

July 14, 2021

Mr. Joe Browning
Kasilof Riverview LLC
P.O. Box 254
Kenai, Alaska 99610

RE: RELEASE INVESTIGATION ACTIVITIES, KASILOF RIVERVIEW LODGE, 57400
STERLING HIGHWAY, KASILOF, ALASKA; ADEC FILE NO. 2319.26.002

Dear Mr. Browning,

This report presents the results of Shannon & Wilson's release investigation activities at the Kasilof Riverview Lodge located at 57400 Sterling Highway in Kasilof, Alaska. A vicinity map is included as Figure 1 and a site plan is included as Figure 2.

BACKGROUND

In 1993 and 1994 an on-site 6,000-gallon gasoline underground storage tank (UST) failed tightness tests. The tank was subsequently closed. In 1998, to evaluate the extent of contamination associated with the closed tank, three borings were advanced at the site by Gilfilian Engineering & Environmental Testing, Inc. (GE²T). Samples collected from each of the borings contained concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX), and gasoline range organics (GRO) at concentrations exceeding the Alaska Department of Environmental Conservation (ADEC) cleanup levels, applicable at that time.

Tank upgrades were conducted at the site in 1999. At this time, soil was excavated from around the tanks and test pits were advanced. Based on soil samples collected during this effort, GE²T concluded that the extent of contamination was not fully determined.

In 2003, A.C.E. Engineering advanced three borings (SB1, SB2, and SB3), completed as groundwater monitoring wells (MW1, MW2, and MW3), at the site. Monitoring Wells MW1, MW2, and MW3 were advanced southeast, northeast, and west of the Kasilof Riverview Lodge, respectively, as shown on Figure 2. Groundwater was encountered at approximately 24 to 27 feet below ground surface (bgs) during drilling, and groundwater flow direction was measured to the east. A soil sample collected from Boring SB1 contained 0.0889 milligrams per kilogram (mg/kg) benzene, which exceeds the current ADEC cleanup level of 0.022 mg/kg. A groundwater sample collected from Well MW1 contained 0.00626 milligrams per liter (mg/L) benzene, which exceeds the current ADEC cleanup level of

0.0046 mg/L. A.C.E. Engineering collected additional groundwater samples from the wells in 2005 and 2016. A groundwater sample collected from Well MW1 in 2016 contained 0.0536 mg/L benzene, which exceeds the applicable ADEC cleanup level.

In 2018 and 2019, EHX Alaska collected groundwater samples from the site wells. The samples did not contain detected concentrations of the tested analytes.

In 2019, Shannon & Wilson monitored the removal of one approximately 2,000-gallon diesel UST, and in-place closure of two approximately 6,000-gallon gasoline USTs and one 3,000-gallon gasoline UST. Soil samples collected from the gasoline and diesel UST excavations contained concentrations of GRO, diesel range organics (DRO), volatile organic compounds (VOCs), and/or polynuclear aromatic hydrocarbons (PAHs) exceeding the ADEC cleanup levels.

Mr. Peter Campbell of the ADEC requested additional delineation and/or cleanup of the contamination identified during the 2019 UST closure activities. The purpose of this project is to further evaluate the extent of contamination southwest of the former gasoline USTs. The 2021 release investigation activities were performed in material accordance with our April 12, 2021 *Release Investigation Activities Work Plan, Kasilof Riverview Lodge, 57400 Sterling Highway, Kasilof, Alaska; ADEC File No. 2319.26.002*, which was approved by Mr. Peter Campbell of the ADEC in a letter dated April 26, 2021.

PROJECT ACTIVITIES

The project activities consisted of advancing a soil boring, installing a groundwater monitoring well, collecting soil and groundwater samples, handling of investigation-derived waste (IDW), surveying the monitoring wells, and reporting. Discovery Drilling, Inc. (Discovery) provided the equipment and personnel to advance the boring and install the well. Soil and groundwater samples were submitted to SGS North America Inc. (SGS) for laboratory analysis. McLane Consulting Inc. (McLane) performed a professional field survey of the monitoring wells. Site photographs and copies of field notes are included in Attachments 1 and 2, respectively. Boring and well construction logs are provided in Attachment 3. It should be noted that the field notes presented in Attachment 2 are provided for informational purposes only. Tables 1 through 4, and the boring and well completion logs presented in Attachment 3 represent our interpretation of the field data and take precedence over the field notes.

Soil Boring and Sampling

The boring was advanced by Discovery to a depth of approximately 15 feet below ground surface (bgs) to facilitate the collection of soil samples and the installation of a groundwater monitoring well. Soil samples were recovered on a continuous basis using 5-foot long, 2.25-inch outside diameter MC5 macro-core® samplers. Each sampling sleeve was removed from the sampling device and split down the long axis. The soil section was divided into two equal intervals for field screening purposes.

Immediately following retrieval and opening of the samplers, analytical samples and field screening samples were collected. The analytical sample jars for volatile analyses were collected first, followed by the non-volatile analytical sample jars, and finally the field screening sample. The soil samples were “screened” for volatile organic vapors using a Thermo Instruments OVM 580B photoionization detector (PID) and an ADEC-approved headspace screening technique. The PID was calibrated before screening activities with 100 parts per million (ppm) isobutylene standard gas. The field screening samples were collected in re-sealable plastic bags by filling them with freshly exposed soil to one-half of their volumes, sealing the top, warmed to at least 40 degrees Fahrenheit, and screened within 10 minutes to one hour of collection. Screening was accomplished by inserting the PID sampling probe into the air space above the soil in the bag. The field screening results are presented in Table 1 and Attachment 3.

Two analytical soil samples from the boring were submitted for laboratory analysis. The samples were collected from the interval just above the soil/water interface and from the sample interval with the highest PID measurement. Soil samples for laboratory analysis were collected in laboratory-supplied 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-weighted, 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 avoid pieces of gravel and debris. Sample jars were filled using decontaminated stainless-steel spoons, placed in coolers with ice packs, and transferred to the laboratory using chain-of-custody procedures.

Monitoring Well Installation

Boring B4 was completed as Monitoring Well MW4. The monitoring well was constructed of 2-inch nominal inside diameter schedule 40 polyvinyl chloride pipe with threaded

connections. The lower portion of the well consists of a 10-foot section of 0.010 prepack well screen. A continuous silica sand pack was used to backfill around the well screen to about 2 feet above the screened section. Hydrated bentonite chips were used to backfill above the filter pack to approximately 1-foot bgs. Pea gravel was placed above the bentonite to about 0.5-foot bgs. The monitoring well was completed with a stick-up protective casing embedded in concrete. Monitoring well construction details are included in Attachment 3.

Monitoring Well Development

Monitoring Well MW4 was developed on May 27, 2021. Prior to initiating the well development activities, water depth relative to the top of the well casing was measured with an electronic water level indicator. The well was developed using a surge block and a submersible pump with dedicated disposable tubing. Three to five-minute periods of surging were alternated with periods of pumping. Water quality parameters, including pH, temperature, oxidation-reduction potential (ORP), turbidity, and conductivity were measured to evaluate the effectiveness of the development process.

Development of Monitoring Well MW4 was considered complete once 3 hours of effort were expended. During development, approximately 23 gallons of water were removed from Well MW4. Development data are provided on Table 2.

Monitoring Well Sampling

The newly installed well was allowed to recharge to 80 percent of the original water volume before sample collection. A water sample was obtained from the screened portion of the well using a submersible pump with dedicated disposable tubing. An analytical sample was collected by transferring water directly from the pump tubing into the laboratory supplied containers. The sample jars were filled in decreasing order of volatility.

Groundwater samples were also collected from Monitoring Wells MW1, MW2, and MW3 using a low-flow sampling method. The submersible pump was placed within 2 feet of the surface of the groundwater column. The pump rate was adjusted with a goal of limiting the sustained water drawdown to a maximum of 0.3 foot. During the purging process, field personnel monitored water quality parameters and purge volume. Purging was considered complete when at least one well volume was removed, and water quality parameters stabilized. Water quality parameters were considered stabilized when three consecutive measurements collected 3 to 5 minutes apart indicate that at least four of the five parameters were within the following tolerance ranges: pH within 0.1 unit, temperature within 3 percent, conductivity within 3 percent, and turbidity within 10 percent or less than 10 NTU.

Monitoring Well Survey

The horizontal and vertical locations of Monitoring Wells MW1 through MW4 were surveyed by McLane on June 1, 2021. Horizontal locations are in Alaska State Plane coordinates, Zone 4, North American Datum of 1983; and elevations are based on a local control point processed through the National Geodetic Survey Online Positioning Service (NGS OPUS). Elevations were measured at the ground surface, adjacent to the wells, the top of the well monuments, and at the top of the monitoring well casings, to a resolution of 0.01 feet. A copy of the survey is provided in Attachment 3.

Monitoring Well MW1 appears to have been struck by a vehicle. The well monument is bent, and the well riser is broken near the ground surface (Photo 3). As a result, the well screen is no longer fully vertical. Although Well MW1 were surveyed, due to the damage, the elevation of the well was not used when calculating the site's groundwater flow direction.

Investigation-Derived Waste

IDW consisted of development/purge water and soil cuttings. Soil cuttings and water generated during monitoring well installation, development, and sampling were separately containerized in two 55-gallon drums, labeled, and stored onsite.

LABORATORY ANALYSIS

The soil and groundwater samples were submitted to SGS for analytical testing, using chain-of-custody procedures. Each soil sample was analyzed for GRO by Alaska Method (AK) 101, DRO by AK 102, VOCs by Environmental Protection Agency (EPA) Method 8260D, and PAHs by EPA Method 8270D SIM. For quality control purposes, one methanol soil trip blank and one water trip blank were submitted to the laboratory and analyzed for GRO and VOCs. One field duplicate soil sample and one duplicate groundwater sample were also collected and analyzed for the analytes listed above. The laboratory reports and completed ADEC Laboratory Data Review Checklists (LDRCs) are provided in Attachment 4. The analytical soil and groundwater sample results are summarized in Table 3 and Table 4, respectively.

SUBSURFACE CONDITIONS

The subsurface soil observed in Boring B4 consists of interbedded layers of sand with silt, and silt with sand. A layer of silt was present at approximately 7.5 ft bgs. During drilling,

groundwater was encountered at approximately 10.5 feet bgs in Boring B4. On May 28, 2021, the measured static depth to water ranged from 30.92 feet below top of casing (BTOC) in Well MW2 to 7.60 feet BTOC in Well MW4. Surveyed groundwater elevations ranged from 35.98 feet in Well MW2 to 39.71 feet in Well MW3.

Based on the static groundwater measurements and the professional field survey conducted by McLane, the measured groundwater flow direction is to the northeast. During groundwater sampling conducted by A.C.E. Engineering in 2003, groundwater flow direction was measured to the east. Although, it is assumed that the regional groundwater flow direction is to the west/northwest following the Kasilof River.

DISCUSSION OF ANALYTICAL RESULTS

The analytical soil and groundwater results were compared to ADEC cleanup levels presented in the November 2020, 18 Alaska Administrative Code (AAC) 75 regulations. The applicable soil criteria consist of the most stringent ADEC Method Two cleanup levels listed in Tables B1 and B2 of 18 AAC 75.341, for the “under 40-inch (precipitation) zone”. Groundwater cleanup levels are established in Table C of 18 AAC 75.345. The applicable soil and groundwater cleanup levels are listed in Tables 3 and 4, respectively.

Soil Samples

Target analytes were not detected in the soil samples.

Groundwater Samples

Toluene, fluorene, and/or phenanthrene were detected in the groundwater samples collected from Wells MW1, MW3, and MW4 at concentrations less than the ADEC Table C cleanup levels. The remaining tested analytes were not detected in the groundwater samples.

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 Attachment 4).

Estimated concentrations of DRO were detected in the soil and groundwater method blanks and GRO was detected in the water method blank. GRO concentrations in Samples B4S1, B4S5, B4S6, and STB were reported at levels less than the LOQ; therefore, the sample concentrations are reported as non-detect at the LOQ and flagged "B" in Table 3. DRO was detected at estimated concentrations in Samples MW2, MW3, MW4, MW11, B4S1, B4S5, and B4S6; therefore, the sample concentrations are reported as non-detect at the LOQ and flagged "B" in Tables 3 and 4. The concentration of DRO detected in Samples MW1 is greater than the LOQ but less than 5 times the blank concentration, therefore the results are flagged "B", and reported as non-detect at the detected concentration.

Field quality control samples included trip blanks and field duplicate soil and groundwater sample sets. Laboratory-prepared trip blank samples (one soil and one water) accompanied the project sample jars and bottles from the laboratory to the site during sampling activities and back again to SGS. The water trip blank sample contained an estimated concentration of GRO (32.5 µg/L). Water Samples MW3, MW4, and MW11 contained estimated GRO concentrations. Therefore, these results are reported as non-detect at the LOQ and flagged "B".

One duplicate soil sample set (B4S5/B4S6) and one groundwater sample set (MW1/MW11) were collected to assess precision of the sampling and analysis processes using the calculated relative percent difference (RPD). Due to the non-detect results, the RPD's could not be calculated.

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 for each data package, which is included in Attachment 4. No non-conformances that would adversely affect the quality or usability of the data were noted, with the exceptions discussed above.

CONCLUSIONS

The purpose of the 2021 field work was to further evaluate the extent of contamination southwest of the former gasoline USTs. The 2021 project activities consisted of advancing one soil boring, installing one groundwater monitoring well, and collecting soil and groundwater samples. Contaminant concentrations exceeding the most stringent ADEC

cleanup levels were not detected in the soil and groundwater samples collected during the 2021 release investigation activities. Therefore, the extent of soil and groundwater contamination has been delineated at the site.

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. 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 assessment. 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 Kasilof Riverview Lodge, or as required by law.

Shannon & Wilson has prepared the information in Attachment 5, "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 Dan P.
McMahon or the undersigned at (907) 561-2120.

Sincerely,

SHANNON & WILSON



Alec Rizzo
Environmental Staff

Enc. Tables 1 through 4; Figures 1 and 2; and Attachments 1 through 5

**TABLE 1
SAMPLE LOCATIONS**

Sample Number	Date	Sample Location (See Figure 2 and Attachment 3)	Depth (feet bgs or BTOC)	Headspace (ppm) ^
Soil Samples				
Boring B4				
* B4S1	5/24/2021	Boring B4, Sample S1	0-2.5	2.4
B4S2	5/24/2021	Boring B4, Sample S2	2.5-5	1.9
B4S3	5/24/2021	Boring B4, Sample S3	5-7.5	1.6
B4S4	5/24/2021	Boring B4, Sample S4	7.5-10	1.5
* B4S5	5/24/2021	Boring B4, Sample S5	10-12.5	2.2
* B4S6	5/24/2021	Duplicate of Sample B4S5	10-12.5	2.2
B4S7	5/24/2021	Boring B4, Sample S7	12.5-15	1.4
Water Samples				
* MW1	5/27/2021	Monitoring Well MW1	27.59	-
* MW11	5/27/2021	Duplicate of MW1	27.59	-
* MW2	5/27/2021	Monitoring Well MW2	30.89	-
* MW3	5/27/2021	Monitoring Well MW3	27.63	-
* MW4	5/27/2021	Monitoring Well MW4	7.68	-
* WTB	5/27/2021	Water Trip Blank	-	-
* STB	5/24/2021	Soil Trip Blank	-	-

Notes:

- * = Sample analyzed by the project laboratory (See Tables 3 and 4)
- ^ = Field screening instrument was an OVM 580B PID.
- = Measurement not applicable
- bgs = below ground surface
- ppm = parts per million
- BTOC = below top of casing

**TABLE 2
MONITORING WELL DEVELOPMENT & SAMPLING LOG**

	Monitoring Well			
	MW1	MW2	MW3	MW4
Development Data				
Development Date	-	-	-	5/27/2021
Measured Depth to Water (ft below TOC)	-	-	-	7.68
Total Depth of Well (ft below TOC)	-	-	-	17.76
Water Column in Well (ft)	-	-	-	10.08
Gallons per Foot	-	-	-	0.16
Water Column Volume (gallons)	-	-	-	1.61
Total Volume Pumped/Bailed (gallons)	-	-	-	23
Development Method	-	-	-	Surge Block and Submersible Pump
Water Level Measurement Data				
Date Water Level Measured	-	5/28/2021	5/28/2021	5/28/2021
Time Water Level Measured	-	10:40	10:35	10:45
Well Stickup (feet)	2.9	2.29	2.49	3.01
Depth to Water Below Ground Surface (feet)	-	28.63	25.17	4.59
Depth to Water Below TOC (feet)	-	30.92	27.66	7.60
Surveyed TOC Elevation (ft)	-	66.90	67.37	46.26
Water Elevation (ft)	-	35.98	39.71	38.66
Sampling Data				
Date Sampled	5/27/2021	5/27/2021	5/27/2021	5/27/2021
Time Sampled	17:40	16:15	14:30	12:46
Measured Depth to Water (ft below TOC)	27.59	30.89	27.63	7.68
Total Depth of Well (ft below TOC)	34.37	35.12	32.69	17.76
Water Column in Well (ft)	6.78	4.23	5.06	10.08
Gallons per Foot	0.16	0.16	0.16	0.16
Water Column Volume (gallons)	1.08	0.68	0.81	1.61
Total Volume Pumped/Bailed (gallons)	2.0	2.9	1.7	0.5
Sampling Method	Submersible Pump	Submersible Pump	Submersible Pump	Submersible Pump
Diameter of Well Casing	2-inch	2-inch	2-inch	2-inch
Water Quality Data [^]				
Temperature (°C)	9.53	10.65	11.09	6.6
pH (Standard Units)	7.72	7.67	7.89	7.61
Specific Conductivity (µS/cm)	747	551	216	296
Oxidation Reduction Potential (mV)	-273.3	-271.4	-234.9	16
Turbidity (NTU)	4.01	7.14	7.63	101
Remarks	Monitoring Well Casing is Damaged; Duplicate Sample MW11			

Notes:

Water quality parameters were measured with YSI Meter, Hanna Probe, and Micro TPW Turbidimeter

[^] = Water quality data at time of sampling

TOC = Top of casing

ft = Feet

m/V = Millivolts

NTU = Nephelometric Turbidity Unit

°C = Degrees Celsius

µS/cm = Microsiemens per Centimeter

- = Not measured or not applicable

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample ID Number^ and Soil Sample Depth in Feet Below Ground Surface (See Table 1, Figure 2, and Attachment 3)			
			Soil Borings			Quality Control
			Boring B4			Trip Blank
			B4S1 0-2.5	B4S5 10-12.5	B4S6~ 10-12.5	STB -
PID Headspace Reading - ppm	580B PID	-	2.4	2.2	2.2	-
Gasoline Range Organics (GRO) - mg/kg	AK 101	300	<4.06 B	<4.63 B	<5.15 B	<2.51 B
Diesel Range Organics (DRO) - mg/kg	AK 102	250	<22.4 B	<25.1 B	<25.2 B	-
Volatile Organic Compounds (VOCs)						
Benzene - mg/kg	EPA 8260D	0.022	<0.0102	<0.0116	<0.0129	<0.00630
Toluene - mg/kg	EPA 8260D	6.7	<0.0203	<0.0231	<0.0258	<0.0126
Ethylbenzene - mg/kg	EPA 8260D	0.13	<0.0203	<0.0231	<0.0258	<0.0126
Xylenes (total) - mg/kg	EPA 8260D	1.5	<0.0610	<0.0695	<0.0770	<0.0377
Other VOCs - mg/kg	EPA 8260D	Various	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (PAHs) - mg/kg	EPA 8270D SIM	Various	ND	ND	ND	ND

Notes:

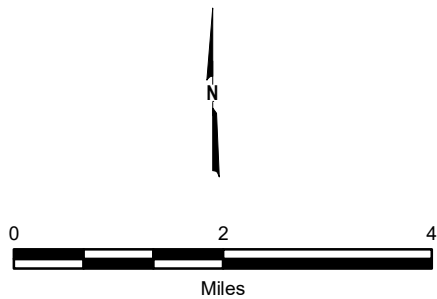
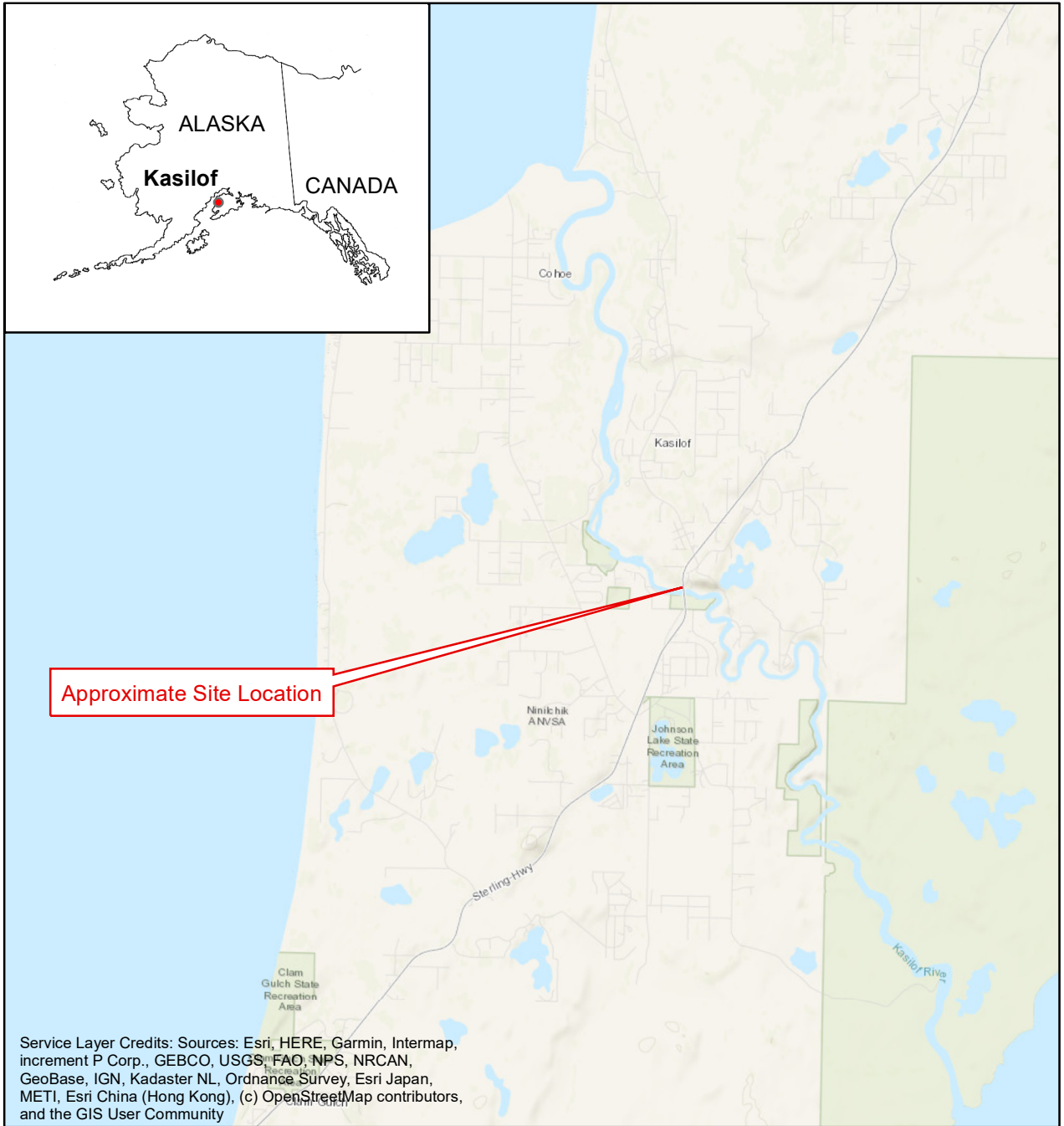
- ^ = Sample ID number preceded by "106396-" on the chain of custody form
- = Not applicable or sample not tested for this analyte
- * = See Attachment 4 for compounds tested, methods, and laboratory reporting limits
- ** = Soil cleanup level is the most stringent ADEC Method Two standard listed in Table B1 or B2, 18 AAC 75 (November 2020), for the under 40 inches (precipitation) zone
- <0.0102 = Analyte not detected; laboratory limit of detection of 0.0102 mg/kg
- B = Analyte concentration potentially affected by a method or trip blank detection. See Attachment 4 for details.
- J = Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
- ppm = part per million
- ND = Not detected
- mg/kg = Milligram per kilogram
- ~ = Duplicate of Sample B4S5

TABLE 4
SUMMARY OF WATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (µg/L)**	Sample ID Number [^] , and Water Depth in Feet BTOC (See Tables 1 and 2, Figure 2, and Attachment 3)					
			Monitoring Wells					Trip Blank
			MW1 27.59	MW11~ 27.59	MW2 30.89	MW3 27.63	MW4 7.68	WTB -
Gasoline Range Organics (GRO) - µg/L	AK 101	2,200	<50.0	<100 B	<50.0	<100 B	<100 B	32.5 J
Diesel Range Organics (DRO) - µg/L	AK 102	1,500	<600 B	<584 B	<566 B	<588 B	<588 B	-
Volatile Organic Compounds (VOCs)								
Benzene - µg/L	EPA 8260D	4.6	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Toluene - µg/L	EPA 8260D	1,100	<0.500	<0.500	<0.500	0.332 J	<0.500	<0.500
Ethylbenzene - µg/L	EPA 8260D	15	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Xylenes (total) - µg/L	EPA 8260D	190	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50
Other VOCs - µg/L	EPA 8260D	Various	ND	ND	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (PAHs) - µg/L								
Fluorene - µg/L	EPA 8270D SIM	290	<0.0236	<0.0236	<0.0236	<0.0236	0.0146 J	-
Phenanthrene - µg/L	EPA 8270D SIM	170	<0.0236	0.0181 J	<0.0236	0.0348 J	0.0574	-
Other PAHs - µg/L	EPA 8270D SIM	Various	ND	ND	ND	ND	ND	-

Notes:

- * = See Attachment 4 for compounds tested, methods, and laboratory reporting limits
- ** = Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (November 2020)
- ^ = Sample ID number preceded by "106396-" on the chain of custody form
- µg/L = micrograms per liter
- <0.500 = Analyte not detected; laboratory limit of detection of 0.500 µg/L
- 32.5** = Analyte detected at a concentration less than the applicable ADEC cleanup level
- ND = Not detected
- ~ = Duplicate of Sample MW1
- J = Estimated concentration less than the limit of quantitation. See Attachment 4 for details.
- B = Compound detected in method blank at an estimated concentration and may potentially affect the sample result.
- BTOC = Below Top of Casing



57400 Sterling Highway
Kasilof, Alaska

VICINITY MAP

July 2021



106396-001

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1

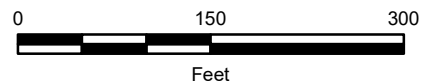


Legend

- 
 Approximate Location of Boring/Monitoring Well B4/MW4 advanced/installed by Shannon & Wilson in May 2021
- 
 Approximate Location of Monitoring Well MW1 installed by A.C.E Engineering in 2003
- (38.66')

 Water level elevation based on a field survey by McLane Consulting, Inc. and water level measurements recorded by Shannon & Wilson on May 28, 2021

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Kasilof Riverview Lodge Kasilof, Alaska	
SITE PLAN	
July 2021	106396-001
 SHANNON & WILSON, INC. <small>GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS</small>	FIG. 2

Attachment 1

SITE PHOTOGRAPHS

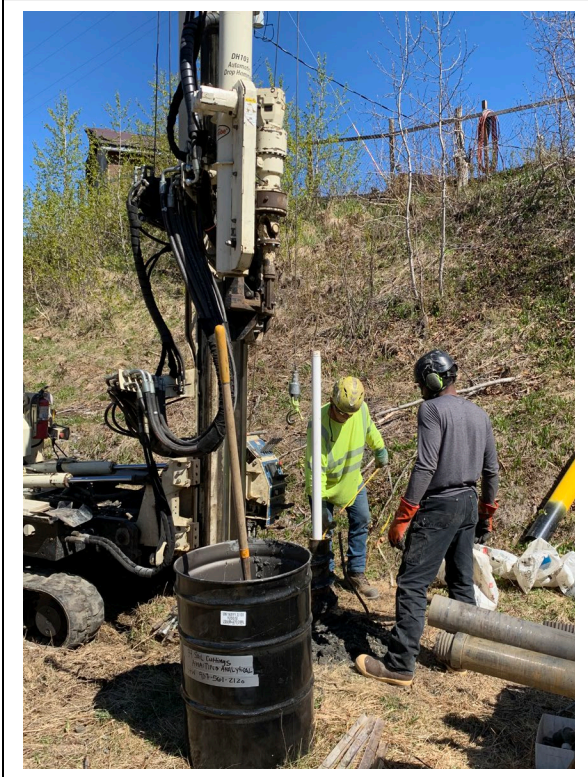


Photo 1: Looking north at the advancement of Boring B4. (May 24, 2021)



Photo 2: Looking west at Monitoring Well MW4. (May 24, 2021)

57400 Sterling Highway
Kasilof, Alaska

PHOTOS 1 AND 2

July 2021

106396-001



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

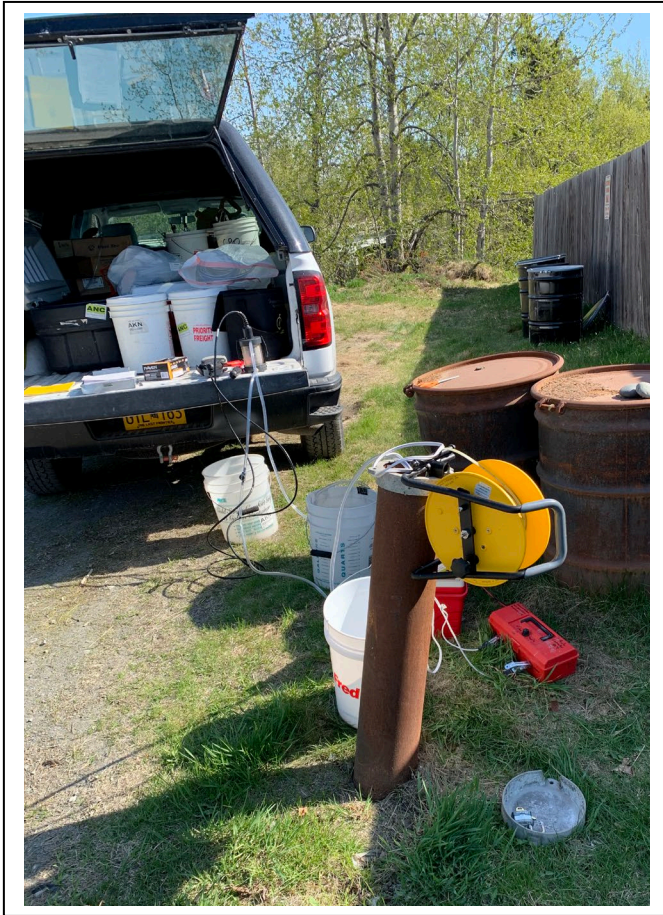


Photo 3: Looking south at damaged Monitoring Well MW1.
(May 27, 2021)

57400 Sterling Highway
Kasilof, Alaska

PHOTO 3

July 2021

106396-001



SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Attachment 2

FIELD NOTES

PROBING COMPANY/DRILLER: <u>Discovery</u> PROBE RIG EQUIPMENT: <u>7822DT Geoprobe</u> PROBING METHOD: <u>MU/HA</u> PROBE DIAM.: _____ TYP. RUN LENGTH: <u>5'</u> WEATHER DURING DRILLING: <u>55° Sunny</u>	JOB NO: <u>106346</u> PROBE NO: <u>B4</u> JOB NAME: <u>Kaslot Riverview Lodge</u> LOGGED BY: <u>AJR</u> LOCATION: <u>8 mi</u> ELEV.: _____ START DATE: <u>5/24/21</u> END DATE: <u>5/24/21</u>
--	--

PROBE RUN AND SAMPLE DATA

TIME DATE	RUN NO.	RUN FROM TO	LENGTH RECOVERED	FIELD CLASSIFICATION [Density/consistency, color, slightly, minor, MAJOR, then trace constituents; moisture; structure; other; (Geology) USCS classification.]	PID READING	SAMPLE NO.	SAMPLE DEPTH	FROM TO		SAMPLE PURPOSE OR COMMENT
								FROM	TO	
* 1100 5/24/21	1	0/5	40"	Brown sand with silt trace organics & gravelly moist	2.4	B4S1	0/2.5			
1105				Brown-gray silt w/ sand moist @ 4 ft	1.9	B4S2	2.5/5.0			
1120 5/24/21		5/10	52"	Brown-gray silt w/ sand moist trace organics	1.6	B4S3	5/7.5			
1125			"	@ 7.5 gray silt moist	1.5	B4S4	7.5/10			
* 1200 5/24/21	1205	10/15	60"	gray sand w/ silt saturated @ 10.5 ft bys.	2.2	B4S5/S6	10/12.5			
1205 1240					1.4	B4S7	2.5/15			

SUMMARY FIELD LOG OF GEOPROBE

DEPTH		USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG
FROM	TO		

COMMENTS (i.e. materials used, visitors, problems, etc.):
water @ 10.5 ft
12" screen well from 5-15 ft bys.

GROUNDWATER DATA

WATER DEPTH	TIME	DATE

SUMMARY OF TIME AND FOOTAGE

PROBE/SAMPLE _____ hrs. STANDBY: _____ hrs.
 SETUP/CLEANUP: _____ hrs. DECON: _____ hrs.
 OTHER: _____
 BORING: _____ SHEET _____ OF _____



MONITORING WELL CONSTRUCTION DETAILS

Shannon & Wilson, Inc.

Job No: 106396 Project: West of Riverview Lodge
 Weather: 55° sunny
 Well No.: MW4
 Date: 5/24/21 Time Started: 1217 Time Completed: 1300

WELL DATA:

Pipe Type: Sched 40 ~~MR~~
 Diameter: 2"
 Total Depth (ft bgs): ~~MR 17.76~~ 14.76
 Well Screen Interval (feet): 10'
 Top of Well Screen (ft bgs): ~~MR 17.76 - 7.76~~ 14.76 - 4.76
 Slot size: 0.010
 Casing Connection: Threaded
 Depth below surface: N/A
 Casing stickup: 3.01' N/A

PACKING MATERIAL:

	Depth below ground surface:	
	From	To
Soil Cuttings:	_____	_____
Sand (20-40):	_____	_____
Bentonite chips:	_____	_____
Sand (20-40):	_____	_____

MONUMENT:

Flush Mount Post
 Monument height: 4.5 inches N/A
 Monument Diameter: 7 inches N/A

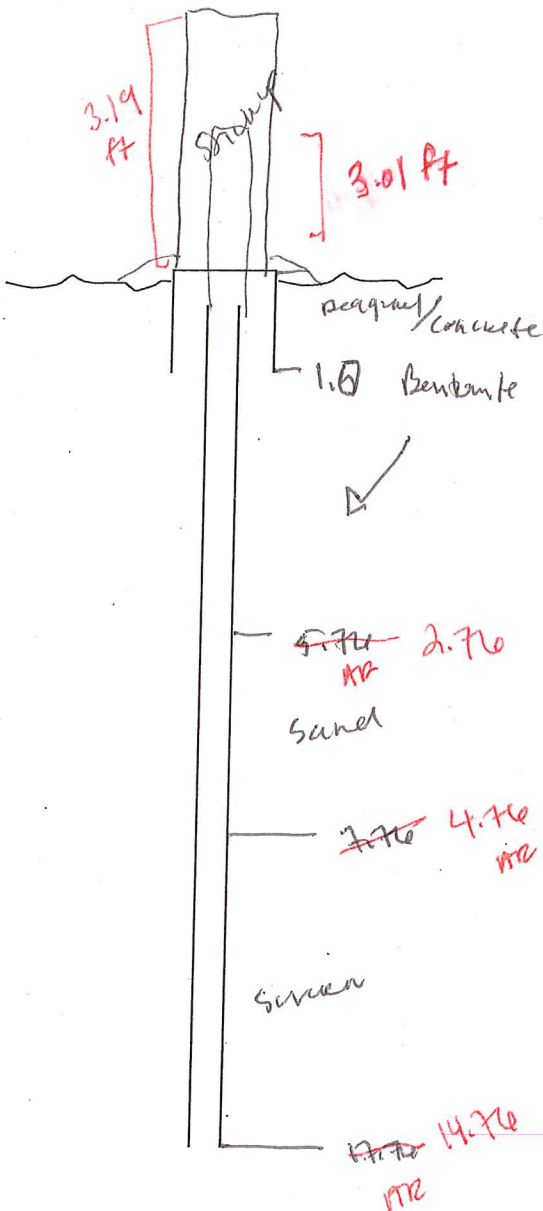
LOCK:

Type: Masterlock - 2001 key
 Combination: 201 MR
 Length cutoff last section: _____

Remarks: _____

Time between installation/development: 224 hrs

Engineer or Geologist: MR



Static - 13.53 BTOL
 DTB - 17.76
 Stickup - ~~41.5 inches~~ MR



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 106396 Location: Kgsilaf Rivernew Lodge Weather: 60° Sunny
 Well No.: MW1
 Date: 5/27/21 Time Started: 1643 Time Completed: 1820
 Develop Date: _____ Develop End Time: _____ (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 1645 Date of Depth Measurement: 5/27/21
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: _____
 Diameter of Casing: 2" Well Screen Interval: _____
 Total Depth of Well Below MP: 34.37 Product Thickness, if noted: _____
 Depth-to-Water (DTW) Below MP: 27.59
 Water Column in Well: 6.78 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.16
 Gallons in Well: 1.08 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 5/27/21 Time Started: 1650 Time Completed: 1800
 Three Well Volumes: 3.24 (Gallons in Well x 3)
 Gallons Purged: 2.0 Depth of Pump (generally 2 ft from bottom): ~29
 Max. Drawdown (generally 0.3 ft): 0.61 Pump Rate: 0.1 - 0.3
 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)
<u>1700</u>	<u>0.75</u>	<u>0.3</u>	<u>28.20</u>	<u>0.61</u>	<u>6.77</u>	<u>689</u>	<u>0.79</u>	<u>6.77</u>	<u>-269.9</u>	<u>5.73</u>
<u>1705</u>	<u>0.90</u>	<u>0.1</u>	<u>28.10</u>	<u>0.51</u>	<u>7.21</u>	<u>693</u>	<u>0.53</u>	<u>6.81</u>	<u>-264.3</u>	<u>5.31</u>
<u>1710</u>	<u>1.0</u>	<u>0.1</u>	<u>28.05</u>	<u>0.40</u>	<u>8.10</u>	<u>712-712_{mc}</u>	<u>0.40</u>	<u>6.81</u>	<u>-263.5</u>	<u>4.90</u>
<u>1715</u>	<u>1.15</u>	<u>0.1</u>	<u>28.00</u>	<u>0.41</u>	<u>8.28</u>	<u>717</u>	<u>0.33</u>	<u>7.58</u>	<u>-267.4</u>	<u>5.48</u>
<u>1720</u>	<u>1.30</u>	<u>0.1</u>	<u>27.92</u>	<u>0.33</u>	<u>9.33</u>	<u>739</u>	<u>0.29</u>	<u>7.72</u>	<u>-265.8</u>	<u>5.98</u>
<u>1725</u>	<u>1.50</u>	<u>0.1</u>	<u>27.88</u>	<u>0.29</u>	<u>9.51</u>	<u>746</u>	<u>0.29</u>	<u>7.59</u>	<u>-267.4</u>	<u>4.84</u>

