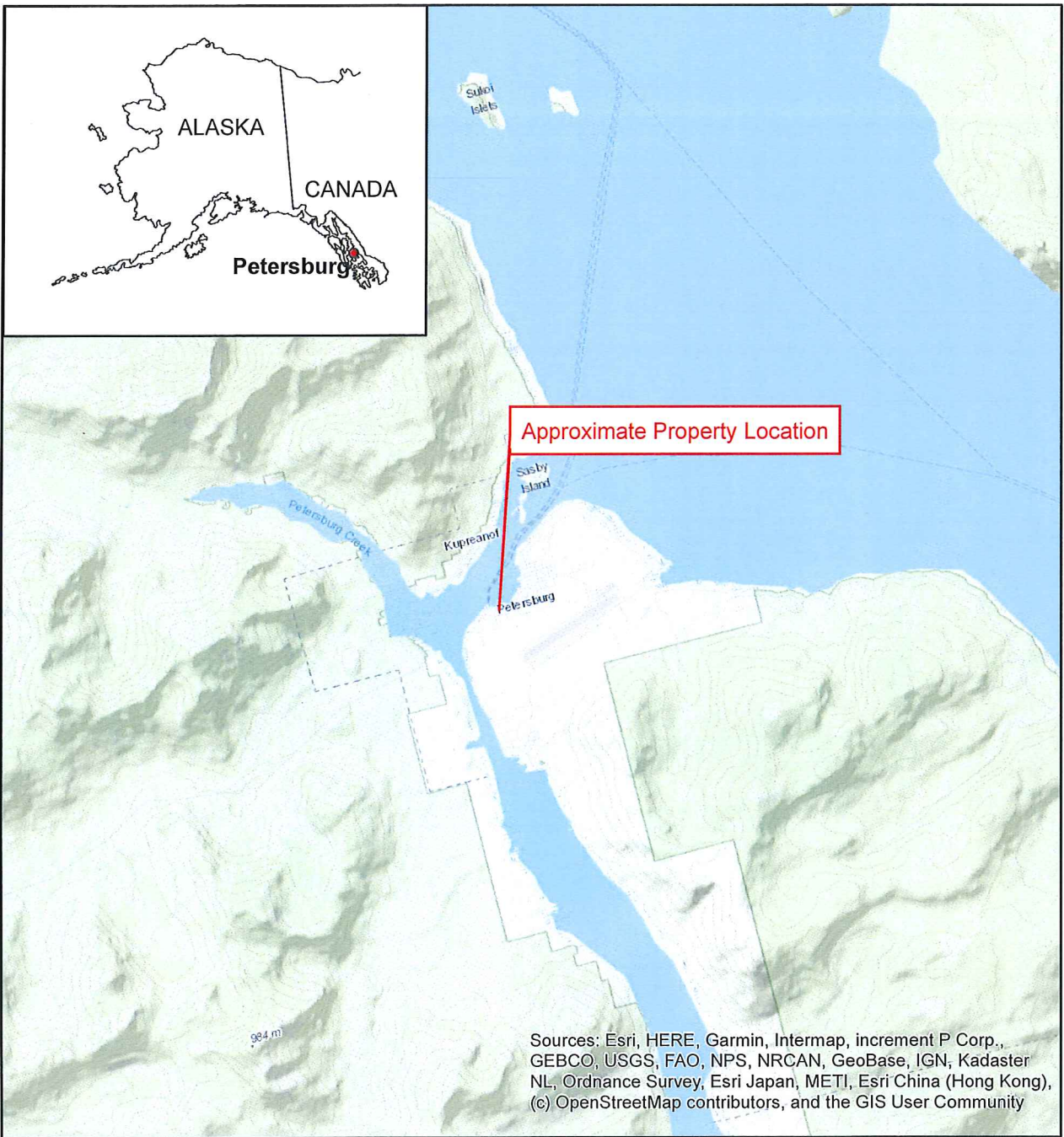
- * = See Appendix C for compounds tested, methods, and laboratory reporting limits
- ** = Soil cleanup level is the most stringent ADEC Method 2 standard listed in Table B1 or B2, 18 AAC 75 (November 2018), for the "over 40 inches (precipitation) zone"
- ^ = Sample ID number preceded by "104444-" on the chain of custody form
- mg/kg = Milligram per kilogram
- PID = Photoionization detector
- EPA = Environmental Protection Agency
- SIM = Selective ion method
- RCRA = Resource Conservation and Recovery Act
- <0.00580 = Analyte not detected; laboratory limit of detection of 0.00580 mg/kg
- <0.111 = Laboratory limit of quantitation exceeds the regulatory cleanup level
- 13.9 = Analyte detected
- 8,790 = Reported concentration exceeds the ADEC cleanup level
- = Not applicable or sample not tested for this analyte
- ~ = Field duplicate of Sample TP4S2
- J = Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
- J+ = Concentration possibly biased high due to surrogate recovery outside of QC. See the SGS laboratory report for more details.
- E = Result is an estimate due to a primary/field duplicate sample pair relative percent difference (RPD) failure. See the SGS laboratory report for more details.
- B = Compound detected in the method blank at an estimated concentration. See the Laboratory Data Review Checklist and SGS laboratory report for more details.
- ppm = part per million
- ND = not detected


TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

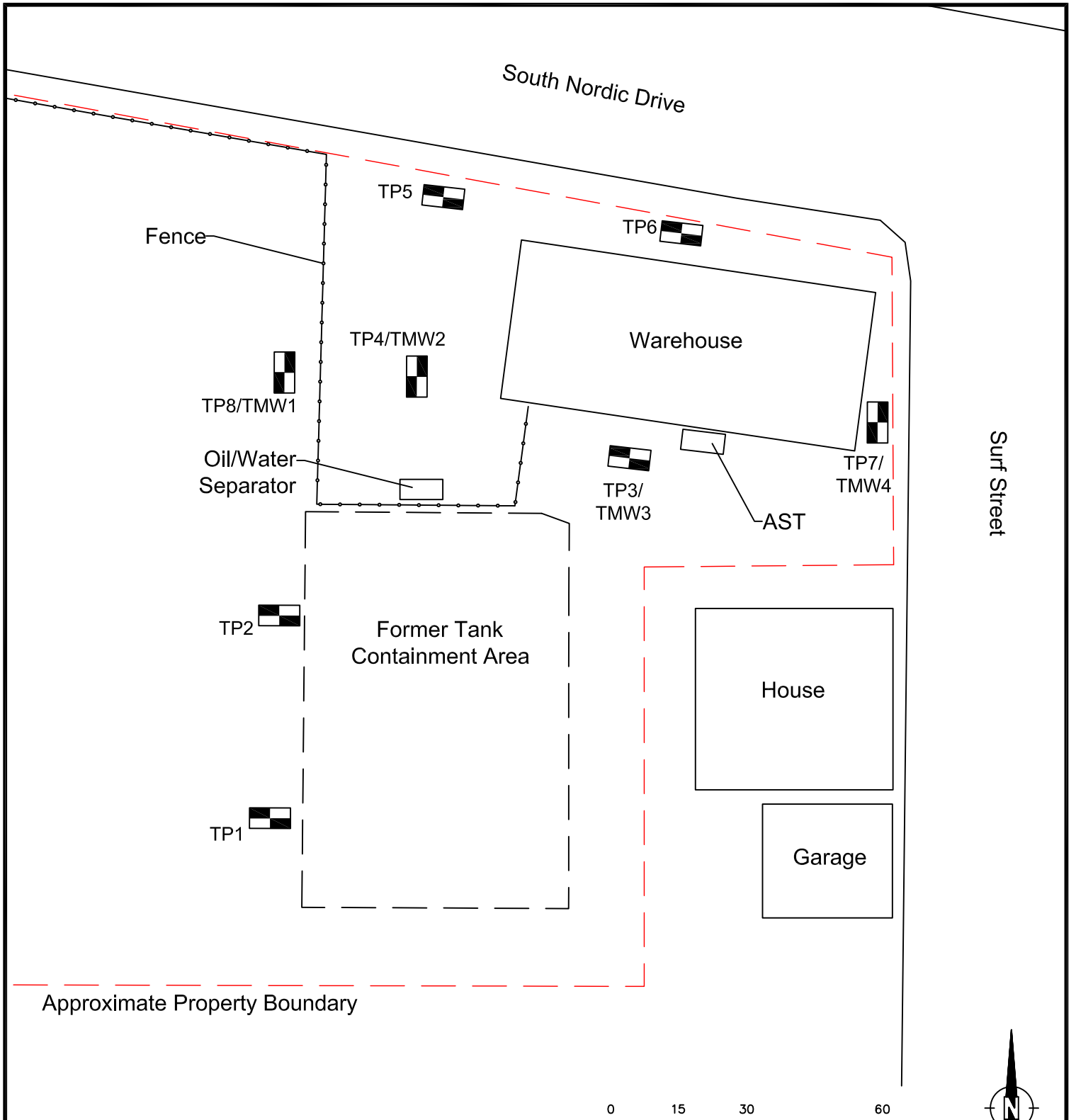
Parameter Tested	Method*	Cleanup Level (mg/L)**	Sample ID Number^ and Water Depth in Feet bgs or Sample Date (See Tables 1 and 2, and Figure 2)					
			Monitoring Wells					Trip Blank
			TMW1 5.4	TMW2 2.8	TMW12~ 2.8	TMW3 2.9	TMW4 3.4	WTB 12/18/2019
Gasoline Range Organics (GRO) - mg/L	AK 101	2.2	0.0477 J	0.0588 J	0.0464 J	<0.0500	<0.0500	<0.0500
Diesel Range Organics (DRO) - mg/L	AK 102	1.5	4.93	54.1 E	31.9 E	0.588	0.358 J	-
Residual Range Organics (RRO) - mg/L	AK 103	1.1	0.729	7.38 E	4.11 E	0.782	0.773	-
Volatile Organic Compounds (VOCs)								
Benzene - mg/L	EPA 8021B/8260C	0.0046	<0.000250	0.000163 J	0.000171 J	<0.000250	<0.000250	<0.000200
Toluene - mg/L	EPA 8021B/8260C	1.1	<0.00100 B	<0.00106 B	<0.00109 B	<0.00100 B	<0.00100 B	<0.000500
Ethylbenzene - mg/L	EPA 8021B/8260C	0.015	<0.000500	0.00202	0.00206	<0.000500	<0.000500	<0.000500
Xylenes (total) - mg/L	EPA 8021B/8260C	0.19	<0.00150	0.00476	0.00486	<0.00150	<0.00150	<0.00150
1,2,4-Trimethylbenzene - mg/L	EPA 8260C	0.056	-	0.00222	0.00220	-	-	<0.000500
1,3,5-Trimethylbenzene - mg/L	EPA 8260C	0.060	-	0.000533 J	0.000545 J	-	-	<0.000500
4-Isopropyltoluene - mg/L	EPA 8260C	-	-	0.000545 J	<0.000500	-	-	<0.000500
Isopropylbenzene (Cumene) - mg/L	EPA 8260C	0.45	-	0.00110	0.00113	-	-	<0.000500
Naphthalene - mg/L	EPA 8260C	0.0017	-	0.166	0.167	-	-	<0.000500
n-Prpoylbenzene - mg/L	EPA 8260C	0.66	-	0.000355 J	0.000344 J	-	-	<0.000500
sec-Butylbenzene - mg/L	EPA 8260C	2.0	-	<0.000500	<0.000500	-	-	<0.000500
Other VOC Analytes - mg/L	EPA 8260C	Various	-	ND	ND	-	-	-
Polynuclear Aromatic Hydrocarbons (PAHs)								
1-Methylnaphthalene - mg/L	EPA 8270D SIM	0.011	-	0.0985	0.120	-	-	-
2-Methylnaphthalene - mg/L	EPA 8270D SIM	0.036	-	0.0458	0.0559	-	-	-
Acenaphthene - mg/L	EPA 8270D SIM	0.53	-	0.195	0.248	-	-	-
Acenaphthylene - mg/L	EPA 8270D SIM	0.26	-	<0.000490	<0.000471	-	-	-
Anthracene - mg/L	EPA 8270D SIM	0.043	-	0.0163	0.0199	-	-	-
Benzo(a)Anthracene - mg/L	EPA 8270D SIM	0.00030	-	0.00639	0.00856 J-	-	-	-
Benzo[a]pyrene - mg/L	EPA 8270D SIM	0.00025	-	0.00207	0.00270 J-	-	-	-
Benzo[b]Fluoranthene - mg/L	EPA 8270D SIM	0.0025	-	0.00347	0.00437 J-	-	-	-
Benzo[g,h,i]perylene - mg/L	EPA 8270D SIM	0.00026	-	0.000464 J	0.000584 J-	-	-	-
Benzo[k]fluoranthene - mg/L	EPA 8270D SIM	0.00080	-	0.00132 E	0.00181 E, J-	-	-	-
Chrysene - mg/L	EPA 8270D SIM	0.0020	-	0.00684 E	0.00930 E, J-	-	-	-
Dibenzo[a,h]anthracene - mg/L	EPA 8270D SIM	0.00025	-	<0.000196	<0.000189	-	-	-
Fluoranthene - mg/L	EPA 8270D SIM	0.26	-	0.0450	0.0604 J-	-	-	-
Fluorene - mg/L	EPA 8270D SIM	0.29	-	0.0972	0.116	-	-	-
Indeno[1,2,3-c,d]pyrene - mg/L	EPA 8270D SIM	0.00019	-	0.000482 J	0.000623 J-	-	-	-
Naphthalene - mg/L	EPA 8270D SIM	0.0017	-	0.289	0.367	-	-	-
Phenanthrene - mg/L	EPA 8270D SIM	0.17	-	0.149	0.178	-	-	-
Pyrene - mg/L	EPA 8270D SIM	0.12	-	0.0311	0.0418 J-	-	-	-
Polychlorinated Biphenyls (PCBs) - mg/L	EPA 8082A	0.00044	-	ND	ND	-	-	-
Total RCRA Metals								
Arsenic - mg/L	EPA 6020A	0.00052	-	0.0594 J	0.0550 J	-	-	-
Barium - mg/L	EPA 6020A	3.8	-	1.28	1.18	-	-	-
Cadmium - mg/L	EPA 6020A	0.0092	-	<0.0100	<0.0100	-	-	-
Chromium - mg/L	EPA 6020A	22	-	0.266	0.198	-	-	-
Lead - mg/L	EPA 6020A	0.015	-	0.126	0.126	-	-	-
Mercury - mg/L	EPA 6020A	0.00052	-	<0.00250	<0.00250	-	-	-
Selenium - mg/L	EPA 6020A	0.100	-	<0.100	<0.100	-	-	-
Silver - mg/L	EPA 6020A	0.094	-	<0.0100	<0.0100	-	-	-

Notes:


- * = See Appendix C for compounds tested, methods, and laboratory reporting limits
- ** = Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (November 2018)
- ^ = Sample ID number preceded by "104444-" on the chain of custody form
- mg/L = Milligrams per liter
- EPA = Environmental Protection Agency
- SIM = Selective ion method
- RCRA = Resource Conservation and Recovery Act
- <0.000500 = Analyte not detected; laboratory limit of detection of 0.000500 mg/L
- <0.00250 = Analyte not detected; laboratory limit of detection is greater than the ADEC cleanup level
- 0.729** = Analyte detected
- 4.93** = Reported concentration exceeds the regulated cleanup level
- = Not applicable or sample not tested for this analyte
- ~ = Field duplicate of Sample MW3B
- J = Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
- J- = Concentration possibly biased low due to low surrogate recovery. See the SGS laboratory report for more details.
- B = Compound detected in method blank at an estimated concentration. See the LDRC or SGS report for details
- E = Result is an estimate due to a primary/field duplicate sample pair relative percent difference (RPD) failure.
- ND = Not detected
- bgs = Below ground surface



703 South Nordic Drive Petersburg, Alaska	
VICINITY MAP	
February 2020	104444-001
 SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS	FIG. 1



LEGEND

- 
 TP4/TMW2 Approximate Location of Test Pit TP4 and Temporary Monitoring Well TMW2 advanced/installed by Shannon & Wilson on December 17, 2019.
- AST Aboveground Storage Tank

703 South Nordic Drive
Petersburg, Alaska

SITE PLAN

February 2020

104444-001



FIG. 2

APPENDIX A
SITE PHOTOGRAPHS



Photo 1: Looking west from the former tank farm containment area at the advancement of Test Pit TP2. (December 17, 2019)



Photo 2: Looking northeast, Test Pit TP3 was advanced southwest of the on-site AST along the exterior southern wall of the warehouse. (December 17, 2019)

703 South Nordic Drive
Petersburg, Alaska

PHOTOS 1 AND 2

February 2020

104444-001



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

A-1



Photo 3: Looking east at the advancement of Test Pit TP8.
(December 17, 2019)



Photo 4: Looking west at Temporary Well TMW3 within Test Pit
TP3.
(December 17, 2019)

703 South Nordic Drive
Petersburg, Alaska

PHOTOS 3 AND 4

February 2020

104444-001



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

A-2

APPENDIX B
FIELD NOTES

SAMPLE COLLECTION LOG

Project Number: 104444

Location: Petro Marine Petersburg, Ak

Date: 12/17/19

Sampler: JCT

Sample Number	Location	Sample Time	Depth Interval (ft)		Matrix Type	Sampling Method	Sample Type	PID Reading	Analyses
			top	bottom					
* 104444 - TP1S1	Test Pit 1 Former Tank Farm	915	1.8	2.2	Soil	Grab		2.8	* Black sand w/ gravel
TP1S2	↓	—	3.8	4.2	↓	↓		1.5	moist
TP1S3	↓	—	5.8	6.2	↓	↓		0.8	"566"
* 104444 - TP2S1	Test Pit 2 Former Tank Farm	940	1.8	2.2	Soil	Grab		1.1	* Black sand w/ gravel
TP2S2	↓	—	3.8	4.2	↓	↓		0.5	moist
TP2S3	↓	—	5.8	6.2	↓	↓		0.1	"566"
* TP2S4	↓	1000	7.8	8.2	↓	↓		1.2	*
* 104444 - TP3S1	Test Pit 3 Hastings AST Area	1100	1.8	2.2	Soil	Grab		1.6	Black sand w/ gravel
TP3S2	↓	—	3.8	4.2	↓	↓		0.8	"566" w/ moist
TP3S3	↓	1115	5.8	6.2	↓	↓		1.9	Br Organic soil "mudsk."
TP3S4	↓	—	7.8	8.2	↓	↓		1.4	"Clay wet at 16" bgs
* TP3S13	Duplicate of TP3S3	1200							
104444 - TP4S1	Former drum storage area	—	1.8	2.2	Soil	Grab		54.2	Black sand w/ gravel w/ moist
TP4S2	↓	1310	3.8	4.2	↓	↓		15.2	
TP4S3	↓	1320	4.1	4.5	↓	↓		70.4	HC odor
TP4S12	Duplicate of TP4S2	1400							water at 24.5' bgs
TP5S1	A	1410	1.8	2.2	Soil	Grab			has sheen on it.
TP5S2	By street in front of drum area	—	3.8	4.2	↓	↓		2.6	Br to gray sand w/ gravel
TP5S3	↓	—	5.8	6.2	↓	↓		1.5	moist
TP5S4	↓	—	7.0	7.5	↓	↓		1.6	Gray clay moist
								1.2	Gray clay moist
									No water in TP

Matrix Type	Sampling Method	Sample Type
AR Air	B Bailor/Coilwas	ES Environmental sample
GW Groundwater	D Drill cuttings	ER Equipment rinse
PR Product	G Grab sampling	FB Field blank
SB Subsurf. soil	H Hand auger	FD Field duplicate
SE Sediment	L Tube liner	FM Field measurement
SG Sludge	P Pump (liquid)	FR Field replicate
SS Surface soil	SS Split spoon	MD Matrix spike duplicate
SW Surface water	T Shelby tube	MS Matrix spike duplicate
WR Water	V Vacuum (gas)	TB Trip blank
	W Wipe sampling	

SAMPLE COLLECTION LOG

Project Number: 1094949-001 Location: Petco 49. Ave Petersburg, AK
 Date: 12/17/19
 Sampler: JCT

Sample Number	Location	Sample Time	Depth Interval (ft)		Matrix Type	Sampling Method	Sample Type	PID Reading	Analyses
			top	bottom					
* TP651	Front of building	1430	1.8	2.2	Soil	Grab		3.0	Brown to gray sand & gravel
TP652			3.0	3.5				1.2	Gray clay moist
104444-TP751	Side of building								
TP752		1455	1.8	2.2	Soil	Grab		1.1	Brown to cr. sand & gravel
TP753			3.8	4.2				1.3	
			5.8	6.2				0.5	Gr. Clay moist
TP851									Water at 4.5
TP852		1520	1.8	2.2	Soil	Grab		1.2	Same as TP7
TP853			3.8	4.2				2.0	
			5.8	6.2				1.5	

Matrix Type	Sampling Method	Sample Type
AR Air	Bailer/Coilwgs	ES Environmental sample
GW Groundwater	Drill cuttings	ER Equipment rinse
PR Product	Grab sampling	FB Field blank
SB Subsurf. soil	Hand auger	FD Field duplicate
SE Sediment	Tube liner	FM Field measurement
SG Sludge	Pump (liquid)	FR Field replicate
SS Surface soil	Spill spoon	MD Matrix spike duplicate
SW Surface water	Shelby tube	MS Matrix spike duplicate
WR Water	Vacuum (gas)	TB Trip blank
	Wipe sampling	



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 104444-001 Location: Petersburg, Ak Weather: Overcast 35°F
 Well No.: TMW1
 Date: 12/18/19 Time Started: — Time Completed: —
 Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 900 Date of Depth Measurement: 12/18/19
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: ground surface
 Diameter of Casing: 2" Well Screen Interval: —
 Total Depth of Well Below MP: 5.7 Product Thickness, if noted: —
 Depth-to-Water (DTW) Below MP: 5.4
 Water Column in Well: 0.3 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.16
 Gallons in Well: — (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: — Time Started: — Time Completed: —
 Three Well Volumes: — (Gallons in Well x 3)
 Gallons Purged: — Depth of Pump (generally 2 ft from bottom): —
 Max. Drawdown (generally 0.3 ft): — Pump Rate: —

Well Purged Dry: Yes No (If yes, use Well Purged-Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)

SAMPLING DATA

Odor: None Color: Brown
 Sample Designation: 104444-TMW1 Time / Date: 9:30 12/18/19
 QC Sample Designation: — Time / Date: —
 QA Sample Designation: — Time / Date: —
 Evacuation Method: Bladder Pump / Submersible Pump / Other: bauler
 Sampling Method: Bladder Pump / Submersible Pump / Other: bauler
 Water Quality Instruments Used/Manufacturer/Model Number: —
 Calibration Info (Time, Ranges, etc): —
 Remarks: —

Sampling Personnel: Jake Tracy

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65
 ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 104444-001 Location: Petersburg, Ak Weather: Overcast 35-F
 Well No.: TMW2
 Date: 12/18/19 Time Started: — Time Completed: —
 Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 920 Date of Depth Measurement: 12/18/19
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: ground surface
 Diameter of Casing: 2" Well Screen Interval: —
 Total Depth of Well Below MP: 4.7 Product Thickness, if noted: —
 Depth-to-Water (DTW) Below MP: 2.8
 Water Column in Well: 1.9 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.16
 Gallons in Well: — (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: — Time Started: — Time Completed: —
 Three Well Volumes: — (Gallons in Well x 3)
 Gallons Purged: — Depth of Pump (generally 2 ft from bottom): —
 Max. Drawdown (generally 0.3 ft): — Pump Rate: —

Well Purged Dry: Yes No (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)

SAMPLING DATA

Odor: Hydrocarbon Color: Brown
 Sample Designation: 104444-TMW2 Time / Date: 1000 12/18/19
 QC Sample Designation: 104444-TMW12 Time / Date: 1030 12/18/19
 QA Sample Designation: — Time / Date: —
 Evacuation Method: Bladder Pump / Submersible Pump / Other: bauler
 Sampling Method: Bladder Pump / Submersible Pump / Other: bauler
 Water Quality Instruments Used/Manufacturer/Model Number —
 Calibration Info (Time, Ranges, etc) —
 Remarks: —