SAMPLING DATA

Odor: None Color: Clear
 Sample Designation: 106396-MW1 Time / Date: 1740 5/27/21
 QC Sample Designation: 106396-MW1 Time / Date: 1810 5/27/21
 QA Sample Designation: _____ Time / Date: _____
 Evacuation Method: Submersible Pump / Other: Double whirl
 Sampling Method: Submersible Pump / Other: Double whirl
 Water Quality Instruments Used/Manufacturer/Model Number YSI + Micro TAP
 Calibration Info (Time, Ranges, etc) @ 1335 on 5/27/21
 Remarks: well is damaged. outer casing is cracked and PVC is broken off below ground surface but not compromised
 Sampling Personnel: _____

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



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Continued from previous page

Job No: 176396
 Well No.: MW1
 Date: 5/27/21

Location: Kaslof Rivermaw Lodge Site: Kaslof Rivermaw Lodge

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)
1730	1.65	0.1	27.85	0.26	9.59	749	0.26	7.75	-271.5	4.05
1735	1.80	0.1	27.80	0.21	9.46	747	0.33	7.67	-272.3	3.93
1738	2.0	0.1	27.78	0.19	9.53	747	0.70	7.72	-243.3	4.01

	Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or <5 NTU

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.
 ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 100394 Location: Kasilof Rivernew Lodge Weather: 57° sunny
 Well No.: MW2
 Date: 5/27/21 Time Started: 4:30Z 150Z Time Completed: 1040
 Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 1905 Date of Depth Measurement: 5/27/21
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other:
 Diameter of Casing: 2" Well Screen Interval: —
 Total Depth of Well Below MP: 35.12 Product Thickness, if noted: —
 Depth-to-Water (DTW) Below MP: 30.89
 Water Column in Well: 4.23 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: ~0.168 0.14
 Gallons in Well: 0.68 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 5/27/21 Time Started: 1513 Time Completed: 1625
 Three Well Volumes: 2.04 (Gallons in Well x 3)
 Gallons Purged: 2.9 Depth of Pump (generally 2 ft from bottom): ~32
 Max. Drawdown (generally 0.3 ft): 0.45 Pump Rate: 0.1 - 0.5
 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)
1523	1.2	0.5	31.34	0.45	6.69	502	0.23	7.16	-272.2	12.81
1528	1.35	0.1	31.13	0.24	8.21	525	0.24	6.74	-275.2	10.73
1533	1.50	0.1	31.12	0.23	9.88	544	0.22	6.76	-275.3	8.93
1538	1.65	0.1	31.09	0.20	10.25	547	0.23	6.89	-274.9	7.59
1543 1543	1.85	0.1	31.08	0.19	10.31	545	0.24	7.49	-273.6	7.52
1548	2.00	0.1	31.07	0.18	10.22	543	0.23	7.11	-275.8	8.59

SAMPLING DATA

Odor: None Color: clear
 Sample Designation: 100390-MW2 Time / Date: 1615 5/27/21
 QC Sample Designation: — Time / Date: —
 QA Sample Designation: — Time / Date: —

Evacuation Method: Submersible Pump / Other: Double whale
 Sampling Method: Submersible Pump / Other: Double whale

Water Quality Instruments Used/Manufacturer/Model Number YSI 1 MLEW TRV

Calibration Info (Time, Ranges, etc) @ 1335 on 5/27/21

Remarks: Parameters did not stabilize after one hour. collect sample

Sampling Personnel: AJR

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



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: W0396 Location: Kasilof Riverview Lodge Weather: 60° Sunny
 Well No.: MW3
 Date: 5/27/21 Time Started: 1330 Time Completed: 1500
 Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 1332 Date of Depth Measurement: 5/27/21
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: —
 Diameter of Casing: 2" Well Screen Interval: —
 Total Depth of Well Below MP: 32.69 Product Thickness, if noted: —
 Depth-to-Water (DTW) Below MP: 27.63
 Water Column in Well: 5.06 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.16
 Gallons in Well: 0.81 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 5/27/21 Time Started: 1350 Time Completed: 1440
 Three Well Volumes: 2.43 (Gallons in Well x 3) AR
 Gallons Purged: 1.70 Depth of Pump (generally 2 ft from bottom): 229
 Max. Drawdown (generally 0.3 ft): 0.38 Pump Rate: 0.1 - 0.3
 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)
1400	0.75	0.3	28.01	0.38	10.53	217	2.165	7.80	-233.3	56.02
1405	0.90	0.1	28.00	0.37	10.66	215	2.310	7.88	-231.7	30.16
1410	1.1	0.1	27.98	0.35	10.82	213	2.16	7.80	-233.2	19.62
1415	1.25	0.1	27.96	0.33	10.88	217	2.02	7.77	-234.5	12.29
1420	1.40	0.1	27.94	0.33	11.06	217	1.94	7.88	-234.2	8.92
1425	1.60	0.1	27.96	0.33	11.00	215	1.86	7.93	-234.2	7.39
1428	1.70	0.1	27.95	0.32	11.09	216	1.80	7.89	-234.9	7.63

SAMPLING DATA

Odor: None Color: Clear X m
 Sample Designation: W0396-MW3 Time / Date: 1430 5/27/21
 QC Sample Designation: — Time / Date: —
 QA Sample Designation: — Time / Date: —
 Evacuation Method: Submersible Pump / Other: Double whale
 Sampling Method: Submersible Pump / Other: Double whale
 Water Quality Instruments Used/Manufacturer/Model Number YSI + MLW0TPW
 Calibration Info (Time, Ranges, etc) 1335 on 5/27
 Remarks: —

Sampling Personnel: AR

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



WELL DEVELOPMENT LOG

Shannon & Wilson, Inc.

Job No: 100398 Location: Vasilof Riverview Lodge Weather: 52° partly cloudy
 Concern: _____ Well No.: MW4
 Develop Date: 5/27/21 Time Started: 0850 Time Completed: 1310

PURGING DATA

Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: _____
 Time of Depth Measurement: 906
 Diameter of Casing: 1" 2"
 Total Depth of Well Below MP: 17.76
 Depth-to-Water (DTW) Below MP: 7.68
 Water Column in Well: 10.08 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.110
 Gallons in Well: 1.61 (Water Column in Well x Gallons per foot)
 Three Well Volumes: 4.83 (Gallons in Well x 3)
 Gallons Purged: 23.0

DEVELOPMENT DATA

Odor: None Color: Silty

Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)
<u>0926</u>	<u>1.5</u>	<u>4.2</u>	<u>323</u>	<u>AC</u>	<u>6.68</u>	<u>49</u>	<u><1000</u>
<u>AR 0910</u>	<u>3.0</u>	<u>4.5</u>	<u>320</u>		<u>6.87</u>	<u>19</u>	<u><1000</u>
<u>0938</u>	<u>5.2</u>	<u>4.9</u>	<u>310</u>		<u>7.04</u>	<u>9</u>	<u><1000</u>
<u>1004</u>	<u>6.9</u>	<u>4.7</u>	<u>302</u>		<u>7.12</u>	<u>13</u>	<u><1000</u>
<u>1017</u>	<u>9.4</u>	<u>4.9</u>	<u>288</u>		<u>7.11</u>	<u>-1</u>	<u><1000</u>
<u>1031</u>	<u>11.6</u>	<u>4.6</u>	<u>285</u>		<u>7.13</u>	<u>8</u>	<u><1000</u>
<u>1045</u>	<u>13.6</u>	<u>6.1</u>	<u>273</u>		<u>7.41</u>	<u>14</u>	<u><1000</u>
<u>1059</u>	<u>15.7</u>	<u>5.2</u>	<u>281</u>		<u>7.52</u>	<u>17</u>	<u><1000</u>

Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
1	<u>0910-0915 (5)</u>	<u>1.5</u>	<u>0921-0926 (5)</u>
2	<u>0927-0932 (5)</u>	<u>1.5</u>	<u>AR 0928-0933-0938 (5)</u>
3	<u>0939-0944 (5)</u>	<u>2.2</u>	<u>0945-0950 (5)</u>
4	<u>0951-0956 (5)</u>	<u>1.7</u>	<u>0959-1004 (5)</u>
5	<u>1005-1010 (5)</u>	<u>2.5</u>	<u>1012-1017 (5)</u>
6	<u>1020-1025 (5)</u>	<u>2.2</u>	<u>1026-1031 (5)</u>

Evacuation Method: Proactive Pump / Other: mini whale Surge Block: 2'

Remarks: Calibrate HAWWA sticks @ 855

Sampling Personnel: AJR

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

MW 4 (for L)

<u>Surging</u>	<u>Surging Time</u>	<u>Gallons Purged</u>	<u>Purging Time</u>
7	1033-1038 (5)	2.0	1040-1045 (5)
8	1047-1052 (5)	2.1	1054-1059 (5)
9	1101-1106 (5)	1.8	1107-1112 (5)
10	1115-1120 (5)	1.5	1123-1128 (5)
11	1130-1135 (5)	2.0	1138-1143 (5)
12	1145-1150 (5)	2.0	1152-1157 (5)



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 104396 Location: East of Rivernew Lodge Weather: 60° Sunny
 Well No.: MW4
 Date: 5/27/21 Time Started: 1240 Time Completed: 1310
 Develop Date: 5/27/21 Develop End Time: 1157 (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 906 Date of Depth Measurement: 5/27/21
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other:
 Diameter of Casing: 2" Well Screen Interval: —
 Total Depth of Well Below MP: 17.76 Product Thickness, if noted: —
 Depth-to-Water (DTW) Below MP: 7.68
 Water Column in Well: 10.08 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.14
 Gallons in Well: 1.61 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 5/27/21 Time Started: 1240 Time Completed: 1255
 Three Well Volumes: 4.83 (Gallons in Well x 3)
 Gallons Purged: 0.5 Depth of Pump (generally 2 ft from bottom): ~10
 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)
<u>1245</u>	<u>0.5</u>	<u>0.5</u>	<u>8.00</u>	<u>0.32</u>	<u>6.6</u>	<u>296</u>	<u>—</u>	<u>7.01</u>	<u>16</u>	<u>101.0</u>

SAMPLING DATA

Odor: None Color: cloudy
 Sample Designation: 104396-MW4 Time / Date: MW 5/27/21
 QC Sample Designation: — Time / Date: —
 QA Sample Designation: — Time / Date: —
 Evacuation Method: Submersible Pump / Other: Mini Whirl
 Sampling Method: Submersible Pump / Other: Mini Whirl
 Water Quality Instruments Used/Manufacturer/Model Number: YSI + M Hanna Sticks + Micro TAP
 Calibration Info (Time, Ranges, etc): @ 855 on 5/27/21
 Remarks:

Sampling Personnel: AJR

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

5/27/21

106396-002 VBL

ASR

- 0800 Prep for sampling, head to site
- 0830 Arrive onsite, check in with Joe Browning
- 0850 @ MW-4 for Development
- 0855 Calibrate Hanna sticks
- 1157 Finish Development, need to let well recharge prior to sample.
- 235 Well Recharged to collect sample
- 310 Finish @ MW-4
- 330 @ MW-3
- 500 Finish @ MW-3
- 502 @ MW-2
- 1040 Finish @ MW 2
- 043 @ MW-1, appears damaged - like a car hit it. opened up well, top 4 ft of riser is broken off, was still able to get sample → well integrity does not seem compromised.
- 020 Finish @ MW-1, collected dup. (MW11)
- 1845 Finish cleaning up. Depart site for ASU # 635

[Handwritten signature]

RRV

DTW

+

2

30.92

1840

3

27.66

1035

4

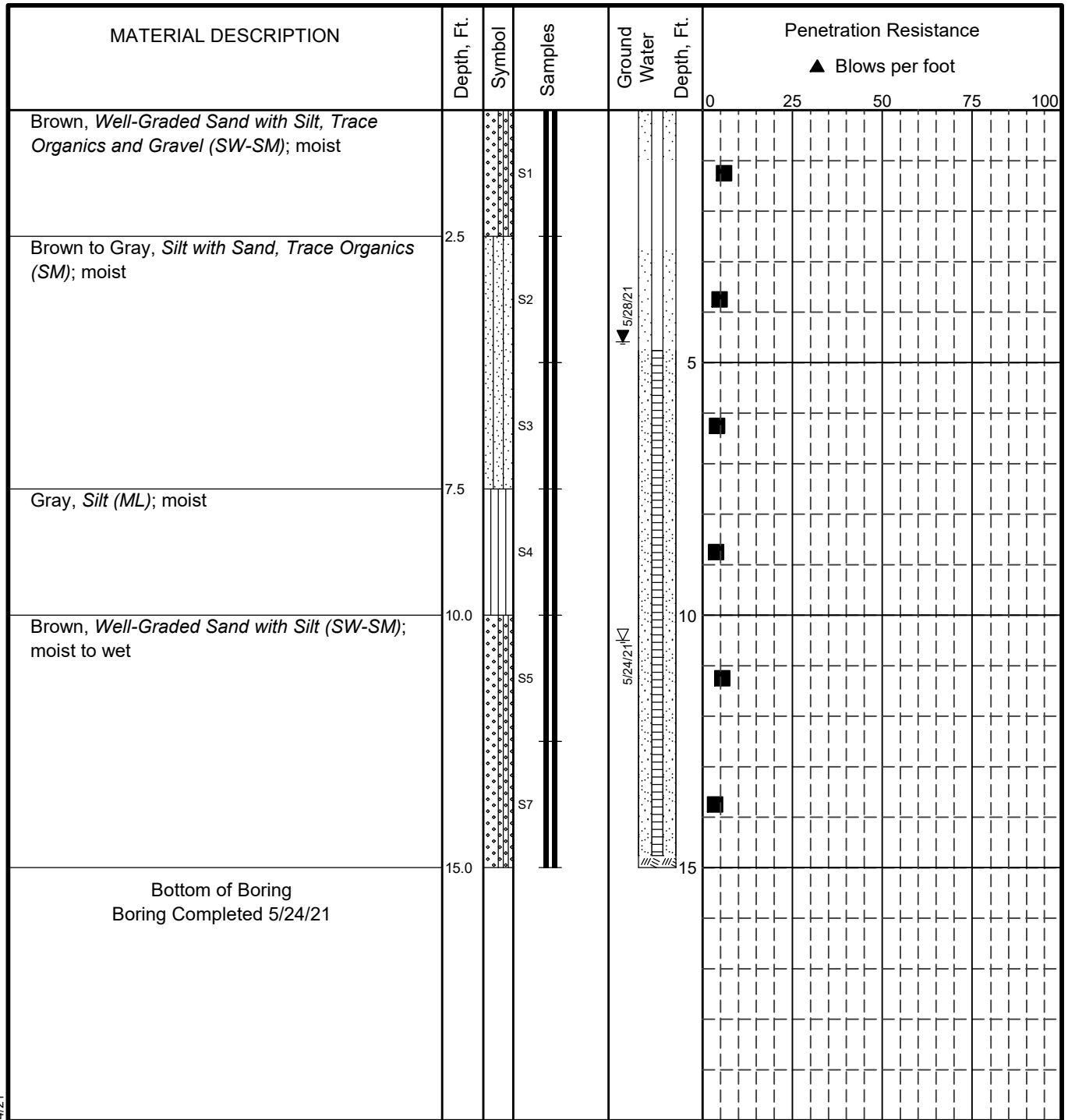
~~9~~ 7.60

~~7500~~

1045

Attachment 3

BORING LOGS, WELL CONSTRUCTION DETAILS, AND WELL SURVEY



LEGEND

- * Sample not recovered
- II Direct Push
- ▽ Ground Water Level At Time Of Drilling
- ▼ Static Water Level
- ▨ Solid Casing, Sand Pack
- ▩ Solid Casing and Annular Seal
- ▧ Slotted Section, Filter Sand
- ▩ Solid Casing, Cuttings Backfill

■ PID Reading (ppm)

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

57440 Sterling Highway
Kasilof, Alaska

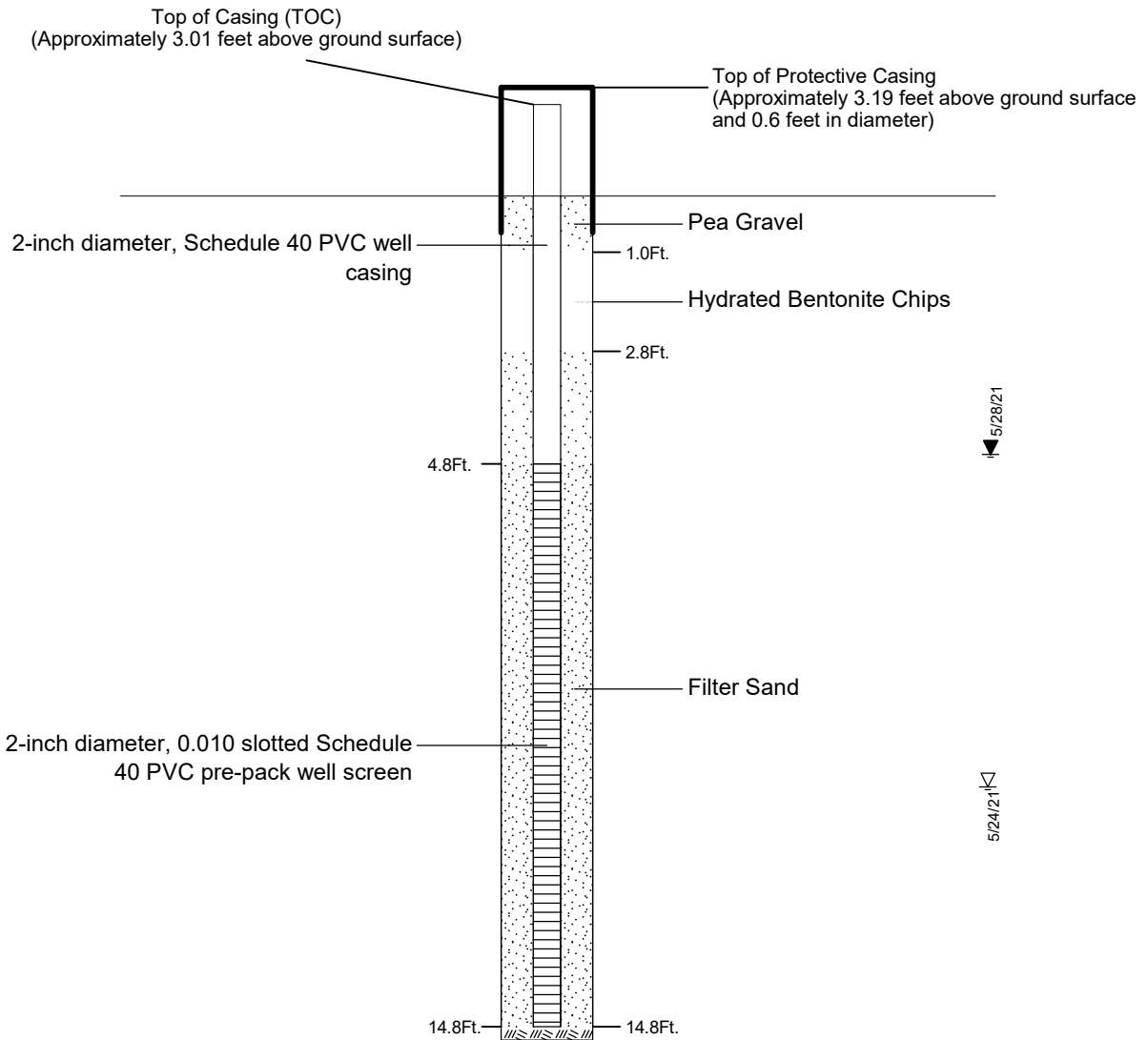
LOG OF BORING B4

July 2021

106396-001

Casing Description

Backfill Description



LEGEND

- ▽ Groundwater Level ATD
- ▽ Static Groundwater Level

NOTE: All joints use threaded connections.