Sampling Personnel: Jake Traugott
 WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65
 ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 104444-001 Location: Petersburg, AL Weather: Overcast 35°F
 Well No.: TAW3
 Date: 12/18/19 Time Started: — Time Completed: —
 Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 9:15 Date of Depth Measurement: 12/18/19
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: ground surface
 Diameter of Casing: 2" Well Screen Interval: —
 Total Depth of Well Below MP: 6.2 bgs Product Thickness, if noted: —
 Depth-to-Water (DTW) Below MP: 2.9 bgs
 Water Column in Well: 3.3 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.16
 Gallons in Well: — (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: — Time Started: — Time Completed: —
 Three Well Volumes: — (Gallons in Well x 3)
 Gallons Purged: — Depth of Pump (generally 2 ft from bottom): —
 Max. Drawdown (generally 0.3 ft): — Pump Rate: —

Well Purged Dry: Yes No (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)

SAMPLING DATA

Odor: None Color: Brown
 Sample Designation: 104444-TAW3 Time / Date: 1100
 QC Sample Designation: — Time / Date: —
 QA Sample Designation: — Time / Date: —
 Evacuation Method: Bladder Pump / Submersible Pump / Other: Barber
 Sampling Method: Bladder Pump / Submersible Pump / Other: Barber
 Water Quality Instruments Used/Manufacturer/Model Number —
 Calibration Info (Time, Ranges, etc) —
 Remarks: —

Sampling Personnel: Jake Tracy

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65
 ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 104444-001 Location: Petersburg, Ak Weather: Overcast 35°F
 Well No.: TMW4
 Date: 12/18/19 Time Started: — Time Completed: —
 Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 9:10 Date of Depth Measurement: 12/18/19
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: ground surface
 Diameter of Casing: — Well Screen Interval: —
 Total Depth of Well Below MP: 5.4 bgs Product Thickness, if noted: —
 Depth-to-Water (DTW) Below MP: 3.4 bgs
 Water Column in Well: 2 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.16
 Gallons in Well: — (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: — Time Started: — Time Completed: —
 Three Well Volumes: — (Gallons in Well x 3)
 Gallons Purged: — Depth of Pump (generally 2 ft from bottom): —
 Max. Drawdown (generally 0.3 ft): — Pump Rate: —

Well Purged Dry: Yes No (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)

SAMPLING DATA

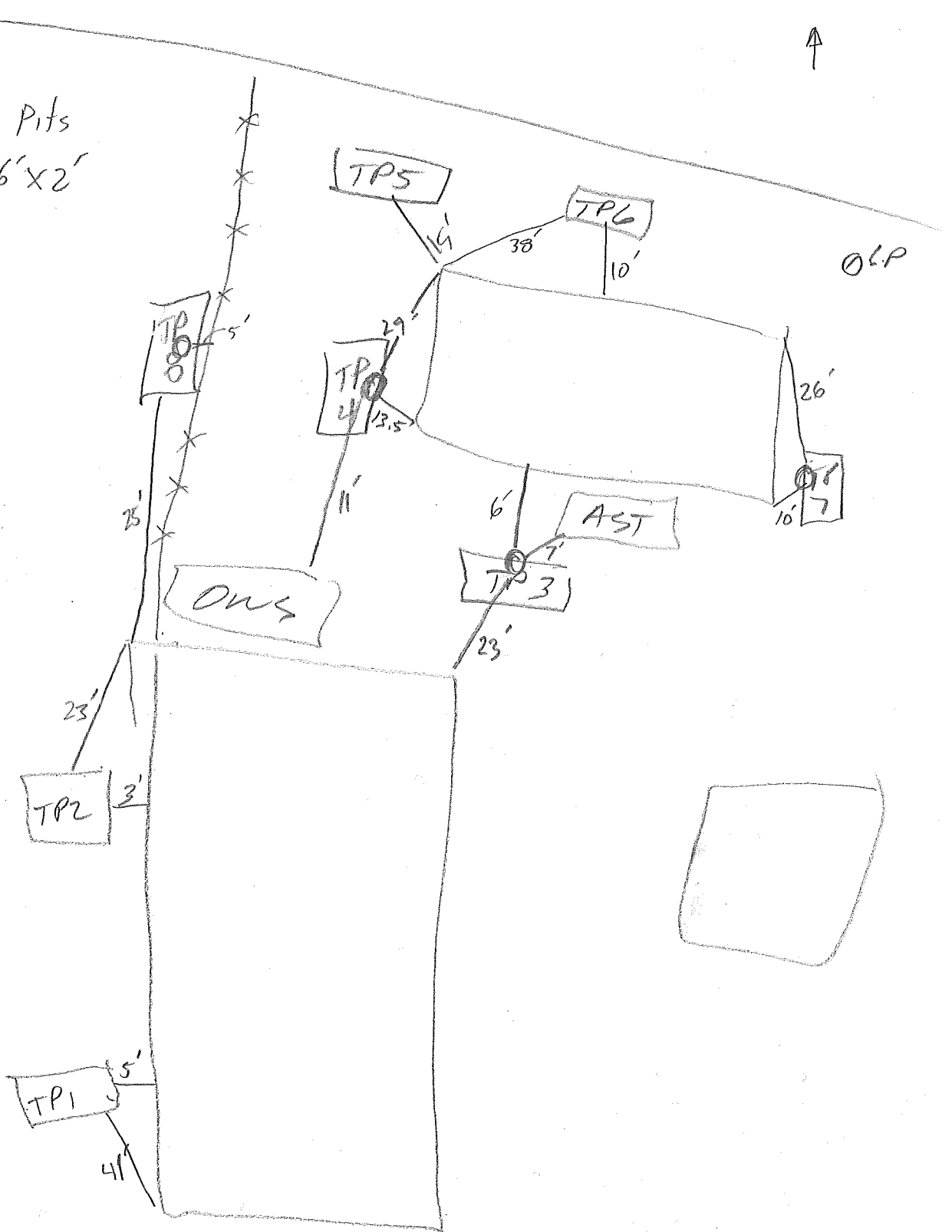
Odor: None Color: Brown
 Sample Designation: 104444-TMW4 Time / Date: 1130
 QC Sample Designation: — Time / Date: —
 QA Sample Designation: — Time / Date: —

Evacuation Method: Bladder Pump / Submersible Pump / Other: Bailer
 Sampling Method: Bladder Pump / Submersible Pump / Other: Bailer
 Water Quality Instruments Used/Manufacturer/Model Number —
 Calibration Info (Time, Ranges, etc) —
 Remarks: —

Sampling Personnel: Jake Tracy

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65
 ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Test Pits
were 6' x 2'

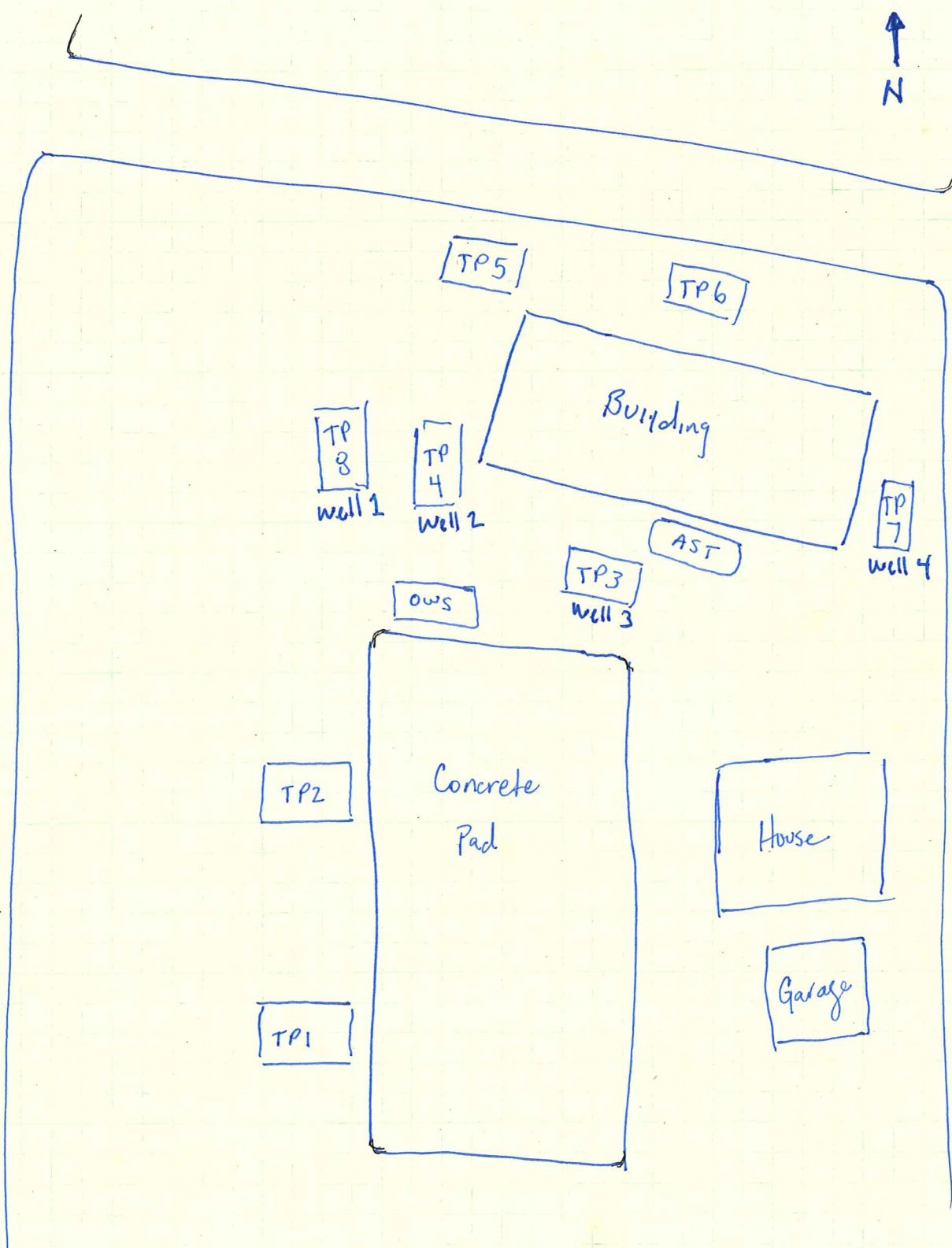


104444 - 001

Petro 49, Petersburg, AK

December 17, 2019

Overcast/Rain 35-7
JCT



APPENDIX C
RESULTS OF ANALYTICAL TESTING BY SGS NORTH AMERICA INC.
AND
ADEC LABORATORY DATA REVIEW CHECKLIST

LABORATORY DATA REVIEW CHECKLIST

Completed by: Jessa Tibbetts

Title: Environmental Scientist

Date: February 2020

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc.

Laboratory Report Number: 1197462

Laboratory Report Date: January 10, 2020

Contaminated Site Name: Petersburg AFS Tank Farm

ADEC File Number: 1521.38.005

Hazard Identification Number: 1988

(NOTE: NA = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

1. Laboratory

- a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses? **Yes** / No / NA

Comments:

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes / No / **NA**

Comments: *The samples were not transferred to another "network" laboratory or sub-contracted to an alternate laboratory.*

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

Yes / No / NA

Comments:

- b. Correct analyses requested? **Yes** / No / NA

Comments: *It is noted that two water trip blanks (WTB1 [GRO] and WTB2 [VOCs]) were listed on the COC, however these were listed together as Sample 104444-WTB (Laboratory Sample ID 1197462006) by the laboratory.*

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes / No / NA
Comments: *Two coolers were submitted for this project. The Cooler #1 temperature blank had temperature of 3.5°C. The Cooler #2 temperature blank had temperature of 2.8°C.*
- b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, VOCs, etc.)? **Yes** / No / NA
Comments:
- c. Sample condition documented - broken, leaking (MeOH), zero headspace (VOC vials)?
Yes / No / **NA**
Comments: *No discrepancies were noted.*
- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.? **Yes** / No / **NA**
Comments: *No discrepancies were noted.*
- e. Data quality or usability affected?
Comments: *See above.*

4. Case Narrative

- a. Present and understandable? **Yes** / No / NA
Comments:
- b. Discrepancies, errors or QC failures noted by the lab? **Yes** / No / NA
Comments: *The following discrepancies, errors or QC failures were noted in the Case Narrative:*
- *Method 8082A – For Samples TMW2 and TMW12, PCB LOQs are elevated due to sample dilution. Sample was diluted due to dark color of the extract.*
 - *Method 6020A – For Samples TMW2 and TMW12, metal LOQs for several analytes were elevated due to matrix.*
 - *Method 8270D SIM – For Samples TP4S2 and TP4S12, PAH surrogate recovery for 2-methylnaphthalene d10 does not meet QC criteria due to dilution.*
 - *Method AK102 – For Samples TP4S2 and TP4S12, surrogate recovery for 5 α -androstane does not meet QC criteria due to matrix interference.*
 - *Method 8270D SIM – For Sample TMW12, PAH surrogate fluoranthene-d10 recovery does not meet QC criteria due to dilution.*
 - *Method 6020A – For MS (1547634), Metals MS recoveries of barium, arsenic, and lead do not meet QC criteria. The post digestion spike was successful.*

- *Method 8270D SIM – For MS (1547643) and MS (1547644), PAH surrogate recovery for 2-methylnaphthalene d10 does not meet QC criteria due to sample dilution.*
- *Method 8270D SIM – For MS (1547643) and MSD (1547644), PAH MS/MSD recoveries for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.*
- *Method 8082A – For MS (1547657) and MSD (1547658), PCB Aroclor 1260 MS/MSD recovery does not meet QC criteria due to matrix interference. Refer to the LCD for accuracy requirements.*
- *Method 8260C – For MS (1548154) and MSD (1548155), MS/MSD recovery for hexachlorobutadiene does not meet QC criteria. Refer to the LCS for accuracy requirements.*
- *Method 8260C – For MS (1548243) and MSD (1548244), surrogate recoveries for 4-bromofluorobenzene do not meet QC criteria. The sample was analyzed twice, and results were confirmed.*
- *Method 6020A – For MSD (1547635), Metals MSD recoveries for arsenic and lead do not meet QC criteria. The post digestion spike was successful.*
- *Method 6020A – For MSD (1547635) and DUP (1547637), Metals MS/MSD and PS/DUP RPD for lead does not meet QC criteria. Sample is non-homogeneous for lead.*

c. Were all corrective actions documented? **Yes** / **No** / **NA**

Comments: *See above.*

d. What is the effect on data quality/usability, according to the case narrative?

Comments: *See above.*

5. Sample Results

a. Correct analyses performed/reported as requested on COC? **Yes** / **No** / **NA**

Comments:

b. All applicable holding times met? **Yes** / **No** / **NA**

Comments:

c. All soils reported on a dry weight basis? **Yes** / **No** / **NA**

Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes** / **No** / **NA**

Comments: *The LOQs for 1,2,3-trichloropropane, 1,2-dibromoethane, and dibromochloromethane are greater than the ADEC cleanup level for samples TP4S2, TP4S3, TP4S12, and TP6S1.*

e. Data quality or usability affected?

Comments: *There is a potential that these target analytes are present at concentrations in the associated samples greater than the ADEC cleanup levels, but less than the LOQs; however, these analytes were not detected at estimated concentrations in the project samples.*

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis, and 20 samples?

Yes / No / NA

Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes / No / NA

Comments: *Although less than the LOQ, the following is noted:*

- *Method AK101 - Water method blank (1547781) associated with samples TMW1, TMW2, TMW12, TMW3, TMW4, and WTB contained an estimated concentration of toluene (0.000640 mg/L) less than the LOQ.*
- *Method 8260C - Soil method blank (1548152) associated with samples TP4S2, TP4S3, TP4S12, TP6S1, and STB contained an estimated concentration of methylene chloride (0.0355 mg/Kg) less than the LOQ.*
- *Method AK102 - Soil method blank (1547861) associated with samples TPS1, TP2S4, TP3S3, TP4S2, TP4S3, TP4S12, TP5S1, TP6S1, TP7S2, and TP8S2 contained an estimated concentration of DRO (7.88 mg/kg) less than the LOQ.*

iii. If above LOQ or project specified objectives, what samples are affected?

Comments: *See above.*

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes / No / NA

Comments: *When the reported sample concentration is within 10 times the reported blank concentration, the project samples are flagged "B". If both the sample concentration and method blank concentrations are reported at levels less than the LOQ, the sample concentration is reported as non-detect at the LOQ and flagged "B". If the reported sample concentration is greater than the LOQ and less than 5 times the blank concentration, the sample concentration is qualified as non-detect at the reported sample concentration and flagged "B".*

If the sample concentration is greater than 5 times the blank concentration and less than or equal to 10 times the blank concentration, the sample concentration is reported at the measured sample concentration and flagged "B".

- v. Data quality or usability affected?

Comments: *See above.*

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples?
(LCS/LCSD required per AK methods, LCS required per SW846) **Yes** / No / NA

Comments:

- ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes** / No / NA

Comments:

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) **Yes** / No / NA

Comments:

- iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from LCS/LCSD, and/or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes** / No / NA

Comments:

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

- vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?

Yes / No / **NA**

Comments:

- vii. Data quality or usability affected?

Comments: *No, see above.*

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

- i. Organics - One MS/MSD reported per matrix, analysis, and 20 samples?

Yes / No / NA

Comments:

- ii. Metals/Inorganics - One MS and one MSD reported per matrix, analysis and 20 samples? **Yes** / No / NA

Comments:

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) Yes **No** NA

Comments: The PAH surrogate recovery for 2-methylnaphthalene d10 for MS (1547643) (189%) and MS (1547644) (214%) does not meet QC criteria and are considered potentially biased high. The surrogate recoveries for 4-bromofluorobenzene (9%) for MS (1548243) and MSD (1548244) does not meet QC criteria and are considered potentially biased low.

- iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from MS/MSD, and/or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) Yes **No** NA

Comments: *Method 6020A – For MSD (1547635) and DUP (1547637), Metals MS/MSD for lead does not meet QC criteria.*

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: *The MS/MSD samples did not originate from the project samples included in this data package; therefore, the project samples are not considered affected by the MS/MSD QC failures.*

- vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined? Yes **No** / NA

Comments: *See above.*

- vii. Data quality or usability affected?

Comments: *See above.*

d. Surrogates - Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses - field, QC, and laboratory samples? **Yes** / No / NA

Comments:

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) Yes **No** / NA

Comments:

- *The PAH surrogate recovery for 2-methylnaphthalene d10 (0%) for Samples TP4S2 and TP4S12 does not meet QC criteria due to sample dilution and does not require flagging.*

- *The DRO surrogate recovery for 5 α -androstane for Samples TP4S2 (171%) and TP4S12 (160 %) does not meet QC criteria and are considered potentially biased high and flagged “J+” on Table 3.*
- *The PAH surrogate recovery for fluoranthene-d10 (16.6%) for Sample TMW12 does not meet QC criteria and are considered potentially biased low.*

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? **Yes / No / NA**

Comments:

iv. Data quality or usability affected?

Comments: *See above.*

e. **Trip Blank** - Volatile analyses only (GRO, BTEX, VOCs, etc.)

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? **Yes / No / NA**

Comments:

ii. Is the cooler used to transport the trip blank and volatile samples clearly indicated on the COC? **Yes / No / NA**

Comments: *Although not noted on the COC, the water trip blank accompanied the cooler with the water samples and the soil trip blank accompanied the cooler with the soil samples.*

iii. All results less than LOQ and project specified objectives? **Yes / No / NA**

Comments:

iv. If above LOQ or project specified DQOs, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments: *See above.*

f. **Field Duplicate**

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes / No / NA

Comments:

Soil Sample TP4S12 is a field duplicate of soil Sample TP4S2.

Groundwater Sample TMW12 is a field duplicate of groundwater Sample TMW2.

ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA**

Comments:

- iii. Precision – All relative percent differences (RPDs) less than specified project objectives? (Recommended: 30% for water, 50% for soil) Yes **No** / NA

Comments:

The RPD for lead (170%) in Sample Set TPS4/TP4S12 was outside the QC criteria of 50% and are flagged “E” on Table 3 of this report.

The RPDs for DRO (51.6%), RRO (56.9 %), benzo[k]fluoranthene (31.3 %), and chrysene (30.5%) in Sample Set TMW2/TMW12 were outside the QC criteria of 30% and are flagged “E” on Table 4 of this report.

- iv. Data quality or usability affected?

Comments:

According to the laboratory, the soil Sample Set TP4S2/TP4S12 was not homogenous for lead, therefore an RPD failure occurred in this sample set. The affected data is acceptable for the purposes of this report.

The groundwater Sample Set TMW2/TMW12 was collected from an undeveloped temporary monitoring well. These samples may contain varying amounts of sediment, which would produce inconsistencies in the analytical results, in turn leading to RPD failures. Therefore, the affected data is acceptable for the purposes of this report.

- g. **Decontamination or Equipment Blank** (if not applicable, a comment stating why must be entered below).

Yes / **No** / NA

Comments: *A decontamination or equipment blank was not included in our scope of work.*

- i. All results less than LOQ and project specified objectives?

Yes / No / **NA**

Comments:

- ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

- iii. Data quality or usability affected?

Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

- a. Defined and appropriate? **Yes** / No / NA

Comments: *A key is provided on Page 5 of the SGS Laboratory Report.*

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks St. Suite 3
Anchorage, AK 99518
(907)561-2120

Report Number: **1197462**

Client Project: **104444-001 Petersburg**

Dear Jacob Tracy,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1197462**
Project Name/Site: **104444-001 Petersburg**
Project Contact: **Jacob Tracy**

Refer to sample receipt form for information on sample condition.

104444-TMW2 (1197462002) PS

8082A - PCB LOQs are elevated due to sample dilution. Sample was diluted due to dark color of the extract.
6020A - The metals LOQ for several analytes was elevated due to matrix.

104444-TMW12 (1197462003) PS

8082A - PCB LOQs are elevated due to sample dilution. Sample was diluted due to dark color of the extract.
6020A - The metals LOQ for several analytes was elevated due to matrix.
8270D SIM - PAH surrogate recovery for Fluoranthene-d10 does not meet QC criteria due to dilution.

104444-TP4S2 (1197462010) PS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene d10 does not meet QC criteria due to sample dilution.
AK102 - Surrogate recovery for 5a-androstane does not meet QC criteria due to matrix interference.

104444-TP4S12 (1197462012) PS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene d10 does not meet QC criteria due to sample dilution.
AK102 - Surrogate recovery for 5a-androstane does not meet QC criteria due to matrix interference.

1197406001(1547633DUP) (1547637) DUP

6020A - Metals MS/MSD and PS/DUP RPD RPD for lead does not meet QC criteria. Sample is non-homogeneous for lead.

1197406001(1547633MS) (1547634) MS

6020A - Metals MS recoveries for barium, arsenic and lead do not meet QC criteria. The post digestion spike was successful.

1197406002MS (1547643) MS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene d10 does not meet QC criteria due to sample dilution.
8270D SIM - PAH MS recovery for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.

1197382001MS (1547657) MS

8082A - PCB Aroclor 1260 MS recovery does not meet QC criteria due to matrix interference. Refer to the LCS for accuracy requirements.

1197461001MS (1548154) MS

8260C - MS recovery for hexachlorobutadiene does not meet QC criteria. See LCS for accuracy.

1197453001(1548247MS) (1548243) MS

8260C - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. The sample was analyzed twice and results were confirmed.

1197406001(1547633MSD) (1547635) MSD

6020A - Metals MSD recoveries for arsenic and lead do not meet QC criteria. The post digestion spike was successful.
6020A - Metals MS/MSD and PS/DUP RPD RPD for lead does not meet QC criteria. Sample is non-homogeneous for lead.

1197406002MSD (1547644) MSD

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1197462**
Project Name/Site: **104444-001 Petersburg**
Project Contact: **Jacob Tracy**

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene d10 does not meet QC criteria due to sample dilution.
8270D SIM - PAH MSD recovery for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.

1197382001MSD (1547658) MSD

8082A - PCB Aroclor 1260 MSD recovery does not meet QC criteria due to matrix interference. Refer to the LCS for accuracy requirements.

1197461001MSD (1548155) MSD

8260C - MSD recovery for hexachlorobutadiene does not meet QC criteria. See LCS for accuracy.