57440 Sterling Highway
Kasilof, Alaska

**MONITORING WELL MW4
CONSTRUCTION DETAIL**

July 2021

106396-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Fig. 3-2

213014 Monitor Well Survey Report

Point #	Northing (ASP)	Easting (ASP)	Latitude NAD83	Longitude NAD83	Elev Ground (FT)	Elev Casing (FT)	Elev PVC (FT)
MW-1	2310260.36'	1411778.83'	N60°19'04.347"	W151°15'40.322"	61.10	64.00	Broken
MW-2	2310445.07'	1411775.14'	N60°19'06.165"	W151°15'40.466"	64.61	67.19	66.90
MW-3	2310324.52'	1411626.16'	N60°19'04.950"	W151°15'43.378"	64.88	67.51	67.37
MW-4	2310235.39'	1411615.45'	N60°19'04.070"	W151°15'43.557"	43.25	46.44	46.26



Attachment 4

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

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907)433-3228

Report Number: **1212866**

Client Project: **106396-001 Kasilof Riverview**

Dear Alec Rizzo,

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
2021.06.23
12:21:13 -08'00'

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1212866**
Project Name/Site: **106396-001 Kasilof Riverview**
Project Contact: **Alec Rizzo**

Refer to sample receipt form for information on sample condition.

LCS for HBN 1820416 [VXX/37180 (1614568) LCS

8260D - LCS recovery for trichlorofluoromethane does not meet QC criteria.

MB for HBN 1820277 [XXX/44907] (1613824) MB

AK103 - RRO detected in MB over 1/2 LOQ, but less than the LOQ.

1212766007(1614569MS) (1614570) MS

8260D - MS recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the PS.

1212766007(1614569MSD) (1614571) MSD

8260D - MSD recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the PS.

*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: 06/23/2021 11:31:17AM

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 LV (PAH)				
1212866003	106396-MW3	XMS12666	Phenanthrene	BLC
1212866004	106396-MW4	XMS12666	Fluorene	BLC

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 (Provisionally Certified as of 05/27/2021 for Mercury by EPA200.8, Nitrate as N by SM 4500NO3-F and VOCs by EPA 524.2) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 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

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
TNTC	Too Numerous To Count
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>
106396-MW1	1212866001	05/27/2021	06/01/2021	Water (Surface, Eff., Ground)
106396-MW2	1212866002	05/27/2021	06/01/2021	Water (Surface, Eff., Ground)
106396-MW3	1212866003	05/27/2021	06/01/2021	Water (Surface, Eff., Ground)
106396-MW4	1212866004	05/27/2021	06/01/2021	Water (Surface, Eff., Ground)
106396-MW11	1212866005	05/27/2021	06/01/2021	Water (Surface, Eff., Ground)
106396-WTB	1212866006	05/27/2021	06/01/2021	Water (Surface, Eff., Ground)
106396-B4S1	1212866007	05/24/2021	06/01/2021	Soil/Solid (dry weight)
106396-B4S5	1212866008	05/24/2021	06/01/2021	Soil/Solid (dry weight)
106396-B4S6	1212866009	05/24/2021	06/01/2021	Soil/Solid (dry weight)
106396-STB	1212866010	05/24/2021	06/01/2021	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
8270D SIM LV (PAH)	8270 PAH SIM GC/MS LV
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel Range Organics (S)
AK102	DRO Low Volume (W)
AK101	Gasoline Range Organics (S)
AK101	Gasoline Range Organics (W)
SM21 2540G	Percent Solids SM2540G
SW8260D	VOC 8260 (S) Field Extracted
SW8260D	Volatile Organic Compounds (W) FULL

Print Date: 06/23/2021 11:31:22AM

Detectable Results Summary

Client Sample ID: 106396-MW1			
Lab Sample ID: 1212866001	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	0.600	mg/L
Client Sample ID: 106396-MW2			
Lab Sample ID: 1212866002	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	0.551J	mg/L
Client Sample ID: 106396-MW3			
Lab Sample ID: 1212866003	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Polynuclear Aromatics GC/MS	Phenanthrene	0.0348J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.369J	mg/L
Volatile Fuels	Gasoline Range Organics	0.0330J	mg/L
Volatile GC/MS	Toluene	0.332J	ug/L
Client Sample ID: 106396-MW4			
Lab Sample ID: 1212866004	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Polynuclear Aromatics GC/MS	Fluorene	0.0146J	ug/L
	Phenanthrene	0.0574	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.435J	mg/L
Volatile Fuels	Gasoline Range Organics	0.0330J	mg/L
Client Sample ID: 106396-MW11			
Lab Sample ID: 1212866005	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Polynuclear Aromatics GC/MS	Phenanthrene	0.0181J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.584	mg/L
Volatile Fuels	Gasoline Range Organics	0.0327J	mg/L
Client Sample ID: 106396-WTB			
Lab Sample ID: 1212866006	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Volatile Fuels	Gasoline Range Organics	0.0325J	mg/L
Client Sample ID: 106396-B4S1			
Lab Sample ID: 1212866007	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	13.1J	mg/kg
Volatile Fuels	Gasoline Range Organics	1.56J	mg/kg
Client Sample ID: 106396-B4S5			
Lab Sample ID: 1212866008	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	10.2J	mg/kg
Volatile Fuels	Gasoline Range Organics	1.51J	mg/kg
Client Sample ID: 106396-B4S6			
Lab Sample ID: 1212866009	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	12.1J	mg/kg
Volatile Fuels	Gasoline Range Organics	1.71J	mg/kg
Client Sample ID: 106396-STB			
Lab Sample ID: 1212866010	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Volatile Fuels	Gasoline Range Organics	1.09J	mg/kg

Print Date: 06/23/2021 11:31:23AM



Results of 106396-MW1

Client Sample ID: 106396-MW1
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866001
Lab Project ID: 1212866

Collection Date: 05/27/21 17:40
Received Date: 06/01/21 12:32
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 values.

Batch Information

Analytical Batch: XMS12666
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 06/14/21 17:09
Container ID: 1212866001-C

Prep Batch: XXX44904
Prep Method: SW3535A
Prep Date/Time: 06/03/21 17:29
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL



Results of **106396-MW1**

Client Sample ID: **106396-MW1**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866001
Lab Project ID: 1212866

Collection Date: 05/27/21 17:40
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic 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>
Diesel Range Organics	0.600	0.588	0.176	mg/L	1		06/04/21 20:19
Surrogates							
5a Androstane (surr)	84.4	50-150		%	1		06/04/21 20:19

Batch Information

Analytical Batch: XFC15943
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/04/21 20:19
Container ID: 1212866001-A

Prep Batch: XXX44907
Prep Method: SW3520C
Prep Date/Time: 06/03/21 16:28
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL



Results of **106396-MW1**

Client Sample ID: **106396-MW1**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866001
Lab Project ID: 1212866

Collection Date: 05/27/21 17:40
Received Date: 06/01/21 12:32
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		06/02/21 22:10
Surrogates							
4-Bromofluorobenzene (surr)	85.3	50-150		%	1		06/02/21 22:10

Batch Information

Analytical Batch: VFC15629
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 06/02/21 22:10
Container ID: 1212866001-E

Prep Batch: VXX37160
Prep Method: SW5030B
Prep Date/Time: 06/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-MW1

Client Sample ID: 106396-MW1
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866001
Lab Project ID: 1212866

Collection Date: 05/27/21 17:40
Received Date: 06/01/21 12:32
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 106396-MW1

Client Sample ID: 106396-MW1
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866001
Lab Project ID: 1212866

Collection Date: 05/27/21 17:40
Received Date: 06/01/21 12:32
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 106396-MW1

Client Sample ID: **106396-MW1**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866001
Lab Project ID: 1212866

Collection Date: 05/27/21 17:40
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20792
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 06/09/21 23:54
Container ID: 1212866001-H

Prep Batch: VXX37205
Prep Method: SW5030B
Prep Date/Time: 06/09/21 11:30
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-MW2

Client Sample ID: 106396-MW2
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866002
Lab Project ID: 1212866

Collection Date: 05/27/21 16:15
Received Date: 06/01/21 12:32
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 detection results.

Surrogates

Table with 2 rows showing surrogate results for 2-Methylnaphthalene-d10 and Fluoranthene-d10.

Batch Information

Analytical Batch: XMS12666
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 06/14/21 17:29
Container ID: 1212866002-C

Prep Batch: XXX44904
Prep Method: SW3535A
Prep Date/Time: 06/03/21 17:29
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL



Results of **106396-MW2**

Client Sample ID: **106396-MW2**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866002
Lab Project ID: 1212866

Collection Date: 05/27/21 16:15
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic 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>
Diesel Range Organics	0.551 J	0.566	0.170	mg/L	1		06/04/21 20:29
Surrogates							
5a Androstane (surr)	89.1	50-150		%	1		06/04/21 20:29

Batch Information

Analytical Batch: XFC15943
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/04/21 20:29
Container ID: 1212866002-A

Prep Batch: XXX44907
Prep Method: SW3520C
Prep Date/Time: 06/03/21 16:28
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL



Results of 106396-MW2

Client Sample ID: **106396-MW2**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866002
Lab Project ID: 1212866

Collection Date: 05/27/21 16:15
Received Date: 06/01/21 12:32
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		06/02/21 22:28
Surrogates							
4-Bromofluorobenzene (surr)	85	50-150		%	1		06/02/21 22:28

Batch Information

Analytical Batch: VFC15629
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 06/02/21 22:28
Container ID: 1212866002-E

Prep Batch: VXX37160
Prep Method: SW5030B
Prep Date/Time: 06/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-MW2

Client Sample ID: 106396-MW2
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866002
Lab Project ID: 1212866

Collection Date: 05/27/21 16:15
Received Date: 06/01/21 12:32
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.

Print Date: 06/23/2021 11:31:25AM

J flagging is activated



Results of 106396-MW2

Client Sample ID: 106396-MW2
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866002
Lab Project ID: 1212866

Collection Date: 05/27/21 16:15
Received Date: 06/01/21 12:32
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 106396-MW2

Client Sample ID: **106396-MW2**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866002
Lab Project ID: 1212866

Collection Date: 05/27/21 16:15
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20792
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 06/10/21 00:09
Container ID: 1212866002-H

Prep Batch: VXX37205
Prep Method: SW5030B
Prep Date/Time: 06/09/21 11:30
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-MW3

Client Sample ID: 106396-MW3
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866003
Lab Project ID: 1212866

Collection Date: 05/27/21 14:30
Received Date: 06/01/21 12:32
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: XMS12666
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 06/14/21 17:50
Container ID: 1212866003-C

Prep Batch: XXX44904
Prep Method: SW3535A
Prep Date/Time: 06/03/21 17:29
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL



Results of **106396-MW3**

Client Sample ID: **106396-MW3**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866003
Lab Project ID: 1212866

Collection Date: 05/27/21 14:30
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic 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>
Diesel Range Organics	0.369 J	0.588	0.176	mg/L	1		06/04/21 20:39
Surrogates							
5a Androstane (surr)	86.5	50-150		%	1		06/04/21 20:39

Batch Information

Analytical Batch: XFC15943
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/04/21 20:39
Container ID: 1212866003-A

Prep Batch: XXX44907
Prep Method: SW3520C
Prep Date/Time: 06/03/21 16:28
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of 106396-MW3

Client Sample ID: **106396-MW3**
 Client Project ID: **106396-001 Kasilof Riverview**
 Lab Sample ID: 1212866003
 Lab Project ID: 1212866

Collection Date: 05/27/21 14:30
 Received Date: 06/01/21 12:32
 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	0.0330 J	0.100	0.0310	mg/L	1		06/02/21 22:46
Surrogates							
4-Bromofluorobenzene (surr)	84	50-150		%	1		06/02/21 22:46

Batch Information

Analytical Batch: VFC15629
 Analytical Method: AK101
 Analyst: IJV
 Analytical Date/Time: 06/02/21 22:46
 Container ID: 1212866003-E

Prep Batch: VXX37160
 Prep Method: SW5030B
 Prep Date/Time: 06/02/21 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of 106396-MW3

Client Sample ID: 106396-MW3
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866003
Lab Project ID: 1212866

Collection Date: 05/27/21 14:30
Received Date: 06/01/21 12:32
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 106396-MW3

Client Sample ID: 106396-MW3
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866003
Lab Project ID: 1212866

Collection Date: 05/27/21 14:30
Received Date: 06/01/21 12:32
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 106396-MW3

Client Sample ID: **106396-MW3**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866003
Lab Project ID: 1212866

Collection Date: 05/27/21 14:30
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20792
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 06/10/21 00:25
Container ID: 1212866003-H

Prep Batch: VXX37205
Prep Method: SW5030B
Prep Date/Time: 06/09/21 11:30
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-MW4

Client Sample ID: 106396-MW4
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866004
Lab Project ID: 1212866

Collection Date: 05/27/21 12:46
Received Date: 06/01/21 12:32
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 values.

Batch Information

Analytical Batch: XMS12666
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 06/14/21 18:10
Container ID: 1212866004-C

Prep Batch: XXX44904
Prep Method: SW3535A
Prep Date/Time: 06/03/21 17:29
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL



Results of **106396-MW4**

Client Sample ID: **106396-MW4**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866004
Lab Project ID: 1212866

Collection Date: 05/27/21 12:46
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic 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>
Diesel Range Organics	0.435 J	0.588	0.176	mg/L	1		06/04/21 20:49
Surrogates							
5a Androstane (surr)	92.4	50-150		%	1		06/04/21 20:49

Batch Information

Analytical Batch: XFC15943
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/04/21 20:49
Container ID: 1212866004-A

Prep Batch: XXX44907
Prep Method: SW3520C
Prep Date/Time: 06/03/21 16:28
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL



Results of **106396-MW4**

Client Sample ID: **106396-MW4**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866004
Lab Project ID: 1212866

Collection Date: 05/27/21 12:46
Received Date: 06/01/21 12:32
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	0.0330 J	0.100	0.0310	mg/L	1		06/02/21 23:04
Surrogates							
4-Bromofluorobenzene (surr)	82.9	50-150		%	1		06/02/21 23:04

Batch Information

Analytical Batch: VFC15629
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 06/02/21 23:04
Container ID: 1212866004-E

Prep Batch: VXX37160
Prep Method: SW5030B
Prep Date/Time: 06/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-MW4

Client Sample ID: 106396-MW4
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866004
Lab Project ID: 1212866

Collection Date: 05/27/21 12:46
Received Date: 06/01/21 12:32
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 106396-MW4

Client Sample ID: 106396-MW4
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866004
Lab Project ID: 1212866

Collection Date: 05/27/21 12:46
Received Date: 06/01/21 12:32
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 106396-MW4

Client Sample ID: **106396-MW4**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866004
Lab Project ID: 1212866

Collection Date: 05/27/21 12:46
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20795
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 06/10/21 16:34
Container ID: 1212866004-H

Prep Batch: VXX37213
Prep Method: SW5030B
Prep Date/Time: 06/10/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-MW11

Client Sample ID: 106396-MW11
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866005
Lab Project ID: 1212866

Collection Date: 05/27/21 18:10
Received Date: 06/01/21 12:32
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 values.

Batch Information

Analytical Batch: XMS12666
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 06/14/21 18:31
Container ID: 1212866005-C

Prep Batch: XXX44904
Prep Method: SW3535A
Prep Date/Time: 06/03/21 17:29
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL



Results of **106396-MW11**

Client Sample ID: **106396-MW11**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866005
Lab Project ID: 1212866

Collection Date: 05/27/21 18:10
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic 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>
Diesel Range Organics	0.584	0.577	0.173	mg/L	1		06/04/21 21:00
Surrogates							
5a Androstane (surr)	88.1	50-150		%	1		06/04/21 21:00

Batch Information

Analytical Batch: XFC15943
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/04/21 21:00
Container ID: 1212866005-A

Prep Batch: XXX44907
Prep Method: SW3520C
Prep Date/Time: 06/03/21 16:28
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL



Results of **106396-MW11**

Client Sample ID: **106396-MW11**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866005
Lab Project ID: 1212866

Collection Date: 05/27/21 18:10
Received Date: 06/01/21 12:32
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	0.0327 J	0.100	0.0310	mg/L	1		06/02/21 23:22
Surrogates							
4-Bromofluorobenzene (surr)	83.3	50-150		%	1		06/02/21 23:22

Batch Information

Analytical Batch: VFC15629
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 06/02/21 23:22
Container ID: 1212866005-E

Prep Batch: VXX37160
Prep Method: SW5030B
Prep Date/Time: 06/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-MW11

Client Sample ID: 106396-MW11
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866005
Lab Project ID: 1212866

Collection Date: 05/27/21 18:10
Received Date: 06/01/21 12:32
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 106396-MW11

Client Sample ID: 106396-MW11
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866005
Lab Project ID: 1212866

Collection Date: 05/27/21 18:10
Received Date: 06/01/21 12:32
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 106396-MW11

Client Sample ID: **106396-MW11**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866005
Lab Project ID: 1212866

Collection Date: 05/27/21 18:10
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20795
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 06/10/21 16:49
Container ID: 1212866005-H

Prep Batch: VXX37213
Prep Method: SW5030B
Prep Date/Time: 06/10/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **106396-WTB**

Client Sample ID: **106396-WTB**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866006
Lab Project ID: 1212866

Collection Date: 05/27/21 08:30
Received Date: 06/01/21 12:32
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	0.0325 J	0.100	0.0310	mg/L	1		06/02/21 21:34
Surrogates							
4-Bromofluorobenzene (surr)	82.5	50-150		%	1		06/02/21 21:34

Batch Information

Analytical Batch: VFC15629
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 06/02/21 21:34
Container ID: 1212866006-A

Prep Batch: VXX37160
Prep Method: SW5030B
Prep Date/Time: 06/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-WTB

Client Sample ID: **106396-WTB**
 Client Project ID: **106396-001 Kasilof Riverview**
 Lab Sample ID: 1212866006
 Lab Project ID: 1212866

Collection Date: 05/27/21 08:30
 Received Date: 06/01/21 12:32
 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		06/09/21 20:52
1,1,1-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,1,2,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		06/09/21 20:52
1,1,2-Trichloroethane	0.200 U	0.400	0.120	ug/L	1		06/09/21 20:52
1,1-Dichloroethane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,1-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,1-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,2,3-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,2,3-Trichloropropane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,2,4-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,2,4-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,2-Dibromo-3-chloropropane	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		06/09/21 20:52
1,2-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,2-Dichloroethane	0.250 U	0.500	0.150	ug/L	1		06/09/21 20:52
1,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,3,5-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,3-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
1,3-Dichloropropane	0.250 U	0.500	0.150	ug/L	1		06/09/21 20:52
1,4-Dichlorobenzene	0.250 U	0.500	0.150	ug/L	1		06/09/21 20:52
2,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
2-Butanone (MEK)	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
2-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
2-Hexanone	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
4-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
4-Isopropyltoluene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
4-Methyl-2-pentanone (MIBK)	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
Benzene	0.200 U	0.400	0.120	ug/L	1		06/09/21 20:52
Bromobenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Bromochloromethane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Bromodichloromethane	0.250 U	0.500	0.150	ug/L	1		06/09/21 20:52
Bromoform	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Bromomethane	2.50 U	5.00	2.00	ug/L	1		06/09/21 20:52
Carbon disulfide	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
Carbon tetrachloride	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Chlorobenzene	0.250 U	0.500	0.150	ug/L	1		06/09/21 20:52
Chloroethane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52

Print Date: 06/23/2021 11:31:25AM

J flagging is activated



Results of 106396-WTB

Client Sample ID: **106396-WTB**
 Client Project ID: **106396-001 Kasilof Riverview**
 Lab Sample ID: 1212866006
 Lab Project ID: 1212866

Collection Date: 05/27/21 08:30
 Received Date: 06/01/21 12:32
 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		06/09/21 20:52
Chloromethane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		06/09/21 20:52
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		06/09/21 20:52
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Freon-113	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
Naphthalene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
o-Xylene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		06/09/21 20:52
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Styrene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Toluene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		06/09/21 20:52
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		06/09/21 20:52
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		06/09/21 20:52
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		06/09/21 20:52
Surrogates							
1,2-Dichloroethane-D4 (surr)	103	81-118		%	1		06/09/21 20:52
4-Bromofluorobenzene (surr)	101	85-114		%	1		06/09/21 20:52
Toluene-d8 (surr)	99.4	89-112		%	1		06/09/21 20:52

Results of 106396-WTB

Client Sample ID: **106396-WTB**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866006
Lab Project ID: 1212866

Collection Date: 05/27/21 08:30
Received Date: 06/01/21 12:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20792
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 06/09/21 20:52
Container ID: 1212866006-D

Prep Batch: VXX37205
Prep Method: SW5030B
Prep Date/Time: 06/09/21 11:30
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of 106396-B4S1

Client Sample ID: 106396-B4S1
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866007
Lab Project ID: 1212866

Collection Date: 05/24/21 11:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
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 surrogate compounds with associated values and analysis dates.