1197453001(1548247MSD) (1548244) MSD

8260C - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. The sample was analyzed twice and results were confirmed.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 01/10/2020 1:17:51PM

Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
8270D SIM (PAH)				
1197462011	104444-TP4S3	XMS11902	Benzo[k]fluoranthene	RP
1197462012	104444-TP4S12	XMS11905	Benzo[k]fluoranthene	RP
8270D SIM LV (PAH)				
1197462002	104444-TMW2	XMS11907	Benzo[k]fluoranthene	RP
1197462003	104444-TMW12	XMS11907	Benzo[k]fluoranthene	RP
SW8260C				
1197462010	104444-TP4S2	VMS19746	4-Isopropyltoluene	SP
1197462012	104444-TP4S12	VMS19746	4-Isopropyltoluene	SP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
104444-TMW1	1197462001	12/18/2019	12/20/2019	Water (Surface, Eff., Ground)
104444-TMW2	1197462002	12/18/2019	12/20/2019	Water (Surface, Eff., Ground)
104444-TMW12	1197462003	12/18/2019	12/20/2019	Water (Surface, Eff., Ground)
104444-TMW3	1197462004	12/18/2019	12/20/2019	Water (Surface, Eff., Ground)
104444-TMW4	1197462005	12/18/2019	12/20/2019	Water (Surface, Eff., Ground)
104444-WTB	1197462006	12/18/2019	12/20/2019	Water (Surface, Eff., Ground)
104444-TP1S1	1197462007	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP2S4	1197462008	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP3S3	1197462009	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP4S2	1197462010	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP4S3	1197462011	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP4S12	1197462012	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP5S1	1197462013	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP6S1	1197462014	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP7S2	1197462015	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-TP8S2	1197462016	12/17/2019	12/20/2019	Soil/Solid (dry weight)
104444-STB	1197462017	12/17/2019	12/20/2019	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo.
SW8021B	AK101/8021 Combo.
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (S)
AK101	Gasoline Range Organics (W)
SW6020A	Metals by ICP-MS
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8082A	SW8082 PCB's
SW8260C	VOC 8260 (S) Field Extracted
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **104444-TMW1**

Lab Sample ID: 1197462001

Semivolatile Organic Fuels

Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	4.93	mg/L
Residual Range Organics	0.729	mg/L
Gasoline Range Organics	0.0477J	mg/L
Toluene	0.490J	ug/L

Client Sample ID: **104444-TMW2**

Lab Sample ID: 1197462002

Metals by ICP/MS

Polynuclear Aromatics GC/MS

Semivolatile Organic Fuels

Volatile Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Arsenic	59.4J	ug/L
Barium	1280	ug/L
Chromium	266	ug/L
Lead	126	ug/L
1-Methylnaphthalene	98.5	ug/L
2-Methylnaphthalene	45.8	ug/L
Acenaphthene	195	ug/L
Anthracene	16.3	ug/L
Benzo(a)Anthracene	6.39	ug/L
Benzo[a]pyrene	2.07	ug/L
Benzo[b]Fluoranthene	3.47	ug/L
Benzo[g,h,i]perylene	0.464J	ug/L
Benzo[k]fluoranthene	1.32	ug/L
Chrysene	6.84	ug/L
Fluoranthene	45.0	ug/L
Fluorene	97.2	ug/L
Indeno[1,2,3-c,d] pyrene	0.482J	ug/L
Naphthalene	289	ug/L
Phenanthrene	149	ug/L
Pyrene	31.1	ug/L
Diesel Range Organics	54.1	mg/L
Residual Range Organics	7.38	mg/L
Gasoline Range Organics	0.0588J	mg/L
1,2,4-Trimethylbenzene	2.22	ug/L
1,3,5-Trimethylbenzene	0.533J	ug/L
4-Isopropyltoluene	0.545J	ug/L
Benzene	0.163J	ug/L
Ethylbenzene	2.02	ug/L
Isopropylbenzene (Cumene)	1.10	ug/L
Naphthalene	166	ug/L
n-Propylbenzene	0.355J	ug/L
o-Xylene	2.88	ug/L
P & M -Xylene	1.88J	ug/L
Toluene	1.06	ug/L
Xylenes (total)	4.76	ug/L

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Detectable Results Summary

Client Sample ID: **104444-TMW12**

Lab Sample ID: 1197462003

Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Arsenic	55.0J	ug/L
Barium	1180	ug/L
Chromium	198	ug/L
Lead	126	ug/L

Polynuclear Aromatics GC/MS

1-Methylnaphthalene	120	ug/L
2-Methylnaphthalene	55.9	ug/L
Acenaphthene	248	ug/L
Anthracene	19.9	ug/L
Benzo(a)Anthracene	8.56	ug/L
Benzo[a]pyrene	2.70	ug/L
Benzo[b]Fluoranthene	4.37	ug/L
Benzo[g,h,i]perylene	0.584J	ug/L
Benzo[k]fluoranthene	1.81	ug/L
Chrysene	9.30	ug/L
Fluoranthene	60.4	ug/L
Fluorene	116	ug/L
Indeno[1,2,3-c,d] pyrene	0.623J	ug/L
Naphthalene	367	ug/L
Phenanthrene	178	ug/L
Pyrene	41.8	ug/L

Semivolatile Organic Fuels

Diesel Range Organics	31.9	mg/L
Residual Range Organics	4.11	mg/L

Volatile Fuels

Volatile GC/MS

Gasoline Range Organics	0.0464J	mg/L
1,2,4-Trimethylbenzene	2.20	ug/L
1,3,5-Trimethylbenzene	0.545J	ug/L
Benzene	0.171J	ug/L
Ethylbenzene	2.06	ug/L
Isopropylbenzene (Cumene)	1.13	ug/L
Naphthalene	167	ug/L
n-Propylbenzene	0.344J	ug/L
o-Xylene	2.97	ug/L
P & M -Xylene	1.90J	ug/L
Toluene	1.09	ug/L
Xylenes (total)	4.86	ug/L

Client Sample ID: **104444-TMW3**

Lab Sample ID: 1197462004

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	0.588	mg/L
Residual Range Organics	0.782	mg/L

Volatile Fuels

Toluene	0.420J	ug/L
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Detectable Results Summary

Client Sample ID: **104444-TMW4**

Lab Sample ID: 1197462005

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	0.358J	mg/L
Residual Range Organics	0.773	mg/L
Toluene	0.410J	ug/L

Volatile Fuels

Client Sample ID: **104444-TP1S1**

Lab Sample ID: 1197462007

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	19.6J	mg/Kg

Client Sample ID: **104444-TP2S4**

Lab Sample ID: 1197462008

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	21.7J	mg/Kg

Client Sample ID: **104444-TP3S3**

Lab Sample ID: 1197462009

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	38.0	mg/Kg
Residual Range Organics	88.1J	mg/Kg

Detectable Results Summary

Client Sample ID: **104444-TP4S2**

Lab Sample ID: 1197462010

Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Arsenic	4.05	mg/Kg
Barium	67.3	mg/Kg
Cadmium	0.164J	mg/Kg
Chromium	29.5	mg/Kg
Lead	8.90	mg/Kg
Selenium	0.749J	mg/Kg

Polynuclear Aromatics GC/MS

1-Methylnaphthalene	25100	ug/Kg
2-Methylnaphthalene	8480	ug/Kg
Acenaphthene	87100	ug/Kg
Anthracene	18400	ug/Kg
Benzo(a)Anthracene	10200	ug/Kg
Benzo[a]pyrene	3120J	ug/Kg
Benzo[b]Fluoranthene	5110J	ug/Kg
Chrysene	7990	ug/Kg
Fluoranthene	60600	ug/Kg
Fluorene	58200	ug/Kg
Naphthalene	12000	ug/Kg
Phenanthrene	130000	ug/Kg
Pyrene	41100	ug/Kg

Semivolatile Organic Fuels

Diesel Range Organics	8790	mg/Kg
Residual Range Organics	1010	mg/Kg

Volatile Fuels

Volatile GC/MS

Gasoline Range Organics	13.9	mg/Kg
1,2,4-Trimethylbenzene	830	ug/Kg
1,3,5-Trimethylbenzene	261	ug/Kg
4-Isopropyltoluene	73.8J	ug/Kg
Ethylbenzene	130	ug/Kg
Isopropylbenzene (Cumene)	152	ug/Kg
Naphthalene	18700	ug/Kg
n-Propylbenzene	134	ug/Kg
o-Xylene	250	ug/Kg
P & M -Xylene	165	ug/Kg
sec-Butylbenzene	106	ug/Kg
Toluene	27.9J	ug/Kg
Xylenes (total)	415	ug/Kg

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Detectable Results Summary

Client Sample ID: **104444-TP4S3**

Lab Sample ID: 1197462011

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	1890	ug/Kg
2-Methylnaphthalene	68.2	ug/Kg
Acenaphthene	4220	ug/Kg
Anthracene	358	ug/Kg
Benzo(a)Anthracene	270	ug/Kg
Benzo[a]pyrene	88.6	ug/Kg
Benzo[b]Fluoranthene	143	ug/Kg
Benzo[g,h,i]perylene	17.8J	ug/Kg
Benzo[k]fluoranthene	46.2	ug/Kg
Chrysene	242	ug/Kg
Fluoranthene	1980	ug/Kg
Fluorene	2400	ug/Kg
Indeno[1,2,3-c,d] pyrene	20.2J	ug/Kg
Naphthalene	1540	ug/Kg
Phenanthrene	4620	ug/Kg
Pyrene	1360	ug/Kg
Semivolatile Organic Fuels		
Diesel Range Organics	740	mg/Kg
Residual Range Organics	137	mg/Kg
Volatile Fuels		
Volatile GC/MS		
Gasoline Range Organics	4.67	mg/Kg
1,2,4-Trimethylbenzene	48.6J	ug/Kg
Ethylbenzene	27.6J	ug/Kg
Isopropylbenzene (Cumene)	40.4	ug/Kg
Naphthalene	2970	ug/Kg
n-Propylbenzene	14.7J	ug/Kg
o-Xylene	28.0J	ug/Kg
P & M -Xylene	20.7J	ug/Kg
sec-Butylbenzene	23.5J	ug/Kg
Toluene	13.2J	ug/Kg
Xylenes (total)	48.6J	ug/Kg

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Detectable Results Summary

Client Sample ID: **104444-TP4S12**

Lab Sample ID: 1197462012

Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Arsenic	4.37	mg/Kg
Barium	57.4	mg/Kg
Cadmium	0.209J	mg/Kg
Chromium	25.1	mg/Kg
Lead	111	mg/Kg
Selenium	0.691J	mg/Kg

Polynuclear Aromatics GC/MS

1-Methylnaphthalene	27900	ug/Kg
2-Methylnaphthalene	11600	ug/Kg
Acenaphthene	95400	ug/Kg
Anthracene	19400	ug/Kg
Benzo(a)Anthracene	10200	ug/Kg
Benzo[a]pyrene	3140J	ug/Kg
Benzo[b]Fluoranthene	4970J	ug/Kg
Benzo[k]fluoranthene	1770J	ug/Kg
Chrysene	7710	ug/Kg
Fluoranthene	61100	ug/Kg
Fluorene	63000	ug/Kg
Naphthalene	17200	ug/Kg
Phenanthrene	142000	ug/Kg
Pyrene	41500	ug/Kg

Semivolatile Organic Fuels

Diesel Range Organics	8310	mg/Kg
Residual Range Organics	1040	mg/Kg

Volatile Fuels

Volatile GC/MS

Gasoline Range Organics	10.0	mg/Kg
1,2,4-Trimethylbenzene	668	ug/Kg
1,3,5-Trimethylbenzene	172	ug/Kg
4-Isopropyltoluene	62.9J	ug/Kg
Acetone	158J	ug/Kg
Ethylbenzene	103	ug/Kg
Isopropylbenzene (Cumene)	128	ug/Kg
Naphthalene	8650	ug/Kg
n-Propylbenzene	131	ug/Kg
o-Xylene	200	ug/Kg
P & M -Xylene	109	ug/Kg
sec-Butylbenzene	106	ug/Kg
Toluene	21.6J	ug/Kg
Xylenes (total)	309	ug/Kg

Client Sample ID: **104444-TP5S1**

Lab Sample ID: 1197462013

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	41.4	mg/Kg
Residual Range Organics	120	mg/Kg

Detectable Results Summary

Client Sample ID: **104444-TP6S1**

Lab Sample ID: 1197462014

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Acenaphthene	9.64J	ug/Kg
Fluoranthene	10.3J	ug/Kg
Pyrene	11.1J	ug/Kg
Diesel Range Organics	93.9	mg/Kg
Residual Range Organics	122	mg/Kg

Semivolatile Organic Fuels

Client Sample ID: **104444-TP7S2**

Lab Sample ID: 1197462015

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	28.9	mg/Kg
Residual Range Organics	220	mg/Kg

Client Sample ID: **104444-TP8S2**

Lab Sample ID: 1197462016

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	16.4J	mg/Kg



Results of 104444-TMW1

Client Sample ID: 104444-TMW1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462001
Lab Project ID: 1197462

Collection Date: 12/18/19 09:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 4.93, 0.577, 0.173, mg/L, 1, 01/02/20 21:22

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 83.4, 50-150, %, 1, 01/02/20 21:22

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/02/20 21:22
Container ID: 1197462001-D

Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 0.729, 0.481, 0.144, mg/L, 1, 01/02/20 21:22

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 74.4, 50-150, %, 1, 01/02/20 21:22

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/02/20 21:22
Container ID: 1197462001-D

Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL



Results of 104444-TMW1

Client Sample ID: 104444-TMW1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462001
Lab Project ID: 1197462

Collection Date: 12/18/19 09:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.0477 J, 0.100, 0.0310, mg/L, 1, 12/23/19 20:17

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 88, 50-150, %, 1, 12/23/19 20:17

Batch Information

Analytical Batch: VFC15066
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 20:17
Container ID: 1197462001-A
Prep Batch: VXX35349
Prep Method: SW5030B
Prep Date/Time: 12/23/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 90, 77-115, %, 1, 12/23/19 20:17

Batch Information

Analytical Batch: VFC15066
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 20:17
Container ID: 1197462001-A
Prep Batch: VXX35349
Prep Method: SW5030B
Prep Date/Time: 12/23/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **104444-TMW2**

Client Sample ID: **104444-TMW2**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462002
Lab Project ID: 1197462

Collection Date: 12/18/19 10:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Arsenic	59.4 J	60.0	25.0	ug/L	50		01/03/20 19:48
Barium	1280	30.0	9.40	ug/L	50		01/03/20 19:48
Cadmium	10.0 U	20.0	6.20	ug/L	50		01/03/20 19:48
Chromium	266	100	31.0	ug/L	50		01/03/20 19:48
Lead	126	10.0	3.10	ug/L	50		01/03/20 19:48
Mercury	2.50 U	5.00	1.80	ug/L	50		01/03/20 19:48
Selenium	100 U	200	62.0	ug/L	50		01/03/20 19:48
Silver	10.0 U	20.0	6.20	ug/L	50		01/03/20 19:48

Batch Information

Analytical Batch: MMS10716
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 01/03/20 19:48
Container ID: 1197462002-I

Prep Batch: MX33073
Prep Method: SW3010A
Prep Date/Time: 12/26/19 08:35
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL



Results of **104444-TMW2**

Client Sample ID: **104444-TMW2**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462002
Lab Project ID: 1197462

Collection Date: 12/18/19 10:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polychlorinated Biphenyls**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Aroclor-1016	0.261 U	0.521	0.161	ug/L	5		12/24/19 17:43
Aroclor-1221	2.61 U	5.21	1.61	ug/L	5		12/24/19 17:43
Aroclor-1232	0.261 U	0.521	0.161	ug/L	5		12/24/19 17:43
Aroclor-1242	0.261 U	0.521	0.161	ug/L	5		12/24/19 17:43
Aroclor-1248	0.261 U	0.521	0.161	ug/L	5		12/24/19 17:43
Aroclor-1254	0.261 U	0.521	0.161	ug/L	5		12/24/19 17:43
Aroclor-1260	0.261 U	0.521	0.161	ug/L	5		12/24/19 17:43
Surrogates							
Decachlorobiphenyl (surr)	60	40-135		%	5		12/24/19 17:43

Batch Information

Analytical Batch: XGC10551
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 12/24/19 17:43
Container ID: 1197462002-L

Prep Batch: XXX42714
Prep Method: SW3520C
Prep Date/Time: 12/24/19 08:49
Prep Initial Wt./Vol.: 960 mL
Prep Extract Vol: 1 mL



Results of 104444-TMW2

Client Sample ID: 104444-TMW2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462002
Lab Project ID: 1197462

Collection Date: 12/18/19 10:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their surrogate compounds with associated quality and detection data.

Batch Information

Analytical Batch: XMS11907
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 01/09/20 12:23
Container ID: 1197462002-J

Prep Batch: XXX42710
Prep Method: SW3520C
Prep Date/Time: 12/23/19 09:43
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS11907
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 01/09/20 12:43
Container ID: 1197462002-J

Prep Batch: XXX42710
Prep Method: SW3520C
Prep Date/Time: 12/23/19 09:43
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL



Results of 104444-TMW2

Client Sample ID: 104444-TMW2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462002
Lab Project ID: 1197462

Collection Date: 12/18/19 10:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/02/20 21:32
Container ID: 1197462002-G
Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/02/20 21:32
Container ID: 1197462002-G
Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of 104444-TMW2

Client Sample ID: **104444-TMW2**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462002
 Lab Project ID: 1197462

Collection Date: 12/18/19 10:00
 Received Date: 12/20/19 13:23
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0588 J	0.100	0.0310	mg/L	1		12/23/19 20:35
Surrogates							
4-Bromofluorobenzene (surr)	89.4	50-150		%	1		12/23/19 20:35

Batch Information

Analytical Batch: VFC15066
 Analytical Method: AK101
 Analyst: ST
 Analytical Date/Time: 12/23/19 20:35
 Container ID: 1197462002-A

Prep Batch: VXX35349
 Prep Method: SW5030B
 Prep Date/Time: 12/23/19 08:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of 104444-TMW2

Client Sample ID: 104444-TMW2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462002
Lab Project ID: 1197462

Collection Date: 12/18/19 10:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 104444-TMW2

Client Sample ID: 104444-TMW2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462002
Lab Project ID: 1197462

Collection Date: 12/18/19 10:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Results of 104444-TMW2

Client Sample ID: **104444-TMW2**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462002
Lab Project ID: 1197462

Collection Date: 12/18/19 10:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19740
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 12/23/19 23:24
Container ID: 1197462002-D

Prep Batch: VXX35350
Prep Method: SW5030B
Prep Date/Time: 12/23/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 104444-TMW12

Client Sample ID: 104444-TMW12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462003
Lab Project ID: 1197462

Collection Date: 12/18/19 10:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Metals by ICP/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver.

Batch Information

Analytical Batch: MMS10716
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 01/03/20 19:53
Container ID: 1197462003-I

Prep Batch: MX33073
Prep Method: SW3010A
Prep Date/Time: 12/26/19 08:35
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL



Results of 104444-TMW12

Client Sample ID: 104444-TMW12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462003
Lab Project ID: 1197462

Collection Date: 12/18/19 10:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Polychlorinated Biphenyls

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260, and Surrogates (Decachlorobiphenyl (surr)).

Batch Information

Analytical Batch: XGC10551
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 12/24/19 17:53
Container ID: 1197462003-L

Prep Batch: XXX42714
Prep Method: SW3520C
Prep Date/Time: 12/24/19 08:49
Prep Initial Wt./Vol.: 940 mL
Prep Extract Vol: 1 mL



Results of 104444-TMW12

Client Sample ID: 104444-TMW12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462003
Lab Project ID: 1197462

Collection Date: 12/18/19 10:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their surrogate compounds with associated quality and detection data.

Batch Information

Analytical Batch: XMS11907
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 01/09/20 13:04
Container ID: 1197462003-J

Prep Batch: XXX42710
Prep Method: SW3520C
Prep Date/Time: 12/23/19 09:43
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS11907
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 01/09/20 13:24
Container ID: 1197462003-J

Prep Batch: XXX42710
Prep Method: SW3520C
Prep Date/Time: 12/23/19 09:43
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL



Results of 104444-TMW12

Client Sample ID: 104444-TMW12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462003
Lab Project ID: 1197462

Collection Date: 12/18/19 10:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 31.9, 0.556, 0.167, mg/L, 1, 01/02/20 22:03

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 82.9, 50-150, %, 1, 01/02/20 22:03

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/02/20 22:03
Container ID: 1197462003-G

Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 4.11, 0.463, 0.139, mg/L, 1, 01/02/20 22:03

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 63.9, 50-150, %, 1, 01/02/20 22:03

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/02/20 22:03
Container ID: 1197462003-G

Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Results of 104444-TMW12

Client Sample ID: **104444-TMW12**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462003
 Lab Project ID: 1197462

Collection Date: 12/18/19 10:30
 Received Date: 12/20/19 13:23
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0464 J	0.100	0.0310	mg/L	1		12/23/19 20:53
Surrogates							
4-Bromofluorobenzene (surr)	85.3	50-150		%	1		12/23/19 20:53

Batch Information

Analytical Batch: VFC15066
 Analytical Method: AK101
 Analyst: ST
 Analytical Date/Time: 12/23/19 20:53
 Container ID: 1197462003-A

Prep Batch: VXX35349
 Prep Method: SW5030B
 Prep Date/Time: 12/23/19 08:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of 104444-TMW12

Client Sample ID: 104444-TMW12
 Client Project ID: 104444-001 Petersburg
 Lab Sample ID: 1197462003
 Lab Project ID: 1197462

Collection Date: 12/18/19 10:30
 Received Date: 12/20/19 13:23
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
1,1,1-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,1,2,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
1,1,2-Trichloroethane	0.200 U	0.400	0.120	ug/L	1		12/23/19 23:39
1,1-Dichloroethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,1-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,1-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,2,3-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,2,3-Trichloropropane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,2,4-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,2,4-Trimethylbenzene	2.20	1.00	0.310	ug/L	1		12/23/19 23:39
1,2-Dibromo-3-chloropropane	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		12/23/19 23:39
1,2-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,2-Dichloroethane	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
1,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,3,5-Trimethylbenzene	0.545 J	1.00	0.310	ug/L	1		12/23/19 23:39
1,3-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
1,3-Dichloropropane	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
1,4-Dichlorobenzene	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
2,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
2-Butanone (MEK)	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
2-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
2-Hexanone	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
4-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
4-Isopropyltoluene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
4-Methyl-2-pentanone (MIBK)	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
Benzene	0.171 J	0.400	0.120	ug/L	1		12/23/19 23:39
Bromobenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Bromochloromethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Bromodichloromethane	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
Bromoform	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Bromomethane	2.50 U	5.00	2.00	ug/L	1		12/23/19 23:39
Carbon disulfide	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
Carbon tetrachloride	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Chlorobenzene	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
Chloroethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39

Print Date: 01/10/2020 1:17:59PM

J flagging is activated



Results of 104444-TMW12

Client Sample ID: 104444-TMW12
 Client Project ID: 104444-001 Petersburg
 Lab Sample ID: 1197462003
 Lab Project ID: 1197462

Collection Date: 12/18/19 10:30
 Received Date: 12/20/19 13:23
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Chloromethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		12/23/19 23:39
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Ethylbenzene	2.06	1.00	0.310	ug/L	1		12/23/19 23:39
Freon-113	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Isopropylbenzene (Cumene)	1.13	1.00	0.310	ug/L	1		12/23/19 23:39
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
Naphthalene	167	1.00	0.310	ug/L	1		12/23/19 23:39
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
n-Propylbenzene	0.344 J	1.00	0.310	ug/L	1		12/23/19 23:39
o-Xylene	2.97	1.00	0.310	ug/L	1		12/23/19 23:39
P & M -Xylene	1.90 J	2.00	0.620	ug/L	1		12/23/19 23:39
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Styrene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Toluene	1.09	1.00	0.310	ug/L	1		12/23/19 23:39
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 23:39
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		12/23/19 23:39
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		12/23/19 23:39
Xylenes (total)	4.86	3.00	1.00	ug/L	1		12/23/19 23:39
Surrogates							
1,2-Dichloroethane-D4 (surr)	102	81-118		%	1		12/23/19 23:39
4-Bromofluorobenzene (surr)	97.8	85-114		%	1		12/23/19 23:39
Toluene-d8 (surr)	95.4	89-112		%	1		12/23/19 23:39

Results of 104444-TMW12

Client Sample ID: **104444-TMW12**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462003
Lab Project ID: 1197462

Collection Date: 12/18/19 10:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19740
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 12/23/19 23:39
Container ID: 1197462003-D

Prep Batch: VXX35350
Prep Method: SW5030B
Prep Date/Time: 12/23/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 104444-TMW3

Client Sample ID: 104444-TMW3
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462004
Lab Project ID: 1197462

Collection Date: 12/18/19 11:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 0.588, 0.556, 0.167, mg/L, 1, 01/02/20 22:12

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 87, 50-150, %, 1, 01/02/20 22:12

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/02/20 22:12
Container ID: 1197462004-D

Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 0.782, 0.463, 0.139, mg/L, 1, 01/02/20 22:12

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 76.7, 50-150, %, 1, 01/02/20 22:12

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/02/20 22:12
Container ID: 1197462004-D

Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL



Results of 104444-TMW3

Client Sample ID: 104444-TMW3
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462004
Lab Project ID: 1197462