Batch Information

Analytical Batch: XMS12666
Analytical Method: 8270D SIM (PAH)
Analyst: LAW
Analytical Date/Time: 06/14/21 23:59
Container ID: 1212866007-A

Prep Batch: XXX44914
Prep Method: SW3550C
Prep Date/Time: 06/04/21 13:07
Prep Initial Wt./Vol.: 22.62 g
Prep Extract Vol: 5 mL



Results of **106396-B4S1**

Client Sample ID: **106396-B4S1**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866007
Lab Project ID: 1212866

Collection Date: 05/24/21 11:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by **Semivolatile Organic 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>
Diesel Range Organics	13.1 J	22.4	6.94	mg/kg	1		06/07/21 13:58
Surrogates							
5a Androstane (surr)	93.1	50-150		%	1		06/07/21 13:58

Batch Information

Analytical Batch: XFC15944
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/07/21 13:58
Container ID: 1212866007-A

Prep Batch: XXX44908
Prep Method: SW3550C
Prep Date/Time: 06/04/21 06:48
Prep Initial Wt./Vol.: 30.402 g
Prep Extract Vol: 5 mL



Results of **106396-B4S1**

Client Sample ID: **106396-B4S1**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866007
Lab Project ID: 1212866

Collection Date: 05/24/21 11:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
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	1.56 J	4.06	1.22	mg/kg	1		06/02/21 17:41
Surrogates							
4-Bromofluorobenzene (surr)	95	50-150		%	1		06/02/21 17:41

Batch Information

Analytical Batch: VFC15634
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 06/02/21 17:41
Container ID: 1212866007-B

Prep Batch: VXX37162
Prep Method: SW5035A
Prep Date/Time: 05/24/21 11:00
Prep Initial Wt./Vol.: 41.822 g
Prep Extract Vol: 29.9276 mL



Results of 106396-B4S1

Client Sample ID: 106396-B4S1
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866007
Lab Project ID: 1212866

Collection Date: 05/24/21 11:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
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 106396-B4S1

Client Sample ID: **106396-B4S1**
 Client Project ID: **106396-001 Kasilof Riverview**
 Lab Sample ID: 1212866007
 Lab Project ID: 1212866

Collection Date: 05/24/21 11:00
 Received Date: 06/01/21 12:32
 Matrix: Soil/Solid (dry weight)
 Solids (%):88.2
 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	162 U	324	101	ug/kg	1		06/05/21 20:43
Chloroform	3.25 U	6.49	1.62	ug/kg	1		06/05/21 20:43
Chloromethane	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
cis-1,2-Dichloroethene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
cis-1,3-Dichloropropene	10.2 U	20.3	6.33	ug/kg	1		06/05/21 20:43
Dibromochloromethane	4.05 U	8.11	2.43	ug/kg	1		06/05/21 20:43
Dibromomethane	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
Dichlorodifluoromethane	40.5 U	81.1	24.3	ug/kg	1		06/05/21 20:43
Ethylbenzene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
Freon-113	81.0 U	162	50.3	ug/kg	1		06/05/21 20:43
Hexachlorobutadiene	16.2 U	32.4	10.1	ug/kg	1		06/05/21 20:43
Isopropylbenzene (Cumene)	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
Methylene chloride	81.0 U	162	50.3	ug/kg	1		06/05/21 20:43
Methyl-t-butyl ether	81.0 U	162	50.3	ug/kg	1		06/05/21 20:43
Naphthalene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
n-Butylbenzene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
n-Propylbenzene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
o-Xylene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
P & M -Xylene	40.5 U	81.1	24.3	ug/kg	1		06/05/21 20:43
sec-Butylbenzene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
Styrene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
tert-Butylbenzene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
Tetrachloroethene	10.2 U	20.3	6.33	ug/kg	1		06/05/21 20:43
Toluene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
trans-1,2-Dichloroethene	20.3 U	40.6	12.7	ug/kg	1		06/05/21 20:43
trans-1,3-Dichloropropene	10.2 U	20.3	6.33	ug/kg	1		06/05/21 20:43
Trichloroethene	4.05 U	8.11	2.43	ug/kg	1		06/05/21 20:43
Trichlorofluoromethane	40.5 U	81.1	24.3	ug/kg	1		06/05/21 20:43
Vinyl acetate	81.0 U	162	50.3	ug/kg	1		06/05/21 20:43
Vinyl chloride	0.650 U	1.30	0.406	ug/kg	1		06/05/21 20:43
Xylenes (total)	61.0 U	122	37.0	ug/kg	1		06/05/21 20:43
Surrogates							
1,2-Dichloroethane-D4 (surr)	97.9	71-136		%	1		06/05/21 20:43
4-Bromofluorobenzene (surr)	89.5	55-151		%	1		06/05/21 20:43
Toluene-d8 (surr)	105	85-116		%	1		06/05/21 20:43

Results of 106396-B4S1

Client Sample ID: **106396-B4S1**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866007
Lab Project ID: 1212866

Collection Date: 05/24/21 11:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20777
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 06/05/21 20:43
Container ID: 1212866007-B

Prep Batch: VXX37180
Prep Method: SW5035A
Prep Date/Time: 05/24/21 11:00
Prep Initial Wt./Vol.: 41.822 g
Prep Extract Vol: 29.9276 mL



Results of 106396-B4S5

Client Sample ID: 106396-B4S5
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866008
Lab Project ID: 1212866

Collection Date: 05/24/21 12:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.6
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: XMS12666
Analytical Method: 8270D SIM (PAH)
Analyst: LAW
Analytical Date/Time: 06/15/21 00:19
Container ID: 1212866008-A

Prep Batch: XXX44914
Prep Method: SW3550C
Prep Date/Time: 06/04/21 13:07
Prep Initial Wt./Vol.: 22.62 g
Prep Extract Vol: 5 mL



Results of **106396-B4S5**

Client Sample ID: **106396-B4S5**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866008
Lab Project ID: 1212866

Collection Date: 05/24/21 12:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.6
Location:

Results by **Semivolatile Organic 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>
Diesel Range Organics	10.2 J	25.1	7.78	mg/kg	1		06/07/21 14:08
Surrogates							
5a Androstane (surr)	90.1	50-150		%	1		06/07/21 14:08

Batch Information

Analytical Batch: XFC15944
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/07/21 14:08
Container ID: 1212866008-A

Prep Batch: XXX44908
Prep Method: SW3550C
Prep Date/Time: 06/04/21 06:48
Prep Initial Wt./Vol.: 30.424 g
Prep Extract Vol: 5 mL



Results of **106396-B4S5**

Client Sample ID: **106396-B4S5**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866008
Lab Project ID: 1212866

Collection Date: 05/24/21 12:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.6
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	1.51 J	4.63	1.39	mg/kg	1		06/02/21 17:59
Surrogates							
4-Bromofluorobenzene (surr)	93.7	50-150		%	1		06/02/21 17:59

Batch Information

Analytical Batch: VFC15634
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 06/02/21 17:59
Container ID: 1212866008-B

Prep Batch: VXX37162
Prep Method: SW5035A
Prep Date/Time: 05/24/21 12:00
Prep Initial Wt./Vol.: 48.571 g
Prep Extract Vol: 35.3848 mL



Results of 106396-B4S5

Client Sample ID: 106396-B4S5
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866008
Lab Project ID: 1212866

Collection Date: 05/24/21 12:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.6
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 corresponding test results.

Print Date: 06/23/2021 11:31:25AM

J flagging is activated



Results of 106396-B4S5

Client Sample ID: 106396-B4S5
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866008
Lab Project ID: 1212866

Collection Date: 05/24/21 12:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.6
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 106396-B4S5

Client Sample ID: **106396-B4S5**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866008
Lab Project ID: 1212866

Collection Date: 05/24/21 12:00
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.6
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20777
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 06/05/21 20:59
Container ID: 1212866008-B

Prep Batch: VXX37180
Prep Method: SW5035A
Prep Date/Time: 05/24/21 12:00
Prep Initial Wt./Vol.: 48.571 g
Prep Extract Vol: 35.3848 mL



Results of 106396-B4S6

Client Sample ID: 106396-B4S6
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866009
Lab Project ID: 1212866

Collection Date: 05/24/21 12:05
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.8
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 compounds with associated quality and detection data.

Batch Information

Analytical Batch: XMS12666
Analytical Method: 8270D SIM (PAH)
Analyst: LAW
Analytical Date/Time: 06/15/21 00:40
Container ID: 1212866009-A

Prep Batch: XXX44914
Prep Method: SW3550C
Prep Date/Time: 06/04/21 13:07
Prep Initial Wt./Vol.: 22.758 g
Prep Extract Vol: 5 mL



Results of **106396-B4S6**

Client Sample ID: **106396-B4S6**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866009
Lab Project ID: 1212866

Collection Date: 05/24/21 12:05
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.8
Location:

Results by **Semivolatile Organic 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>
Diesel Range Organics	12.1 J	25.2	7.80	mg/kg	1		06/07/21 14:18
Surrogates							
5a Androstane (surr)	93.9	50-150		%	1		06/07/21 14:18

Batch Information

Analytical Batch: XFC15944
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/07/21 14:18
Container ID: 1212866009-A

Prep Batch: XXX44908
Prep Method: SW3550C
Prep Date/Time: 06/04/21 06:48
Prep Initial Wt./Vol.: 30.243 g
Prep Extract Vol: 5 mL

Results of 106396-B4S6

Client Sample ID: **106396-B4S6**
 Client Project ID: **106396-001 Kasilof Riverview**
 Lab Sample ID: 1212866009
 Lab Project ID: 1212866

Collection Date: 05/24/21 12:05
 Received Date: 06/01/21 12:32
 Matrix: Soil/Solid (dry weight)
 Solids (%):78.8
 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	1.71 J	5.15	1.54	mg/kg	1		06/02/21 18:17
Surrogates							
4-Bromofluorobenzene (surr)	100	50-150		%	1		06/02/21 18:17

Batch Information

Analytical Batch: VFC15634
 Analytical Method: AK101
 Analyst: IJV
 Analytical Date/Time: 06/02/21 18:17
 Container ID: 1212866009-B

Prep Batch: VXX37162
 Prep Method: SW5035A
 Prep Date/Time: 05/24/21 12:05
 Prep Initial Wt./Vol.: 41.681 g
 Prep Extract Vol: 33.8283 mL



Results of 106396-B4S6

Client Sample ID: **106396-B4S6**
 Client Project ID: **106396-001 Kasilof Riverview**
 Lab Sample ID: 1212866009
 Lab Project ID: 1212866

Collection Date: 05/24/21 12:05
 Received Date: 06/01/21 12:32
 Matrix: Soil/Solid (dry weight)
 Solids (%):78.8
 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>
1,1,1,2-Tetrachloroethane	20.6 U	41.2	12.8	ug/kg	1		06/05/21 21:14
1,1,1-Trichloroethane	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
1,1,2,2-Tetrachloroethane	2.06 U	4.12	1.28	ug/kg	1		06/05/21 21:14
1,1,2-Trichloroethane	0.825 U	1.65	0.515	ug/kg	1		06/05/21 21:14
1,1-Dichloroethane	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
1,1-Dichloroethene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
1,1-Dichloropropene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
1,2,3-Trichlorobenzene	51.5 U	103	30.9	ug/kg	1		06/05/21 21:14
1,2,3-Trichloropropane	2.06 U	4.12	1.28	ug/kg	1		06/05/21 21:14
1,2,4-Trichlorobenzene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
1,2,4-Trimethylbenzene	51.5 U	103	30.9	ug/kg	1		06/05/21 21:14
1,2-Dibromo-3-chloropropane	103 U	206	63.8	ug/kg	1		06/05/21 21:14
1,2-Dibromoethane	1.03 U	2.06	0.824	ug/kg	1		06/05/21 21:14
1,2-Dichlorobenzene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
1,2-Dichloroethane	2.06 U	4.12	1.44	ug/kg	1		06/05/21 21:14
1,2-Dichloropropane	10.3 U	20.6	6.38	ug/kg	1		06/05/21 21:14
1,3,5-Trimethylbenzene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
1,3-Dichlorobenzene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
1,3-Dichloropropane	10.3 U	20.6	6.38	ug/kg	1		06/05/21 21:14
1,4-Dichlorobenzene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
2,2-Dichloropropane	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
2-Butanone (MEK)	258 U	515	161	ug/kg	1		06/05/21 21:14
2-Chlorotoluene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
2-Hexanone	103 U	206	63.8	ug/kg	1		06/05/21 21:14
4-Chlorotoluene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
4-Isopropyltoluene	103 U	206	51.5	ug/kg	1		06/05/21 21:14
4-Methyl-2-pentanone (MIBK)	258 U	515	161	ug/kg	1		06/05/21 21:14
Acetone	258 U	515	161	ug/kg	1		06/05/21 21:14
Benzene	12.9 U	25.7	8.03	ug/kg	1		06/05/21 21:14
Bromobenzene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
Bromochloromethane	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
Bromodichloromethane	2.06 U	4.12	1.28	ug/kg	1		06/05/21 21:14
Bromoform	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14
Bromomethane	20.6 U	41.2	12.8	ug/kg	1		06/05/21 21:14
Carbon disulfide	103 U	206	63.8	ug/kg	1		06/05/21 21:14
Carbon tetrachloride	12.9 U	25.7	8.03	ug/kg	1		06/05/21 21:14
Chlorobenzene	25.8 U	51.5	16.1	ug/kg	1		06/05/21 21:14

Print Date: 06/23/2021 11:31:25AM

J flagging is activated



Results of 106396-B4S6

Client Sample ID: 106396-B4S6
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866009
Lab Project ID: 1212866

Collection Date: 05/24/21 12:05
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.8
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 106396-B4S6

Client Sample ID: **106396-B4S6**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866009
Lab Project ID: 1212866

Collection Date: 05/24/21 12:05
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):78.8
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20777
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 06/05/21 21:14
Container ID: 1212866009-B

Prep Batch: VXX37180
Prep Method: SW5035A
Prep Date/Time: 05/24/21 12:05
Prep Initial Wt./Vol.: 41.681 g
Prep Extract Vol: 33.8283 mL



Results of **106396-STB**

Client Sample ID: **106396-STB**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866010
Lab Project ID: 1212866

Collection Date: 05/24/21 10:30
Received Date: 06/01/21 12:32
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	1.09 J	2.51	0.754	mg/kg	1		06/02/21 15:17
Surrogates							
4-Bromofluorobenzene (surr)	100	50-150		%	1		06/02/21 15:17

Batch Information

Analytical Batch: VFC15634
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 06/02/21 15:17
Container ID: 1212866010-A

Prep Batch: VXX37162
Prep Method: SW5035A
Prep Date/Time: 05/24/21 10:30
Prep Initial Wt./Vol.: 49.722 g
Prep Extract Vol: 25 mL



Results of 106396-STB

Client Sample ID: 106396-STB
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866010
Lab Project ID: 1212866

Collection Date: 05/24/21 10:30
Received Date: 06/01/21 12:32
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 106396-STB

Client Sample ID: 106396-STB
Client Project ID: 106396-001 Kasilof Riverview
Lab Sample ID: 1212866010
Lab Project ID: 1212866

Collection Date: 05/24/21 10:30
Received Date: 06/01/21 12:32
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 106396-STB

Client Sample ID: **106396-STB**
Client Project ID: **106396-001 Kasilof Riverview**
Lab Sample ID: 1212866010
Lab Project ID: 1212866

Collection Date: 05/24/21 10:30
Received Date: 06/01/21 12:32
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS20777
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 06/05/21 17:22
Container ID: 1212866010-A

Prep Batch: VXX37180
Prep Method: SW5035A
Prep Date/Time: 05/24/21 10:30
Prep Initial Wt./Vol.: 49.722 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1820296 [SPT/11286]

Blank Lab ID: 1613933

QC for Samples:

1212866007, 1212866008, 1212866009

Matrix: Soil/Solid (dry weight)

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: SPT11286

Analytical Method: SM21 2540G

Instrument:

Analyst: TMM

Analytical Date/Time: 6/3/2021 6:00:00PM

Print Date: 06/23/2021 11:31:28AM

Duplicate Sample Summary

Original Sample ID: 1212860010

Duplicate Sample ID: 1613948

QC for Samples:

Analysis Date: 06/03/2021 18:00

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	96.7	97.3	%	0.68	(< 15)

Batch Information

Analytical Batch: SPT11286

Analytical Method: SM21 2540G

Instrument:

Analyst: TMM

Print Date: 06/23/2021 11:31:29AM

Duplicate Sample Summary

Original Sample ID: 1212860011

Duplicate Sample ID: 1613949

QC for Samples:

1212866007, 1212866008, 1212866009

Analysis Date: 06/03/2021 18:00

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	95.8	96.0	%	0.12	(< 15)

Batch Information

Analytical Batch: SPT11286

Analytical Method: SM21 2540G

Instrument:

Analyst: TMM

Print Date: 06/23/2021 11:31:29AM

Duplicate Sample Summary

Original Sample ID: 1212897001

Duplicate Sample ID: 1613950

QC for Samples:

1212866007, 1212866008, 1212866009

Analysis Date: 06/03/2021 18:00

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	93.4	93.3	%	0.10	(< 15)

Batch Information

Analytical Batch: SPT11286

Analytical Method: SM21 2540G

Instrument:

Analyst: TMM

Print Date: 06/23/2021 11:31:29AM



Method Blank

Blank ID: MB for HBN 1820259 [VXX/37160]
Blank Lab ID: 1613739

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1212866001, 1212866002, 1212866003, 1212866004, 1212866005, 1212866006

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	85.3	50-150		%

Batch Information

Analytical Batch: VFC15629
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: IJV
Analytical Date/Time: 6/2/2021 9:22:00AM

Prep Batch: VXX37160
Prep Method: SW5030B
Prep Date/Time: 6/2/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/23/2021 11:31:33AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37160]
 Blank Spike Lab ID: 1613740
 Date Analyzed: 06/02/2021 10:16

Spike Duplicate ID: LCSD for HBN 1212866 [VXX37160]
 Spike Duplicate Lab ID: 1613741
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866001, 1212866002, 1212866003, 1212866004, 1212866005, 1212866006

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	1.05	105	1.00	1.08	108	(60-120)	2.30	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	0.0500		91	0.0500		96	(50-150)	4.70	
-----------------------------	--------	--	----	--------	--	----	------------	------	--

Batch Information

Analytical Batch: **VFC15629**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890A PID/FID**
 Analyst: **IJV**

Prep Batch: **VXX37160**
 Prep Method: **SW5030B**
 Prep Date/Time: **06/02/2021 06:00**
 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: 06/23/2021 11:31:36AM

Method Blank

Blank ID: MB for HBN 1820268 [VXX/37162]
Blank Lab ID: 1613785

Matrix: Soil/Solid (dry weight)

QC for Samples:
1212866007, 1212866008, 1212866009, 1212866010

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.17J	2.50	0.750	mg/kg
Surrogates				
4-Bromofluorobenzene (surr)	87	50-150		%

Batch Information

Analytical Batch: VFC15634
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: IJV
Analytical Date/Time: 6/2/2021 12:10:00PM

Prep Batch: VXX37162
Prep Method: SW5035A
Prep Date/Time: 6/2/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 06/23/2021 11:31:38AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37162]
 Blank Spike Lab ID: 1613786
 Date Analyzed: 06/02/2021 11:35

Spike Duplicate ID: LCSD for HBN 1212866 [VXX37162]
 Spike Duplicate Lab ID: 1613787
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1212866007, 1212866008, 1212866009, 1212866010

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	14.5	116	12.5	14.0	112	(60-120)	3.10	(< 20)

Surrogates

4-Bromofluorobenzene (surr)	1.25		88	1.25		97	(50-150)	9.70	
-----------------------------	------	--	----	------	--	----	------------	------	--

Batch Information

Analytical Batch: **VFC15634**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890A PID/FID**
 Analyst: **IJV**

Prep Batch: **VXX37162**
 Prep Method: **SW5035A**
 Prep Date/Time: **06/02/2021 06:00**
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 06/23/2021 11:31:40AM



Method Blank

Blank ID: MB for HBN 1820416 [VXX/37180]
Blank Lab ID: 1614567

Matrix: Soil/Solid (dry weight)

QC for Samples:
1212866007, 1212866008, 1212866009, 1212866010

Results by SW8260D

<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	0.400	ug/kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/kg
1,2-Dichloroethane	1.00U	2.00	0.700	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

Print Date: 06/23/2021 11:31:43AM



Method Blank

Blank ID: MB for HBN 1820416 [VXX/37180]

Blank Lab ID: 1614567

QC for Samples:

1212866007, 1212866008, 1212866009, 1212866010

Matrix: Soil/Solid (dry weight)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloroform	2.00U	4.00	1.00	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	1.50	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	50.0U	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)	97.6	71-136		%
4-Bromofluorobenzene (surr)	97.9	55-151		%
Toluene-d8 (surr)	104	85-116		%

Print Date: 06/23/2021 11:31:43AM



Method Blank

Blank ID: MB for HBN 1820416 [VXX/37180]
Blank Lab ID: 1614567

Matrix: Soil/Solid (dry weight)

QC for Samples:
1212866007, 1212866008, 1212866009, 1212866010

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
------------------	----------------	---------------	-----------	--------------

Batch Information

Analytical Batch: VMS20777	Prep Batch: VXX37180
Analytical Method: SW8260D	Prep Method: SW5035A
Instrument: VRA Agilent GC/MS 7890B/5977A	Prep Date/Time: 6/5/2021 6:00:00AM
Analyst: S.S	Prep Initial Wt./Vol.: 50 g
Analytical Date/Time: 6/5/2021 12:45:00PM	Prep Extract Vol: 25 mL

Print Date: 06/23/2021 11:31:43AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37180]

Blank Spike Lab ID: 1614568

Date Analyzed: 06/05/2021 13:01

Matrix: Soil/Solid (dry weight)

QC for Samples: 1212866007, 1212866008, 1212866009, 1212866010

Results by SW8260D

Parameter	Blank Spike (ug/kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	737	98	(78-125)
1,1,1-Trichloroethane	750	752	100	(73-130)
1,1,2,2-Tetrachloroethane	750	693	92	(70-124)
1,1,2-Trichloroethane	750	738	98	(78-121)
1,1-Dichloroethane	750	736	98	(76-125)
1,1-Dichloroethene	750	786	105	(70-131)
1,1-Dichloropropene	750	760	101	(76-125)
1,2,3-Trichlorobenzene	750	789	105	(66-130)
1,2,3-Trichloropropane	750	736	98	(73-125)
1,2,4-Trichlorobenzene	750	807	108	(67-129)
1,2,4-Trimethylbenzene	750	749	100	(75-123)
1,2-Dibromo-3-chloropropane	750	624	83	(61-132)
1,2-Dibromoethane	750	779	104	(78-122)
1,2-Dichlorobenzene	750	795	106	(78-121)
1,2-Dichloroethane	750	701	94	(73-128)
1,2-Dichloropropane	750	733	98	(76-123)
1,3,5-Trimethylbenzene	750	767	102	(73-124)
1,3-Dichlorobenzene	750	764	102	(77-121)
1,3-Dichloropropane	750	736	98	(77-121)
1,4-Dichlorobenzene	750	767	102	(75-120)
2,2-Dichloropropane	750	743	99	(67-133)
2-Butanone (MEK)	2250	2150	96	(51-148)
2-Chlorotoluene	750	742	99	(75-122)
2-Hexanone	2250	2010	90	(53-145)
4-Chlorotoluene	750	754	101	(72-124)
4-Isopropyltoluene	750	770	103	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2110	94	(65-135)
Acetone	2250	1870	83	(36-164)
Benzene	750	768	102	(77-121)
Bromobenzene	750	813	108	(78-121)
Bromochloromethane	750	806	107	(78-125)
Bromodichloromethane	750	727	97	(75-127)
Bromoform	750	705	94	(67-132)
Bromomethane	750	790	105	(53-143)

Print Date: 06/23/2021 11:31:45AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37180]

Blank Spike Lab ID: 1614568

Date Analyzed: 06/05/2021 13:01

Matrix: Soil/Solid (dry weight)

QC for Samples: 1212866007, 1212866008, 1212866009, 1212866010

Results by SW8260D

Parameter	Blank Spike (ug/kg)			CL
	Spike	Result	Rec (%)	
Carbon disulfide	1130	1100	98	(63-132)
Carbon tetrachloride	750	741	99	(70-135)
Chlorobenzene	750	766	102	(79-120)
Chloroethane	750	670	89	(59-139)
Chloroform	750	740	99	(78-123)
Chloromethane	750	722	96	(50-136)
cis-1,2-Dichloroethene	750	783	104	(77-123)
cis-1,3-Dichloropropene	750	718	96	(74-126)
Dibromochloromethane	750	714	95	(74-126)
Dibromomethane	750	767	102	(78-125)
Dichlorodifluoromethane	750	932	124	(29-149)
Ethylbenzene	750	762	102	(76-122)
Freon-113	1130	1250	111	(66-136)
Hexachlorobutadiene	750	775	103	(61-135)
Isopropylbenzene (Cumene)	750	762	102	(68-134)
Methylene chloride	750	755	101	(70-128)
Methyl-t-butyl ether	1130	1100	98	(73-125)
Naphthalene	750	775	103	(62-129)
n-Butylbenzene	750	774	103	(70-128)
n-Propylbenzene	750	771	103	(73-125)
o-Xylene	750	766	102	(77-123)
P & M -Xylene	1500	1520	102	(77-124)
sec-Butylbenzene	750	755	101	(73-126)
Styrene	750	763	102	(76-124)
tert-Butylbenzene	750	777	104	(73-125)
Tetrachloroethene	750	830	111	(73-128)
Toluene	750	736	98	(77-121)
trans-1,2-Dichloroethene	750	755	101	(74-125)
trans-1,3-Dichloropropene	750	689	92	(71-130)
Trichloroethene	750	781	104	(77-123)
Trichlorofluoromethane	750	1210	161	* (62-140)
Vinyl acetate	750	702	94	(50-151)
Vinyl chloride	750	770	103	(56-135)
Xylenes (total)	2250	2290	102	(78-124)

Print Date: 06/23/2021 11:31:45AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37180]

Blank Spike Lab ID: 1614568

Date Analyzed: 06/05/2021 13:01

Matrix: Soil/Solid (dry weight)

QC for Samples: 1212866007, 1212866008, 1212866009, 1212866010

Results by SW8260D

Parameter	Blank Spike (ug/kg)			CL
	Spike	Result	Rec (%)	
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	99		(71-136)
4-Bromofluorobenzene (surr)	750	96		(55-151)
Toluene-d8 (surr)	750	105		(85-116)

Batch Information

Analytical Batch: **VMS20777**

Analytical Method: **SW8260D**

Instrument: **VRA Agilent GC/MS 7890B/5977A**

Analyst: **S.S**

Prep Batch: **VXX37180**

Prep Method: **SW5035A**

Prep Date/Time: **06/05/2021 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: 1614569
 MS Sample ID: 1614570 MS
 MSD Sample ID: 1614571 MSD

Analysis Date: 06/05/2021 17:37
 Analysis Date: 06/05/2021 14:52
 Analysis Date: 06/05/2021 15:07
 Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1212866007, 1212866008, 1212866009, 1212866010

Results by SW8260D

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	16.8U	1260	1250	99	1260	1240	98	78-125	1.10	(< 20)
1,1,1-Trichloroethane	20.9U	1260	1260	100	1260	1260	100	73-130	0.27	(< 20)
1,1,2,2-Tetrachloroethane	1.68U	1260	1160	92	1260	1170	93	70-124	0.93	(< 20)
1,1,2-Trichloroethane	0.670U	1260	1260	100	1260	1270	101	78-121	0.20	(< 20)
1,1-Dichloroethane	20.9U	1260	1250	99	1260	1250	99	76-125	0.00	(< 20)
1,1-Dichloroethene	20.9U	1260	1350	107	1260	1320	104	70-131	2.30	(< 20)
1,1-Dichloropropene	20.9U	1260	1270	101	1260	1260	100	76-125	0.86	(< 20)
1,2,3-Trichlorobenzene	42.0U	1260	1320	105	1260	1400	111	66-130	6.10	(< 20)
1,2,3-Trichloropropane	1.68U	1260	1230	98	1260	1250	99	73-125	1.60	(< 20)
1,2,4-Trichlorobenzene	20.9U	1260	1340	106	1260	1380	110	67-129	3.50	(< 20)
1,2,4-Trimethylbenzene	42.0U	1260	1250	100	1260	1260	100	75-123	0.23	(< 20)
1,2-Dibromo-3-chloropropane	84.0U	1260	1090	86	1260	1120	89	61-132	3.20	(< 20)
1,2-Dibromoethane	0.840U	1260	1330	106	1260	1330	106	78-122	0.38	(< 20)
1,2-Dichlorobenzene	20.9U	1260	1330	106	1260	1300	103	78-121	2.20	(< 20)
1,2-Dichloroethane	1.68U	1260	1190	95	1260	1190	95	73-128	0.42	(< 20)
1,2-Dichloropropane	8.40U	1260	1240	98	1260	1240	98	76-123	0.00	(< 20)
1,3,5-Trimethylbenzene	20.9U	1260	1260	100	1260	1260	100	73-124	0.43	(< 20)
1,3-Dichlorobenzene	20.9U	1260	1240	99	1260	1270	101	77-121	1.80	(< 20)
1,3-Dichloropropane	8.40U	1260	1270	100	1260	1260	100	77-121	0.70	(< 20)
1,4-Dichlorobenzene	20.9U	1260	1280	102	1260	1270	101	75-120	0.95	(< 20)
2,2-Dichloropropane	20.9U	1260	1260	100	1260	1250	100	67-133	0.43	(< 20)
2-Butanone (MEK)	210U	3780	3560	94	3780	3700	98	51-148	3.90	(< 20)
2-Chlorotoluene	20.9U	1260	1240	99	1260	1250	99	75-122	0.74	(< 20)
2-Hexanone	84.0U	3780	3450	91	3780	3510	93	53-145	1.80	(< 20)
4-Chlorotoluene	20.9U	1260	1260	100	1260	1260	100	72-124	0.47	(< 20)
4-Isopropyltoluene	84.0U	1260	1250	99	1260	1240	99	73-127	0.37	(< 20)
4-Methyl-2-pentanone (MIBK)	210U	3780	3570	95	3780	3640	96	65-135	1.90	(< 20)
Acetone	210U	3780	3110	82	3780	3250	86	36-164	4.50	(< 20)
Benzene	10.5U	1260	1280	102	1260	1290	103	77-121	0.55	(< 20)
Bromobenzene	20.9U	1260	1340	107	1260	1370	109	78-121	2.00	(< 20)
Bromochloromethane	20.9U	1260	1360	108	1260	1370	109	78-125	0.46	(< 20)
Bromodichloromethane	1.68U	1260	1240	98	1260	1240	98	75-127	0.10	(< 20)
Bromoform	20.9U	1260	1230	98	1260	1220	97	67-132	0.68	(< 20)
Bromomethane	16.8U	1260	1340	106	1260	1310	104	53-143	2.50	(< 20)
Carbon disulfide	84.0U	1890	1840	97	1890	1820	97	63-132	0.80	(< 20)
Carbon tetrachloride	10.5U	1260	1240	99	1260	1240	98	70-135	0.10	(< 20)
Chlorobenzene	20.9U	1260	1290	102	1260	1290	103	79-120	0.16	(< 20)

Print Date: 06/23/2021 11:31:46AM

Matrix Spike Summary

Original Sample ID: 1614569
 MS Sample ID: 1614570 MS
 MSD Sample ID: 1614571 MSD

Analysis Date: 06/05/2021 17:37
 Analysis Date: 06/05/2021 14:52
 Analysis Date: 06/05/2021 15:07
 Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1212866007, 1212866008, 1212866009, 1212866010

Results by SW8260D

Parameter	Sample	Matrix Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroethane	168U	1260	1090	86	1260	1060	85	59-139	2.10	(< 20)
Chloroform	3.36U	1260	1250	99	1260	1250	100	78-123	0.60	(< 20)
Chloromethane	20.9U	1260	1140	90	1260	1150	91	50-136	0.84	(< 20)
cis-1,2-Dichloroethene	20.9U	1260	1300	103	1260	1300	104	77-123	0.39	(< 20)
cis-1,3-Dichloropropene	10.5U	1260	1210	96	1260	1220	97	74-126	0.17	(< 20)
Dibromochloromethane	4.20U	1260	1230	98	1260	1230	97	74-126	0.44	(< 20)
Dibromomethane	20.9U	1260	1300	103	1260	1310	104	78-125	1.00	(< 20)
Dichlorodifluoromethane	42.0U	1260	1310	104	1260	1340	107	29-149	2.80	(< 20)
Ethylbenzene	20.9U	1260	1290	103	1260	1280	101	76-122	1.50	(< 20)
Freon-113	84.0U	1890	2080	110	1890	2040	108	66-136	1.80	(< 20)
Hexachlorobutadiene	16.8U	1260	1270	101	1260	1280	101	61-135	0.56	(< 20)
Isopropylbenzene (Cumene)	20.9U	1260	1280	102	1260	1260	100	68-134	1.70	(< 20)
Methylene chloride	84.0U	1260	1290	102	1260	1280	102	70-128	0.59	(< 20)
Methyl-t-butyl ether	84.0U	1890	1850	98	1890	1890	100	73-125	2.00	(< 20)
Naphthalene	20.9U	1260	1310	104	1260	1400	111	62-129	7.00	(< 20)
n-Butylbenzene	20.9U	1260	1250	100	1260	1240	99	70-128	0.87	(< 20)
n-Propylbenzene	20.9U	1260	1280	102	1260	1250	100	73-125	2.40	(< 20)
o-Xylene	20.9U	1260	1300	104	1260	1290	103	77-123	0.81	(< 20)
P & M -Xylene	42.0U	2520	2580	102	2520	2550	101	77-124	0.96	(< 20)
sec-Butylbenzene	20.9U	1260	1240	99	1260	1210	96	73-126	2.70	(< 20)
Styrene	20.9U	1260	1300	103	1260	1280	102	76-124	0.94	(< 20)
tert-Butylbenzene	20.9U	1260	1260	100	1260	1250	100	73-125	0.73	(< 20)
Tetrachloroethene	10.5U	1260	1420	112	1260	1320	105	73-128	7.00	(< 20)
Toluene	20.9U	1260	1250	100	1260	1240	98	77-121	1.30	(< 20)
trans-1,2-Dichloroethene	20.9U	1260	1330	106	1260	1260	100	74-125	5.60	(< 20)
trans-1,3-Dichloropropene	10.5U	1260	1190	94	1260	1180	94	71-130	0.25	(< 20)
Trichloroethene	4.20U	1260	1300	104	1260	1300	103	77-123	0.74	(< 20)
Trichlorofluoromethane	42.0U	1260	1990	158 *	1260	1940	154 *	62-140	2.80	(< 20)
Vinyl acetate	84.0U	1260	1180	94	1260	1200	96	50-151	2.00	(< 20)
Vinyl chloride	0.670U	1260	1300	104	1260	1160	92	56-135	11.60	(< 20)
Xylenes (total)	63.0U	3780	3880	103	3780	3850	102	78-124	0.91	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		1260	1240	99	1260	1260	100	71-136	1.40	
4-Bromofluorobenzene (surr)		1160	691	59	1160	688	59	55-151	0.36	
Toluene-d8 (surr)		1260	1340	106	1260	1330	106	85-116	0.31	

Print Date: 06/23/2021 11:31:46AM

Matrix Spike Summary

Original Sample ID: 1614569
 MS Sample ID: 1614570 MS
 MSD Sample ID: 1614571 MSD

Analysis Date:
 Analysis Date: 06/05/2021 14:52
 Analysis Date: 06/05/2021 15:07
 Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1212866007, 1212866008, 1212866009, 1212866010

Results by SW8260D

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			

Batch Information

Analytical Batch: VMS20777
 Analytical Method: SW8260D
 Instrument: VRA Agilent GC/MS 7890B/5977A
 Analyst: S.S
 Analytical Date/Time: 6/5/2021 2:52:00PM

Prep Batch: VXX37180
 Prep Method: Vol. Extraction SW8260 Field Extracted L
 Prep Date/Time: 6/5/2021 6:00:00AM
 Prep Initial Wt./Vol.: 214.79g
 Prep Extract Vol: 180.20mL

Print Date: 06/23/2021 11:31:46AM



Method Blank

Blank ID: MB for HBN 1820604 [VXX/37205]

Matrix: Water (Surface, Eff., Ground)

Blank Lab ID: 1615504

QC for Samples:

1212866001, 1212866002, 1212866003, 1212866006

Results by SW8260D

<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: 06/23/2021 11:31:48AM



Method Blank

Blank ID: MB for HBN 1820604 [VXX/37205]

Blank Lab ID: 1615504

QC for Samples:

1212866001, 1212866002, 1212866003, 1212866006

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<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)	103	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	99.9	89-112		%

Print Date: 06/23/2021 11:31:48AM



Method Blank

Blank ID: MB for HBN 1820604 [VXX/37205]
Blank Lab ID: 1615504

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1212866001, 1212866002, 1212866003, 1212866006

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
------------------	----------------	---------------	-----------	--------------

Batch Information

Analytical Batch: VMS20792
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JMG
Analytical Date/Time: 6/9/2021 11:50:00AM

Prep Batch: VXX37205
Prep Method: SW5030B
Prep Date/Time: 6/9/2021 11:30:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/23/2021 11:31:48AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37205]
 Blank Spike Lab ID: 1615505
 Date Analyzed: 06/09/2021 18:50

Spike Duplicate ID: LCSD for HBN 1212866 [VXX37205]
 Spike Duplicate Lab ID: 1615506
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866001, 1212866002, 1212866003, 1212866006