Collection Date: 12/18/19 11:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.0500 U, 0.100, 0.0310, mg/L, 1, 12/23/19 21:10

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 80.6, 50-150, %, 1, 12/23/19 21:10

Batch Information

Analytical Batch: VFC15066
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 21:10
Container ID: 1197462004-A

Prep Batch: VXX35349
Prep Method: SW5030B
Prep Date/Time: 12/23/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 89.8, 77-115, %, 1, 12/23/19 21:10

Batch Information

Analytical Batch: VFC15066
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 21:10
Container ID: 1197462004-A

Prep Batch: VXX35349
Prep Method: SW5030B
Prep Date/Time: 12/23/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 104444-TMW4

Client Sample ID: 104444-TMW4
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462005
Lab Project ID: 1197462

Collection Date: 12/18/19 11:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/02/20 22:23
Container ID: 1197462005-D
Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/02/20 22:23
Container ID: 1197462005-D
Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/19 15:46
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL



Results of 104444-TMW4

Client Sample ID: 104444-TMW4
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462005
Lab Project ID: 1197462

Collection Date: 12/18/19 11:30
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 0.0500 U, 0.100, 0.0310, mg/L, 1, 12/23/19 21:28

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 82.3, 50-150, %, 1, 12/23/19 21:28

Batch Information

Analytical Batch: VFC15066
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 21:28
Container ID: 1197462005-A

Prep Batch: VXX35349
Prep Method: SW5030B
Prep Date/Time: 12/23/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 89.1, 77-115, %, 1, 12/23/19 21:28

Batch Information

Analytical Batch: VFC15066
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 21:28
Container ID: 1197462005-A

Prep Batch: VXX35349
Prep Method: SW5030B
Prep Date/Time: 12/23/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **104444-WTB**

Client Sample ID: **104444-WTB**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462006
Lab Project ID: 1197462

Collection Date: 12/18/19 08:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		12/23/19 19:59
Surrogates							
4-Bromofluorobenzene (surr)	83.5	50-150		%	1		12/23/19 19:59

Batch Information

Analytical Batch: VFC15066
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 19:59
Container ID: 1197462006-A

Prep Batch: VXX35349
Prep Method: SW5030B
Prep Date/Time: 12/23/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 104444-WTB

Client Sample ID: 104444-WTB
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462006
Lab Project ID: 1197462

Collection Date: 12/18/19 08:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 104444-WTB

Client Sample ID: **104444-WTB**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462006
 Lab Project ID: 1197462

Collection Date: 12/18/19 08:00
 Received Date: 12/20/19 13:23
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Chloromethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		12/23/19 19:10
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		12/23/19 19:10
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Freon-113	5.00 U	10.0	3.10	ug/L	1		12/23/19 19:10
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		12/23/19 19:10
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		12/23/19 19:10
Naphthalene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
o-Xylene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		12/23/19 19:10
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Styrene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Toluene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		12/23/19 19:10
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		12/23/19 19:10
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		12/23/19 19:10
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		12/23/19 19:10
Surrogates							
1,2-Dichloroethane-D4 (surr)	105	81-118		%	1		12/23/19 19:10
4-Bromofluorobenzene (surr)	101	85-114		%	1		12/23/19 19:10
Toluene-d8 (surr)	95.2	89-112		%	1		12/23/19 19:10

Results of 104444-WTB

Client Sample ID: **104444-WTB**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462006
Lab Project ID: 1197462

Collection Date: 12/18/19 08:00
Received Date: 12/20/19 13:23
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19740
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 12/23/19 19:10
Container ID: 1197462006-D

Prep Batch: VXX35350
Prep Method: SW5030B
Prep Date/Time: 12/23/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 104444-TP1S1

Client Sample ID: 104444-TP1S1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462007
Lab Project ID: 1197462

Collection Date: 12/17/19 09:15
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/04/20 00:40
Container ID: 1197462007-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.339 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/04/20 00:40
Container ID: 1197462007-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.339 g
Prep Extract Vol: 5 mL



Results of 104444-TP1S1

Client Sample ID: 104444-TP1S1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462007
Lab Project ID: 1197462

Collection Date: 12/17/19 09:15
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Gasoline Range Organics and Surrogates (4-Bromofluorobenzene).

Batch Information

Analytical Batch: VFC15067
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 14:44
Container ID: 1197462007-B
Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 09:15
Prep Initial Wt./Vol.: 92.952 g
Prep Extract Vol: 37.3263 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total).

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row includes 1,4-Difluorobenzene (surr).

Batch Information

Analytical Batch: VFC15067
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 14:44
Container ID: 1197462007-B
Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 09:15
Prep Initial Wt./Vol.: 92.952 g
Prep Extract Vol: 37.3263 mL



Results of 104444-TP2S4

Client Sample ID: 104444-TP2S4
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462008
Lab Project ID: 1197462

Collection Date: 12/17/19 10:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):90.0
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 21.7 J, 22.2, 6.88, mg/Kg, 1, 01/04/20 00:30

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 93.1, 50-150, %, 1, 01/04/20 00:30

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/04/20 00:30
Container ID: 1197462008-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.044 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 55.5 U, 111, 47.7, mg/Kg, 1, 01/04/20 00:30

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 84.5, 50-150, %, 1, 01/04/20 00:30

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/04/20 00:30
Container ID: 1197462008-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.044 g
Prep Extract Vol: 5 mL



Results of 104444-TP2S4

Client Sample ID: 104444-TP2S4
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462008
Lab Project ID: 1197462

Collection Date: 12/17/19 10:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):90.0
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.28 U, 2.57, 0.772, mg/Kg, 1, 12/23/19 15:37

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 95.2, 50-150, %, 1, 12/23/19 15:37

Batch Information

Analytical Batch: VFC15067
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 15:37
Container ID: 1197462008-B
Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 10:00
Prep Initial Wt./Vol.: 68.737 g
Prep Extract Vol: 31.8421 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 87.2, 72-119, %, 1, 12/23/19 15:37

Batch Information

Analytical Batch: VFC15067
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 15:37
Container ID: 1197462008-B
Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 10:00
Prep Initial Wt./Vol.: 68.737 g
Prep Extract Vol: 31.8421 mL



Results of 104444-TP3S3

Client Sample ID: 104444-TP3S3
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462009
Lab Project ID: 1197462

Collection Date: 12/17/19 11:15
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):76.7
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/04/20 00:21
Container ID: 1197462009-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.425 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/04/20 00:21
Container ID: 1197462009-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.425 g
Prep Extract Vol: 5 mL



Results of 104444-TP3S3

Client Sample ID: 104444-TP3S3
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462009
Lab Project ID: 1197462

Collection Date: 12/17/19 11:15
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):76.7
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Gasoline Range Organics and Surrogates (4-Bromofluorobenzene).

Batch Information

Analytical Batch: VFC15067
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 15:54
Container ID: 1197462009-B
Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 11:15
Prep Initial Wt./Vol.: 60.354 g
Prep Extract Vol: 39.0706 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total).

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row includes 1,4-Difluorobenzene (surr).

Batch Information

Analytical Batch: VFC15067
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 15:54
Container ID: 1197462009-B
Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 11:15
Prep Initial Wt./Vol.: 60.354 g
Prep Extract Vol: 39.0706 mL



Results of **104444-TP4S2**

Client Sample ID: **104444-TP4S2**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462010
Lab Project ID: 1197462

Collection Date: 12/17/19 13:10
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):77.4
Location:

Results by **Metals by ICP/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Arsenic	4.05	1.28	0.396	mg/Kg	10		12/24/19 18:25
Barium	67.3	0.384	0.120	mg/Kg	10		12/24/19 18:25
Cadmium	0.164 J	0.256	0.0793	mg/Kg	10		12/24/19 18:25
Chromium	29.5	0.511	0.166	mg/Kg	10		12/24/19 18:25
Lead	8.90	0.256	0.0793	mg/Kg	10		12/24/19 18:25
Mercury	0.192 U	0.384	0.128	mg/Kg	10		12/24/19 18:25
Selenium	0.749 J	1.28	0.396	mg/Kg	10		12/24/19 18:25
Silver	0.320 U	0.639	0.192	mg/Kg	10		12/24/19 18:25

Batch Information

Analytical Batch: MMS10712
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 12/24/19 18:25
Container ID: 1197462010-A

Prep Batch: MX33067
Prep Method: SW3050B
Prep Date/Time: 12/23/19 12:50
Prep Initial Wt./Vol.: 1.01 g
Prep Extract Vol: 50 mL



Results of **104444-TP4S2**

Client Sample ID: **104444-TP4S2**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462010
Lab Project ID: 1197462

Collection Date: 12/17/19 13:10
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):77.4
Location:

Results by **Polychlorinated Biphenyls**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Aroclor-1016	32.2 U	64.4	16.1	ug/Kg	1		12/27/19 15:13
Aroclor-1221	64.5 U	129	32.2	ug/Kg	1		12/27/19 15:13
Aroclor-1232	32.2 U	64.4	16.1	ug/Kg	1		12/27/19 15:13
Aroclor-1242	32.2 U	64.4	16.1	ug/Kg	1		12/27/19 15:13
Aroclor-1248	32.2 U	64.4	16.1	ug/Kg	1		12/27/19 15:13
Aroclor-1254	32.2 U	64.4	16.1	ug/Kg	1		12/27/19 15:13
Aroclor-1260	32.2 U	64.4	16.1	ug/Kg	1		12/27/19 15:13

Surrogates

Decachlorobiphenyl (surr)	82	60-125		%	1		12/27/19 15:13
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Batch Information

Analytical Batch: XGC10553
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 12/27/19 15:13
Container ID: 1197462010-A

Prep Batch: XXX42712
Prep Method: SW3550C
Prep Date/Time: 12/23/19 13:20
Prep Initial Wt./Vol.: 22.561 g
Prep Extract Vol: 5 mL



Results of 104444-TP4S2

Client Sample ID: 104444-TP4S2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462010
Lab Project ID: 1197462

Collection Date: 12/17/19 13:10
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):77.4
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Batch Information

Analytical Batch: XMS11905
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 01/07/20 19:35
Container ID: 1197462010-A

Prep Batch: XXX42711
Prep Method: SW3550C
Prep Date/Time: 12/23/19 11:18
Prep Initial Wt./Vol.: 22.538 g
Prep Extract Vol: 5 mL



Results of 104444-TP4S2

Client Sample ID: 104444-TP4S2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462010
Lab Project ID: 1197462

Collection Date: 12/17/19 13:10
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):77.4
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 8790, 128, 39.8, mg/Kg, 5, 01/07/20 12:38

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 171, *, 50-150, %, 5, 01/07/20 12:38

Batch Information

Analytical Batch: XFC15515
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/07/20 12:38
Container ID: 1197462010-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.193 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 1010, 128, 55.2, mg/Kg, 1, 01/03/20 23:30

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 91.3, 50-150, %, 1, 01/03/20 23:30

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/03/20 23:30
Container ID: 1197462010-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.193 g
Prep Extract Vol: 5 mL

Results of 104444-TP4S2

Client Sample ID: **104444-TP4S2**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462010
 Lab Project ID: 1197462

Collection Date: 12/17/19 13:10
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):77.4
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	13.9	4.38	1.32	mg/Kg	1		12/23/19 17:04
Surrogates							
4-Bromofluorobenzene (surr)	141	50-150		%	1		12/23/19 17:04

Batch Information

Analytical Batch: VFC15067
 Analytical Method: AK101
 Analyst: ST
 Analytical Date/Time: 12/23/19 17:04
 Container ID: 1197462010-B

Prep Batch: VXX35348
 Prep Method: SW5035A
 Prep Date/Time: 12/17/19 13:10
 Prep Initial Wt./Vol.: 55.129 g
 Prep Extract Vol: 37.4357 mL



Results of 104444-TP4S2

Client Sample ID: 104444-TP4S2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462010
Lab Project ID: 1197462

Collection Date: 12/17/19 13:10
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):77.4
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their corresponding test results.



Results of 104444-TP4S2

Client Sample ID: **104444-TP4S2**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462010
 Lab Project ID: 1197462

Collection Date: 12/17/19 13:10
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):77.4
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	176 U	351	109	ug/Kg	1		12/23/19 13:56
Chloroform	3.50 U	7.01	1.09	ug/Kg	1		12/23/19 13:56
Chloromethane	21.9 U	43.8	13.7	ug/Kg	1		12/23/19 13:56
cis-1,2-Dichloroethene	21.9 U	43.8	13.7	ug/Kg	1		12/23/19 13:56
cis-1,3-Dichloropropene	10.9 U	21.9	6.84	ug/Kg	1		12/23/19 13:56
Dibromochloromethane	4.38 U	8.77	1.09	ug/Kg	1		12/23/19 13:56
Dibromomethane	21.9 U	43.8	13.7	ug/Kg	1		12/23/19 13:56
Dichlorodifluoromethane	43.9 U	87.7	26.3	ug/Kg	1		12/23/19 13:56
Ethylbenzene	130	43.8	13.7	ug/Kg	1		12/23/19 13:56
Freon-113	87.5 U	175	54.4	ug/Kg	1		12/23/19 13:56
Hexachlorobutadiene	17.6 U	35.1	10.9	ug/Kg	1		12/23/19 13:56
Isopropylbenzene (Cumene)	152	43.8	13.7	ug/Kg	1		12/23/19 13:56
Methylene chloride	87.5 U	175	54.4	ug/Kg	1		12/23/19 13:56
Methyl-t-butyl ether	87.5 U	175	54.4	ug/Kg	1		12/23/19 13:56
Naphthalene	18700	4380	1370	ug/Kg	100		12/30/19 13:36
n-Butylbenzene	21.9 U	43.8	13.7	ug/Kg	1		12/23/19 13:56
n-Propylbenzene	134	43.8	13.7	ug/Kg	1		12/23/19 13:56
o-Xylene	250	43.8	13.7	ug/Kg	1		12/23/19 13:56
P & M -Xylene	165	87.7	26.3	ug/Kg	1		12/23/19 13:56
sec-Butylbenzene	106	43.8	13.7	ug/Kg	1		12/23/19 13:56
Styrene	21.9 U	43.8	13.7	ug/Kg	1		12/23/19 13:56
tert-Butylbenzene	21.9 U	43.8	13.7	ug/Kg	1		12/23/19 13:56
Tetrachloroethene	10.9 U	21.9	6.84	ug/Kg	1		12/23/19 13:56
Toluene	27.9 J	43.8	13.7	ug/Kg	1		12/23/19 13:56
trans-1,2-Dichloroethene	21.9 U	43.8	13.7	ug/Kg	1		12/23/19 13:56
trans-1,3-Dichloropropene	10.9 U	21.9	6.84	ug/Kg	1		12/23/19 13:56
Trichloroethene	4.38 U	8.77	2.63	ug/Kg	1		12/23/19 13:56
Trichlorofluoromethane	43.9 U	87.7	26.3	ug/Kg	1		12/23/19 13:56
Vinyl acetate	87.5 U	175	54.4	ug/Kg	1		12/23/19 13:56
Vinyl chloride	0.700 U	1.40	0.438	ug/Kg	1		12/23/19 13:56
Xylenes (total)	415	132	40.0	ug/Kg	1		12/23/19 13:56
Surrogates							
1,2-Dichloroethane-D4 (surr)	109	71-136		%	1		12/23/19 13:56
4-Bromofluorobenzene (surr)	69.2	55-151		%	1		12/23/19 13:56
Toluene-d8 (surr)	98.8	85-116		%	1		12/23/19 13:56



Results of **104444-TP4S2**

Client Sample ID: **104444-TP4S2**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462010
Lab Project ID: 1197462

Collection Date: 12/17/19 13:10
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):77.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19747
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 12/30/19 13:36
Container ID: 1197462010-B

Prep Batch: VXX35359
Prep Method: SW5035A
Prep Date/Time: 12/17/19 13:10
Prep Initial Wt./Vol.: 55.129 g
Prep Extract Vol: 37.4357 mL

Analytical Batch: VMS19746
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 12/23/19 13:56
Container ID: 1197462010-B

Prep Batch: VXX35356
Prep Method: SW5035A
Prep Date/Time: 12/17/19 13:10
Prep Initial Wt./Vol.: 55.129 g
Prep Extract Vol: 37.4357 mL

Results of 104444-TP4S3

Client Sample ID: **104444-TP4S3**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462011
 Lab Project ID: 1197462

Collection Date: 12/17/19 13:20
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.6
 Location:

Results by Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	1890		283	70.8	ug/Kg	10		01/07/20 19:56
2-Methylnaphthalene	68.2		28.3	7.08	ug/Kg	1		01/02/20 19:27
Acenaphthene	4220		283	70.8	ug/Kg	10		01/07/20 19:56
Acenaphthylene	14.2 U		28.3	7.08	ug/Kg	1		01/02/20 19:27
Anthracene	358		28.3	7.08	ug/Kg	1		01/02/20 19:27
Benzo(a)Anthracene	270		28.3	7.08	ug/Kg	1		01/02/20 19:27
Benzo[a]pyrene	88.6		28.3	7.08	ug/Kg	1		01/02/20 19:27
Benzo[b]Fluoranthene	143		28.3	7.08	ug/Kg	1		01/02/20 19:27
Benzo[g,h,i]perylene	17.8 J		28.3	7.08	ug/Kg	1		01/02/20 19:27
Benzo[k]fluoranthene	46.2		28.3	7.08	ug/Kg	1		01/02/20 19:27
Chrysene	242		28.3	7.08	ug/Kg	1		01/02/20 19:27
Dibenzo[a,h]anthracene	14.2 U		28.3	7.08	ug/Kg	1		01/02/20 19:27
Fluoranthene	1980		283	70.8	ug/Kg	10		01/07/20 19:56
Fluorene	2400		283	70.8	ug/Kg	10		01/07/20 19:56
Indeno[1,2,3-c,d] pyrene	20.2 J		28.3	7.08	ug/Kg	1		01/02/20 19:27
Naphthalene	1540		226	56.6	ug/Kg	10		01/07/20 19:56
Phenanthrene	4620		283	70.8	ug/Kg	10		01/07/20 19:56
Pyrene	1360		283	70.8	ug/Kg	10		01/07/20 19:56
Surrogates								
2-Methylnaphthalene-d10 (surr)	83.9		58-103		%	1		01/02/20 19:27
Fluoranthene-d10 (surr)	82.3		54-113		%	1		01/02/20 19:27

Batch Information

Analytical Batch: XMS11902
 Analytical Method: 8270D SIM (PAH)
 Analyst: NRB
 Analytical Date/Time: 01/02/20 19:27
 Container ID: 1197462011-A

Prep Batch: XXX42711
 Prep Method: SW3550C
 Prep Date/Time: 12/23/19 11:18
 Prep Initial Wt./Vol.: 22.947 g
 Prep Extract Vol: 5 mL

Analytical Batch: XMS11905
 Analytical Method: 8270D SIM (PAH)
 Analyst: BMZ
 Analytical Date/Time: 01/07/20 19:56
 Container ID: 1197462011-A

Prep Batch: XXX42711
 Prep Method: SW3550C
 Prep Date/Time: 12/23/19 11:18
 Prep Initial Wt./Vol.: 22.947 g
 Prep Extract Vol: 5 mL



Results of 104444-TP4S3

Client Sample ID: 104444-TP4S3
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462011
Lab Project ID: 1197462

Collection Date: 12/17/19 13:20
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):86.6
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/04/20 00:50
Container ID: 1197462011-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.005 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/04/20 00:50
Container ID: 1197462011-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.005 g
Prep Extract Vol: 5 mL

Results of 104444-TP4S3

Client Sample ID: **104444-TP4S3**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462011
 Lab Project ID: 1197462

Collection Date: 12/17/19 13:20
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.6
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	4.67	3.00	0.899	mg/Kg	1		12/23/19 17:22
Surrogates							
4-Bromofluorobenzene (surr)	116	50-150		%	1		12/23/19 17:22

Batch Information

Analytical Batch: VFC15067
 Analytical Method: AK101
 Analyst: ST
 Analytical Date/Time: 12/23/19 17:22
 Container ID: 1197462011-B

Prep Batch: VXX35348
 Prep Method: SW5035A
 Prep Date/Time: 12/17/19 13:20
 Prep Initial Wt./Vol.: 64.975 g
 Prep Extract Vol: 33.7072 mL



Results of 104444-TP4S3

Client Sample ID: 104444-TP4S3
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462011
Lab Project ID: 1197462

Collection Date: 12/17/19 13:20
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):86.6
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 104444-TP4S3

Client Sample ID: **104444-TP4S3**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462011
 Lab Project ID: 1197462

Collection Date: 12/17/19 13:20
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):86.6
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	120 U	240	74.3	ug/Kg	1		12/23/19 13:40
Chloroform	2.40 U	4.79	0.743	ug/Kg	1		12/23/19 13:40
Chloromethane	15.0 U	30.0	9.35	ug/Kg	1		12/23/19 13:40
cis-1,2-Dichloroethene	15.0 U	30.0	9.35	ug/Kg	1		12/23/19 13:40
cis-1,3-Dichloropropene	7.50 U	15.0	4.67	ug/Kg	1		12/23/19 13:40
Dibromochloromethane	3.00 U	5.99	0.743	ug/Kg	1		12/23/19 13:40
Dibromomethane	15.0 U	30.0	9.35	ug/Kg	1		12/23/19 13:40
Dichlorodifluoromethane	29.9 U	59.9	18.0	ug/Kg	1		12/23/19 13:40
Ethylbenzene	27.6 J	30.0	9.35	ug/Kg	1		12/23/19 13:40
Freon-113	60.0 U	120	37.1	ug/Kg	1		12/23/19 13:40
Hexachlorobutadiene	12.0 U	24.0	7.43	ug/Kg	1		12/23/19 13:40
Isopropylbenzene (Cumene)	40.4	30.0	9.35	ug/Kg	1		12/23/19 13:40
Methylene chloride	60.0 U	120	37.1	ug/Kg	1		12/23/19 13:40
Methyl-t-butyl ether	60.0 U	120	37.1	ug/Kg	1		12/23/19 13:40
Naphthalene	2970	30.0	9.35	ug/Kg	1		12/23/19 13:40
n-Butylbenzene	15.0 U	30.0	9.35	ug/Kg	1		12/23/19 13:40
n-Propylbenzene	14.7 J	30.0	9.35	ug/Kg	1		12/23/19 13:40
o-Xylene	28.0 J	30.0	9.35	ug/Kg	1		12/23/19 13:40
P & M -Xylene	20.7 J	59.9	18.0	ug/Kg	1		12/23/19 13:40
sec-Butylbenzene	23.5 J	30.0	9.35	ug/Kg	1		12/23/19 13:40
Styrene	15.0 U	30.0	9.35	ug/Kg	1		12/23/19 13:40
tert-Butylbenzene	15.0 U	30.0	9.35	ug/Kg	1		12/23/19 13:40
Tetrachloroethene	7.50 U	15.0	4.67	ug/Kg	1		12/23/19 13:40
Toluene	13.2 J	30.0	9.35	ug/Kg	1		12/23/19 13:40
trans-1,2-Dichloroethene	15.0 U	30.0	9.35	ug/Kg	1		12/23/19 13:40
trans-1,3-Dichloropropene	7.50 U	15.0	4.67	ug/Kg	1		12/23/19 13:40
Trichloroethene	3.00 U	5.99	1.80	ug/Kg	1		12/23/19 13:40
Trichlorofluoromethane	29.9 U	59.9	18.0	ug/Kg	1		12/23/19 13:40
Vinyl acetate	60.0 U	120	37.1	ug/Kg	1		12/23/19 13:40
Vinyl chloride	0.479 U	0.958	0.300	ug/Kg	1		12/23/19 13:40
Xylenes (total)	48.6 J	89.9	27.3	ug/Kg	1		12/23/19 13:40
Surrogates							
1,2-Dichloroethane-D4 (surr)	106	71-136		%	1		12/23/19 13:40
4-Bromofluorobenzene (surr)	86	55-151		%	1		12/23/19 13:40
Toluene-d8 (surr)	97.3	85-116		%	1		12/23/19 13:40

Results of 104444-TP4S3

Client Sample ID: **104444-TP4S3**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462011
Lab Project ID: 1197462

Collection Date: 12/17/19 13:20
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):86.6
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19746
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 12/23/19 13:40
Container ID: 1197462011-B

Prep Batch: VXX35356
Prep Method: SW5035A
Prep Date/Time: 12/17/19 13:20
Prep Initial Wt./Vol.: 64.975 g
Prep Extract Vol: 33.7072 mL



Results of 104444-TP4S12

Client Sample ID: 104444-TP4S12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462012
Lab Project ID: 1197462

Collection Date: 12/17/19 14:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by Metals by ICP/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver.

Batch Information

Analytical Batch: MMS10712
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 12/24/19 18:39
Container ID: 1197462012-A

Prep Batch: MX33067
Prep Method: SW3050B
Prep Date/Time: 12/23/19 12:50
Prep Initial Wt./Vol.: 1.049 g
Prep Extract Vol: 50 mL



Results of 104444-TP4S12

Client Sample ID: 104444-TP4S12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462012
Lab Project ID: 1197462

Collection Date: 12/17/19 14:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by Polychlorinated Biphenyls

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Aroclor-1016 through Aroclor-1260 and a Surrogates row for Decachlorobiphenyl (surr).

Batch Information

Analytical Batch: XGC10553
Analytical Method: SW8082A
Analyst: BMZ
Analytical Date/Time: 12/27/19 15:24
Container ID: 1197462012-A

Prep Batch: XXX42712
Prep Method: SW3550C
Prep Date/Time: 12/23/19 13:20
Prep Initial Wt./Vol.: 22.935 g
Prep Extract Vol: 5 mL



Results of 104444-TP4S12

Client Sample ID: 104444-TP4S12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462012
Lab Project ID: 1197462

Collection Date: 12/17/19 14:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Batch Information

Analytical Batch: XMS11906
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 01/08/20 15:14
Container ID: 1197462012-A

Prep Batch: XXX42711
Prep Method: SW3550C
Prep Date/Time: 12/23/19 11:18
Prep Initial Wt./Vol.: 22.924 g
Prep Extract Vol: 5 mL

Analytical Batch: XMS11905
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 01/07/20 20:36
Container ID: 1197462012-A

Prep Batch: XXX42711
Prep Method: SW3550C
Prep Date/Time: 12/23/19 11:18
Prep Initial Wt./Vol.: 22.924 g
Prep Extract Vol: 5 mL



Results of 104444-TP4S12

Client Sample ID: 104444-TP4S12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462012
Lab Project ID: 1197462

Collection Date: 12/17/19 14:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15515
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/07/20 12:47
Container ID: 1197462012-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.17 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/03/20 23:40
Container ID: 1197462012-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.17 g
Prep Extract Vol: 5 mL



Results of **104444-TP4S12**

Client Sample ID: **104444-TP4S12**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462012
Lab Project ID: 1197462

Collection Date: 12/17/19 14:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	10.0	3.98	1.19	mg/Kg	1		12/23/19 17:39
Surrogates							
4-Bromofluorobenzene (surr)	120	50-150		%	1		12/23/19 17:39

Batch Information

Analytical Batch: VFC15067
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 17:39
Container ID: 1197462012-B

Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:00
Prep Initial Wt./Vol.: 54.504 g
Prep Extract Vol: 35.2531 mL



Results of 104444-TP4S12

Client Sample ID: 104444-TP4S12
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462012
Lab Project ID: 1197462

Collection Date: 12/17/19 14:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 104444-TP4S12

Client Sample ID: **104444-TP4S12**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462012
 Lab Project ID: 1197462

Collection Date: 12/17/19 14:00
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):81.2
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	160 U	319	98.8	ug/Kg	1		12/23/19 13:23
Chloroform	3.19 U	6.37	0.988	ug/Kg	1		12/23/19 13:23
Chloromethane	19.9 U	39.8	12.4	ug/Kg	1		12/23/19 13:23
cis-1,2-Dichloroethene	19.9 U	39.8	12.4	ug/Kg	1		12/23/19 13:23
cis-1,3-Dichloropropene	9.95 U	19.9	6.21	ug/Kg	1		12/23/19 13:23
Dibromochloromethane	3.98 U	7.97	0.988	ug/Kg	1		12/23/19 13:23
Dibromomethane	19.9 U	39.8	12.4	ug/Kg	1		12/23/19 13:23
Dichlorodifluoromethane	39.9 U	79.7	23.9	ug/Kg	1		12/23/19 13:23
Ethylbenzene	103	39.8	12.4	ug/Kg	1		12/23/19 13:23
Freon-113	79.5 U	159	49.4	ug/Kg	1		12/23/19 13:23
Hexachlorobutadiene	15.9 U	31.9	9.88	ug/Kg	1		12/23/19 13:23
Isopropylbenzene (Cumene)	128	39.8	12.4	ug/Kg	1		12/23/19 13:23
Methylene chloride	79.5 U	159	49.4	ug/Kg	1		12/23/19 13:23
Methyl-t-butyl ether	79.5 U	159	49.4	ug/Kg	1		12/23/19 13:23
Naphthalene	8650	3980	1240	ug/Kg	100		12/30/19 12:47
n-Butylbenzene	19.9 U	39.8	12.4	ug/Kg	1		12/23/19 13:23
n-Propylbenzene	131	39.8	12.4	ug/Kg	1		12/23/19 13:23
o-Xylene	200	39.8	12.4	ug/Kg	1		12/23/19 13:23
P & M -Xylene	109	79.7	23.9	ug/Kg	1		12/23/19 13:23
sec-Butylbenzene	106	39.8	12.4	ug/Kg	1		12/23/19 13:23
Styrene	19.9 U	39.8	12.4	ug/Kg	1		12/23/19 13:23
tert-Butylbenzene	19.9 U	39.8	12.4	ug/Kg	1		12/23/19 13:23
Tetrachloroethene	9.95 U	19.9	6.21	ug/Kg	1		12/23/19 13:23
Toluene	21.6 J	39.8	12.4	ug/Kg	1		12/23/19 13:23
trans-1,2-Dichloroethene	19.9 U	39.8	12.4	ug/Kg	1		12/23/19 13:23
trans-1,3-Dichloropropene	9.95 U	19.9	6.21	ug/Kg	1		12/23/19 13:23
Trichloroethene	3.98 U	7.97	2.39	ug/Kg	1		12/23/19 13:23
Trichlorofluoromethane	39.9 U	79.7	23.9	ug/Kg	1		12/23/19 13:23
Vinyl acetate	79.5 U	159	49.4	ug/Kg	1		12/23/19 13:23
Vinyl chloride	0.635 U	1.27	0.398	ug/Kg	1		12/23/19 13:23
Xylenes (total)	309	119	36.3	ug/Kg	1		12/23/19 13:23
Surrogates							
1,2-Dichloroethane-D4 (surr)	109	71-136		%	1		12/23/19 13:23
4-Bromofluorobenzene (surr)	63.8	55-151		%	1		12/23/19 13:23
Toluene-d8 (surr)	97.2	85-116		%	1		12/23/19 13:23

Results of 104444-TP4S12

Client Sample ID: **104444-TP4S12**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462012
Lab Project ID: 1197462

Collection Date: 12/17/19 14:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19747
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 12/30/19 12:47
Container ID: 1197462012-B

Prep Batch: VXX35359
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:00
Prep Initial Wt./Vol.: 54.504 g
Prep Extract Vol: 35.2531 mL

Analytical Batch: VMS19746
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 12/23/19 13:23
Container ID: 1197462012-B

Prep Batch: VXX35356
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:00
Prep Initial Wt./Vol.: 54.504 g
Prep Extract Vol: 35.2531 mL



Results of 104444-TP5S1

Client Sample ID: 104444-TP5S1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462013
Lab Project ID: 1197462

Collection Date: 12/17/19 14:10
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/04/20 01:00
Container ID: 1197462013-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.062 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/04/20 01:00
Container ID: 1197462013-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.062 g
Prep Extract Vol: 5 mL



Results of 104444-TP5S1

Client Sample ID: 104444-TP5S1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462013
Lab Project ID: 1197462

Collection Date: 12/17/19 14:10
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.21 U, 2.41, 0.724, mg/Kg, 1, 12/23/19 16:12

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 90.6, 50-150, %, 1, 12/23/19 16:12

Batch Information

Analytical Batch: VFC15067
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 16:12
Container ID: 1197462013-B

Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:10
Prep Initial Wt./Vol.: 67.46 g
Prep Extract Vol: 30.0949 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 88, 72-119, %, 1, 12/23/19 16:12

Batch Information

Analytical Batch: VFC15067
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 16:12
Container ID: 1197462013-B

Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:10
Prep Initial Wt./Vol.: 67.46 g
Prep Extract Vol: 30.0949 mL



Results of 104444-TP6S1

Client Sample ID: 104444-TP6S1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462014
Lab Project ID: 1197462

Collection Date: 12/17/19 14:30
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):89.8
Location:

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their surrogate standards.

Batch Information

Analytical Batch: XMS11902
Analytical Method: 8270D SIM (PAH)
Analyst: NRB
Analytical Date/Time: 01/02/20 20:08
Container ID: 1197462014-A

Prep Batch: XXX42711
Prep Method: SW3550C
Prep Date/Time: 12/23/19 11:18
Prep Initial Wt./Vol.: 22.536 g
Prep Extract Vol: 5 mL



Results of 104444-TP6S1

Client Sample ID: 104444-TP6S1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462014
Lab Project ID: 1197462

Collection Date: 12/17/19 14:30
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):89.8
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/04/20 01:10
Container ID: 1197462014-A
Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.34 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/04/20 01:10
Container ID: 1197462014-A
Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.34 g
Prep Extract Vol: 5 mL



Results of **104444-TP6S1**

Client Sample ID: **104444-TP6S1**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462014
Lab Project ID: 1197462

Collection Date: 12/17/19 14:30
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):89.8
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.43 U	2.86	0.859	mg/Kg	1		12/23/19 17:57
Surrogates							
4-Bromofluorobenzene (surr)	86.5	50-150		%	1		12/23/19 17:57

Batch Information

Analytical Batch: VFC15067
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 17:57
Container ID: 1197462014-B

Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:30
Prep Initial Wt./Vol.: 60.685 g
Prep Extract Vol: 31.1907 mL



Results of 104444-TP6S1

Client Sample ID: 104444-TP6S1
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462014
Lab Project ID: 1197462

Collection Date: 12/17/19 14:30
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):89.8
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 104444-TP6S1

Client Sample ID: **104444-TP6S1**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462014
 Lab Project ID: 1197462

Collection Date: 12/17/19 14:30
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):89.8
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	115 U	229	71.0	ug/Kg	1		12/23/19 13:07
Chloroform	2.29 U	4.58	0.710	ug/Kg	1		12/23/19 13:07
Chloromethane	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
cis-1,2-Dichloroethene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
cis-1,3-Dichloropropene	7.15 U	14.3	4.46	ug/Kg	1		12/23/19 13:07
Dibromochloromethane	2.86 U	5.72	0.710	ug/Kg	1		12/23/19 13:07
Dibromomethane	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
Dichlorodifluoromethane	28.6 U	57.2	17.2	ug/Kg	1		12/23/19 13:07
Ethylbenzene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
Freon-113	57.0 U	114	35.5	ug/Kg	1		12/23/19 13:07
Hexachlorobutadiene	11.4 U	22.9	7.10	ug/Kg	1		12/23/19 13:07
Isopropylbenzene (Cumene)	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
Methylene chloride	57.0 U	114	35.5	ug/Kg	1		12/23/19 13:07
Methyl-t-butyl ether	57.0 U	114	35.5	ug/Kg	1		12/23/19 13:07
Naphthalene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
n-Butylbenzene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
n-Propylbenzene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
o-Xylene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
P & M -Xylene	28.6 U	57.2	17.2	ug/Kg	1		12/23/19 13:07
sec-Butylbenzene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
Styrene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
tert-Butylbenzene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
Tetrachloroethene	7.15 U	14.3	4.46	ug/Kg	1		12/23/19 13:07
Toluene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
trans-1,2-Dichloroethene	14.3 U	28.6	8.93	ug/Kg	1		12/23/19 13:07
trans-1,3-Dichloropropene	7.15 U	14.3	4.46	ug/Kg	1		12/23/19 13:07
Trichloroethene	2.86 U	5.72	1.72	ug/Kg	1		12/23/19 13:07
Trichlorofluoromethane	28.6 U	57.2	17.2	ug/Kg	1		12/23/19 13:07
Vinyl acetate	57.0 U	114	35.5	ug/Kg	1		12/23/19 13:07
Vinyl chloride	0.458 U	0.916	0.286	ug/Kg	1		12/23/19 13:07
Xylenes (total)	43.0 U	85.9	26.1	ug/Kg	1		12/23/19 13:07
Surrogates							
1,2-Dichloroethane-D4 (surr)	104	71-136		%	1		12/23/19 13:07
4-Bromofluorobenzene (surr)	97.1	55-151		%	1		12/23/19 13:07
Toluene-d8 (surr)	95.7	85-116		%	1		12/23/19 13:07

Results of 104444-TP6S1

Client Sample ID: **104444-TP6S1**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462014
Lab Project ID: 1197462

Collection Date: 12/17/19 14:30
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):89.8
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19746
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 12/23/19 13:07
Container ID: 1197462014-B

Prep Batch: VXX35356
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:30
Prep Initial Wt./Vol.: 60.685 g
Prep Extract Vol: 31.1907 mL



Results of 104444-TP7S2

Client Sample ID: 104444-TP7S2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462015
Lab Project ID: 1197462

Collection Date: 12/17/19 14:55
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/04/20 01:19
Container ID: 1197462015-A
Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.284 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/04/20 01:19
Container ID: 1197462015-A
Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.284 g
Prep Extract Vol: 5 mL



Results of 104444-TP7S2

Client Sample ID: 104444-TP7S2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462015
Lab Project ID: 1197462

Collection Date: 12/17/19 14:55
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.30 U, 2.60, 0.779, mg/Kg, 1, 12/23/19 16:29

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 87.8, 50-150, %, 1, 12/23/19 16:29

Batch Information

Analytical Batch: VFC15067
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 16:29
Container ID: 1197462015-B

Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:55
Prep Initial Wt./Vol.: 69.505 g
Prep Extract Vol: 32.3044 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 86.7, 72-119, %, 1, 12/23/19 16:29

Batch Information

Analytical Batch: VFC15067
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 16:29
Container ID: 1197462015-B

Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 14:55
Prep Initial Wt./Vol.: 69.505 g
Prep Extract Vol: 32.3044 mL



Results of 104444-TP8S2

Client Sample ID: 104444-TP8S2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462016
Lab Project ID: 1197462

Collection Date: 12/17/19 15:20
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):88.5
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 16.4 J, 22.5, 6.97, mg/Kg, 1, 01/04/20 01:29

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 93, 50-150, %, 1, 01/04/20 01:29

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 01/04/20 01:29
Container ID: 1197462016-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.165 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 56.0 U, 112, 48.3, mg/Kg, 1, 01/04/20 01:29

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 82.4, 50-150, %, 1, 01/04/20 01:29

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 01/04/20 01:29
Container ID: 1197462016-A

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/19 11:23
Prep Initial Wt./Vol.: 30.165 g
Prep Extract Vol: 5 mL



Results of 104444-TP8S2

Client Sample ID: 104444-TP8S2
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462016
Lab Project ID: 1197462

Collection Date: 12/17/19 15:20
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):88.5
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.41 U, 2.81, 0.842, mg/Kg, 1, 12/23/19 16:47

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 88.7, 50-150, %, 1, 12/23/19 16:47

Batch Information

Analytical Batch: VFC15067
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 12/23/19 16:47
Container ID: 1197462016-B
Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 15:20
Prep Initial Wt./Vol.: 65.512 g
Prep Extract Vol: 32.5529 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 87.5, 72-119, %, 1, 12/23/19 16:47

Batch Information

Analytical Batch: VFC15067
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 12/23/19 16:47
Container ID: 1197462016-B
Prep Batch: VXX35348
Prep Method: SW5035A
Prep Date/Time: 12/17/19 15:20
Prep Initial Wt./Vol.: 65.512 g
Prep Extract Vol: 32.5529 mL

Results of 104444-STB

Client Sample ID: **104444-STB**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462017
 Lab Project ID: 1197462

Collection Date: 12/17/19 08:00
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.25 U	2.51	0.754	mg/Kg	1		12/23/19 14:26
Surrogates							
4-Bromofluorobenzene (surr)	84.2	50-150		%	1		12/23/19 14:26

Batch Information

Analytical Batch: VFC15067
 Analytical Method: AK101
 Analyst: ST
 Analytical Date/Time: 12/23/19 14:26
 Container ID: 1197462017-A

Prep Batch: VXX35348
 Prep Method: SW5035A
 Prep Date/Time: 12/17/19 08:00
 Prep Initial Wt./Vol.: 49.743 g
 Prep Extract Vol: 25 mL



Results of 104444-STB

Client Sample ID: 104444-STB
Client Project ID: 104444-001 Petersburg
Lab Sample ID: 1197462017
Lab Project ID: 1197462

Collection Date: 12/17/19 08:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.



Results of 104444-STB

Client Sample ID: **104444-STB**
 Client Project ID: **104444-001 Petersburg**
 Lab Sample ID: 1197462017
 Lab Project ID: 1197462

Collection Date: 12/17/19 08:00
 Received Date: 12/20/19 13:23
 Matrix: Soil/Solid (dry weight)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	101 U	201	62.3	ug/Kg	1		12/23/19 12:34
Chloroform	2.01 U	4.02	1.01	ug/Kg	1		12/23/19 12:34
Chloromethane	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
cis-1,2-Dichloroethene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
cis-1,3-Dichloropropene	6.30 U	12.6	3.92	ug/Kg	1		12/23/19 12:34
Dibromochloromethane	2.52 U	5.03	1.51	ug/Kg	1		12/23/19 12:34
Dibromomethane	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
Dichlorodifluoromethane	25.1 U	50.3	15.1	ug/Kg	1		12/23/19 12:34
Ethylbenzene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
Freon-113	50.5 U	101	31.2	ug/Kg	1		12/23/19 12:34
Hexachlorobutadiene	10.1 U	20.1	6.23	ug/Kg	1		12/23/19 12:34
Isopropylbenzene (Cumene)	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
Methylene chloride	50.5 U	101	31.2	ug/Kg	1		12/23/19 12:34
Methyl-t-butyl ether	50.5 U	101	31.2	ug/Kg	1		12/23/19 12:34
Naphthalene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
n-Butylbenzene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
n-Propylbenzene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
o-Xylene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
P & M -Xylene	25.1 U	50.3	15.1	ug/Kg	1		12/23/19 12:34
sec-Butylbenzene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
Styrene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
tert-Butylbenzene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
Tetrachloroethene	6.30 U	12.6	3.92	ug/Kg	1		12/23/19 12:34
Toluene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
trans-1,2-Dichloroethene	12.6 U	25.1	7.84	ug/Kg	1		12/23/19 12:34
trans-1,3-Dichloropropene	6.30 U	12.6	3.92	ug/Kg	1		12/23/19 12:34
Trichloroethene	2.52 U	5.03	1.51	ug/Kg	1		12/23/19 12:34
Trichlorofluoromethane	25.1 U	50.3	15.1	ug/Kg	1		12/23/19 12:34
Vinyl acetate	50.5 U	101	31.2	ug/Kg	1		12/23/19 12:34
Vinyl chloride	0.402 U	0.804	0.251	ug/Kg	1		12/23/19 12:34
Xylenes (total)	37.7 U	75.4	22.9	ug/Kg	1		12/23/19 12:34
Surrogates							
1,2-Dichloroethane-D4 (surr)	106	71-136		%	1		12/23/19 12:34
4-Bromofluorobenzene (surr)	96.9	55-151		%	1		12/23/19 12:34
Toluene-d8 (surr)	96.9	85-116		%	1		12/23/19 12:34

Results of 104444-STB

Client Sample ID: **104444-STB**
Client Project ID: **104444-001 Petersburg**
Lab Sample ID: 1197462017
Lab Project ID: 1197462

Collection Date: 12/17/19 08:00
Received Date: 12/20/19 13:23
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19746
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 12/23/19 12:34
Container ID: 1197462017-A

Prep Batch: VXX35356
Prep Method: SW5035A
Prep Date/Time: 12/17/19 08:00
Prep Initial Wt./Vol.: 49.743 g
Prep Extract Vol: 25 mL



Method Blank

Blank ID: MB for HBN 1803306 [MXX/33067]
Blank Lab ID: 1547631

Matrix: Soil/Solid (dry weight)

QC for Samples:
1197462010, 1197462012

Results by SW6020A

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Arsenic	0.500U	1.00	0.310	mg/Kg
Barium	0.150U	0.300	0.0940	mg/Kg
Cadmium	0.100U	0.200	0.0620	mg/Kg
Chromium	0.200U	0.400	0.130	mg/Kg
Lead	0.100U	0.200	0.0620	mg/Kg
Mercury	0.150U	0.300	0.100	mg/Kg
Selenium	0.500U	1.00	0.310	mg/Kg
Silver	0.250U	0.500	0.150	mg/Kg

Batch Information

Analytical Batch: MMS10712
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 12/24/2019 4:47:01PM

Prep Batch: MXX33067
Prep Method: SW3050B
Prep Date/Time: 12/23/2019 12:50:18PM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

Print Date: 01/10/2020 1:18:04PM

Duplicate Sample Summary

Original Sample ID: 1547633
 Duplicate Sample ID: 1547637
 QC for Samples:
 1197462010, 1197462012

Analysis Date: 12/24/2019 19:54
 Matrix: Solid/Soil (Wet Weight)

Results by SW6020A

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Arsenic	60.8	71.4	mg/Kg	16.10	(< 20)
Lead	97.1	206	mg/Kg	71.80*	(< 20)

Batch Information

Analytical Batch: MMS10712
 Analytical Method: SW6020A
 Instrument: Perkin Elmer Nexlon P5
 Analyst: ACF

Prep Batch: MXX33067
 Prep Method: SW3050B
 Prep Date/Time: 12/23/2019 12:50:18PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [MXX33067]
 Blank Spike Lab ID: 1547632
 Date Analyzed: 12/24/2019 16:51

Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462012

Results by SW6020A

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
Arsenic	50	51.0	102	(82-118)
Barium	50	45.3	91	(86-116)
Cadmium	5	4.82	96	(84-116)
Chromium	20	21.0	105	(83-119)
Lead	50	51.7	103	(84-118)
Mercury	0.5	0.495	99	(74-126)
Selenium	50	51.6	103	(80-119)
Silver	5	5.09	102	(83-118)

Batch Information

Analytical Batch: **MMS10712**
 Analytical Method: **SW6020A**
 Instrument: **Perkin Elmer Nexlon P5**
 Analyst: **ACF**

Prep Batch: **MXX33067**
 Prep Method: **SW3050B**
 Prep Date/Time: **12/23/2019 12:50**
 Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
 Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1547633
 MS Sample ID: 1547634 MS
 MSD Sample ID: 1547635 MSD

Analysis Date: 12/24/2019 19:36
 Analysis Date: 12/24/2019 19:40
 Analysis Date: 12/24/2019 19:45
 Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1197462010, 1197462012

Results by SW6020A

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Arsenic	60.8	48.3	86.1	52 *	49.1	99.3	78 *	82-118	14.20	(< 20)
Barium	63.2	48.3	100	77 *	49.1	107	89	86-116	6.39	(< 20)
Cadmium	0.164J	4.83	4.52	90	4.91	4.95	98	84-116	9.01	(< 20)
Chromium	14.3	19.3	34.5	105	19.6	32.6	93	83-119	5.73	(< 20)
Lead	97.1	48.3	136	80 *	49.1	177	162 *	84-118	26.10 *	(< 20)
Mercury	0.248J	0.483	.651	84	0.491	0.757	104	74-126	15.00	(< 20)
Selenium	1.00	48.3	52.4	106	49.1	49.5	99	80-119	5.72	(< 20)
Silver	0.239U	4.83	4.68	97	4.91	4.99	102	83-118	6.61	(< 20)

Batch Information

Analytical Batch: MMS10712
 Analytical Method: SW6020A
 Instrument: Perkin Elmer NexIon P5
 Analyst: ACF
 Analytical Date/Time: 12/24/2019 7:40:43PM

Prep Batch: MX33067
 Prep Method: Soils/Solids Digest for Metals by ICP-MS
 Prep Date/Time: 12/23/2019 12:50:18PM
 Prep Initial Wt./Vol.: 1.03g
 Prep Extract Vol: 50.00mL

Bench Spike Summary

Original Sample ID: 1547633
 MS Sample ID: 1547636 BND
 MSD Sample ID:

Analysis Date: 12/24/2019 19:36
 Analysis Date: 12/24/2019 19:50
 Analysis Date:
 Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1197462010, 1197462012

Results by SW6020A

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Arsenic	60.8	59.9	125	107				80-120		
Barium	63.2	239	279	90				80-120		
Lead	97.1	599	681	98				80-120		