Results by SW8260D

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	30.5	102	30	30.1	100	(78-124)	1.30	(< 20)
1,1,1-Trichloroethane	30	29.3	98	30	29.2	98	(74-131)	0.35	(< 20)
1,1,2,2-Tetrachloroethane	30	29.4	98	30	29.5	98	(71-121)	0.40	(< 20)
1,1,2-Trichloroethane	30	29.7	99	30	29.7	99	(80-119)	0.03	(< 20)
1,1-Dichloroethane	30	29.3	98	30	29.2	97	(77-125)	0.25	(< 20)
1,1-Dichloroethene	30	29.5	98	30	29.1	97	(71-131)	1.50	(< 20)
1,1-Dichloropropene	30	29.4	98	30	29.3	98	(79-125)	0.18	(< 20)
1,2,3-Trichlorobenzene	30	29.7	99	30	29.9	100	(69-129)	0.62	(< 20)
1,2,3-Trichloropropane	30	29.1	97	30	29.4	98	(73-122)	0.79	(< 20)
1,2,4-Trichlorobenzene	30	29.8	99	30	30.0	100	(69-130)	0.66	(< 20)
1,2,4-Trimethylbenzene	30	29.6	99	30	29.5	98	(79-124)	0.40	(< 20)
1,2-Dibromo-3-chloropropane	30	28.9	97	30	29.2	97	(62-128)	0.96	(< 20)
1,2-Dibromoethane	30	29.6	99	30	29.3	98	(77-121)	1.10	(< 20)
1,2-Dichlorobenzene	30	29.4	98	30	29.6	99	(80-119)	0.77	(< 20)
1,2-Dichloroethane	30	28.8	96	30	28.9	96	(73-128)	0.34	(< 20)
1,2-Dichloropropane	30	30.3	101	30	30.0	100	(78-122)	1.10	(< 20)
1,3,5-Trimethylbenzene	30	29.9	100	30	29.6	99	(75-124)	1.10	(< 20)
1,3-Dichlorobenzene	30	29.5	98	30	29.4	98	(80-119)	0.28	(< 20)
1,3-Dichloropropane	30	30.1	100	30	29.9	100	(80-119)	0.53	(< 20)
1,4-Dichlorobenzene	30	29.3	98	30	29.2	98	(79-118)	0.29	(< 20)
2,2-Dichloropropane	30	29.4	98	30	29.4	98	(60-139)	0.28	(< 20)
2-Butanone (MEK)	90	85.6	95	90	87.9	98	(56-143)	2.70	(< 20)
2-Chlorotoluene	30	29.6	99	30	29.2	97	(79-122)	1.50	(< 20)
2-Hexanone	90	88.1	98	90	88.4	98	(57-139)	0.36	(< 20)
4-Chlorotoluene	30	29.2	97	30	29.2	97	(78-122)	0.16	(< 20)
4-Isopropyltoluene	30	29.8	99	30	29.6	99	(77-127)	0.58	(< 20)
4-Methyl-2-pentanone (MIBK)	90	89.1	99	90	90.8	101	(67-130)	1.90	(< 20)
Benzene	30	29.5	99	30	29.3	98	(79-120)	0.91	(< 20)
Bromobenzene	30	29.5	98	30	29.4	98	(80-120)	0.15	(< 20)
Bromochloromethane	30	29.5	99	30	29.5	98	(78-123)	0.04	(< 20)
Bromodichloromethane	30	30.1	100	30	30.2	101	(79-125)	0.30	(< 20)
Bromoform	30	30.9	103	30	31.0	103	(66-130)	0.47	(< 20)
Bromomethane	30	32.6	109	30	31.3	104	(53-141)	4.00	(< 20)
Carbon disulfide	45	43.8	97	45	43.6	97	(64-133)	0.47	(< 20)

Print Date: 06/23/2021 11:31:50AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37205]
 Blank Spike Lab ID: 1615505
 Date Analyzed: 06/09/2021 18:50

Spike Duplicate ID: LCSD for HBN 1212866 [VXX37205]
 Spike Duplicate Lab ID: 1615506
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866001, 1212866002, 1212866003, 1212866006

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	30.3	101	30	30.2	101	(72-136)	0.56	(< 20)
Chlorobenzene	30	29.6	99	30	29.4	98	(82-118)	0.93	(< 20)
Chloroethane	30	29.8	99	30	27.6	92	(60-138)	7.70	(< 20)
Chloroform	30	29.1	97	30	29.2	97	(79-124)	0.38	(< 20)
Chloromethane	30	29.5	98	30	29.0	97	(50-139)	1.70	(< 20)
cis-1,2-Dichloroethene	30	29.3	98	30	28.8	96	(78-123)	1.50	(< 20)
cis-1,3-Dichloropropene	30	30.2	101	30	30.3	101	(75-124)	0.35	(< 20)
Dibromochloromethane	30	30.7	102	30	30.3	101	(74-126)	1.30	(< 20)
Dibromomethane	30	29.1	97	30	29.3	98	(79-123)	0.70	(< 20)
Dichlorodifluoromethane	30	27.8	93	30	27.4	91	(32-152)	1.50	(< 20)
Ethylbenzene	30	29.2	97	30	29.2	97	(79-121)	0.10	(< 20)
Freon-113	45	44.8	100	45	44.6	99	(70-136)	0.39	(< 20)
Hexachlorobutadiene	30	29.4	98	30	29.8	99	(66-134)	1.10	(< 20)
Isopropylbenzene (Cumene)	30	30.0	100	30	29.5	98	(72-131)	1.80	(< 20)
Methylene chloride	30	28.9	96	30	29.0	97	(74-124)	0.52	(< 20)
Methyl-t-butyl ether	45	45.0	100	45	45.4	101	(71-124)	0.89	(< 20)
Naphthalene	30	30.7	102	30	31.1	104	(61-128)	1.20	(< 20)
n-Butylbenzene	30	29.5	98	30	29.3	98	(75-128)	0.55	(< 20)
n-Propylbenzene	30	29.5	99	30	29.5	98	(76-126)	0.22	(< 20)
o-Xylene	30	29.3	98	30	29.1	97	(78-122)	0.75	(< 20)
P & M -Xylene	60	58.5	97	60	57.6	96	(80-121)	1.40	(< 20)
sec-Butylbenzene	30	29.6	99	30	29.4	98	(77-126)	0.66	(< 20)
Styrene	30	29.8	99	30	29.5	98	(78-123)	0.97	(< 20)
tert-Butylbenzene	30	29.9	100	30	29.7	99	(78-124)	0.57	(< 20)
Tetrachloroethene	30	29.9	100	30	29.3	98	(74-129)	1.80	(< 20)
Toluene	30	28.9	96	30	28.6	95	(80-121)	0.90	(< 20)
trans-1,2-Dichloroethene	30	29.2	97	30	29.4	98	(75-124)	0.48	(< 20)
trans-1,3-Dichloropropene	30	31.6	105	30	31.4	105	(73-127)	0.86	(< 20)
Trichloroethene	30	29.3	98	30	29.2	97	(79-123)	0.26	(< 20)
Trichlorofluoromethane	30	30.9	103	30	29.7	99	(65-141)	3.90	(< 20)
Vinyl acetate	30	31.3	104	30	31.3	104	(54-146)	0.01	(< 20)
Vinyl chloride	30	29.6	99	30	28.8	96	(58-137)	2.70	(< 20)
Xylenes (total)	90	87.8	98	90	86.7	96	(79-121)	1.20	(< 20)

Print Date: 06/23/2021 11:31:50AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37205]
 Blank Spike Lab ID: 1615505
 Date Analyzed: 06/09/2021 18:50

Spike Duplicate ID: LCSD for HBN 1212866 [VXX37205]
 Spike Duplicate Lab ID: 1615506
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866001, 1212866002, 1212866003, 1212866006

Results by SW8260D

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		99	30		99	(81-118)	0.67	
4-Bromofluorobenzene (surr)	30		100	30		99	(85-114)	1.30	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.03	

Batch Information

Analytical Batch: **VMS20792**
 Analytical Method: **SW8260D**
 Instrument: **VPA 780/5975 GC/MS**
 Analyst: **JMG**

Prep Batch: **VXX37205**
 Prep Method: **SW5030B**
 Prep Date/Time: **06/09/2021 11:30**
 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 1820663 [VXX/37213]

Blank Lab ID: 1615800

QC for Samples:

1212866004, 1212866005

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<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: 06/23/2021 11:31:53AM

Method Blank

Blank ID: MB for HBN 1820663 [VXX/37213]

Blank Lab ID: 1615800

QC for Samples:

1212866004, 1212866005

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<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)	103	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	100	89-112		%

Print Date: 06/23/2021 11:31:53AM

Method Blank

Blank ID: MB for HBN 1820663 [VXX/37213]

Blank Lab ID: 1615800

QC for Samples:

1212866004, 1212866005

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
------------------	----------------	---------------	-----------	--------------

Batch Information

Analytical Batch: VMS20795
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JMG
Analytical Date/Time: 6/10/2021 12:06:00PM

Prep Batch: VXX37213
Prep Method: SW5030B
Prep Date/Time: 6/10/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/23/2021 11:31:53AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37213]
 Blank Spike Lab ID: 1615801
 Date Analyzed: 06/10/2021 12:22

Spike Duplicate ID: LCSD for HBN 1212866
 [VXX37213]
 Spike Duplicate Lab ID: 1615802
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866004, 1212866005

Results by SW8260D

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	30.3	101	30	29.4	98	(78-124)	3.10	(< 20)
1,1,1-Trichloroethane	30	30.2	101	30	29.2	98	(74-131)	3.10	(< 20)
1,1,2,2-Tetrachloroethane	30	29.1	97	30	28.3	95	(71-121)	2.80	(< 20)
1,1,2-Trichloroethane	30	29.2	97	30	28.7	96	(80-119)	1.60	(< 20)
1,1-Dichloroethane	30	29.5	98	30	28.8	96	(77-125)	2.60	(< 20)
1,1-Dichloroethene	30	30.3	101	30	29.4	98	(71-131)	2.90	(< 20)
1,1-Dichloropropene	30	30.6	102	30	29.5	98	(79-125)	3.60	(< 20)
1,2,3-Trichlorobenzene	30	28.5	95	30	27.9	93	(69-129)	2.00	(< 20)
1,2,3-Trichloropropane	30	28.7	96	30	28.1	94	(73-122)	2.10	(< 20)
1,2,4-Trichlorobenzene	30	28.6	95	30	28.4	95	(69-130)	0.50	(< 20)
1,2,4-Trimethylbenzene	30	29.3	98	30	28.6	96	(79-124)	2.20	(< 20)
1,2-Dibromo-3-chloropropane	30	27.9	93	30	27.1	90	(62-128)	2.90	(< 20)
1,2-Dibromoethane	30	28.9	96	30	28.3	94	(77-121)	1.90	(< 20)
1,2-Dichlorobenzene	30	29.3	98	30	28.7	96	(80-119)	2.10	(< 20)
1,2-Dichloroethane	30	28.4	95	30	27.6	92	(73-128)	2.80	(< 20)
1,2-Dichloropropane	30	30.0	100	30	29.2	97	(78-122)	2.60	(< 20)
1,3,5-Trimethylbenzene	30	29.7	99	30	29.0	97	(75-124)	2.50	(< 20)
1,3-Dichlorobenzene	30	29.8	99	30	28.8	96	(80-119)	3.10	(< 20)
1,3-Dichloropropane	30	29.5	98	30	28.9	96	(80-119)	2.20	(< 20)
1,4-Dichlorobenzene	30	30.0	100	30	29.0	97	(79-118)	3.40	(< 20)
2,2-Dichloropropane	30	30.2	101	30	29.3	98	(60-139)	3.30	(< 20)
2-Butanone (MEK)	90	78.8	88	90	76.4	85	(56-143)	3.10	(< 20)
2-Chlorotoluene	30	30.0	100	30	29.1	97	(79-122)	2.90	(< 20)
2-Hexanone	90	82.7	92	90	80.7	90	(57-139)	2.40	(< 20)
4-Chlorotoluene	30	30.1	100	30	29.3	98	(78-122)	2.70	(< 20)
4-Isopropyltoluene	30	29.5	98	30	28.9	96	(77-127)	1.90	(< 20)
4-Methyl-2-pentanone (MIBK)	90	85.5	95	90	83.2	93	(67-130)	2.70	(< 20)
Benzene	30	29.7	99	30	29.0	97	(79-120)	2.30	(< 20)
Bromobenzene	30	29.8	99	30	29.2	97	(80-120)	2.00	(< 20)
Bromochloromethane	30	29.3	98	30	28.8	96	(78-123)	1.80	(< 20)
Bromodichloromethane	30	29.9	100	30	29.2	97	(79-125)	2.50	(< 20)
Bromoform	30	30.5	102	30	30.1	100	(66-130)	1.40	(< 20)
Bromomethane	30	29.1	97	30	29.6	99	(53-141)	1.80	(< 20)
Carbon disulfide	45	44.8	100	45	43.4	96	(64-133)	3.30	(< 20)

Print Date: 06/23/2021 11:31:55AM



Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37213]
 Blank Spike Lab ID: 1615801
 Date Analyzed: 06/10/2021 12:22

Spike Duplicate ID: LCSD for HBN 1212866 [VXX37213]
 Spike Duplicate Lab ID: 1615802
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866004, 1212866005

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	31.4	105	30	30.4	101	(72-136)	3.10	(< 20)
Chlorobenzene	30	29.7	99	30	28.9	97	(82-118)	2.40	(< 20)
Chloroethane	30	39.2	131	30	36.7	122	(60-138)	6.70	(< 20)
Chloroform	30	29.3	98	30	28.6	95	(79-124)	2.50	(< 20)
Chloromethane	30	29.0	97	30	28.5	95	(50-139)	1.80	(< 20)
cis-1,2-Dichloroethene	30	29.1	97	30	28.2	94	(78-123)	3.20	(< 20)
cis-1,3-Dichloropropene	30	30.1	100	30	29.4	98	(75-124)	2.50	(< 20)
Dibromochloromethane	30	30.3	101	30	29.5	98	(74-126)	2.50	(< 20)
Dibromomethane	30	29.0	97	30	27.9	93	(79-123)	3.80	(< 20)
Dichlorodifluoromethane	30	31.2	104	30	30.0	100	(32-152)	3.90	(< 20)
Ethylbenzene	30	29.9	100	30	28.9	96	(79-121)	3.30	(< 20)
Freon-113	45	47.1	105	45	45.6	101	(70-136)	3.30	(< 20)
Hexachlorobutadiene	30	29.4	98	30	28.4	95	(66-134)	3.70	(< 20)
Isopropylbenzene (Cumene)	30	29.9	100	30	29.3	98	(72-131)	2.10	(< 20)
Methylene chloride	30	28.5	95	30	28.0	93	(74-124)	2.00	(< 20)
Methyl-t-butyl ether	45	43.6	97	45	43.0	96	(71-124)	1.60	(< 20)
Naphthalene	30	30.0	100	30	29.8	99	(61-128)	0.87	(< 20)
n-Butylbenzene	30	28.8	96	30	28.1	94	(75-128)	2.70	(< 20)
n-Propylbenzene	30	30.0	100	30	29.4	98	(76-126)	2.10	(< 20)
o-Xylene	30	29.6	99	30	28.8	96	(78-122)	2.80	(< 20)
P & M -Xylene	60	58.9	98	60	57.6	96	(80-121)	2.20	(< 20)
sec-Butylbenzene	30	29.3	98	30	28.3	94	(77-126)	3.70	(< 20)
Styrene	30	30.0	100	30	29.1	97	(78-123)	3.00	(< 20)
tert-Butylbenzene	30	29.4	98	30	29.1	97	(78-124)	1.20	(< 20)
Tetrachloroethene	30	30.9	103	30	29.8	99	(74-129)	3.40	(< 20)
Toluene	30	29.2	98	30	28.3	94	(80-121)	3.20	(< 20)
trans-1,2-Dichloroethene	30	29.9	100	30	28.9	96	(75-124)	3.40	(< 20)
trans-1,3-Dichloropropene	30	30.6	102	30	30.2	101	(73-127)	1.30	(< 20)
Trichloroethene	30	30.2	101	30	29.2	98	(79-123)	3.20	(< 20)
Trichlorofluoromethane	30	32.9	110	30	31.5	105	(65-141)	4.60	(< 20)
Vinyl acetate	30	30.1	100	30	29.4	98	(54-146)	2.40	(< 20)
Vinyl chloride	30	31.5	105	30	30.0	100	(58-137)	4.80	(< 20)
Xylenes (total)	90	88.6	98	90	86.4	96	(79-121)	2.40	(< 20)

Print Date: 06/23/2021 11:31:55AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [VXX37213]
 Blank Spike Lab ID: 1615801
 Date Analyzed: 06/10/2021 12:22

Spike Duplicate ID: LCSD for HBN 1212866 [VXX37213]
 Spike Duplicate Lab ID: 1615802
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866004, 1212866005

Results by SW8260D

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		97	30		97	(81-118)	0.40	
4-Bromofluorobenzene (surr)	30		100	30		101	(85-114)	0.86	
Toluene-d8 (surr)	30		101	30		101	(89-112)	0.22	

Batch Information

Analytical Batch: **VMS20795**
 Analytical Method: **SW8260D**
 Instrument: **VPA 780/5975 GC/MS**
 Analyst: **JMG**

Prep Batch: **VXX37213**
 Prep Method: **SW5030B**
 Prep Date/Time: **06/10/2021 06:00**
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 06/23/2021 11:31:55AM



Method Blank

Blank ID: MB for HBN 1820269 [XXX/44904]
Blank Lab ID: 1613788

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1212866001, 1212866002, 1212866003, 1212866004, 1212866005

Results by 8270D SIM LV (PAH)

Parameter	Results	LOQ/CL	DL	Units
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)	50.9	42-86		%
Fluoranthene-d10 (surr)	67.3	50-97		%

Batch Information

Analytical Batch: XMS12650
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: LAW
Analytical Date/Time: 6/6/2021 7:51:00PM

Prep Batch: XXX44904
Prep Method: SW3535A
Prep Date/Time: 6/3/2021 5:29:35PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 06/23/2021 11:31:58AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [XXX44904]
 Blank Spike Lab ID: 1613789
 Date Analyzed: 06/06/2021 20:12

Spike Duplicate ID: LCSD for HBN 1212866 [XXX44904]
 Spike Duplicate Lab ID: 1613790
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866001, 1212866002, 1212866003, 1212866004, 1212866005

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	1.23	61	2	1.02	51	(41-115)	18.60	(< 20)
2-Methylnaphthalene	2	1.19	59	2	0.984	49	(39-114)	18.80	(< 20)
Acenaphthene	2	1.40	70	2	1.21	61	(48-114)	14.40	(< 20)
Acenaphthylene	2	1.42	71	2	1.20	60	(35-121)	16.80	(< 20)
Anthracene	2	1.42	71	2	1.25	63	(53-119)	12.80	(< 20)
Benzo(a)Anthracene	2	1.50	75	2	1.40	70	(59-120)	6.50	(< 20)
Benzo[a]pyrene	2	1.63	81	2	1.45	73	(53-120)	11.50	(< 20)
Benzo[b]Fluoranthene	2	1.61	81	2	1.49	75	(53-126)	7.80	(< 20)
Benzo[g,h,i]perylene	2	1.65	83	2	1.51	76	(44-128)	9.20	(< 20)
Benzo[k]fluoranthene	2	1.63	82	2	1.50	75	(54-125)	8.00	(< 20)
Chrysene	2	1.60	80	2	1.49	74	(57-120)	7.50	(< 20)
Dibenzo[a,h]anthracene	2	1.71	85	2	1.55	78	(44-131)	9.50	(< 20)
Fluoranthene	2	1.47	74	2	1.36	68	(58-120)	7.90	(< 20)
Fluorene	2	1.43	71	2	1.25	62	(50-118)	13.50	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.67	84	2	1.52	76	(48-130)	9.30	(< 20)
Naphthalene	2	1.23	61	2	1.02	51	(43-114)	18.90	(< 20)
Phenanthrene	2	1.43	72	2	1.29	65	(53-115)	10.60	(< 20)
Pyrene	2	1.48	74	2	1.37	69	(53-121)	7.60	(< 20)

Surrogates

2-Methylnaphthalene-d10 (surr)	2		56	2		47	(42-86)	17.60	
Fluoranthene-d10 (surr)	2		70	2		66	(50-97)	5.80	

Batch Information

Analytical Batch: XMS12650
 Analytical Method: 8270D SIM LV (PAH)
 Instrument: SVA Agilent 780/5975 GC/MS
 Analyst: LAW

Prep Batch: XXX44904
 Prep Method: SW3535A
 Prep Date/Time: 06/03/2021 17:29
 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 1820277 [XXX/44907]
 Blank Lab ID: 1613824

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
 1212866001, 1212866002, 1212866003, 1212866004, 1212866005

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	0.0570J	0.150	0.0450	mg/L
Surrogates				
5a Androstane (surr)	87.4	60-120		%

Batch Information

Analytical Batch: XFC15943
 Analytical Method: AK102
 Instrument: Agilent 7890B F
 Analyst: IVM
 Analytical Date/Time: 6/4/2021 6:37:00PM

Prep Batch: XXX44907
 Prep Method: SW3520C
 Prep Date/Time: 6/3/2021 4:28:29PM
 Prep Initial Wt./Vol.: 1000 mL
 Prep Extract Vol: 1 mL

Print Date: 06/23/2021 11:32:03AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [XXX44907]
 Blank Spike Lab ID: 1613825
 Date Analyzed: 06/04/2021 18:47

Spike Duplicate ID: LCSD for HBN 1212866
 [XXX44907]
 Spike Duplicate Lab ID: 1613826
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1212866001, 1212866002, 1212866003, 1212866004, 1212866005

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	5	5.02	100	5	5.48	110	(75-125)	8.80	(< 20)
Surrogates									
5a Androstane (surr)	0.1		102	0.1		114	(60-120)	11.40	

Batch Information

Analytical Batch: **XFC15943**
 Analytical Method: **AK102**
 Instrument: **Agilent 7890B F**
 Analyst: **IVM**

Prep Batch: **XXX44907**
 Prep Method: **SW3520C**
 Prep Date/Time: **06/03/2021 16:28**
 Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

Print Date: 06/23/2021 11:32:05AM

Method Blank

Blank ID: MB for HBN 1820291 [XXX/44908]
 Blank Lab ID: 1613917

Matrix: Soil/Solid (dry weight)

QC for Samples:
 1212866007, 1212866008, 1212866009

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	9.39J	20.0	6.20	mg/kg
Surrogates				
5a Androstane (surr)	93.4	60-120		%

Batch Information

Analytical Batch: XFC15942
 Analytical Method: AK102
 Instrument: Agilent 7890B F
 Analyst: IVM
 Analytical Date/Time: 6/4/2021 9:16:00AM

Prep Batch: XXX44908
 Prep Method: SW3550C
 Prep Date/Time: 6/4/2021 6:48:38AM
 Prep Initial Wt./Vol.: 30 g
 Prep Extract Vol: 5 mL

Print Date: 06/23/2021 11:32:07AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [XXX44908]
 Blank Spike Lab ID: 1613918
 Date Analyzed: 06/04/2021 09:26

Spike Duplicate ID: LCSD for HBN 1212866
 [XXX44908]
 Spike Duplicate Lab ID: 1613919
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1212866007, 1212866008, 1212866009

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	667	676	101	667	689	103	(75-125)	1.90	(< 20)

Surrogates

5a Androstane (surr)	16.7	96	16.7	99	(60-120)	2.80
----------------------	------	----	------	----	------------	------

Batch Information

Analytical Batch: **XFC15942**
 Analytical Method: **AK102**
 Instrument: **Agilent 7890B F**
 Analyst: **IVM**

Prep Batch: **XXX44908**
 Prep Method: **SW3550C**
 Prep Date/Time: **06/04/2021 06:48**
 Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1820323 [XXX/44914]
Blank Lab ID: 1614095

Matrix: Soil/Solid (dry weight)

QC for Samples:
1212866007, 1212866008, 1212866009

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)	88.5	58-103		%
Fluoranthene-d10 (surr)	87.4	54-113		%

Batch Information

Analytical Batch: XMS12650
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: LAW
Analytical Date/Time: 6/6/2021 6:08:00PM

Prep Batch: XXX44914
Prep Method: SW3550C
Prep Date/Time: 6/4/2021 1:07:45PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Print Date: 06/23/2021 11:32:12AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1212866 [XXX44914]

Blank Spike Lab ID: 1614096

Date Analyzed: 06/06/2021 18:29

Matrix: Soil/Solid (dry weight)

QC for Samples: 1212866007, 1212866008, 1212866009

Results by 8270D SIM (PAH)

Blank Spike (ug/kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	107	97	(43-111)
2-Methylnaphthalene	111	109	98	(39-114)
Acenaphthene	111	108	97	(44-111)
Acenaphthylene	111	100	90	(39-116)
Anthracene	111	101	91	(50-114)
Benzo(a)Anthracene	111	104	93	(54-122)
Benzo[a]pyrene	111	97.8	88	(50-125)
Benzo[b]Fluoranthene	111	109	99	(53-128)
Benzo[g,h,i]perylene	111	108	97	(49-127)
Benzo[k]fluoranthene	111	106	95	(56-123)
Chrysene	111	108	97	(57-118)
Dibenzo[a,h]anthracene	111	110	99	(50-129)
Fluoranthene	111	106	96	(55-119)
Fluorene	111	109	98	(47-114)
Indeno[1,2,3-c,d] pyrene	111	109	99	(49-130)
Naphthalene	111	108	97	(38-111)
Phenanthrene	111	106	95	(49-113)
Pyrene	111	107	96	(55-117)

Surrogates

2-Methylnaphthalene-d10 (surr)	111		93	(58-103)
Fluoranthene-d10 (surr)	111		90	(54-113)

Batch Information

Analytical Batch: XMS12650

Analytical Method: 8270D SIM (PAH)

Instrument: SVA Agilent 780/5975 GC/MS

Analyst: LAW

Prep Batch: XXX44914

Prep Method: SW3550C

Prep Date/Time: 06/04/2021 13:07

Spike Init Wt./Vol.: 111 ug/kg Extract Vol: 5 mL

Dupe Init Wt./Vol.: Extract Vol:



Matrix Spike Summary

Original Sample ID: 1212803001
 MS Sample ID: 1614201 MS
 MSD Sample ID: 1614202 MSD

Analysis Date: 06/06/2021 18:49
 Analysis Date: 06/06/2021 19:10
 Analysis Date: 06/06/2021 19:31
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1212866007, 1212866008, 1212866009

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	31.0U	277	223	80	277	212	77	43-111	4.80	(< 20)
2-Methylnaphthalene	31.0U	277	225	81	277	216	78	39-114	4.20	(< 20)
Acenaphthene	31.0U	277	226	82	277	214	77	44-111	5.60	(< 20)
Acenaphthylene	31.0U	277	231	83	277	223	81	39-116	3.60	(< 20)
Anthracene	31.0U	277	214	77	277	207	75	50-114	3.50	(< 20)
Benzo(a)Anthracene	31.0U	277	210	76	277	203	73	54-122	3.20	(< 20)
Benzo(a)pyrene	31.0U	277	212	76	277	202	73	50-125	4.60	(< 20)
Benzo(b)Fluoranthene	31.0U	277	214	77	277	201	73	53-128	6.00	(< 20)
Benzo(g,h,i)perylene	31.0U	277	196	71	277	180	65	49-127	8.70	(< 20)
Benzo(k)fluoranthene	31.0U	277	228	82	277	221	80	56-123	3.30	(< 20)
Chrysene	31.0U	277	217	78	277	210	76	57-118	3.30	(< 20)
Dibenzo(a,h)anthracene	31.0U	277	208	75	277	194	70	50-129	7.10	(< 20)
Fluoranthene	31.0U	277	216	78	277	209	75	55-119	3.30	(< 20)
Fluorene	31.0U	277	227	82	277	217	78	47-114	4.50	(< 20)
Indeno[1,2,3-c,d] pyrene	31.0U	277	205	74	277	190	69	49-130	7.40	(< 20)
Naphthalene	24.8U	277	221	80	277	214	77	38-111	3.30	(< 20)
Phenanthrene	31.0U	277	215	77	277	208	75	49-113	3.40	(< 20)
Pyrene	31.0U	277	219	79	277	212	77	55-117	3.10	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		277	217	78	277	205	74	58-103	5.50	
Fluoranthene-d10 (surr)		277	206	74	277	198	71	54-113	4.10	

Batch Information

Analytical Batch: XMS12650
 Analytical Method: 8270D SIM (PAH)
 Instrument: SVA Agilent 780/5975 GC/MS
 Analyst: LAW
 Analytical Date/Time: 6/6/2021 7:10:00PM

Prep Batch: XXX44914
 Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
 Prep Date/Time: 6/4/2021 1:07:00PM
 Prep Initial Wt./Vol.: 22.68g
 Prep Extract Vol: 5.00mL

Print Date: 06/23/2021 11:32:16AM

1212866



SGS North America Inc.

Shannon & Wilson, Inc.
 5430 Fairbanks Street, Suite 3
 Anchorage, Alaska 99518
 (907) 561-2120
 Fax (206) 695-6777

VOCs- EPA Method 8260D

GRO- AK 101

DRO- AK 102

PAHs- EPA Method 8270D SIM

Date	Time	Sample ID	Total Containers	VOA Vials HCl	VOA Vials HCl	Amber HCL	Amber No Pres.				
5/27/2021	17:40	106396-MW1	10	X	X	X	X				
5/27/2021	16:15	106396-MW2	10	X	X	X	X				
5/27/2021	14:30	106396-MW3	10	X	X	X	X				
5/27/2021	12:46	106396-MW4	10	X	X	X	X				
5/27/2021	18:10	106396-MW11	10	X	X	X	X				
5/27/2021	8:30	106396-WTB	2 Sets	X	X						

- 1AJ
- 2AJ
- 3AJ
- 4AJ
- 5AJ
- 6AF

Relinquished By:		Relinquished By:		Project Information	
Signature: <i>[Signature]</i>		Signature: <i>[Signature]</i>		Project Number: 106396-001	
Print Name: Alex Rizzo		Print Name: <i>[Signature]</i>		Project Name: Kasilof Riverview Lodge	
Company: Shannon & Wilson, Inc.		Company:		Contact: DXM/AJR	
Date: 6/1/21		Date:		Sampler: AJR	
Time: 12:20		Time:		Special Instructions:	
Received By:		Received By:		Sample Receipt	
Signature: <i>[Signature]</i>		Signature: <i>Ryan Conlon R/C</i>		Shipped Via: Hand Delivered	
Print Name:		Print Name: Ryan Conlon			
Company:		Company: SGS		Cooler Temperature Upon Arrival:	
Date:		Date: 6/1/21		Sample Matrix: Groundwater	
Time:		Time: 12:32		10 Working DAY TAT	

RS C Absent 6/1/21 ~~RS~~ HD

1) 2.6 D60
 2) 1.7 D60

36542720

1212866



Shannon & Wilson, Inc.
5430 Fairbanks Street, Suite 3
Anchorage, Alaska 99518
(907) 561-2120
Fax (206) 695-6777

SGS North America Inc.

7AB
 8AB
 9AB
 10A

Date	Time	Sample ID	Total Containers	SGS North America Inc.			
				VOCs- EPA Method 8260D	GRO- AK 101	DRO- AK 102	PAHs- EPA Method 8270D SIM
				MeOH	MeOH	4C	4C
5/24/2021	11:00	106396- B4S1	2	X	X	X	X
5/24/2021	12:00	106396-B4S5	2	X	X	X	X
5/24/2021	12:05	106396-B4S6	2	X	X	X	X
5/24/2021	10:30	106396-STB	1	X	X		

Relinquished By:	Relinquished By:	Project Information
Signature: <i>Alice Rizzo</i>	Signature:	Project Number: 106396-001
Print Name: <i>Alice Rizzo</i>	Print Name:	Project Name: Kasilof Riverview Lodge
Company: Shannon & Wilson, Inc.	Company:	Contact: DXM/AJR
Date: <i>6/1/21</i>	Date:	Sampler: AJR
Time: <i>1220</i>	Time:	Special Instructions:
Received By:	Received By:	Sample Receipt
Signature:	Signature: <i>Ryan Conlon</i>	Shipped Via: Hand Delivered
Print Name:	Print Name: <i>Ryan Conlon</i>	
Company:	Company: <i>SGS</i>	Cooler Temperature Upon Arrival:
Date:	Date: <i>6/1/21</i>	Sample Matrix: Soil
Time:	Time: <i>12:32</i>	10 Working DAY TAT

RSC
 6/1/21
 Absent
 HD
 D2.6 D60
 21.7 D60



e-Sample Receipt Form

SGS Workorder #:

1212866

1212866

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	absent
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
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)?	Yes	Cooler ID: 1 @ 2.6 °C Therm. ID: D60
	Yes	Cooler ID: 2 @ 1.7 °C Therm. ID: D60
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	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?	Yes	
Do samples match COC** (i.e., sample IDs, dates/times collected)?	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)	Yes	
Were proper containers (type/mass/volume/preservative***) used?	Yes	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?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	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>
1212866001-A	HCL to pH < 2	OK	1212866005-J	HCL to pH < 2	OK
1212866001-B	HCL to pH < 2	OK	1212866006-A	HCL to pH < 2	OK
1212866001-C	No Preservative Required	OK	1212866006-B	HCL to pH < 2	OK
1212866001-D	No Preservative Required	OK	1212866006-C	HCL to pH < 2	OK
1212866001-E	HCL to pH < 2	OK	1212866006-D	HCL to pH < 2	OK
1212866001-F	HCL to pH < 2	OK	1212866006-E	HCL to pH < 2	OK
1212866001-G	HCL to pH < 2	OK	1212866006-F	HCL to pH < 2	OK
1212866001-H	HCL to pH < 2	OK	1212866007-A	No Preservative Required	OK
1212866001-I	HCL to pH < 2	OK	1212866007-B	Methanol field pres. 4 C	OK
1212866001-J	HCL to pH < 2	OK	1212866008-A	No Preservative Required	OK
1212866002-A	HCL to pH < 2	OK	1212866008-B	Methanol field pres. 4 C	OK
1212866002-B	HCL to pH < 2	OK	1212866009-A	No Preservative Required	OK
1212866002-C	No Preservative Required	OK	1212866009-B	Methanol field pres. 4 C	OK
1212866002-D	No Preservative Required	OK	1212866010-A	Methanol field pres. 4 C	OK
1212866002-E	HCL to pH < 2	OK			
1212866002-F	HCL to pH < 2	OK			
1212866002-G	HCL to pH < 2	OK			
1212866002-H	HCL to pH < 2	OK			
1212866002-I	HCL to pH < 2	OK			
1212866002-J	HCL to pH < 2	OK			
1212866003-A	HCL to pH < 2	OK			
1212866003-B	HCL to pH < 2	OK			
1212866003-C	No Preservative Required	OK			
1212866003-D	No Preservative Required	OK			
1212866003-E	HCL to pH < 2	OK			
1212866003-F	HCL to pH < 2	OK			
1212866003-G	HCL to pH < 2	OK			
1212866003-H	HCL to pH < 2	OK			
1212866003-I	HCL to pH < 2	OK			
1212866003-J	HCL to pH < 2	OK			
1212866004-A	HCL to pH < 2	OK			
1212866004-B	HCL to pH < 2	OK			
1212866004-C	No Preservative Required	OK			
1212866004-D	No Preservative Required	OK			
1212866004-E	HCL to pH < 2	OK			
1212866004-F	HCL to pH < 2	OK			
1212866004-G	HCL to pH < 2	OK			
1212866004-H	HCL to pH < 2	OK			
1212866004-I	HCL to pH < 2	OK			
1212866004-J	HCL to pH < 2	OK			
1212866005-A	HCL to pH < 2	OK			
1212866005-B	HCL to pH < 2	OK			
1212866005-C	No Preservative Required	OK			
1212866005-D	No Preservative Required	OK			
1212866005-E	HCL to pH < 2	OK			
1212866005-F	HCL to pH < 2	OK			
1212866005-G	HCL to pH < 2	OK			
1212866005-H	HCL to pH < 2	OK			
1212866005-I	HCL to pH < 2	OK			

Container Id

Preservative

Container
Condition

Container Id

Preservative

Container
Condition

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 than 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.

LABORATORY DATA REVIEW CHECKLIST

Completed by: Alec Rizzo

Title: Geologist

Date: 6/30/21

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc.

Laboratory Report Number: 1212866

Laboratory Report Date: 6/23/21

Contaminated Site Name: Kasilof Riverview Lodge

ADEC File Number: 2319.26.002

Hazard Identification Number: 22950

(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:

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes / No / NA

Comments: *The cooler temperature blanks were 2.6° and 1.7° Celsius.*

- 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:

- 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: *Data quality/usability considered unaffected; 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 case narrative noted the following:*

- *LCS – 8260D – LCS recovery for trichlorofluoromethane does not meet QC criteria.*
- *MB – AK103 – RRO detected in MB over 1/2 LOQ, but less than the LOQ.*
- *MS/MSD – 8260D – MS/MSD recovery for trichlorofluoromethane do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.*

- 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, dibromochloromethane, dibromomethane, hexachlorobutadiene, and vinyl chloride exceed the ADEC cleanup levels for soil. The LOQ for 1,2,3-trichloropropane exceeds the ADEC cleanup level for water.*

- e. Data quality or usability affected?

Comments: *There is a potential that the target analytes are present at concentrations greater than the ADEC cleanup level, but less than the LOQ; however, the 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, estimated concentrations of GRO (soil) and DRO (soil and water) were detected in method blanks.*

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

Comments:

- *GRO: Samples B4S1, B4S5, B4S6, and STB are potentially affected.*
- *DRO: Samples MW1, MW2, MW3, MW4, MW11, B4S1, B4S5, and B4S6 are potentially affected.*

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

Yes / No / NA

Comments: *When the reported concentrations are within 10 times the reported blank concentration, the project samples are flagged "B". GRO in Samples B4S1, B4S5, B4S6, and STB were reported at levels less than the LOQ; therefore, the sample concentrations are reported as non-detect at the LOQ and flagged "B" in Table 3. DRO was detected at estimated concentrations in Samples MW2, MW3, MW4, MW11, B4S1, B4S5, and B4S6; therefore, the sample concentrations are reported as non-detect at the LOQ and flagged "B" in Tables 3 and 4. The DRO concentrations detected in Samples MW1 and MW11 are greater than the LOQ but less than 5 times the blank concentration, therefore the results are flagged "B", and reported as non-detect at the detected concentration.*

- 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: *LCS recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.*

- 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: *Samples B4S1, B4S5, B4S6, and STB are potentially affected.*

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

Yes / **No** / NA

Comments: *The analytes were not detected above the LOQ in the project samples; therefore, flagging is not required*

- 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: *MS/MSD recoveries for trichlorofluoromethane do not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.*

- 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:

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

Comments: *Samples B4S1, B4S5, B4S6, and STB are potentially affected.*

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

Yes / No / NA

Comments: *The analytes were not detected above the LOQ in the project samples; therefore, flagging is not required*

- vii. Data quality or usability affected?

Comments: *No, 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:

- 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: *No, 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:

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

Comments: *Although less than the LOQ, an estimated concentration of GRO (32.5 J µg/L) was detected in the water trip blank. Samples MW3, MW4, and MW11 contained detectable concentrations of GRO less than the LOQ; therefore, these results are reported as non-detect at the LOQ and flagged "B" in Table 4.*

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

Comments: *Samples MW3, MW4, MW11, B4S1M B4S5, and B4S6 are potentially affected.*

- 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 B4S6 (duplicate of B4S5) and water sample MW11 (duplicate of MW1) were submitted to the laboratory.*

- 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: *RPDs could not be calculated due to non-detect sample results.*

- iv. Data quality or usability affected?

Comments:

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

Yes / **No** / NA

Comments: *A decontamination blank was not included in our ADEC-approved workplan.*

Laboratory Report Number: 1212866

- 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 4 of the SGS Laboratory Report.*

Attachment 5

IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL/ENVIRONMENTAL REPORT



Date: July 2021
To: Kasilof Riverview LLC

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