Batch Information

Analytical Batch: MMS10712
 Analytical Method: SW6020A
 Instrument: Perkin Elmer Nexlon P5
 Analyst: ACF
 Analytical Date/Time: 12/24/2019 7:50:06PM

Prep Batch: MXX33067
 Prep Method: Soils/Solids Digest for Metals by ICP-MS
 Prep Date/Time: 12/23/2019 12:50:18PM
 Prep Initial Wt./Vol.: 1.04g
 Prep Extract Vol: 50.00mL

Method Blank

Blank ID: MB for HBN 1803377 [MXX/33073]
 Blank Lab ID: 1547949

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1197462002, 1197462003

Results by SW6020A

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Arsenic	3.00U	6.00	2.50	ug/L
Barium	1.50U	3.00	0.940	ug/L
Cadmium	1.00U	2.00	0.620	ug/L
Chromium	5.00U	10.0	3.10	ug/L
Lead	0.500U	1.00	0.310	ug/L
Mercury	0.250U	0.500	0.180	ug/L
Selenium	10.0U	20.0	6.20	ug/L
Silver	1.00U	2.00	0.620	ug/L

Batch Information

Analytical Batch: MMS10716
 Analytical Method: SW6020A
 Instrument: Perkin Elmer Nexlon P5
 Analyst: ACF
 Analytical Date/Time: 1/3/2020 6:56:35PM

Prep Batch: MXX33073
 Prep Method: SW3010A
 Prep Date/Time: 12/26/2019 8:35:00AM
 Prep Initial Wt./Vol.: 25 mL
 Prep Extract Vol: 25 mL

Print Date: 01/10/2020 1:18:11PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [MXX33073]
 Blank Spike Lab ID: 1547950
 Date Analyzed: 01/03/2020 19:01

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462002, 1197462003

Results by SW6020A

Parameter	Blank Spike (ug/L)			CL
	Spike	Result	Rec (%)	
Arsenic	1000	987	99	(84-116)
Barium	1000	933	93	(86-114)
Cadmium	100	93.2	93	(87-115)
Chromium	400	400	100	(85-116)
Lead	1000	1010	101	(88-115)
Mercury	10	10.2	102	(70-124)
Selenium	1000	1020	102	(80-120)
Silver	100	103	103	(85-116)

Batch Information

Analytical Batch: **MMS10716**
 Analytical Method: **SW6020A**
 Instrument: **Perkin Elmer Nexlon P5**
 Analyst: **ACF**

Prep Batch: **MXX33073**
 Prep Method: **SW3010A**
 Prep Date/Time: **12/26/2019 08:35**
 Spike Init Wt./Vol.: 1000 ug/L Extract Vol: 25 mL
 Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1547951
 MS Sample ID: 1547952 MS
 MSD Sample ID: 1547953 MSD

Analysis Date: 01/03/2020 19:15
 Analysis Date: 01/03/2020 19:20
 Analysis Date: 01/03/2020 19:24
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462002, 1197462003

Results by SW6020A

Parameter	Sample	Matrix Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Arsenic	3.00U	1000	999	100	1000	1000	100	84-116	0.40	(< 20)
Barium	108	1000	1050	94	1000	1080	98	86-114	3.34	(< 20)
Cadmium	1.00U	100	96.7	97	100	98.8	99	87-115	2.14	(< 20)
Chromium	5.00U	400	383	96	400	383	96	85-116	0.04	(< 20)
Lead	0.500U	1000	1020	102	1000	1020	102	88-115	0.16	(< 20)
Mercury	0.250U	10.0	10.5	105	10.0	10.4	104	70-124	1.04	(< 20)
Selenium	10.0U	1000	997	100	1000	1000	100	80-120	0.31	(< 20)
Silver	1.00U	100	105	105	100	106	106	85-116	0.68	(< 20)

Batch Information

Analytical Batch: MMS10716
 Analytical Method: SW6020A
 Instrument: Perkin Elmer NexIon P5
 Analyst: ACF
 Analytical Date/Time: 1/3/2020 7:20:05PM

Prep Batch: MX33073
 Prep Method: 3010 H2O Digest for Metals ICP-MS
 Prep Date/Time: 12/26/2019 8:35:00AM
 Prep Initial Wt./Vol.: 25.00mL
 Prep Extract Vol: 25.00mL

Print Date: 01/10/2020 1:18:15PM



Method Blank

Blank ID: MB for HBN 1803338 [SPT/10957]
Blank Lab ID: 1547749

Matrix: Soil/Solid (dry weight)

QC for Samples:

1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016

Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

Batch Information

Analytical Batch: SPT10957
Analytical Method: SM21 2540G
Instrument:
Analyst: BRP
Analytical Date/Time: 12/23/2019 5:05:00PM

Print Date: 01/10/2020 1:18:16PM

Duplicate Sample Summary

Original Sample ID: 1197461001

Duplicate Sample ID: 1547750

QC for Samples:

1197462007, 1197462008, 1197462009, 1197462010

Analysis Date: 12/23/2019 17:05

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	95.1	95.1	%	0.07	(< 15)

Batch Information

Analytical Batch: SPT10957

Analytical Method: SM21 2540G

Instrument:

Analyst: BRP

Print Date: 01/10/2020 1:18:18PM

Duplicate Sample Summary

Original Sample ID: 1197462010

Analysis Date: 12/23/2019 17:05

Duplicate Sample ID: 1547751

Matrix: Soil/Solid (dry weight)

QC for Samples:

1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	77.4	78.2	%	0.96	(< 15)

Batch Information

Analytical Batch: SPT10957

Analytical Method: SM21 2540G

Instrument:

Analyst: BRP

Print Date: 01/10/2020 1:18:18PM

Method Blank

Blank ID: MB for HBN 1803347 [VXX/35348]
 Blank Lab ID: 1547772

Matrix: Soil/Solid (dry weight)

QC for Samples:

1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016, 1197462017

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	88.9	72-119		%
4-Bromofluorobenzene (surr)	86.8	50-150		%

Batch Information

Analytical Batch: VFC15067
 Analytical Method: AK101
 Instrument: Agilent 7890 PID/FID
 Analyst: ST
 Analytical Date/Time: 12/23/2019 1:51:00PM

Prep Batch: VXX35348
 Prep Method: SW5035A
 Prep Date/Time: 12/23/2019 8:00:00AM
 Prep Initial Wt./Vol.: 50 g
 Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35348]
 Blank Spike Lab ID: 1547773
 Date Analyzed: 12/23/2019 12:41

Spike Duplicate ID: LCSD for HBN 1197462 [VXX35348]
 Spike Duplicate Lab ID: 1547774
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016, 1197462017

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.18	94	1.25	1.15	92	(75-125)	2.30	(< 20)
Ethylbenzene	1.25	1.21	97	1.25	1.17	93	(75-125)	3.40	(< 20)
o-Xylene	1.25	1.15	92	1.25	1.10	88	(75-125)	4.50	(< 20)
P & M -Xylene	2.50	2.38	95	2.50	2.29	92	(80-125)	3.80	(< 20)
Toluene	1.25	1.20	96	1.25	1.17	94	(70-125)	2.80	(< 20)
Xylenes (total)	3.75	3.52	94	3.75	3.39	90	(78-124)	4.00	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	97.6	98	1.25	95.9	96	(72-119)	1.80	

Batch Information

Analytical Batch: **VFC15067**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **ST**

Prep Batch: **VXX35348**
 Prep Method: **SW5035A**
 Prep Date/Time: **12/23/2019 08:00**
 Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35348]
 Blank Spike Lab ID: 1547775
 Date Analyzed: 12/23/2019 13:16

Spike Duplicate ID: LCSD for HBN 1197462 [VXX35348]
 Spike Duplicate Lab ID: 1547776
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016, 1197462017

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	12.8	103	12.5	12.4	99	(60-120)	3.40	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25	88.5	89	1.25	87.9	88	(50-150)	0.68	
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Batch Information

Analytical Batch: **VFC15067**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **ST**

Prep Batch: **VXX35348**
 Prep Method: **SW5035A**
 Prep Date/Time: **12/23/2019 08:00**
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1803347 [VXX/35348]
 Blank Lab ID: 1547772

Matrix: Soil/Solid (dry weight)

QC for Samples:

1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016, 1197462017

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	88.9	72-119		%

Batch Information

Analytical Batch: VFC15067
 Analytical Method: SW8021B
 Instrument: Agilent 7890 PID/FID
 Analyst: ST
 Analytical Date/Time: 12/23/2019 1:51:00PM

Prep Batch: VXX35348
 Prep Method: SW5035A
 Prep Date/Time: 12/23/2019 8:00:00AM
 Prep Initial Wt./Vol.: 50 g
 Prep Extract Vol: 25 mL

Print Date: 01/10/2020 1:18:27PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35348]
 Blank Spike Lab ID: 1547773
 Date Analyzed: 12/23/2019 12:41

Spike Duplicate ID: LCSD for HBN 1197462 [VXX35348]
 Spike Duplicate Lab ID: 1547774
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016, 1197462017

Results by SW8021B

Parameter	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1180	94	1250	1150	92	(75-125)	2.30	(< 20)
Ethylbenzene	1250	1210	97	1250	1170	93	(75-125)	3.40	(< 20)
o-Xylene	1250	1150	92	1250	1100	88	(75-125)	4.50	(< 20)
P & M -Xylene	2500	2380	95	2500	2290	92	(80-125)	3.80	(< 20)
Toluene	1250	1200	96	1250	1170	94	(70-125)	2.80	(< 20)
Xylenes (total)	3750	3520	94	3750	3390	90	(78-124)	4.00	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	97.6	98	1250	95.9	96	(72-119)	1.80	

Batch Information

Analytical Batch: VFC15067
 Analytical Method: SW8021B
 Instrument: Agilent 7890 PID/FID
 Analyst: ST

Prep Batch: VXX35348
 Prep Method: SW5035A
 Prep Date/Time: 12/23/2019 08:00
 Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1197462007
 MS Sample ID: 1547779 MS
 MSD Sample ID: 1547780 MSD

Analysis Date: 12/23/2019 14:44
 Analysis Date: 12/23/2019 15:01
 Analysis Date: 12/23/2019 15:19
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016, 1197462017

Results by SW8021B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	5.80U	775	762	98	775	754	97	75-125	0.96	(< 20)
Ethylbenzene	11.6U	775	752	97	775	758	98	75-125	0.70	(< 20)
o-Xylene	11.6U	775	707	91	775	716	92	75-125	1.30	(< 20)
P & M -Xylene	23.1U	1546	1476	95	1546	1488	96	80-125	0.94	(< 20)
Toluene	11.6U	775	749	97	775	749	97	70-125	0.08	(< 20)
Xylenes (total)	34.7U	2330	2180	94	2330	2203	95	78-124	1.10	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		775	737	95	775	715	92	72-119	2.90	

Batch Information

Analytical Batch: VFC15067
 Analytical Method: SW8021B
 Instrument: Agilent 7890 PID/FID
 Analyst: ST
 Analytical Date/Time: 12/23/2019 3:01:00PM

Prep Batch: VXX35348
 Prep Method: AK101 Extraction (S)
 Prep Date/Time: 12/23/2019 8:00:00AM
 Prep Initial Wt./Vol.: 92.95g
 Prep Extract Vol: 25.00mL

Method Blank

Blank ID: MB for HBN 1803349 [VXX/35349]
 Blank Lab ID: 1547781

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1197462001, 1197462002, 1197462003, 1197462004, 1197462005, 1197462006

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.000250U	0.000500	0.000150	mg/L
Ethylbenzene	0.000500U	0.00100	0.000310	mg/L
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
o-Xylene	0.000500U	0.00100	0.000310	mg/L
P & M -Xylene	0.00100U	0.00200	0.000620	mg/L
Toluene	0.000640J	0.00100	0.000310	mg/L
Xylenes (total)	0.00150U	0.00300	0.000930	mg/L
Surrogates				
1,4-Difluorobenzene (surr)	90.3	77-115		%
4-Bromofluorobenzene (surr)	86.7	50-150		%

Batch Information

Analytical Batch: VFC15066
 Analytical Method: AK101
 Instrument: Agilent 7890 PID/FID
 Analyst: ST
 Analytical Date/Time: 12/23/2019 11:31:00AM

Prep Batch: VXX35349
 Prep Method: SW5030B
 Prep Date/Time: 12/23/2019 8:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35349]
 Blank Spike Lab ID: 1547782
 Date Analyzed: 12/23/2019 12:06

Spike Duplicate ID: LCSD for HBN 1197462 [VXX35349]
 Spike Duplicate Lab ID: 1547783
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462001, 1197462002, 1197462003, 1197462004, 1197462005, 1197462006

Results by AK101

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.100	0.0928	93	0.100	0.100	100	(80-120)	7.50	(< 20)
Ethylbenzene	0.100	0.0939	94	0.100	0.0982	98	(75-125)	4.50	(< 20)
o-Xylene	0.100	0.0884	88	0.100	0.0927	93	(80-120)	4.80	(< 20)
P & M -Xylene	0.200	0.184	92	0.200	0.192	96	(75-130)	4.30	(< 20)
Toluene	0.100	0.0934	93	0.100	0.0992	99	(75-120)	6.00	(< 20)
Xylenes (total)	0.300	0.272	91	0.300	0.285	95	(79-121)	4.40	(< 20)

Surrogates

1,4-Difluorobenzene (surr)	0.0500	101	101	0.0500	102	102	(77-115)	0.93	
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Batch Information

Analytical Batch: **VFC15066**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **ST**

Prep Batch: **VXX35349**
 Prep Method: **SW5030B**
 Prep Date/Time: **12/23/2019 08:00**
 Spike Init Wt./Vol.: 0.100 mg/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 0.100 mg/L Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35349]
 Blank Spike Lab ID: 1547784
 Date Analyzed: 12/23/2019 12:24

Spike Duplicate ID: LCSD for HBN 1197462 [VXX35349]
 Spike Duplicate Lab ID: 1547785
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462001, 1197462002, 1197462003, 1197462004, 1197462005, 1197462006

Results by AK101

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	1.00	0.917	92	1.00	0.906	91	(60-120)	1.20	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	0.0500	88.2	88	0.0500	87.5	88	(50-150)	0.84	
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Batch Information

Analytical Batch: **VFC15066**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **ST**

Prep Batch: **VXX35349**
 Prep Method: **SW5030B**
 Prep Date/Time: **12/23/2019 08:00**
 Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Print Date: 01/10/2020 1:18:35PM

Method Blank

Blank ID: MB for HBN 1803349 [VXX/35349]
 Blank Lab ID: 1547781

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1197462001, 1197462002, 1197462003, 1197462004, 1197462005, 1197462006

Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.250U	0.500	0.150	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.640J	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	0.930	ug/L
Surrogates				
1,4-Difluorobenzene (surr)	90.3	77-115		%

Batch Information

Analytical Batch: VFC15066
 Analytical Method: SW8021B
 Instrument: Agilent 7890 PID/FID
 Analyst: ST
 Analytical Date/Time: 12/23/2019 11:31:00AM

Prep Batch: VXX35349
 Prep Method: SW5030B
 Prep Date/Time: 12/23/2019 8:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Print Date: 01/10/2020 1:18:38PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35349]
 Blank Spike Lab ID: 1547782
 Date Analyzed: 12/23/2019 12:06

Spike Duplicate ID: LCSD for HBN 1197462 [VXX35349]
 Spike Duplicate Lab ID: 1547783
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462001, 1197462002, 1197462003, 1197462004, 1197462005, 1197462006

Results by SW8021B

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	100	92.8	93	100	100	100	(80-120)	7.50	(< 20)
Ethylbenzene	100	93.9	94	100	98.2	98	(75-125)	4.50	(< 20)
o-Xylene	100	88.4	88	100	92.7	93	(80-120)	4.80	(< 20)
P & M -Xylene	200	184	92	200	192	96	(75-130)	4.30	(< 20)
Toluene	100	93.4	93	100	99.2	99	(75-120)	6.00	(< 20)
Xylenes (total)	300	272	91	300	285	95	(79-121)	4.40	(< 20)

Surrogates

1,4-Difluorobenzene (surr)	50	101	101	50	102	102	(77-115)	0.93	
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Batch Information

Analytical Batch: **VFC15066**
 Analytical Method: **SW8021B**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **ST**

Prep Batch: **VXX35349**
 Prep Method: **SW5030B**
 Prep Date/Time: **12/23/2019 08:00**
 Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1803353 [VXX/35350]

Blank Lab ID: 1547856

QC for Samples:

1197462002, 1197462003, 1197462006

Matrix: Water (Surface, Eff., Ground)

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	2.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Print Date: 01/10/2020 1:18:43PM

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Method Blank

Blank ID: MB for HBN 1803353 [VXX/35350]

Blank Lab ID: 1547856

QC for Samples:

1197462002, 1197462003, 1197462006

Matrix: Water (Surface, Eff., Ground)

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	100	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	95.1	89-112		%

Print Date: 01/10/2020 1:18:43PM



Method Blank

Blank ID: MB for HBN 1803353 [VXX/35350]
Blank Lab ID: 1547856

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1197462002, 1197462003, 1197462006

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS19740
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 12/23/2019 3:44:00PM

Prep Batch: VXX35350
Prep Method: SW5030B
Prep Date/Time: 12/23/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 01/10/2020 1:18:43PM

Leaching Blank

Blank ID: LB for HBN 1803271 [TCLP/10405]
 Blank Lab ID: 1547504

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1197462002, 1197462003, 1197462006

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1-Dichloroethene	25.0U	50.0	15.5	ug/L
1,2-Dichloroethane	12.5U	25.0	7.50	ug/L
1,4-Dichlorobenzene	12.5U	25.0	7.50	ug/L
2-Butanone (MEK)	250U	500	155	ug/L
Benzene	10.0U	20.0	6.00	ug/L
Carbon tetrachloride	25.0U	50.0	15.5	ug/L
Chlorobenzene	12.5U	25.0	7.50	ug/L
Chloroform	25.0U	50.0	15.5	ug/L
Hexachlorobutadiene	25.0U	50.0	15.5	ug/L
Tetrachloroethene	25.0U	50.0	15.5	ug/L
Trichloroethene	25.0U	50.0	15.5	ug/L
Vinyl chloride	25.0U	50.0	15.5	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	99.7	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	94.8	89-112		%

Batch Information

Analytical Batch: VMS19740
 Analytical Method: SW8260C
 Instrument: VPA 780/5975 GC/MS
 Analyst: NRB
 Analytical Date/Time: 12/23/2019 6:26:00PM

Prep Batch: VXX35350
 Prep Method: SW5030B
 Prep Date/Time: 12/23/2019 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35350]
 Blank Spike Lab ID: 1547857
 Date Analyzed: 12/23/2019 16:46

Spike Duplicate ID: LCSD for HBN 1197462
 [VXX35350]
 Spike Duplicate Lab ID: 1547858
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462002, 1197462003, 1197462006

Results by SW8260C

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	29.8	100	30	29.1	97	(78-124)	2.40	(< 20)
1,1,1-Trichloroethane	30	32.0	107	30	32.2	107	(74-131)	0.71	(< 20)
1,1,2,2-Tetrachloroethane	30	28.8	96	30	27.7	93	(71-121)	3.60	(< 20)
1,1,2-Trichloroethane	30	27.7	92	30	26.7	89	(80-119)	3.80	(< 20)
1,1-Dichloroethane	30	30.6	102	30	30.9	103	(77-125)	0.84	(< 20)
1,1-Dichloroethene	30	31.7	106	30	32.2	107	(71-131)	1.40	(< 20)
1,1-Dichloropropene	30	28.4	95	30	28.8	96	(79-125)	1.40	(< 20)
1,2,3-Trichlorobenzene	30	31.5	105	30	31.1	104	(69-129)	1.40	(< 20)
1,2,3-Trichloropropane	30	28.5	95	30	27.4	91	(73-122)	3.90	(< 20)
1,2,4-Trichlorobenzene	30	32.0	107	30	31.4	105	(69-130)	2.00	(< 20)
1,2,4-Trimethylbenzene	30	30.2	101	30	30.1	100	(79-124)	0.16	(< 20)
1,2-Dibromo-3-chloropropane	30	29.1	97	30	28.2	94	(62-128)	3.20	(< 20)
1,2-Dibromoethane	30	27.7	92	30	26.8	89	(77-121)	3.10	(< 20)
1,2-Dichlorobenzene	30	30.9	103	30	30.8	103	(80-119)	0.35	(< 20)
1,2-Dichloroethane	30	29.3	98	30	28.4	95	(73-128)	3.00	(< 20)
1,2-Dichloropropane	30	31.9	106	30	31.8	106	(78-122)	0.30	(< 20)
1,3,5-Trimethylbenzene	30	30.5	102	30	30.5	102	(75-124)	0.19	(< 20)
1,3-Dichlorobenzene	30	31.7	106	30	31.7	106	(80-119)	0.18	(< 20)
1,3-Dichloropropane	30	27.5	92	30	26.4	88	(80-119)	4.10	(< 20)
1,4-Dichlorobenzene	30	31.7	106	30	31.5	105	(79-118)	0.63	(< 20)
2,2-Dichloropropane	30	32.6	109	30	32.5	108	(60-139)	0.19	(< 20)
2-Butanone (MEK)	90	71.7	80	90	68.6	76	(56-143)	4.40	(< 20)
2-Chlorotoluene	30	31.8	106	30	32.2	107	(79-122)	0.95	(< 20)
2-Hexanone	90	85.7	95	90	82.2	91	(57-139)	4.20	(< 20)
4-Chlorotoluene	30	32.3	108	30	32.4	108	(78-122)	0.13	(< 20)
4-Isopropyltoluene	30	31.4	105	30	31.5	105	(77-127)	0.32	(< 20)
4-Methyl-2-pentanone (MIBK)	90	97.4	108	90	92.6	103	(67-130)	5.00	(< 20)
Benzene	30	32.1	107	30	32.1	107	(79-120)	0.21	(< 20)
Bromobenzene	30	32.3	108	30	32.1	107	(80-120)	0.60	(< 20)
Bromochloromethane	30	29.9	100	30	29.5	99	(78-123)	1.10	(< 20)
Bromodichloromethane	30	29.6	99	30	28.8	96	(79-125)	2.70	(< 20)
Bromoform	30	30.6	102	30	29.2	97	(66-130)	4.70	(< 20)
Bromomethane	30	34.8	116	30	35.4	118	(53-141)	1.90	(< 20)
Carbon disulfide	45	47.2	105	45	48.0	107	(64-133)	1.70	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35350]
 Blank Spike Lab ID: 1547857
 Date Analyzed: 12/23/2019 16:46

Spike Duplicate ID: LCSD for HBN 1197462 [VXX35350]
 Spike Duplicate Lab ID: 1547858
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462002, 1197462003, 1197462006

Results by SW8260C

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	33.1	110	30	33.6	112	(72-136)	1.60	(< 20)
Chlorobenzene	30	31.1	104	30	30.9	103	(82-118)	0.80	(< 20)
Chloroethane	30	33.3	111	30	34.1	114	(60-138)	2.20	(< 20)
Chloroform	30	29.1	97	30	29.0	97	(79-124)	0.16	(< 20)
Chloromethane	30	28.7	96	30	29.0	97	(50-139)	1.30	(< 20)
cis-1,2-Dichloroethene	30	30.0	100	30	30.1	100	(78-123)	0.31	(< 20)
cis-1,3-Dichloropropene	30	29.7	99	30	28.8	96	(75-124)	2.90	(< 20)
Dibromochloromethane	30	28.8	96	30	27.9	93	(74-126)	3.20	(< 20)
Dibromomethane	30	29.7	99	30	29.0	97	(79-123)	2.50	(< 20)
Dichlorodifluoromethane	30	24.2	81	30	24.9	83	(32-152)	3.00	(< 20)
Ethylbenzene	30	32.3	108	30	32.2	107	(79-121)	0.21	(< 20)
Freon-113	45	44.9	100	45	45.5	101	(70-136)	1.40	(< 20)
Hexachlorobutadiene	30	30.0	100	30	30.0	100	(66-134)	0.25	(< 20)
Isopropylbenzene (Cumene)	30	31.9	106	30	32.4	108	(72-131)	1.60	(< 20)
Methylene chloride	30	29.8	99	30	29.5	98	(74-124)	0.94	(< 20)
Methyl-t-butyl ether	45	43.3	96	45	41.4	92	(71-124)	4.60	(< 20)
Naphthalene	30	30.7	102	30	30.1	100	(61-128)	2.00	(< 20)
n-Butylbenzene	30	28.7	96	30	29.2	97	(75-128)	1.70	(< 20)
n-Propylbenzene	30	30.9	103	30	31.6	105	(76-126)	2.20	(< 20)
o-Xylene	30	31.3	104	30	30.6	102	(78-122)	2.00	(< 20)
P & M -Xylene	60	63.2	105	60	63.3	105	(80-121)	0.09	(< 20)
sec-Butylbenzene	30	30.9	103	30	31.5	105	(77-126)	2.00	(< 20)
Styrene	30	32.1	107	30	31.9	106	(78-123)	0.67	(< 20)
tert-Butylbenzene	30	30.8	103	30	31.3	104	(78-124)	1.40	(< 20)
Tetrachloroethene	30	31.4	105	30	31.7	106	(74-129)	0.96	(< 20)
Toluene	30	31.0	103	30	31.3	104	(80-121)	0.79	(< 20)
trans-1,2-Dichloroethene	30	30.6	102	30	31.2	104	(75-124)	2.00	(< 20)
trans-1,3-Dichloropropene	30	28.5	95	30	27.8	93	(73-127)	2.60	(< 20)
Trichloroethene	30	31.8	106	30	32.0	107	(79-123)	0.46	(< 20)
Trichlorofluoromethane	30	30.2	101	30	31.2	104	(65-141)	3.20	(< 20)
Vinyl acetate	30	30.3	101	30	28.7	96	(54-146)	5.50	(< 20)
Vinyl chloride	30	29.5	98	30	30.6	102	(58-137)	3.60	(< 20)
Xylenes (total)	90	94.5	105	90	93.9	104	(79-121)	0.61	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35350]
 Blank Spike Lab ID: 1547857
 Date Analyzed: 12/23/2019 16:46

Spike Duplicate ID: LCSD for HBN 1197462 [VXX35350]
 Spike Duplicate Lab ID: 1547858
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462002, 1197462003, 1197462006

Results by SW8260C

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	92.9	93	30	91.8	92	(81-118)	1.20	
4-Bromofluorobenzene (surr)	30	104	104	30	104	104	(85-114)	0.14	
Toluene-d8 (surr)	30	101	101	30	101	101	(89-112)	0.20	

Batch Information

Analytical Batch: **VMS19740**
 Analytical Method: **SW8260C**
 Instrument: **VPA 780/5975 GC/MS**
 Analyst: **NRB**

Prep Batch: **VXX35350**
 Prep Method: **SW5030B**
 Prep Date/Time: **12/23/2019 06:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1803412 [VXX/35356]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1548152

QC for Samples:

1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	10.0U	20.0	6.20	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	1.00U	2.00	0.620	ug/Kg
1,1,2-Trichloroethane	0.400U	0.800	0.250	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	1.00U	2.00	0.620	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	0.500U	1.00	0.310	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	1.00U	2.00	0.620	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	50.0U	100	31.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	50.0U	100	25.0	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Acetone	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	1.00U	2.00	0.620	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	10.0U	20.0	6.20	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg

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Method Blank

Blank ID: MB for HBN 1803412 [VXX/35356]

Blank Lab ID: 1548152

QC for Samples:

1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Matrix: Soil/Solid (dry weight)

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloroform	2.00U	4.00	0.620	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	2.50U	5.00	0.620	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	35.5J	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	105	71-136		%
4-Bromofluorobenzene (surr)	100	55-151		%
Toluene-d8 (surr)	94.5	85-116		%

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Method Blank

Blank ID: MB for HBN 1803412 [VXX/35356]
Blank Lab ID: 1548152

Matrix: Soil/Solid (dry weight)

QC for Samples:
1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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Batch Information

Analytical Batch: VMS19746
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: KAJ
Analytical Date/Time: 12/23/2019 9:03:00AM

Prep Batch: VXX35356
Prep Method: SW5035A
Prep Date/Time: 12/23/2019 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 01/10/2020 1:18:48PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35356]

Blank Spike Lab ID: 1548153

Date Analyzed: 12/23/2019 09:20

Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Results by SW8260C

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	725	97	(78-125)
1,1,1-Trichloroethane	750	799	106	(73-130)
1,1,2,2-Tetrachloroethane	750	784	105	(70-124)
1,1,2-Trichloroethane	750	746	99	(78-121)
1,1-Dichloroethane	750	741	99	(76-125)
1,1-Dichloroethene	750	712	95	(70-131)
1,1-Dichloropropene	750	819	109	(76-125)
1,2,3-Trichlorobenzene	750	739	99	(66-130)
1,2,3-Trichloropropane	750	733	98	(73-125)
1,2,4-Trichlorobenzene	750	759	101	(67-129)
1,2,4-Trimethylbenzene	750	764	102	(75-123)
1,2-Dibromo-3-chloropropane	750	793	106	(61-132)
1,2-Dibromoethane	750	749	100	(78-122)
1,2-Dichlorobenzene	750	758	101	(78-121)
1,2-Dichloroethane	750	716	96	(73-128)
1,2-Dichloropropane	750	844	113	(76-123)
1,3,5-Trimethylbenzene	750	757	101	(73-124)
1,3-Dichlorobenzene	750	753	100	(77-121)
1,3-Dichloropropane	750	741	99	(77-121)
1,4-Dichlorobenzene	750	761	101	(75-120)
2,2-Dichloropropane	750	806	107	(67-133)
2-Butanone (MEK)	2250	2650	118	(51-148)
2-Chlorotoluene	750	772	103	(75-122)
2-Hexanone	2250	2460	110	(53-145)
4-Chlorotoluene	750	767	102	(72-124)
4-Isopropyltoluene	750	769	103	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2370	105	(65-135)
Acetone	2250	2380	106	(36-164)
Benzene	750	793	106	(77-121)
Bromobenzene	750	767	102	(78-121)
Bromochloromethane	750	727	97	(78-125)
Bromodichloromethane	750	834	111	(75-127)
Bromoform	750	761	101	(67-132)
Bromomethane	750	665	89	(53-143)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35356]

Blank Spike Lab ID: 1548153

Date Analyzed: 12/23/2019 09:20

Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Results by SW8260C

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Carbon disulfide	1130	1020	91	(63-132)
Carbon tetrachloride	750	820	109	(70-135)
Chlorobenzene	750	776	103	(79-120)
Chloroethane	750	744	99	(59-139)
Chloroform	750	745	99	(78-123)
Chloromethane	750	674	90	(50-136)
cis-1,2-Dichloroethene	750	724	97	(77-123)
cis-1,3-Dichloropropene	750	767	102	(74-126)
Dibromochloromethane	750	752	100	(74-126)
Dibromomethane	750	759	101	(78-125)
Dichlorodifluoromethane	750	632	84	(29-149)
Ethylbenzene	750	768	102	(76-122)
Freon-113	1130	1050	93	(66-136)
Hexachlorobutadiene	750	806	107	(61-135)
Isopropylbenzene (Cumene)	750	786	105	(68-134)
Methylene chloride	750	763	102	(70-128)
Methyl-t-butyl ether	1130	1260	112	(73-125)
Naphthalene	750	796	106	(62-129)
n-Butylbenzene	750	782	104	(70-128)
n-Propylbenzene	750	771	103	(73-125)
o-Xylene	750	786	105	(77-123)
P & M -Xylene	1500	1560	104	(77-124)
sec-Butylbenzene	750	764	102	(73-126)
Styrene	750	801	107	(76-124)
tert-Butylbenzene	750	762	102	(73-125)
Tetrachloroethene	750	800	107	(73-128)
Toluene	750	765	102	(77-121)
trans-1,2-Dichloroethene	750	753	100	(74-125)
trans-1,3-Dichloropropene	750	758	101	(71-130)
Trichloroethene	750	756	101	(77-123)
Trichlorofluoromethane	750	720	96	(62-140)
Vinyl acetate	750	892	119	(50-151)
Vinyl chloride	750	632	84	(56-135)
Xylenes (total)	2250	2350	104	(78-124)

Print Date: 01/10/2020 1:18:51PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35356]
 Blank Spike Lab ID: 1548153
 Date Analyzed: 12/23/2019 09:20

Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Results by SW8260C

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	93.3	93	(71-136)
4-Bromofluorobenzene (surr)	750	91.8	92	(55-151)
Toluene-d8 (surr)	750	100	100	(85-116)

Batch Information

Analytical Batch: **VMS19746**
 Analytical Method: **SW8260C**
 Instrument: **VQA 7890/5975 GC/MS**
 Analyst: **KAJ**

Prep Batch: **VXX35356**
 Prep Method: **SW5035A**
 Prep Date/Time: **12/23/2019 06:00**
 Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1197461001
 MS Sample ID: 1548154 MS
 MSD Sample ID: 1548155 MSD

Analysis Date: 12/23/2019 12:51
 Analysis Date: 12/23/2019 10:56
 Analysis Date: 12/23/2019 11:12
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	13.6U	941	834	89	941	930	99	78-125	10.80	(< 20)
1,1,1-Trichloroethane	17.0U	941	1013	108	941	1048	111	73-130	3.50	(< 20)
1,1,2,2-Tetrachloroethane	1.36U	941	955	101	941	1047	111	70-124	9.20	(< 20)
1,1,2-Trichloroethane	0.545U	941	889	94	941	979	104	78-121	9.60	(< 20)
1,1-Dichloroethane	17.0U	941	934	99	941	967	103	76-125	3.50	(< 20)
1,1-Dichloroethene	17.0U	941	953	101	941	961	102	70-131	0.89	(< 20)
1,1-Dichloropropene	17.0U	941	1014	108	941	1073	113	76-125	5.20	(< 20)
1,2,3-Trichlorobenzene	34.0U	941	854	91	941	1027	109	66-130	18.40	(< 20)
1,2,3-Trichloropropane	1.36U	941	960	102	941	1039	110	73-125	7.90	(< 20)
1,2,4-Trichlorobenzene	17.0U	941	879	93	941	1012	107	67-129	14.00	(< 20)
1,2,4-Trimethylbenzene	55.6J	941	932	93	941	1050	106	75-123	12.10	(< 20)
1,2-Dibromo-3-chloropropane	68.0U	941	952	101	941	1062	113	61-132	11.50	(< 20)
1,2-Dibromoethane	0.680U	941	906	96	941	991	105	78-122	8.90	(< 20)
1,2-Dichlorobenzene	17.0U	941	889	94	941	1004	107	78-121	12.30	(< 20)
1,2-Dichloroethane	1.36U	941	933	99	941	961	102	73-128	2.90	(< 20)
1,2-Dichloropropane	6.80U	941	1025	109	941	1094	116	76-123	6.40	(< 20)
1,3,5-Trimethylbenzene	110	941	960	90	941	1115	106	73-124	14.70	(< 20)
1,3-Dichlorobenzene	17.0U	941	872	93	941	984	105	77-121	12.20	(< 20)
1,3-Dichloropropane	6.80U	941	887	94	941	967	103	77-121	8.70	(< 20)
1,4-Dichlorobenzene	17.0U	941	886	94	941	1000	106	75-120	12.00	(< 20)
2,2-Dichloropropane	17.0U	941	1020	108	941	1038	110	67-133	1.70	(< 20)
2-Butanone (MEK)	170U	2829	3113	110	2829	3460	123	51-148	10.50	(< 20)
2-Chlorotoluene	17.0U	941	886	94	941	1001	106	75-122	12.10	(< 20)
2-Hexanone	68.0U	2829	2944	104	2829	3239	115	53-145	9.40	(< 20)
4-Chlorotoluene	17.0U	941	875	93	941	1002	106	72-124	13.60	(< 20)
4-Isopropyltoluene	68.0U	941	903	96	941	1037	110	73-127	13.80	(< 20)
4-Methyl-2-pentanone (MIBK)	170U	2829	2923	103	2829	3155	112	65-135	7.80	(< 20)
Acetone	170U	2829	2818	100	2829	3028	107	36-164	7.20	(< 20)
Benzene	8.50U	941	939	100	941	1018	108	77-121	8.00	(< 20)
Bromobenzene	17.0U	941	907	96	941	1006	107	78-121	10.30	(< 20)
Bromochloromethane	17.0U	941	936	99	941	965	102	78-125	3.00	(< 20)
Bromodichloromethane	1.36U	941	1052	112	941	1094	117	75-127	4.30	(< 20)
Bromoform	17.0U	941	933	99	941	1002	106	67-132	7.20	(< 20)
Bromomethane	13.6U	941	911	97	941	930	99	53-143	2.00	(< 20)
Carbon disulfide	68.0U	1409	1409	100	1409	1377	97	63-132	2.60	(< 20)
Carbon tetrachloride	8.50U	941	1038	110	941	1083	116	70-135	4.70	(< 20)
Chlorobenzene	17.0U	941	907	96	941	995	106	79-120	9.20	(< 20)

Print Date: 01/10/2020 1:18:52PM

Matrix Spike Summary

Original Sample ID: 1197461001
 MS Sample ID: 1548154 MS
 MSD Sample ID: 1548155 MSD

Analysis Date: 12/23/2019 12:51
 Analysis Date: 12/23/2019 10:56
 Analysis Date: 12/23/2019 11:12
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroethane	136U	941	1304	138	941	1104	117	59-139	16.20	(< 20)
Chloroform	1.67J	941	940	100	941	976	103	78-123	3.70	(< 20)
Chloromethane	17.0U	941	896	95	941	899	96	50-136	0.38	(< 20)
cis-1,2-Dichloroethene	17.0U	941	943	100	941	958	102	77-123	1.50	(< 20)
cis-1,3-Dichloropropene	8.50U	941	950	101	941	1008	107	74-126	6.00	(< 20)
Dibromochloromethane	3.40U	941	910	97	941	991	105	74-126	8.50	(< 20)
Dibromomethane	17.0U	941	994	106	941	1025	109	78-125	3.10	(< 20)
Dichlorodifluoromethane	34.0U	941	897	95	941	876	93	29-149	2.30	(< 20)
Ethylbenzene	17.0U	941	886	94	941	994	106	76-122	11.40	(< 20)
Freon-113	68.0U	1409	1388	98	1409	1420	101	66-136	2.50	(< 20)
Hexachlorobutadiene	13.6U	941	1703	180 *	941	1725	183 *	61-135	1.50	(< 20)
Isopropylbenzene (Cumene)	12.2J	941	901	94	941	1022	107	68-134	12.60	(< 20)
Methylene chloride	68.0U	941	947	101	941	958	102	70-128	1.10	(< 20)
Methyl-t-butyl ether	68.0U	1409	1493	105	1409	1609	114	73-125	7.80	(< 20)
Naphthalene	17.0U	941	894	95	941	1073	113	62-129	17.80	(< 20)
n-Butylbenzene	17.0U	941	975	103	941	1094	116	70-128	11.20	(< 20)
n-Propylbenzene	17.0U	941	877	93	941	1013	108	73-125	14.40	(< 20)
o-Xylene	57.8	941	960	96	941	1052	106	77-123	9.30	(< 20)
P & M -Xylene	27.0J	1882	1819	95	1882	2008	105	77-124	10.00	(< 20)
sec-Butylbenzene	17.0U	941	885	94	941	1027	109	73-126	14.70	(< 20)
Styrene	17.0U	941	955	101	941	1030	109	76-124	7.60	(< 20)
tert-Butylbenzene	17.0U	941	866	92	941	996	106	73-125	13.80	(< 20)
Tetrachloroethene	8.50U	941	883	94	941	1016	108	73-128	13.90	(< 20)
Toluene	17.0U	941	873	93	941	965	103	77-121	10.20	(< 20)
trans-1,2-Dichloroethene	17.0U	941	971	103	941	993	105	74-125	2.30	(< 20)
trans-1,3-Dichloropropene	8.50U	941	911	97	941	988	105	71-130	8.20	(< 20)
Trichloroethene	3.40U	941	901	96	941	978	104	77-123	8.10	(< 20)
Trichlorofluoromethane	34.0U	941	1004	107	941	999	106	62-140	0.53	(< 20)
Vinyl acetate	68.0U	941	1104	117	941	1188	126	50-151	7.50	(< 20)
Vinyl chloride	0.545U	941	873	93	941	863	92	56-135	1.10	(< 20)
Xylenes (total)	84.9J	2829	2776	95	2829	3060	105	78-124	9.80	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		941	964	102	941	934	99	71-136	3.20	
4-Bromofluorobenzene (surr)		1567	1209	77	1567	1346	86	55-151	10.80	
Toluene-d8 (surr)		941	921	98	941	933	99	85-116	1.30	

Print Date: 01/10/2020 1:18:52PM

Matrix Spike Summary

Original Sample ID: 1197461001
 MS Sample ID: 1548154 MS
 MSD Sample ID: 1548155 MSD

Analysis Date:
 Analysis Date: 12/23/2019 10:56
 Analysis Date: 12/23/2019 11:12
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462011, 1197462012, 1197462014, 1197462017

Results by SW8260C

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			

Batch Information

Analytical Batch: VMS19746
 Analytical Method: SW8260C
 Instrument: VQA 7890/5975 GC/MS
 Analyst: KAJ
 Analytical Date/Time: 12/23/2019 10:56:00AM

Prep Batch: VXX35356
 Prep Method: Vol. Extraction SW8260 Field Extracted L
 Prep Date/Time: 12/23/2019 6:00:00AM
 Prep Initial Wt./Vol.: 41.88g
 Prep Extract Vol: 25.00mL

Print Date: 01/10/2020 1:18:52PM

Method Blank

Blank ID: MB for HBN 1803523 [VXX/35359]
 Blank Lab ID: 1548241

Matrix: Soil/Solid (dry weight)

QC for Samples:
 1197462010, 1197462012

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Naphthalene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	104	71-136		%
4-Bromofluorobenzene (surr)	96.7	55-151		%
Toluene-d8 (surr)	95.7	85-116		%

Batch Information

Analytical Batch: VMS19747
 Analytical Method: SW8260C
 Instrument: VQA 7890/5975 GC/MS
 Analyst: KAJ
 Analytical Date/Time: 12/30/2019 8:57:00AM

Prep Batch: VXX35359
 Prep Method: SW5035A
 Prep Date/Time: 12/30/2019 6:00:00AM
 Prep Initial Wt./Vol.: 50 g
 Prep Extract Vol: 25 mL

Print Date: 01/10/2020 1:18:54PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [VXX35359]
 Blank Spike Lab ID: 1548242
 Date Analyzed: 12/30/2019 09:50

Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462012

Results by SW8260C

Parameter	Blank Spike (ug/Kg)			CL (62-129)
	Spike	Result	Rec (%)	
Naphthalene	750	659	88	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	98.8	99	(71-136)
4-Bromofluorobenzene (surr)	750	100	100	(55-151)
Toluene-d8 (surr)	750	95.3	95	(85-116)

Batch Information

Analytical Batch: **VMS19747**
 Analytical Method: **SW8260C**
 Instrument: **VQA 7890/5975 GC/MS**
 Analyst: **KAJ**

Prep Batch: **VXX35359**
 Prep Method: **SW5035A**
 Prep Date/Time: **12/30/2019 06:00**
 Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1548247
 MS Sample ID: 1548243 MS
 MSD Sample ID: 1548244 MSD

Analysis Date: 12/30/2019 11:42
 Analysis Date: 12/30/2019 10:20
 Analysis Date: 12/30/2019 10:37
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462012

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Naphthalene	6.75U	404	270	67	404	304	75	62-129	12.00	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		404	407	101	404	401	99	71-136	1.60	
4-Bromofluorobenzene (surr)		674	58.3	9 *	674	62.1	9 *	55-151	6.30	
Toluene-d8 (surr)		404	403	100	404	405	100	85-116	0.37	

Batch Information

Analytical Batch: VMS19747
 Analytical Method: SW8260C
 Instrument: VQA 7890/5975 GC/MS
 Analyst: KAJ
 Analytical Date/Time: 12/30/2019 10:20:00AM

Prep Batch: VXX35359
 Prep Method: Vol. Extraction SW8260 Field Extracted L
 Prep Date/Time: 12/30/2019 6:00:00AM
 Prep Initial Wt./Vol.: 92.75g
 Prep Extract Vol: 25.00mL



Method Blank

Blank ID: MB for HBN 1803296 [XXX/42710]
Blank Lab ID: 1547611

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1197462002, 1197462003

Results by 8270D SIM LV (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0250U	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	73.5	47-106		%
Fluoranthene-d10 (surr)	75.7	24-116		%

Batch Information

Analytical Batch: XMS11906
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 1/8/2020 4:56:00PM

Prep Batch: XXX42710
Prep Method: SW3520C
Prep Date/Time: 12/23/2019 9:43:39AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 01/10/2020 1:19:00PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [XXX42710]
 Blank Spike Lab ID: 1547612
 Date Analyzed: 01/08/2020 17:17

Spike Duplicate ID: LCSD for HBN 1197462
 [XXX42710]
 Spike Duplicate Lab ID: 1547613
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462002, 1197462003

Results by 8270D SIM LV (PAH)

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	2	1.50	75	2	1.60	80	(41-115)	6.40	(< 20)
2-Methylnaphthalene	2	1.50	75	2	1.59	79	(39-114)	5.70	(< 20)
Acenaphthene	2	1.83	92	2	1.94	97	(48-114)	6.10	(< 20)
Acenaphthylene	2	1.51	76	2	1.62	81	(35-121)	6.60	(< 20)
Anthracene	2	1.59	80	2	1.68	84	(53-119)	5.50	(< 20)
Benzo(a)Anthracene	2	1.61	80	2	1.68	84	(59-120)	4.50	(< 20)
Benzo[a]pyrene	2	1.56	78	2	1.67	84	(53-120)	7.10	(< 20)
Benzo[b]Fluoranthene	2	1.58	79	2	1.66	83	(53-126)	4.80	(< 20)
Benzo[g,h,i]perylene	2	1.34	67	2	1.46	73	(44-128)	8.70	(< 20)
Benzo[k]fluoranthene	2	1.52	76	2	1.64	82	(54-125)	7.50	(< 20)
Chrysene	2	1.60	80	2	1.70	85	(57-120)	5.80	(< 20)
Dibenzo[a,h]anthracene	2	1.31	65	2	1.44	72	(44-131)	9.50	(< 20)
Fluoranthene	2	1.60	80	2	1.68	84	(58-120)	5.30	(< 20)
Fluorene	2	1.61	80	2	1.69	85	(50-118)	5.20	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.47	73	2	1.60	80	(48-130)	8.80	(< 20)
Naphthalene	2	1.51	75	2	1.61	81	(43-114)	6.80	(< 20)
Phenanthrene	2	1.52	76	2	1.60	80	(53-115)	4.70	(< 20)
Pyrene	2	1.65	83	2	1.72	86	(53-121)	3.90	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2	70.9	71	2	74.5	75	(47-106)	5.00	
Fluoranthene-d10 (surr)	2	75.6	76	2	80.1	80	(24-116)	5.90	

Batch Information

Analytical Batch: XMS11906
 Analytical Method: 8270D SIM LV (PAH)
 Instrument: SVA Agilent 780/5975 GC/MS
 Analyst: BMZ

Prep Batch: XXX42710
 Prep Method: SW3520C
 Prep Date/Time: 12/23/2019 09:43
 Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1803308 [XXX/42711]
 Blank Lab ID: 1547641

Matrix: Soil/Solid (dry weight)

QC for Samples:
 1197462010, 1197462011, 1197462012, 1197462014

Results by 8270D SIM (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
2-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
Acenaphthene	12.5U	25.0	6.25	ug/Kg
Acenaphthylene	12.5U	25.0	6.25	ug/Kg
Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo[a]pyrene	12.5U	25.0	6.25	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	6.25	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	6.25	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	6.25	ug/Kg
Chrysene	12.5U	25.0	6.25	ug/Kg
Dibenzo[a,h]anthracene	12.5U	25.0	6.25	ug/Kg
Fluoranthene	12.5U	25.0	6.25	ug/Kg
Fluorene	12.5U	25.0	6.25	ug/Kg
Indeno[1,2,3-c,d] pyrene	12.5U	25.0	6.25	ug/Kg
Naphthalene	10.0U	20.0	5.00	ug/Kg
Phenanthrene	12.5U	25.0	6.25	ug/Kg
Pyrene	12.5U	25.0	6.25	ug/Kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	82.8	58-103		%
Fluoranthene-d10 (surr)	83.2	54-113		%

Batch Information

Analytical Batch: XMS11902
 Analytical Method: 8270D SIM (PAH)
 Instrument: SVA Agilent 780/5975 GC/MS
 Analyst: NRB
 Analytical Date/Time: 1/2/2020 1:39:00PM

Prep Batch: XXX42711
 Prep Method: SW3550C
 Prep Date/Time: 12/23/2019 11:18:59AM
 Prep Initial Wt./Vol.: 22.5 g
 Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [XXX42711]

Blank Spike Lab ID: 1547642

Date Analyzed: 01/02/2020 14:00

Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462011, 1197462012, 1197462014

Results by 8270D SIM (PAH)

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	107	97	(43-111)
2-Methylnaphthalene	111	111	100	(39-114)
Acenaphthene	111	118	106	(44-111)
Acenaphthylene	111	96.5	87	(39-116)
Anthracene	111	96.1	87	(50-114)
Benzo(a)Anthracene	111	99.2	89	(54-122)
Benzo[a]pyrene	111	97.4	88	(50-125)
Benzo[b]Fluoranthene	111	103	92	(53-128)
Benzo[g,h,i]perylene	111	95.4	86	(49-127)
Benzo[k]fluoranthene	111	96.2	87	(56-123)
Chrysene	111	98.3	89	(57-118)
Dibenzo[a,h]anthracene	111	101	91	(50-129)
Fluoranthene	111	102	92	(55-119)
Fluorene	111	100	90	(47-114)
Indeno[1,2,3-c,d] pyrene	111	103	93	(49-130)
Naphthalene	111	105	94	(38-111)
Phenanthrene	111	95.0	86	(49-113)
Pyrene	111	106	95	(55-117)

Surrogates

2-Methylnaphthalene-d10 (surr)	111	90	90	(58-103)
Fluoranthene-d10 (surr)	111	84.7	85	(54-113)

Batch Information

Analytical Batch: XMS11902

Analytical Method: 8270D SIM (PAH)

Instrument: SVA Agilent 780/5975 GC/MS

Analyst: NRB

Prep Batch: XXX42711

Prep Method: SW3550C

Prep Date/Time: 12/23/2019 11:18

Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL

Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1197406002
 MS Sample ID: 1547643 MS
 MSD Sample ID: 1547644 MSD

Analysis Date: 01/07/2020 15:51
 Analysis Date: 01/07/2020 16:31
 Analysis Date: 01/07/2020 17:12
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462011, 1197462012, 1197462014

Results by 8270D SIM (PAH)

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	39000	134	37906	-835 *	131	41155	1670 *	43-111	8.30	(< 20)
2-Methylnaphthalene	54000	134	52467	-1130 *	131	56197	1760 *	39-114	7.00	(< 20)
Acenaphthene	817	134	981	123 *	131	1054	181 *	44-111	7.20	(< 20)
Acenaphthylene	148U	134	469	352 *	131	498	381 *	39-116	6.00	(< 20)
Anthracene	148U	134	146J	110	131	165J	126 *	50-114	12.40	(< 20)
Benzo(a)Anthracene	148U	134	142J	106	131	134J	102	54-122	5.60	(< 20)
Benzo(a)pyrene	148U	134	147J	110	131	140J	106	50-125	5.10	(< 20)
Benzo[b]Fluoranthene	148U	134	117J	88	131	134J	102	53-128	13.00	(< 20)
Benzo[g,h,i]perylene	148U	134	128J	96	131	124J	94	49-127	3.10	(< 20)
Benzo[k]fluoranthene	148U	134	138J	104	131	131J	100	56-123	5.20	(< 20)
Chrysene	148U	134	140J	105	131	135J	103	57-118	3.20	(< 20)
Dibenzo[a,h]anthracene	148U	134	136J	102	131	131J	100	50-129	3.90	(< 20)
Fluoranthene	148U	134	148J	111	131	144J	110	55-119	2.30	(< 20)
Fluorene	1620	134	1817	143 *	131	1974	271 *	47-114	8.70	(< 20)
Indeno[1,2,3-c,d] pyrene	148U	134	140J	105	131	132J	101	49-130	5.00	(< 20)
Naphthalene	22900	134	22262	-487 *	131	23827	695 *	38-111	6.80	(< 20)
Phenanthrene	1430	134	1637	147 *	131	1769	256 *	49-113	8.10	(< 20)
Pyrene	148U	134	156J	117	131	149J	114	55-117	4.50	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		134	252	189 *	131	280	214 *	58-103	10.60	
Fluoranthene-d10 (surr)		134	124	93	131	120	92	54-113	2.70	

Batch Information

Analytical Batch: XMS11905
 Analytical Method: 8270D SIM (PAH)
 Instrument: SVA Agilent 780/5975 GC/MS
 Analyst: BMZ
 Analytical Date/Time: 1/7/2020 4:31:00PM

Prep Batch: XXX42711
 Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
 Prep Date/Time: 12/23/2019 11:18:59AM
 Prep Initial Wt./Vol.: 22.59g
 Prep Extract Vol: 5.00mL

Print Date: 01/10/2020 1:19:10PM

Method Blank

Blank ID: MB for HBN 1803315 [XXX/42712]

Blank Lab ID: 1547655

QC for Samples:

1197462010, 1197462012

Matrix: Soil/Solid (dry weight)

Results by SW8082A

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Aroclor-1016	25.0U	50.0	12.5	ug/Kg
Aroclor-1221	50.0U	100	25.0	ug/Kg
Aroclor-1232	25.0U	50.0	12.5	ug/Kg
Aroclor-1242	25.0U	50.0	12.5	ug/Kg
Aroclor-1248	25.0U	50.0	12.5	ug/Kg
Aroclor-1254	25.0U	50.0	12.5	ug/Kg
Aroclor-1260	25.0U	50.0	12.5	ug/Kg

Surrogates

Decachlorobiphenyl (surr)	94	60-125		%
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Batch Information

Analytical Batch: XGC10551

Analytical Method: SW8082A

Instrument: Agilent 7890B GC ECD SW F

Analyst: BMZ

Analytical Date/Time: 12/24/2019 10:41:00AM

Prep Batch: XXX42712

Prep Method: SW3550C

Prep Date/Time: 12/23/2019 1:20:55PM

Prep Initial Wt./Vol.: 22.5 g

Prep Extract Vol: 5 mL

Print Date: 01/10/2020 1:19:11PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [XXX42712]
 Blank Spike Lab ID: 1547656
 Date Analyzed: 12/24/2019 10:51

Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462012

Results by SW8082A

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Aroclor-1016	222	220	99	(47-134)
Aroclor-1260	222	218	98	(53-140)
Surrogates				
Decachlorobiphenyl (surr)	222	91	91	(60-125)

Batch Information

Analytical Batch: **XGC10551**
 Analytical Method: **SW8082A**
 Instrument: **Agilent 7890B GC ECD SW F**
 Analyst: **BMZ**

Prep Batch: **XXX42712**
 Prep Method: **SW3550C**
 Prep Date/Time: **12/23/2019 13:20**
 Spike Init Wt./Vol.: 222 ug/Kg Extract Vol: 5 mL
 Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1197382001
 MS Sample ID: 1547657 MS
 MSD Sample ID: 1547658 MSD

Analysis Date: 12/24/2019 12:44
 Analysis Date: 12/24/2019 12:54
 Analysis Date: 12/24/2019 13:04
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462010, 1197462012

Results by SW8082A

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Aroclor-1016	134U	237	237J	100	236	248J	105	47-134	4.59	(< 30)
Aroclor-1260	2540	237	2489	-21 *	236	2661	51 *	53-140	6.61	(< 30)
Surrogates										
Decachlorobiphenyl (surr)		237	190	80	236	189	80	60-125	0.29	

Batch Information

Analytical Batch: XGC10551
 Analytical Method: SW8082A
 Instrument: Agilent 7890B GC ECD SW F
 Analyst: BMZ
 Analytical Date/Time: 12/24/2019 12:54:00PM

Prep Batch: XXX42712
 Prep Method: Sonication Extraction Soil SW8082 PCB
 Prep Date/Time: 12/23/2019 1:20:55PM
 Prep Initial Wt./Vol.: 22.65g
 Prep Extract Vol: 5.00mL

Method Blank

Blank ID: MB for HBN 1803324 [XXX/42713]
Blank Lab ID: 1547694

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1197462001, 1197462002, 1197462003, 1197462004, 1197462005

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	95	60-120		%

Batch Information

Analytical Batch: XFC15510
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: JMG
Analytical Date/Time: 1/2/2020 6:28:00PM

Prep Batch: XXX42713
Prep Method: SW3520C
Prep Date/Time: 12/23/2019 3:46:41PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 01/10/2020 1:19:16PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [XXX42713]
 Blank Spike Lab ID: 1547695
 Date Analyzed: 01/02/2020 18:59

Spike Duplicate ID: LCSD for HBN 1197462
 [XXX42713]
 Spike Duplicate Lab ID: 1547696
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462001, 1197462002, 1197462003, 1197462004, 1197462005

Results by AK102

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	20	19.2	96	20	21.1	106	(75-125)	9.40	(< 20)

Surrogates

5a Androstane (surr)	0.4	104	104	0.4	116	116	(60-120)	10.50	
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Batch Information

Analytical Batch: **XFC15510**
 Analytical Method: **AK102**
 Instrument: **Agilent 7890B F**
 Analyst: **JMG**

Prep Batch: **XXX42713**
 Prep Method: **SW3520C**
 Prep Date/Time: **12/23/2019 15:46**
 Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 01/10/2020 1:19:19PM

Method Blank

Blank ID: MB for HBN 1803324 [XXX/42713]
 Blank Lab ID: 1547694

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1197462001, 1197462002, 1197462003, 1197462004, 1197462005

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	88.8	60-120		%

Batch Information

Analytical Batch: XFC15510
 Analytical Method: AK103
 Instrument: Agilent 7890B F
 Analyst: JMG
 Analytical Date/Time: 1/2/2020 6:28:00PM

Prep Batch: XXX42713
 Prep Method: SW3520C
 Prep Date/Time: 12/23/2019 3:46:41PM
 Prep Initial Wt./Vol.: 250 mL
 Prep Extract Vol: 1 mL

Print Date: 01/10/2020 1:19:21PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [XXX42713]
 Blank Spike Lab ID: 1547695
 Date Analyzed: 01/02/2020 18:59

Spike Duplicate ID: LCSD for HBN 1197462
 [XXX42713]
 Spike Duplicate Lab ID: 1547696
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462001, 1197462002, 1197462003, 1197462004, 1197462005

Results by AK103

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	20	17.8	89	20	18.9	94	(60-120)	5.90	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	83.6	84	0.4	99.3	99	(60-120)	17.20	

Batch Information

Analytical Batch: **XFC15510**
 Analytical Method: **AK103**
 Instrument: **Agilent 7890B F**
 Analyst: **JMG**

Prep Batch: **XXX42713**
 Prep Method: **SW3520C**
 Prep Date/Time: **12/23/2019 15:46**
 Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1803339 [XXX/42714]
 Blank Lab ID: 1547752

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1197462002, 1197462003

Results by SW8082A

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Aroclor-1016	0.0500U	0.100	0.0310	ug/L
Aroclor-1221	0.500U	1.00	0.310	ug/L
Aroclor-1232	0.0500U	0.100	0.0310	ug/L
Aroclor-1242	0.0500U	0.100	0.0310	ug/L
Aroclor-1248	0.0500U	0.100	0.0310	ug/L
Aroclor-1254	0.0500U	0.100	0.0310	ug/L
Aroclor-1260	0.0500U	0.100	0.0310	ug/L
Surrogates				
Decachlorobiphenyl (surr)	93	40-135		%

Batch Information

Analytical Batch: XGC10551
 Analytical Method: SW8082A
 Instrument: Agilent 7890B GC ECD SW F
 Analyst: BMZ
 Analytical Date/Time: 12/24/2019 5:12:00PM

Prep Batch: XXX42714
 Prep Method: SW3520C
 Prep Date/Time: 12/24/2019 8:49:26AM
 Prep Initial Wt./Vol.: 1000 mL
 Prep Extract Vol: 1 mL

Print Date: 01/10/2020 1:19:25PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [XXX42714]
 Blank Spike Lab ID: 1547753
 Date Analyzed: 12/24/2019 17:22

Spike Duplicate ID: LCSD for HBN 1197462 [XXX42714]
 Spike Duplicate Lab ID: 1547754
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1197462002, 1197462003

Results by SW8082A

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Aroclor-1016	1	0.840	84	1	0.850	85	(46-129)	1.18	(< 30)
Aroclor-1260	1	0.800	80	1	0.810	81	(45-134)	1.24	(< 30)

Surrogates

Decachlorobiphenyl (surr)	1.00	86	86	1.00	87	87	(40-135)	1.16	
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Batch Information

Analytical Batch: **XGC10551**
 Analytical Method: **SW8082A**
 Instrument: **Agilent 7890B GC ECD SW F**
 Analyst: **BMZ**

Prep Batch: **XXX42714**
 Prep Method: **SW3520C**
 Prep Date/Time: **12/24/2019 08:49**
 Spike Init Wt./Vol.: 1 ug/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 1 ug/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1803355 [XXX/42716]
Blank Lab ID: 1547861

Matrix: Soil/Solid (dry weight)

QC for Samples:

1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	7.88J	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	95	60-120		%

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: JMG
Analytical Date/Time: 1/3/2020 5:02:00PM

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/2019 11:23:19AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Print Date: 01/10/2020 1:19:31PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [XXX42716]
 Blank Spike Lab ID: 1547862
 Date Analyzed: 01/03/2020 17:52

Spike Duplicate ID: LCSD for HBN 1197462
 [XXX42716]
 Spike Duplicate Lab ID: 1547863
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013,
 1197462014, 1197462015, 1197462016

Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL	
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Diesel Range Organics	833	870	104	833	863	104	(75-125)	0.82	(< 20)	
Surrogates										
5a Androstane (surr)	16.7	108	108	16.7	109	109	(60-120)	1.00		

Batch Information

Analytical Batch: **XFC15513**
 Analytical Method: **AK102**
 Instrument: **Agilent 7890B F**
 Analyst: **JMG**

Prep Batch: **XXX42716**
 Prep Method: **SW3550C**
 Prep Date/Time: **12/24/2019 11:23**
 Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1803355 [XXX/42716]
Blank Lab ID: 1547861

Matrix: Soil/Solid (dry weight)

QC for Samples:

1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	50.0U	100	43.0	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	88.3	60-120		%

Batch Information

Analytical Batch: XFC15513
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: JMG
Analytical Date/Time: 1/3/2020 5:02:00PM

Prep Batch: XXX42716
Prep Method: SW3550C
Prep Date/Time: 12/24/2019 11:23:19AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Print Date: 01/10/2020 1:19:36PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1197462 [XXX42716]
 Blank Spike Lab ID: 1547862
 Date Analyzed: 01/03/2020 17:52

Spike Duplicate ID: LCSD for HBN 1197462 [XXX42716]
 Spike Duplicate Lab ID: 1547863
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1197462007, 1197462008, 1197462009, 1197462010, 1197462011, 1197462012, 1197462013, 1197462014, 1197462015, 1197462016

Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	833	782	94	833	784	94	(60-120)	0.36	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	16.7	91.4	91	16.7	94.1	94	(60-120)	2.90	

Batch Information

Analytical Batch: **XFC15513**
 Analytical Method: **AK103**
 Instrument: **Agilent 7890B F**
 Analyst: **JMG**

Prep Batch: **XXX42716**
 Prep Method: **SW3550C**
 Prep Date/Time: **12/24/2019 11:23**
 Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL



334864 NSW 12/20/19

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: JUSTIN

400 N. 34th Street, Suite 100 Seattle, WA 98103 (206) 632-8020
2355 Hill Road Fairbanks, AK 99709 (907) 479-0600
3990 Collins Way, Suite 100 Lake Oswego, OR 97035 (503) 223-6147

2043 Westport Center Drive St. Louis, MO 63146-3564 (314) 699-9660
5430 Fairbanks Street, Suite 3 Anchorage, AK 99518 (907) 561-2120

2705 Saint Andrews Loop, Suite A Pasco, WA 99301-3378 (509) 946-6309
1321 Bannock Street, Suite 200 Denver, CO 80204 (303) 825-3800

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRO / VOCs AK101/EPA 8260C	GRO / BTEX AK101/EPA 8210	DRO / PPO AK102/103	RCA Metals EPA 6020	PAH	EPA 8270 SIM PCB	EPA 8082 Total Number of Containers	Remarks/Matrix
104444 - TMW1	① AE	930	12/18/19			X	X					5	Groundwater
TMW2	② AM	1000	↓		X	X	X	X	X	X		13	↓
TMW12	③ AM	1030		X	X	X	X	X	X		13		
TMW3	④ AE	1100		X	X						5		
TMW4	⑤ AE	1130		X	X						5		
WTB1	⑥ ABC	800			X GRO							1 box	GRO trip blank
WTB2	⑥ DF	900			X VOC							1 box	VOC trip blank

Project Information	Sample Receipt
Project Number: 104444-001	Total Number of Containers
Project Name: Petersburg	COC Seals/Intact? Y/N/NA
Contact: JCT	Received Good Cond./Cold
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method:
Sampler: JCT	(attach shipping bill, if any)

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: <u>[Signature]</u> Time: 13:23	Signature: _____ Time: _____	Signature: _____ Time: _____
Printed Name: <u>Jake Tranter</u> Date: 12/29/19	Printed Name: _____ Date: _____	Printed Name: _____ Date: _____
Company: <u>SGW</u>	Company: _____	Company: _____
Received By: 1.	Received By: 2.	Received By: 3.
Signature: _____ Time: _____	Signature: _____ Time: _____	Signature: <u>[Signature]</u> Time: 13:23
Printed Name: _____ Date: _____	Printed Name: _____ Date: _____	Printed Name: <u>JAW</u> Date: 12/20/19
Company: _____	Company: _____	Company: <u>SGS</u>

Instructions
Requested Turnaround Time: <u>Standard</u>
Special Instructions:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

Seal Absent 1: 3.5°C D 51
2: 2.8°C D 62
No. 143 of 148 **35235**



SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Laboratory: SGS
Attn: JUSTIN

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2355 Hill Road
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3990 Collins Way, Suite 100
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5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp. Grab	GRD / VOC	AK101 EPA 8260C	GRB / BTEX	AK101 EPA 8260B	DRB / PFO	AK102 / 1103	RUBA Metals	EPA 6020 PAH	EPA 8270 SIM	PCB	EPA 8082	Total Number of Containers	Remarks/Matrix
104444-TP1S1	⑦ AB	915	12/17/18	X		X	X									2	Soil
TP2S4	⑧ AB	1000		X		X	X										
TP3S3	⑨ AB	1115		X		X	X										
TP4S2	⑩ AB	1310		X	X		X	X	X	X	X	X	X				
TP4S3	⑪ AB	1320		X	X		X			X	X	X					
TP4S12	⑫ AB	1400		X	X		X	X	X	X	X	X	X				
TP5S1	⑬ AB	1410		X		X	X										
TP6S1	⑭ AB	1430		X	X		X				X						
TP7S2	⑮ AB	1455		X		X	X										
TP8S2	⑯ AB	1520		X		X	X										

Project Information	Sample Receipt
Project Number: <u>104444-001</u>	Total Number of Containers
Project Name: <u>Petersburg</u>	COC Seals/Intact? Y/N/NA
Contact: <u>JCT</u>	Received Good Cond./Cold
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method:
Sampler: <u>JCT</u>	(attach shipping bill, if any)

Instructions
Requested Turnaround Time: <u>Standard</u>
Special Instructions:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: <u>[Signature]</u> Time: <u>13:23</u>	Signature: _____ Time: _____	Signature: _____ Time: _____
Printed Name: <u>Jake Traub</u> Date: <u>12/20/19</u>	Printed Name: _____ Date: _____	Printed Name: _____ Date: _____
Company: <u>SW</u>	Company: _____	Company: _____
Received By: 1.	Received By: 2.	Received By: 3.
Signature: _____ Time: _____	Signature: _____ Time: _____	Signature: <u>[Signature]</u> Time: <u>13:23</u>
Printed Name: _____ Date: _____	Printed Name: _____ Date: _____	Printed Name: <u>JAW</u> Date: <u>12/20/19</u>
Company: _____	Company: _____	Company: <u>SGS</u>



e-Sample Receipt Form

SGS Workorder #:

1197462



1 1 9 7 4 6 2

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		<input checked="" type="checkbox"/> Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	<input type="checkbox"/> N/A	
COC accompanied samples?	<input checked="" type="checkbox"/> Yes	
DOD: Were samples received in COC corresponding coolers?	<input type="checkbox"/> N/A	
<input type="checkbox"/> N/A	**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required	
Temperature blank compliant* (i.e., 0-6 °C after CF)?	<input checked="" type="checkbox"/> Yes	Cooler ID: 1 @ 3.5 °C Therm. ID: D51
	<input checked="" type="checkbox"/> Yes	Cooler ID: 2 @ 2.8 °C Therm. ID: D62
	<input type="checkbox"/>	Cooler ID: @ °C Therm. ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm. ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm. ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	<input type="checkbox"/> N/A	
If <0°C, were sample containers ice free?	<input type="checkbox"/> N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	<input checked="" type="checkbox"/> Yes	
Do samples match COC** (i.e., sample IDs, dates/times collected)?	<input checked="" type="checkbox"/> Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	<input checked="" type="checkbox"/> Yes	
Were proper containers (type/mass/volume/preservative***) used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> N/A ***Exemption permitted for metals (e.g,200.8/6020A).
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	<input checked="" type="checkbox"/> Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	<input checked="" type="checkbox"/> Yes	
Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/> Yes	
Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1197462001-A	HCL to pH < 2	OK	1197462008-B	Methanol field pres. 4 C	OK
1197462001-B	HCL to pH < 2	OK	1197462009-A	No Preservative Required	OK
1197462001-C	HCL to pH < 2	OK	1197462009-B	Methanol field pres. 4 C	OK
1197462001-D	HCL to pH < 2	OK	1197462010-A	No Preservative Required	OK
1197462001-E	HCL to pH < 2	OK	1197462010-B	Methanol field pres. 4 C	OK
1197462002-A	HCL to pH < 2	OK	1197462011-A	No Preservative Required	OK
1197462002-B	HCL to pH < 2	OK	1197462011-B	Methanol field pres. 4 C	OK
1197462002-C	HCL to pH < 2	OK	1197462012-A	No Preservative Required	OK
1197462002-D	HCL to pH < 2	OK	1197462012-B	Methanol field pres. 4 C	OK
1197462002-E	HCL to pH < 2	OK	1197462013-A	No Preservative Required	OK
1197462002-F	HCL to pH < 2	OK	1197462013-B	Methanol field pres. 4 C	OK
1197462002-G	HCL to pH < 2	OK	1197462014-A	No Preservative Required	OK
1197462002-H	HCL to pH < 2	OK	1197462014-B	Methanol field pres. 4 C	OK
1197462002-I	HNO3 to pH < 2	OK	1197462015-A	No Preservative Required	OK
1197462002-J	No Preservative Required	OK	1197462015-B	Methanol field pres. 4 C	OK
1197462002-K	No Preservative Required	OK	1197462016-A	No Preservative Required	OK
1197462002-L	No Preservative Required	OK	1197462016-B	Methanol field pres. 4 C	OK
1197462002-M	No Preservative Required	OK	1197462017-A	Methanol field pres. 4 C	OK
1197462003-A	HCL to pH < 2	OK			
1197462003-B	HCL to pH < 2	OK			
1197462003-C	HCL to pH < 2	OK			
1197462003-D	HCL to pH < 2	OK			
1197462003-E	HCL to pH < 2	OK			
1197462003-F	HCL to pH < 2	OK			
1197462003-G	HCL to pH < 2	OK			
1197462003-H	HCL to pH < 2	OK			
1197462003-I	HNO3 to pH < 2	OK			
1197462003-J	No Preservative Required	OK			
1197462003-K	No Preservative Required	OK			
1197462003-L	No Preservative Required	OK			
1197462003-M	No Preservative Required	OK			
1197462004-A	HCL to pH < 2	OK			
1197462004-B	HCL to pH < 2	OK			
1197462004-C	HCL to pH < 2	OK			
1197462004-D	HCL to pH < 2	OK			
1197462004-E	HCL to pH < 2	OK			
1197462005-A	HCL to pH < 2	OK			
1197462005-B	HCL to pH < 2	OK			
1197462005-C	HCL to pH < 2	OK			
1197462005-D	HCL to pH < 2	OK			
1197462005-E	HCL to pH < 2	OK			
1197462006-A	HCL to pH < 2	OK			
1197462006-B	HCL to pH < 2	OK			
1197462006-C	HCL to pH < 2	OK			
1197462006-D	HCL to pH < 2	OK			
1197462006-E	HCL to pH < 2	OK			
1197462006-F	HCL to pH < 2	OK			
1197462007-A	No Preservative Required	OK			
1197462007-B	Methanol field pres. 4 C	OK			
1197462008-A	No Preservative Required	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates that an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.

APPENDIX D

IMPORTANT INFORMATION ABOUT YOUR

GEOTECHNICAL/ENVIRONMENTAL REPORT



Date: February 2020
To: Petro 49 Inc.

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland