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ADDITIONAL RELEASE INVESTIGATION ACTIVITIES

Kasilof Riverview Lodge

57400 STERLING HIGHWAY, KASILOF, ALASKA; ADEC FILE NO. 2319.26.002

SHANNON & WILSON

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Submitted To: Kasilof Riverview LLC
P.O. Box 254
Kenai, AK 99610
Attn: Mr. Joe Browning

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

Shannon & Wilson prepared this report and participated in this project as a consultant for Kasilof Riverview LLC. Our scope of services was specified in our proposal dated July 12, 2022. This report presents the results of our additional release investigation activities and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON, INC.

Alec Rizzo
Environmental Staff

Dan P. McMahon, PMP
Vice President

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ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
BTOC	Below Top of Casing
Discovery	Discovery Drilling, Inc
DRO	Diesel Range Organics
DQO	Data Quality Objective
EPA	Environmental Protection Agency
GE2T	Gilfilian Engineering & Environmental Testing, Inc.
GRO	Gasoline Range Organics
IDW	Investigation-Derived Waste
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
LDRC	Laboratory Data Review Checklist
LOQ	Limit of Quantitation
mg/kg	Milligrams Per Kilogram
mg/L	Milligrams per Liter
µg/L	Micrograms per Liter
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NTU	Nephelometric Turbidity Unit
ORP	Oxidation Reduction Potential
PAHs	Polynuclear Aromatic Hydrocarbons
PID	Photoionization Detector
ppm	Parts Per Million
PVC	Polyvinyl Chloride
RPD	Relative Percent Difference
SGS	SGS North America Inc.
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

1 INTRODUCTION

This report presents the results of Shannon & Wilson's additional release investigation activities conducted at Kasilof Riverview Lodge located at 57400 Sterling Highway in Kasilof, Alaska. The site is an Alaska Department of Environmental Conservation (ADEC) contaminated site identified as "Kasilof Riverview Lodge" (File No. 2319.26.002, Hazard ID 22950). A vicinity map is included as Figure 1 and a site plan is included as Figure 2.

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 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 delineated.

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 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 Table C 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 removed one approximately 2,000-gallon diesel UST, five fuel dispensers, and piping from the site. In addition, two approximately 6,000-gallon and one 3,000-gallon gasoline USTs were closed in-place. GRO, diesel range organics (DRO), volatile organic compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs) were detected at concentrations exceeding the ADEC cleanup levels in soil.

In 2021, Shannon & Wilson installed Monitoring Well MW4 approximately 75 feet from the Kasilof River, southwest of the former gasoline USTs. Wells MW1, MW2, MW3 were also sampled in 2021. Contaminant concentrations exceeding the most stringent ADEC cleanup levels were not detected in the soil and groundwater samples collected during the release investigation activities.

In a letter dated August 5, 2021, Mr. Peter Campbell of the ADEC requested additional release investigation and/or cleanup activities. The purpose of this project is to further delineate the plume by installing an additional monitoring well between the former gasoline USTs and the Kasilof River. Results from the additional release investigation activities will be used to develop a future cleanup plan for the site, if appropriate.

3 PROJECT ACTIVITIES

The project activities consisted of advancing one soil boring, installing one groundwater monitoring well, collecting soil, groundwater, and drinking water samples, and disposing of investigation-derived waste (IDW). 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. US Ecology will dispose/treat the IDW generated during the project. Site photographs and copies of field notes are included in Appendices A and B, respectively. Boring and well construction logs are provided in Appendix C. It should be noted that the field notes presented in Appendix B are provided for informational purposes only. Tables 1 through 4, and the boring and well completion logs presented in Appendix C represent our interpretation of the field data and take precedence over the field notes.

3.1 Soil Boring and Sampling

The boring was advanced by Discovery to a depth of approximately 32 feet bgs to facilitate the collection of soil samples and the installation of a groundwater monitoring well. Soil samples from the borings were collected with 3-inch outside diameter split-spoon samplers driven by a 340-pound hammer. Field screening samples were collected at 2.5-foot intervals to the soil/water interface in each boring.

Immediately following retrieval and opening of the split-spoon 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 Appendix C.

One analytical soil sample from the boring was submitted for laboratory analysis. The sample was collected from the interval with the highest PID measurement. The soil sample for laboratory analysis was 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.

3.2 Monitoring Well Installation

Boring B5 was completed as Monitoring Well MW5. The monitoring well was constructed of 2-inch nominal inside diameter schedule 40 polyvinyl chloride (PVC) 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 2-feet bgs. Pea gravel was placed above the bentonite to about 0.5-foot bgs. The monitoring well was completed with a stick-up flushmounted casing embedded in pea gravel to match the surrounding grade. Monitoring well construction details are included in Appendix C.

3.3 Monitoring Well Development

Monitoring Well MW5 was developed on October 25, 2022. 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 MW5 was considered complete once 25 gallons of water was purged from the well. Stabilization criteria was not met during development activities. Development data are provided on Table 2.

3.4 Monitoring Well Sampling

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

In addition to the newly installed monitoring well, pre-existing Wells MW1, MW2, MW3, and MW4 were sampled. Groundwater samples were collected 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 nephelometric turbidity units (NTU).

3.5 Drinking Water Well Sampling

The Kasilof Riverview Lodge drinking water well was sampled from the spigot of a utility room. The well system was purged for at least 15 minutes prior to sampling to remove water from the system piping and to obtain a representative sample of formation groundwater. The analytical sample was collected by transferring water directly from the

spigot into the laboratory supplied containers. The sample jars were filled in decreasing order of volatility.

3.6 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 55-gallon drums, labeled, and stored onsite. Shannon & Wilson will coordinate with US Ecology for offsite disposal/treatment of the IDW. The signed ADEC *Transport, Treatment & Disposal Approval Form for Contaminated Media* and a copy of the waste manifest will be provided to ADEC under separate cover letter once the IDW is disposed of/treated.

4 LABORATORY ANALYSES

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 one water trip blank was submitted to the laboratory and analyzed for GRO and VOCs. A trip blank was inadvertently not submitted with the soil analytical samples. 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 Appendix D. The analytical soil and drinking water/groundwater sample results are summarized in Table 3 and Table 4, respectively.

5 SUBSURFACE CONDITIONS

The subsurface soil observed in Boring B5 consists of sand with varying amounts of silt and gravel. During drilling, groundwater was encountered at approximately 26 feet bgs in Boring B5. On October 25, 2022, the measured static depth to water ranged from 23.71 feet below top of casing (BTOC) in Well MW5 to 7.17 feet BTOC in Well MW4. Surveyed groundwater elevations ranged from 42.01 feet in Well MW3 to 38.78 feet in Well MW2.

Based on the October 24 and 25, 2022 static groundwater measurements and the professional field survey conducted by McLane in 2021 , 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.

6 DISCUSSION OF ANALYTICAL RESULTS

The analytical soil results were compared to ADEC cleanup levels presented in the November 2021, 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 laboratory report and completed LDRCs are provided in Appendix C. The applicable soil and groundwater cleanup levels are listed in Tables 3 and 4, respectively.

6.1 Soil Samples

Benzene (maximum 0.849 E mg/kg) and ethylbenzene (maximum 0.596 E mg/kg) were detected in the duplicate Sample Set B5S5/B5S15 at concentrations greater than the ADEC Method Two cleanup levels of 0.022 mg/kg and 0.13 mg/kg, respectively. The remaining tested analytes were either not detected or detected at concentrations below the respective ADEC Method Two cleanup levels.

6.2 Groundwater Samples

Benzene was detected in Samples MW1 (4.81 micrograms per liter [µg/L]) and MW5 (maximum 8.96 µg/L) at a concentrations greater than the ADEC Table C cleanup level of 4.6 µg/L. The remaining tested analytes were either not detected or detected at concentrations below the respective ADEC Table C cleanup levels.

6.3 Drinking Water Sample

Toluene (0.470 J µg/L) was detected in Sample DW at concentrations less than the applicable cleanup level of 1,100 µg/L. The remaining tested analytes were not detected.

6.4 Quality Assurance Summary

The project laboratory implements on-going quality assurance/quality control procedures to evaluate conformance to ADEC data quality objectives (DQOs). Internal laboratory controls to assess data quality for this project include surrogates, method blanks, matrix spike/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to assess precision, accuracy, and matrix bias. If a DQO was not

met, the project laboratory provides a brief narrative concerning the problem in the case narrative of their laboratory reports (see Appendix C).

Although less than the limit of quantitation (LOQ), samples are flagged "B" in Tables 3 and 4 when the reported sample concentration is within 10x the reported method blank concentration. The concentration of GRO detected in Sample B5S15 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. The concentration of GRO detected in Sample B5S5 is within 5 times and 10 times the method blank detection, therefore the results are flagged "B", and reported at the detected concentration in Table 3. In addition, estimated concentrations of 1-methylnaphthalene and/or 2-methylnaphthalene were detected in at least one groundwater method blank. Estimated concentrations of 1-methylnaphthalene and/or 2-methylnaphthalene were also detected in Samples DW, MW1, MW2, MW3, MW4, and MW5 at levels less than the LOQ; therefore, the sample concentrations are reported as non-detect at the LOQ and flagged "B" in Table 4. In addition, 1-methylnaphthalene and/or 2-methylnaphthalene were detected in Samples MW5 and MW15 at concentrations 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 a trip blank and field duplicate soil and groundwater sample sets. A laboratory-prepared water trip blank sample accompanied the project sample bottles from the laboratory to the site during sampling activities and back again to SGS. The water trip blank did not contain detectable concentrations of GRO or VOCs. A trip blank was inadvertently not submitted with the soil analytical samples. Trip blanks check for sample-contamination issues during the sample collection process.

The relative percent difference (RPD) between the project sample and associated duplicate results is a measure of precision affected by matrix heterogeneity, sampling technique, and laboratory analyses. The ADEC recommends an RPD of less than 50 percent for duplicate soil samples and 30% for duplicate groundwater samples. The RPD for GRO, benzene, 1,3,5-trimethylbenzene, isopropylbenzene, n-propylbenzene, and sec-butylbenzene for duplicate soil sample set B5S5/B5S15 are greater than QC criteria and are flagged "E" in Table 3. The groundwater RPDs for duplicate groundwater sample set MW5/MW15 were within QC criteria.

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

Appendix C. No non-conformances that would adversely affect the data quality or usability of the data were noted.

7 CONCLUSIONS/RECOMMENDATIONS

The purpose of this project was to further delineate the plume by installing an additional monitoring well between the former gasoline USTs and the Kasilof River. The 2022 project activities consisted of advancing one soil boring, installing one groundwater monitoring well, and collecting soil, groundwater, and drinking water samples. The soil samples collected from Boring B5 contained concentrations of benzene and ethylbenzene exceeding the respective ADEC Method Two migration to groundwater cleanup levels. The remaining testing analytes were either reported as non-detect or at concentrations below the respective ADEC Method Two cleanup levels.

Groundwater samples collected from Wells MW1 and MW5 contained concentrations of benzene exceeding the ADEC Table C cleanup levels. The remaining testing analytes were either reported at concentrations less than the applicable ADEC Table C cleanup levels or reported as non-detect. In addition, the drinking water sample contained toluene at a concentration less than the applicable ADEC Table C cleanup levels. The remaining tested analytes were reported as non-detect.

Based on previous site characterization activities, impacted soil and/or groundwater is present in the vicinity of the former USTs and active fuel dispensers, and Monitoring Wells MW1 and MW5. The extent of impacted groundwater downgradient of the former USTs is bound to the northeast by Monitoring Well MW2. Although upgradient from the documented contamination, Monitoring Well MW4 is located between the Kasilof River and the fueling facility. We recommend conducting periodic groundwater monitoring to evaluate contaminant trends. In addition, Monitoring Well MW4 can be used as a sentinel well to evaluate whether impacted groundwater is migrating to the Kasilof River.

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

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

Shannon & Wilson has prepared the information in Appendix E, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our report.

TABLE 1 - SAMPLE DETAILS

	Sample ID	Date	Sample Location (See Figure 2 and Appendix C)	Depth (feet bgs or btoc)	Headspace (ppm)^
	Soil Samples				
	Boring B5				
	B5S1	10/24/2022	Boiring B5, Sample S1	0-5	2.1
	B5S2	10/24/2022	Boiring B5, Sample S2	5-7.5	1.1
	B5S3	10/24/2022	Boiring B5, Sample S3	7.5-10	0.7
	B5S4	10/24/2022	Boiring B5, Sample S4	10-12.5	7.2
*	B5S5	10/24/2022	Boiring B5, Sample S5	12.5-15	40.4
*	B5S15	10/24/2022	Duplicate of Sample B5S5	12.5-15	40.4
	B5S6	10/24/2022	Boiring B5, Sample S6	15-17.5	10.5
	B5S7	10/24/2022	Boiring B5, Sample S7	17.5-20	16.5
	B5S8	10/24/2022	Boiring B5, Sample S8	20-22.5	18.4
	B5S9	10/24/2022	Boiring B5, Sample S9	22.5-25	26.6
	B5S10	10/24/2022	Boiring B5, Sample S10	25-27.5	2.3
	Water Samples				
*	DW	10/24/2022	Drinking Water	-	-
*	MW1	10/24/2022	Monitoring Well MW1	21.75	-
*	MW2	10/25/2022	Monitoring Well MW2	28.12	-
*	MW3	10/25/2022	Monitoring Well MW3	25.36	-
*	MW4	10/25/2022	Monitoring Well MW4	7.17	-
*	MW5	10/25/2022	Monitoring Well MW5	23.71	-
*	MW15	10/25/2022	Duplicate of Sample MW5	23.71	-

Notes:

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

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

- = Not applicable

bgs = Below ground surface

btoc = Below top of casing

ppm = parts per million

TABLE 2 - MONITORING WELL DEVELOPMENT AND SAMPLING LOG

	Drinking Water/ Groundwater Monitoring Well					
	DW	**MW1**	**MW2**	**MW3**	**MW4**	**MW5**
Development Data						
Development Date	-	-	-	-	-	10/25/2022
Measured Depth to Water (ft below TOC)	-	-	-	-	-	23.71
Total Depth of Well (ft below TOC)	-	-	-	-	-	32.08
Water Column in Well (ft)	-	-	-	-	-	8.37
Gallons per Foot	-	-	-	-	-	0.16
Water Column Volume (gallons)	-	-	-	-	-	1.34
Total Volume Pumped/Bailed (gallons)	-	-	-	-	-	25
Development Method	-	-	-	-	-	Surge Block and Submersible Pump
Water Level Measurement Data						
Date Water Level Measured	-	10/24/2022	10/24/2022	10/24/2022	10/24/2022	10/25/1922
Time Water Level Measured	-	16:54	16:58	17:00	17:05	8:54
Surveyed TOC Elevation (ft)	-	-	66.90	67.37	46.26	-
Measured Depth to Water (ft below TOC)	-	21.75	28.12	25.36	7.17	23.71
Water Elevation (ft)	-	-	38.78	42.01	39.09	-
Sampling Data						
Date Sampled	10/24/2022	10/24/2022	10/25/2022	10/25/2022	10/25/2022	8/31/2021
Time Sampled	16:15	18:18	12:14	13:20	14:30	10:25
Measured Depth to Water (ft below TOC)	-	21.75	28.12	25.36	7.17	23.71
Total Depth of Well (ft below TOC)	-	34.37	35.12	32.69	17.76	32.08
Water Column in Well (ft)	-	12.62	7.00	7.33	10.59	8.37
Gallons per Foot	-	0.16	0.16	0.16	0.16	0.16
Water Column Volume (gallons)	-	2.02	1.12	1.17	1.69	1.34
Volume Purged (gallons)	-	2.1	1.8	1.3	1.8	0.5
Sampling Method	Spigot	SP	SP	SP	SP	SP
Diameter of Well Casing	-	2-inch	2-inch	2-inch	2-inch	2-inch
Well Screen Interval (feet below TOC)						
Water Quality Data^						
Temperature (°C)	9.9	7.03	6.57	4.81	7.24	6.72
Dissolved Oxygen (mg/L)	-	0.71	1.67	1.18	1.69	0.65
pH (Standard Units)	6.40	5.45	5.06	5.12	5.61	6.40
Specific Conductivity (µS/cm)	638	1,040	517	316	522	475
Oxidation Reduction Potential (mV)	72	8	217	203	7	122
Turbidity (NTU)	5.05	0.29	17.99	3.14	6.49	29.67
Remarks	Drinking Water					Duplicate Sample MW15

Notes:
Water quality parameters were measured with Hanna Water Quality Instruments

^	= Water quality data at time of sampling
SP	= Submersible pump
TOC	= Top of casing
ft	= Feet
NTU	= Nephelometric Turbidity Unit
°C	= Degrees Celsius
µS/cm	= Microsiemens per Centimeter
-	= Not applicable
mV	= Millivolts

TABLE 3 - SUMMARY OF SOIL ANALYTICAL RESULTS

Analytical Method	Analyte	ADEC Cleanup Level*	Units	Sample ID and Depth in feet (See Table 1, Figure 2, and Appendix C)	
				B5S5	B5S15~
				12-12.5	12-12.5
580B PID	PID Headspace Reading	-	ppm	40.4	40.4
AK 101	Gasoline Range Organics (GRO)	300	mg/kg	**7.65 B**	<3.10 B
AK 102	Diesel Range Organics (DRO)	250	mg/kg	<11.2	<11.4
Volatile Organic Compound (VOCs)					
EPA 8260D	Benzene	0.022	mg/kg	**0.849 E**	**0.173 E**
	Toluene	6.7	mg/kg	<0.0113	<0.0119
	Ethylbenzene	0.13	mg/kg	**0.596 E**	**0.150 E**
	Xylenes (total)	1.5	mg/kg	<0.104	**28.0 J**
	1,3,5-Trimethylbenzene	0.66	mg/kg	**0.292 E**	**0.0950 E**
	4-Isopropyltoluene	-	mg/kg	**0.0518 J**	<0.0383
	Isopropylbenzene (Cumene)	5.6	mg/kg	**0.232 E**	**0.0665 E**
	n-Propylbenzene	9.1	mg/kg	**0.364 E**	**0.110 E**
	sec-Butylbenzene	28	mg/kg	**0.0462 E**	**0.0158 J, E**
	Other VOCs	Various	mg/kg	ND	ND
Polynuclear Aromatic Hydrocarbons (PAHs)					
EPA 8270D SIM	PAHs	Various	mg/kg	ND	ND

Notes:

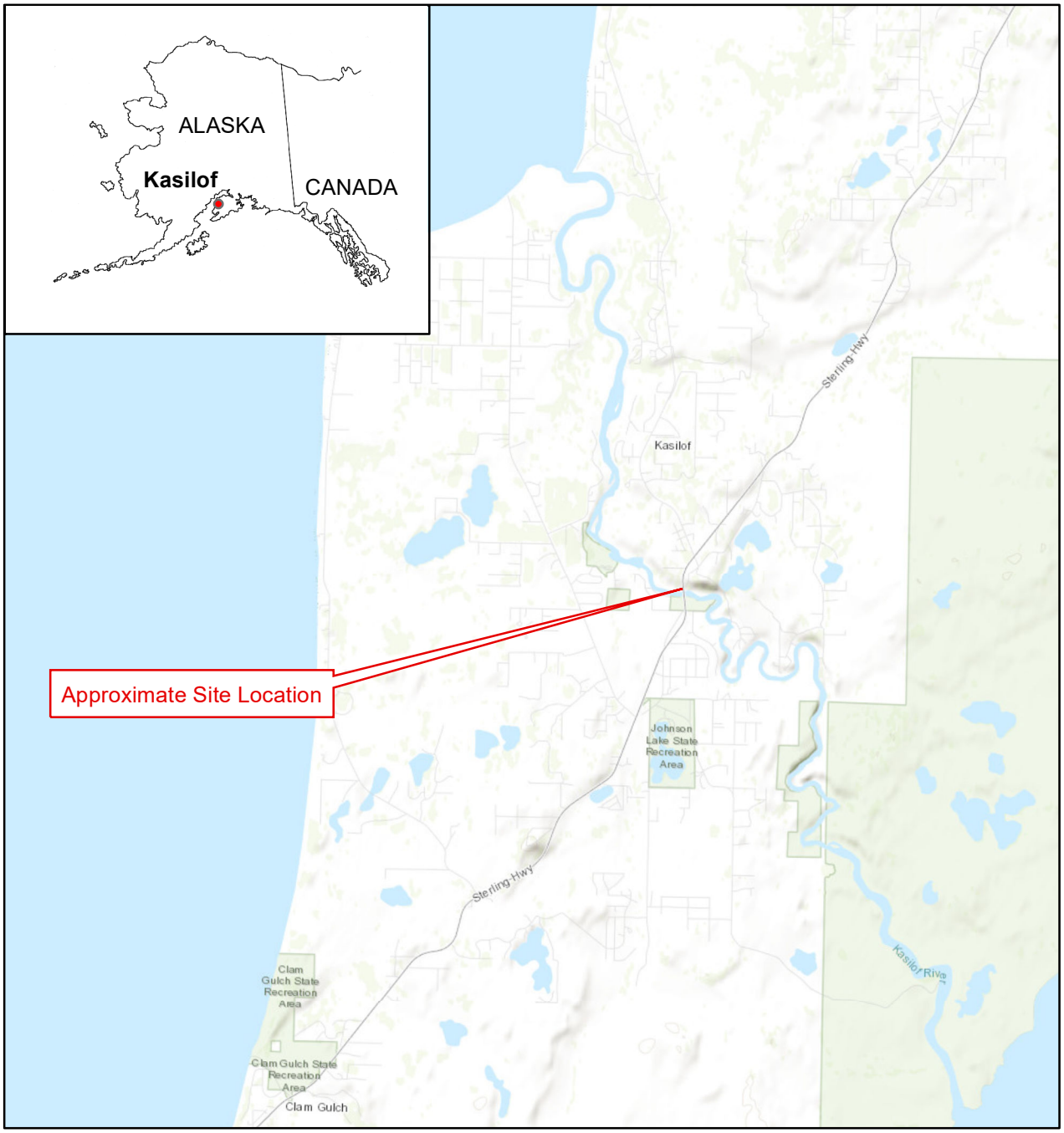
*	= ADEC soil cleanup level is the Method Two standard listed in Table B1 or B2, 18 AAC 75 (November 2021)
~	= Field duplicate of Sample B5S5
ADEC	= Alaska Department of Environmental Conservation
EPA	= Environmental Protection Agency
mg/kg	= Milligrams per kilogram
PID	= Photoionization detector
ppm	= Parts per million
<0.0383	= Analyte not detected; laboratory limit of detection of 0.0383 mg/kg
7.65	= Analyte detected
0.849	= Analyte detected above ADEC cleanup level
J	= Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
J+	= Result may be biased high due to surrogate failures. See SGS laboratory report for details.
B	= Analyte concentration potentially affected by a method or trip blank detection. See Appendix D for details.
E	= Result is an estimate due to a primary/field duplicate sample pair relative percent difference (RPD) failure.
ND	= Not detected
AK	= Alaska Method

TABLE 4 - SUMMARY OF DRINKING WATER & GROUNDWATER ANALYTICAL RESULTS

				Sample ID and Depth in feet BTOC (See Table 1, Table 2, and Figure 2)							
				Drinking Water	Groundwater						Quality Control
Analytical Method	Analyte	ADEC Cleanup Level*	Units	DW	MW1	MW2	MW3	MW4	MW5	MW15~	Trip Blank
				-	21.75	28.12	25.36	7.17	23.71	23.71	-
AK101	Gasoline Range Organics (GRO)	2,200	µg/L	<50.0	**68.6 J**	<50.0	<50.0	<50.0	**76.5 J**	**70.0 J**	<50.0
AK 102	Diesel Range Organics (DRO)	1,500	µg/L	<288	**277 J**	<294	<288	<288	<294	<300	-
Volatile Organic Compound (VOCs)											
EPA 8260D	Benzene	4.6	µg/L	<0.200	**4.81**	<0.200	<0.200	<0.200	**8.96**	**7.75**	<0.200
	Toluene	1,100	µg/L	**0.470 J**	<0.500	<0.500	<0.500	<0.500	**0.370 J**	**0.320 J**	<0.500
	Ethylbenzene	15	µg/L	<0.500	**0.430 J**	<0.500	<0.500	<0.500	**1.05**	**0.990 J**	<0.500
	Xylenes (total)	190	µg/L	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50
	n-Propylbenzene	660	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	**0.320 J**	**0.310 J**	<0.500
	Other VOCs	Various	µg/L	ND	ND	ND	ND	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (PAHs)											
8270D SIM	1-Methylnaphthalene	11	µg/L	<0.0245	<0.0250	<0.0481 B	<0.0481 B	<0.0490 B	<0.0500 B	<0.0622 B	-
	2-Methylnaphthalene	36	µg/L	<0.0490 B	<0.0500 B	<0.0481 B	<0.0481 B	<0.0490 B	<0.0645 B	<0.112 B	-
	Fluoranthene	260	µg/L	<0.0245	**0.0156 J**	<0.0240	<0.0240	<0.0245	<0.0250	**0.0412 J**	-
	Fluorene	290	µg/L	<0.0245	<0.0250	<0.0240	<0.0240	<0.0245	<0.0250	**0.0402 J**	-
	Naphthalene	1.7	µg/L	<0.0490	<0.0500	<0.0481	<0.0481	<0.0490	**0.0316 J**	**0.0386 J**	-
	Phenanthrene	170	µg/L	<0.0490	<0.0500	<0.0481	<0.0481	<0.0490	<0.0500	**0.113**	-
	Pyrene	120	µg/L	<0.0245	<0.0250	<0.0240	<0.0240	<0.0245	<0.0250	**0.0323 J**	-
	Other PAHs	Various	µg/L	ND	ND	ND	ND	ND	ND	ND	-

Notes:

*	= ADEC groundwater cleanup level is the Method Two standard listed in Table C, 18 AAC 75 (November 2021)
~	= Field duplicate of preceding sample
-	= Not applicable
ND	= Not detected
ADEC	= Alaska Department of Environmental Conservation
EPA	= Environmental Protection Agency
BTOC	= Below top of casing
µg/L	= Micrograms per liter
<50.0	= Analyte not detected; laboratory limit of detection of 50.0 µg/L
68.6	= Analyte detected
4.81	= Analyte detected above ADEC cleanup level
J	= Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
B	= Analyte concentration potentially affected by a method or trip blank detection. See Appendix D for details.



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

N

0 2 4

Miles

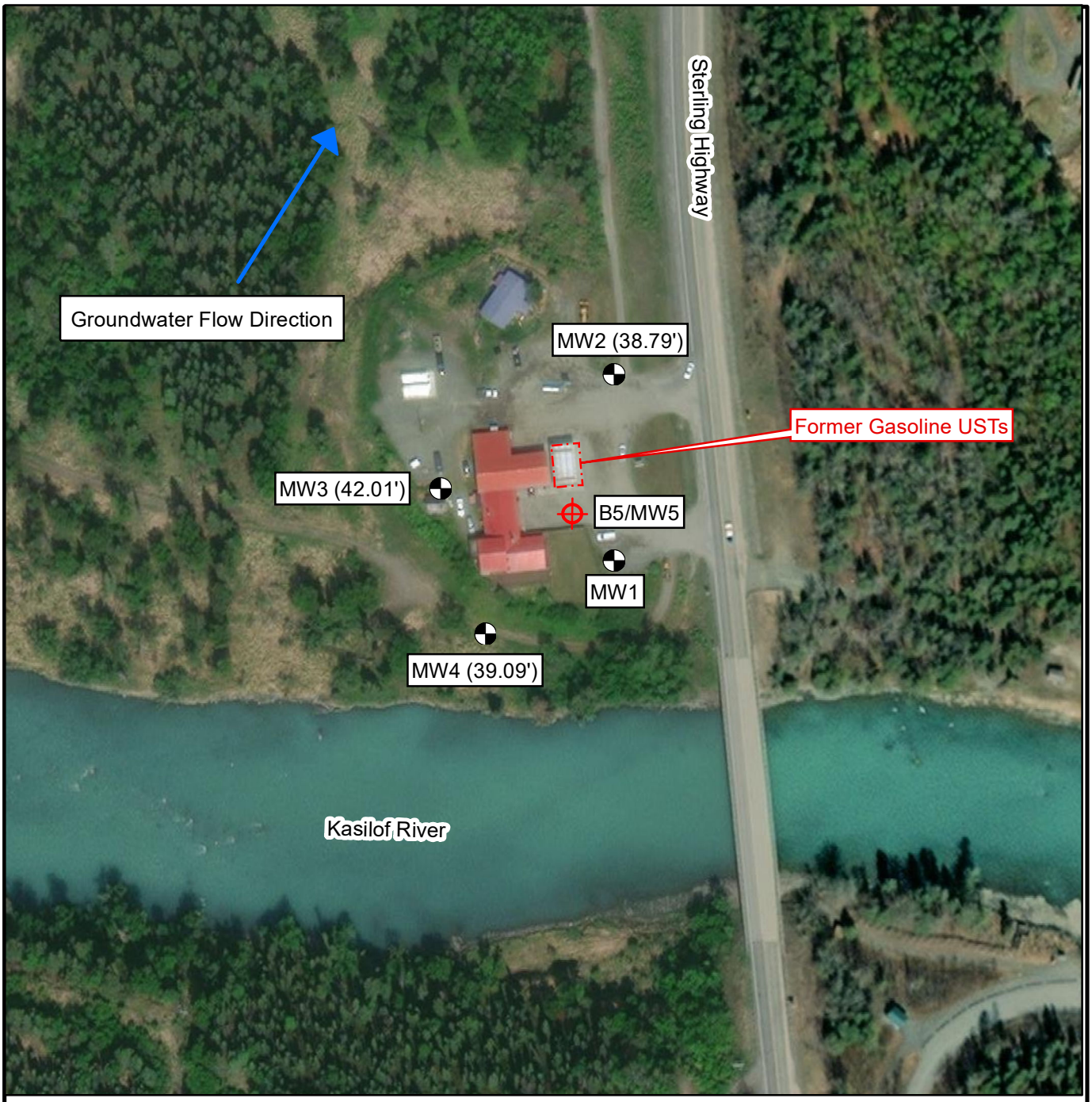
57440 Sterling Highway
Kasilof, Alaska

VICINITY MAP

December 2022 110026-001

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1



Legend

B5/MW5 — Appoximate Location of Boring/Monitoring Well B5/MW5 installed by Shannon & Wilson on October 24, 2022.

MW4 — Approximate location of Monitoring Well MW4.

(39.09') — Water level elevation measured according to a 2021 field survey by McLane Consulting, Inc. and water level measurements recorded by Shannon & Wilson

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

0 150 300

Feet

N

57440 Sterling Highway
Kasilof, Alaska

SITE PLAN

December 2022 110026-001

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2

APPENDIX A: SITE PHOTOGRAPHS

Appendix A

Site Photographs

APPENDIX A: SITE PHOTOGRAPHS

Photo 1

Photo 1: Looking north, Discovery advancing Boring B5 (October 24, 2022)

APPENDIX A: SITE PHOTOGRAPHS

Photo 2

Photo 2: Looking north at Monitoring Well MW5. (October 24, 2022)

APPENDIX B: FIELD NOTES

Appendix B

Field Notes

FIELD ACTIVITIES DAILY LOG

Date 10/24/22

Sheet 1 of _____

Project No. 110026

Project Name: Kasilof Riverview Lodge

Field Activity Subject: Drilling, Well install, GW Monitoring

Calibration: 11:45 580B PID,

10/24 Description of daily activities and events: 06:00 - Anc office load up gear, 08:00 - SGS pick up Sample coolers
11:00 - Arrive on-site. Meet w/ property owner + evaluate utility locates. Place boring location
11:30 - Meet w/ drillers begin boring B5 @ 11:50 once rig is set up.
14:30 - Complete boring + Soil Sampling
14:40 - Drillers begin setting the well after advancing the drill 5.0' below H2O
16:20 - Complete install of MW5 in Boring B5
16:15 - Run inside to collect drinking water Sample while the drillers clean up and demob. Drink water Sample: 110026-DW collected @ 16:15
16:30 - Work on locating MW1 - Joe said it is burried under new parking area

Well	DTW	Time	
MW1	21.75	1654	10/24
MW2	28.12	1658	↓
MW3	25.36	17:00	
MW4	7.17	17:05	
MW5	23.71	8:54	10/25 TD: 32.08

17:15 - Set up @ MW1 to purge + Sample. Sampled @ 1818
18:40 - Pack up gear. Prep to depart site. Need to get hotel + warm up gear
19:05 - Best western, unload gear, charge batterys, unthaw pumps decon, QAQC samples + ice for night
20:00 - End Day

10/25 7:00 - Load up truck, prep new decon, calibrate Horiba + micro TPH, Stop + fuel up.
8:30 - On-site, begin set-up to develop MW5
MW5 Development complete @ 10:20 : Sample w/ dup 110026-MW5 @ 1025 / MW15 @ 1055
11:30 - Set up @ MW2 - 110026-MW2 sampled @ 12:14
12:40 - Setting up @ MW3 - 110026-MW3 sampled @ 13:20 Need to label + close drums
14:00 - Set up @ MW4 - 110026-MW4 sampled @ 1430 leave site @ 15:30 - Anc office 19:30

Visitors on site: Lo + Dewante (Discovery Drilling), Joe (Property Owner) unload gear, ice samples, end day

Changes from plans/specifications and other special orders and important decisions:
Duplicate Samples (Soil + H2O) taken from new boring + well B5/MW5

Weather conditions: 29° clear

Important telephone calls:

Personnel on site: ZJT

Signature: Date:

Rev. 5-9-22

Shannon & Wilson, Inc.

WATER SAMPLING LOG

Job No: 110026
Page 1 of 1

Owner/Location Kasilof Riverview Lodge

Well No.: Drinking Water (DW) Random No.: — Date: 10/24/22

Weather: 29° clear Time Started: 15:55 Time Completed: 16:20

SAMPLING DATA

Measuring Point (MP): _____

Height of MP Above or Below Land Surface: _____

MP Elevation: _____ Water Level Elevation: _____

Total Depth of Well Below MP: _____

Time of Depth Measurement: _____ DTW Below MP: _____

Time: _____ Water Column in Well: _____

Diameter of Casing: _____ Gallons per ft: _____

Gallons in Well: _____

Gallons Pumped/Bailed : _____

FIELD PARAMETERS

Time: 16:15 Odor: None Color: clear

Temp	Sp. Cond.	pH	ORP	Turbidity
9.9	638	6.40	72	5.05

Evacuation Method: Utility Room Spigot (Pre-treatment/filtration) from drinking H2O well

Sampling Method: Direct from well source; purged for 15 min prior to sample

Remarks: Sample 110026-DW collected @ 16:15

Sampling Personnel: ZJT

WELL CASING VOLUMES

GAL/FT 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 110026 Location: Kasilof Riverview Lodge Weather: 29° clear
Well No.: MW1
Date: 10/24/22 Time Started: 17:35 Time Completed: 18:40
Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 1654 Date of Depth Measurement: 10/24/22
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: 21.75
Water Column in Well: 12.62 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 2.02 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 10/24/22 Time Started: 1741 Time Completed: 1828
Three Well Volumes: 6.06 (Gallons in Well x 3)
Gallons Purged: 2.1 Depth of Pump (generally 2 ft from bottom): ~25'
Max. Drawdown (generally 0.3 ft): 0.25 Pump Rate: 0.1 L/min
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)
1746	0.3	0.2	22.00	0.25	6.49	1,010	0.85	5.40	42	15.54
1751	0.6	0.2	22.00	0.25	6.89	1,020	0.82	5.43	27	5.88
1756	0.9	0.2	22.00	0.25	6.97	1,030	0.77	5.43	17	0.31
18:01	1.2	0.2	22.00	0.25	7.01	1,030	0.74	5.46	12	0.66
18:06	1.5	0.2	22.00	0.25	7.03	1,040	0.73	5.45	10	0.12
18:11	1.8	0.2	22.00	0.25	7.04	1,040	0.72	5.45	9	0.51
18:16	2.1	0.2	22.00	0.25	7.03	1,040	0.71	5.45	8	0.29

SAMPLING DATA

Odor: Organic ~ Sulfur Color: Clear
Sample Designation: 110026-MW1 Time / Date: 18:18 10/24/22
QC Sample Designation: / Time / Date: /
QA Sample Designation: / Time / Date: /

Evacuation Method: Submersible Pump / Other: _____
Sampling Method: Submersible Pump / Other: _____
Water Quality Instruments Used/Manufacturer/Model Number Horiba + Micro TPW
Calibration Info (Time, Ranges, etc) 17:00 10/24/22
Remarks: _____
Sampling Personnel: ZST

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: 110026 Location: Kasilof Riverview Lodge Weather: 29° snowing
Well No.: MW2
Date: 10/25/22 Time Started: 11:30 Time Completed: 12:34
Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 1658 Date of Depth Measurement: 10/24/22
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: 28.12
Water Column in Well: 7.0 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.12 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 10/25/22 Time Started: 11:42 Time Completed: 1224
Three Well Volumes: 3.36 (Gallons in Well x 3)
Gallons Purged: 1.8 Depth of Pump (generally 2 ft from bottom): ~30.0'
Max. Drawdown (generally 0.3 ft): 0.17 Pump Rate: 0.2-0.3 L/min
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)
11:47	0.3	0.2	28.29	0.17	6.37	458	2.83	4.88	233	51.01
11:52	0.6	0.2	28.29	0.17	6.57	466	2.60	4.93	229	36.30
11:57	0.9	0.2	28.29	0.17	6.58	491	2.29	4.99	225	30.78
12:02	1.2	0.2	28.29	0.17	6.55	502	1.90	5.04	220	26.42
12:05	1.4	0.2	28.29	0.17	6.56	510	1.84	5.05	218	19.20
12:08	1.6	0.2	28.29	0.17	6.56	514	1.72	5.06	217	18.74
12:11	1.8	0.2	28.29	0.17	6.57	517	1.67	5.06	217	17.99

SAMPLING DATA

Odor: None Color: Tan-tint
Sample Designation: 110026-MW2 Time / Date: 12:14 10/25/22
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 Horiba + Micro TPW
Calibration Info (Time, Ranges, etc) 7:00 10/25/22
Remarks: _____
Sampling Personnel: ZST

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: 110026 Location: Kasilof Riverview Lodge Weather: 29° snowing
Well No.: MW3
Date: 10/25/22 Time Started: 12:41 Time Completed: 13:40
Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 17:00 Date of Depth Measurement: 10/24/22
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: 25.36
Water Column in Well: 7.33 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.17 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 10/25/22 Time Started: 12:56 Time Completed: 13:30
Three Well Volumes: 3.52 (Gallons in Well x 3)
Gallons Purged: 1.3 Depth of Pump (generally 2 ft from bottom): ~28.0'
Max. Drawdown (generally 0.3 ft): 0.18 Pump Rate: 0.2 L/min
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)
13:01	0.3	0.2	25.54	0.18	4.59	328	2.27	5.17	209	56.27
13:06	0.6	0.2	25.54	0.18	4.64	322	1.61	5.14	207	21.89
13:11	0.9	0.2	25.54	0.18	4.70	318	1.24	5.13	205	8.79
13:14	1.1	0.2	25.54	0.18	4.76	317	1.19	5.12	204	5.25
13:17	1.3	0.2	25.54	0.18	4.81	316	1.18	5.12	203	3.14

SAMPLING DATA

Odor: None Color: Red-brown tint
Sample Designation: 110026-MW3 Time / Date: 13:20 10/25/22
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 Horiba + Micro TPW
Calibration Info (Time, Ranges, etc) 7:00 10/25/22
Remarks:
Sampling Personnel: ZJT

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: 110026 Location: Kasilof Riverview Lodge Weather: 29° snowing heavily
Well No.: MW4
Date: 10/25/22 Time Started: 14:00 Time Completed: 15:00
Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 17:05 Date of Depth Measurement: 10/24/22
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: 7.17
Water Column in Well: 10.59 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.69 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 10/25/22 Time Started: 14:08 Time Completed: 14:43
Three Well Volumes: 5.08 (Gallons in Well x 3)
Gallons Purged: 1.8 Depth of Pump (generally 2 ft from bottom): ~10.0'
Max. Drawdown (generally 0.3 ft): 0.25 Pump Rate: 0.3 L/min
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)
14:13	0.4	0.3	7.42	0.25	7.29	509	3.94	5.53	36	16.42
14:18	0.8	0.3	7.42	0.25	7.34	513	2.35	5.57	18	11.96
14:23	1.2	0.3	7.42	0.25	7.26	519	1.77	5.60	9	9.13
14:26	1.5	0.3	7.42	0.25	7.25	520	1.73	5.61	8	7.21
14:29	1.8	0.3	7.42	0.25	7.24	522	1.69	5.61	7	6.49

SAMPLING DATA

Odor: None Color: clear
Sample Designation: 110026-MW4 Time / Date: 14:30 10/25/22
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 Horiba + Micro TPW

Calibration Info (Time, Ranges, etc) 7:00 10/25/22

Remarks:

Sampling Personnel: ZJT

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: 110026 Location: East of Riverview Lodge Weather: 24° clear
Well No.: MW5
Date: 10/25/22 Time Started: 10:21 Time Completed: 11:13
Develop Date: 10/25/22 Develop End Time: 10:20 (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 8:54 Date of Depth Measurement: 10/25/22
Measuring Point (MP): ~~Top of PVC Casing~~ / Top of Steel Protective Casing / Other: _____
Diameter of Casing: 2" Well Screen Interval: 22.0 - 32.0
Total Depth of Well Below MP: 32.08 Product Thickness, if noted: —
Depth-to-Water (DTW) Below MP: 23.71
Water Column in Well: 8.37 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.34 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 10/25/22 Time Started: 10:22 Time Completed: 11:03
Three Well Volumes: 4.02 (Gallons in Well x 3)
Gallons Purged: 0.5 Depth of Pump (generally 2 ft from bottom): ~26.0'
Max. Drawdown (generally 0.3 ft): 0.10 Pump Rate: 0.5 L/min
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)
10:23	0.5	0.5	23.81	0.10	6.72	475	0.65	6.40	122	29.67

SAMPLING DATA

Odor: None Color: Clear
Sample Designation: 110026-MW5 Time / Date: 10:25 10/25/22
QC Sample Designation: 110026-MW15 Time / Date: 10:55 10/25/22
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 Horiba & Micro TPW

Calibration Info (Time, Ranges, etc) 7:00 10/25/22

Remarks: _____

Sampling Personnel: ZST

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.

WELL DEVELOPMENT LOG

Job No: 110026 Location: Kasilof Riverview Lodge Weather: 24° clear
Concern: — Well No.: MW5
Develop Date: 10/25/22 Time Started: 8:30 Time Completed:

PURGING DATA

Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other:
Time of Depth Measurement: 8:54
Diameter of Casing: 1" ☐ 2" ☑
Total Depth of Well Below MP: 32.08
Depth-to-Water (DTW) Below MP: 23.71
Water Column in Well: 8.37 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.34 (Water Column in Well x Gallons per foot)
Three Well Volumes: 4.02 (Gallons in Well x 3)
Gallons Purged: 25.0

DEVELOPMENT DATA

Odor: None Color: Brown

DTW	Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)
24.25	9:19	8.0	7.4	870	6.49	-48	>1000
24.35	9:29	6.0	7.0	717	6.47	162	>1000
24.55	9:39	10.0	6.9	620	6.42	177	703.6
24.35	9:49	14.0	6.8	580	6.43	185	644.8
24.50	9:59	18.0	6.8	572	6.44	171	530.9
24.60	10:09	22.0	6.8	523	6.45	145	230.0

Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
1	9:00 - 9:05 (5)	3.0	9:09 - 9:19 (10)
2	9:20 - 9:23 (3)	3.0	9:24 - 9:29 (5)
3	9:30 - 9:33 (3)	4.0	9:34 - 9:39 (5)
4	9:40 - 9:43 (3)	4.0	9:44 - 9:49 (5)
5	9:50 - 9:53 (3)	4.0	9:54 - 9:59 (5)
6	10:00 - 10:03 (3)	4.0	10:04 - 10:09 (5)

Evacuation Method: Proactive Pump / Other: Double Whale Surge Block: 2.0'

Remarks: Development considered complete upon purging tot. of 25 gal stabilization criteria not met, attempt to lower turb. prior to sample collection

Sampling Personnel: ZJT

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

Shannon & Wilson, Inc.

WELL DEVELOPMENT LOG

Job No: 110026 Location: Kasilof River Lodge Weather: 24° clear
Concern: — Well No.: MW5
Develop Date: 10/25/22 Time Started: 8:30 Time Completed: _____

PURGING DATA

Measuring Point (MP): ~~Top of PVC Casing~~ / Top of Steel Protective Casing / Other: _____
Time of Depth Measurement: 8:54
Diameter of Casing: 1" ☐ 2" ☑
Total Depth of Well Below MP: 32.08
Depth-to-Water (DTW) Below MP: 23.71
Water Column in Well: 8.37 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.34 (Water Column in Well x Gallons per foot)
Three Well Volumes: 4.02 (Gallons in Well x 3)
Gallons Purged: _____

DEVELOPMENT DATA

Odor: None Color: brown tint

DTW:	Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)
24.60	10:19	25.0	6.70	523	6.45	154	84.09

Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
~~1~~ 7	10:10 - 10:13 (3)	3.0	10:14 - 1019 (5)
~~2~~		25 gal Total	
~~3~~			
4			
5			
6			

Evacuation Method: Proactive Pump / Other: Double Whale Surge Block: 2.0'

Remarks: Allow well to recharge to 80% original volume @ low flow purge rate, reducing turbidity prior to sampling

Sampling Personnel: ZST

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

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF GEOPROBE

PROBING COMPANY/DRILLER: Discovery Drilling
PROBE RIG EQUIPMENT: Geoprobe 6712 DT
PROBING METHOD: Split Spoon
PROBE DIAM.: ~3.0" TYP. RUN LENGTH: 2'
WEATHER DURING DRILLING: 29° clear

JOB NO: 110026 PROBE NO: 419
JOB NAME: Kasilof Riverview Lodge
LOGGED BY: ZJT
LOCATION: Kasilof ELEV.: —
START DATE: 10/24/22 END DATE: 10/24/22

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
12:00 10/24	1	0' 2'	2.0	Brown, Sand w/ silt + gravel, moist	2.1	S1	0 2	
12:10	2	5' 7'	2.0	Brown, Sand w/ silt + G, moist	1.1	S2	5 7	
12:20	3	7.5 9.5	2.0	Grey-brown, Sand w/ silt, moist	0.7	S3	7.5-9.5	
12:34	4	10' 12'	2.0	Tan-brown, sand w/ silt, moist	7.2	S4	10-12	
12:42	5	12.5 14.5	2.0	Grey, Sand w/ silt + organics moist	40.4	S5	12.5-14.5	
13:05	6	15 17	2.0	Grey-tan, Sand w/ gravel + silt moist	10.5	S6	15-17	
13:20	7	17.5 19.5	2.0	Grey-tan, Sand w/ silt moist	16.5	S7	17.5-19.5	
13:34	8	20 22	2.0	Grey-Brown Sand w/ silt, moist	18.4	S8	20-22	
13:48	9	22.5 24.5	2.0	Gray-brown Sand w/ silt, moist	26.6	S9	22.5-24.5	
14:07	10	26.0 27.0	2.0	Gray-brown Sand w/ silt, wet H2O	2.3	S10	25-27	
—	11	29.5 32.5	—	Advance the drill additional 5.0' below H2O to ~32.5' bgs	—	—	29.5	
—	12	32.5 32.5	—	Don't sample below water table last 5'.	—	—	32.5	

SUMMARY FIELD LOG OF GEOPROBE

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

COMMENTS (i.e. materials used, visitors, problems, etc.):
Complete boring to depth 32.5' bgs

GROUNDWATER DATA

WATER DEPTH	TIME	DATE
~26.0	1407	10/24/22

SUMMARY OF TIME AND FOOTAGE

PROBE/SAMPLE: ____ hrs. STANDBY: ____ hrs.
SETUP/CLEANUP: ____ hrs. DECON: ____ hrs.
OTHER: ____

BORING: B5 SHEET 1 OF 1

Shannon & Wilson, Inc.

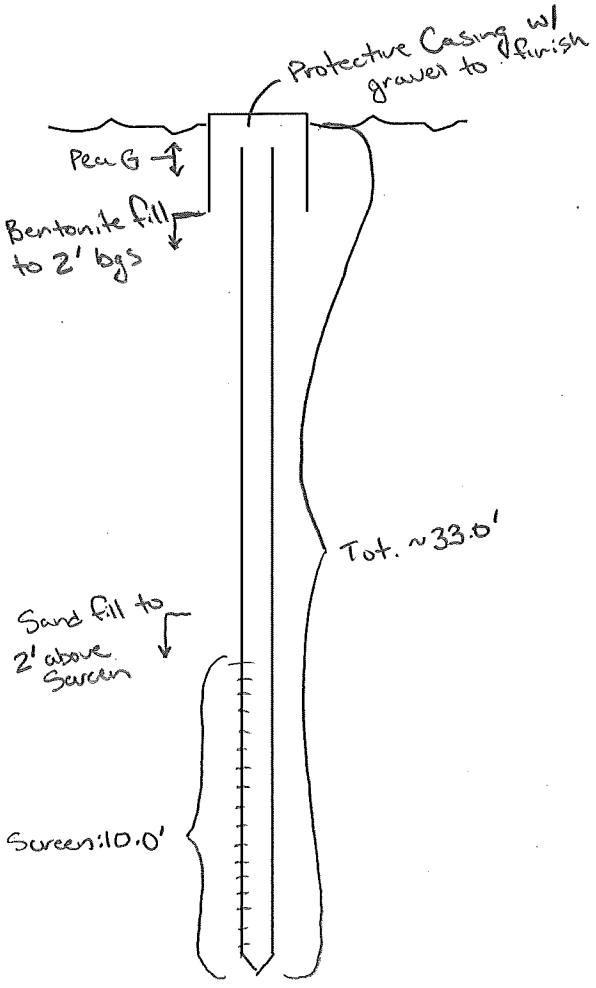
MONITORING WELL CONSTRUCTION DETAILS

Job No: 110026 Project: Kasilof Riverview Lodge

Weather: 29° clear

Well No.: MW5

Date: 10/24/22 Time Started: 1440 Time Completed: 15:40



WELL DATA:

Pipe Type: Sched 40 PVC

Diameter: 2.0"

Total Depth (ft bgs): 33.0'

Well Screen Interval (feet): 32.0 - 22.0'

Top of Well Screen (ft bgs): ~22.0'

Slot size: 0.010"

Casing Connection: —

Depth below surface: — N/A ☐

Casing stickup: — N/A ☐

PACKING MATERIAL:

	Depth below ground surface: From	To
Soil Cuttings:	—	—
Sand (20-40):		
Bentonite chips:		
~~Sand (20-40):~~ Pea Gravel		

MONUMENT:

Flush Mount ☑ Post ☐

Monument height: Ø N/A ☐

Monument Diameter: ~8.0" N/A ☐

LOCK:

Type: Bolt down lid

Combination: —

Length cutoff last section: —

Remarks:

Time between installation/development: —

Engineer or Geologist: ZJT

Swing Ties to MW5

MW5 - Corner of fence 8.0'
MW5 - TO fueling canopy concrete slab 35'
MW5 - To Lodge E wall 47.5'

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

Legend

B5/MW5 — Appoximate Location of Proposed Boring/Monitoring Well B5/MW5

Monitoring Well

0 150 300
Feet

N

Kasilof Riverview Lodge
Kasilof, Alaska

SITE PLAN

September 2022 110026-001

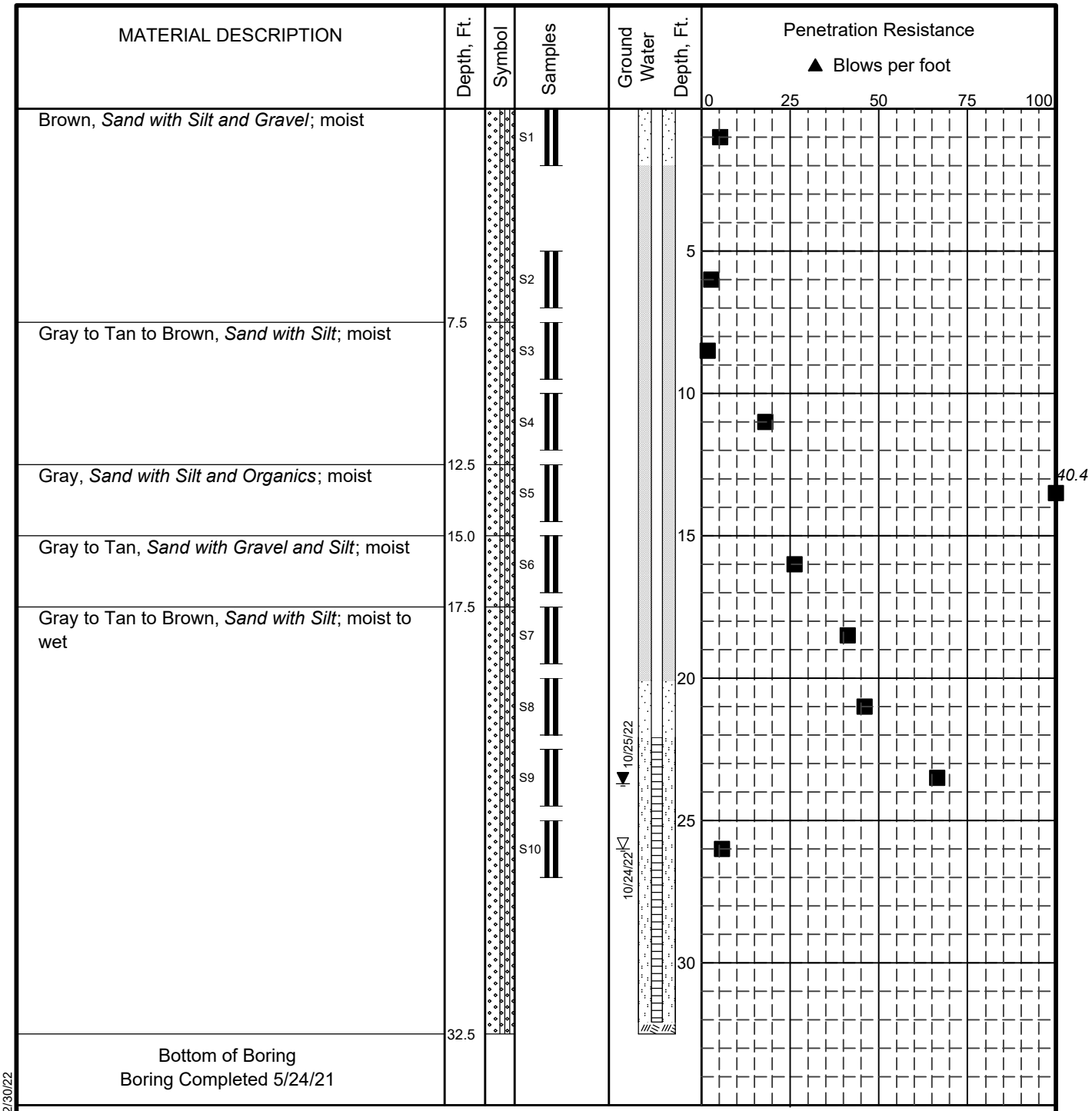
SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2

APPENDIX C: BORING LOGS AND MONITORING WELL CONSTRUCTION DETAILS

Appendix C

Boring Logs and Monitoring Well Construction Details



LEGEND

* Sample not recovered
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

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 B5

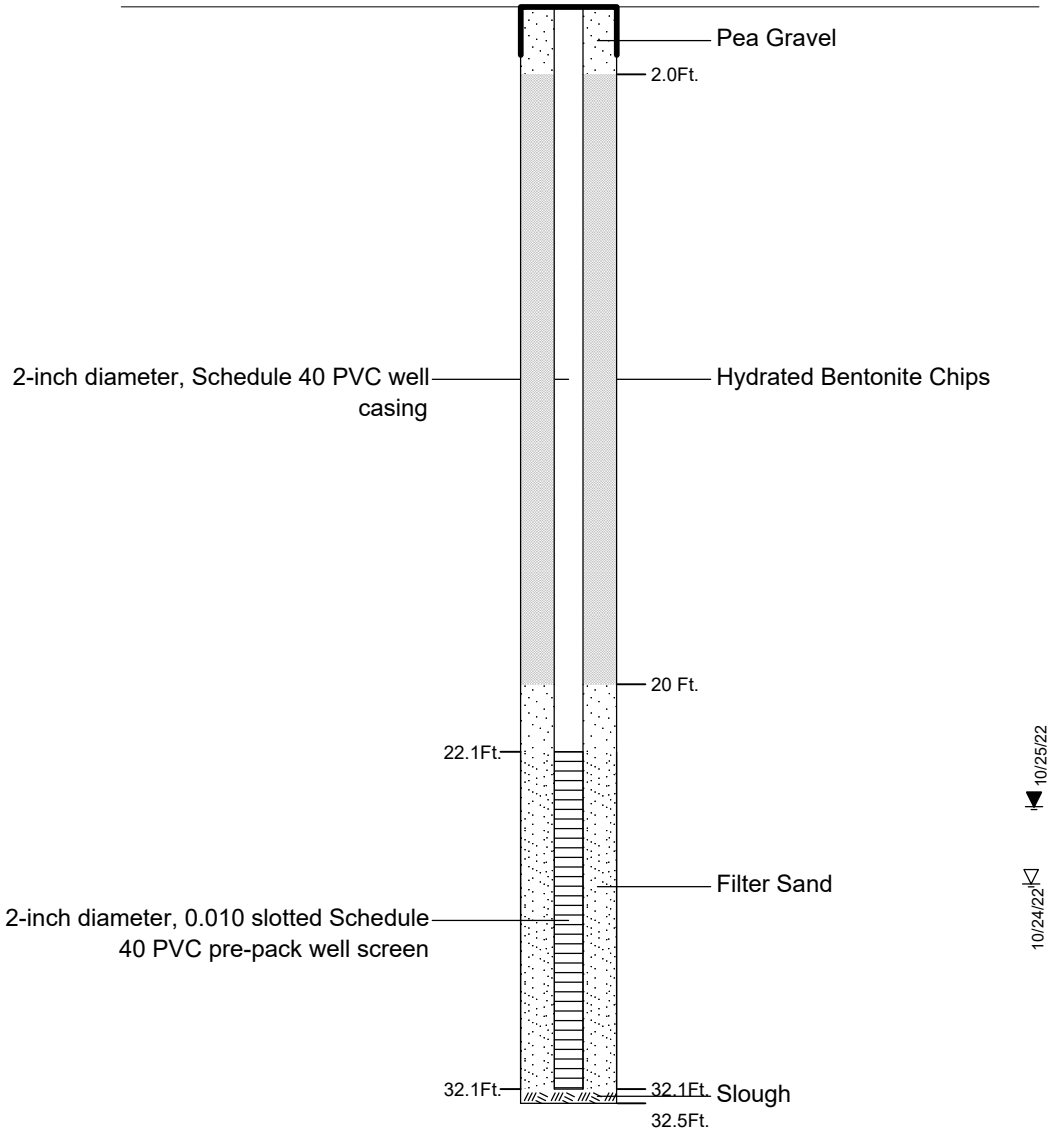
December 2022 110026-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. C-1

ENVIRONMENTAL LOG BORING LOGS.GPJ S&W GEO1.GDT 12/30/22

Casing Description **Backfill Description**



LEGEND

- ▽ Groundwater Level ATD
- ▼ Static Groundwater Level

NOTE: All joints use threaded connections.

57440 Sterling Highway
Kasilof, Alaska

MONITORING WELL MW5
CONSTRUCTION DETAIL

December 2022 110026-001

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Fig. C-2

APPENDIX D: RESULTS OF ANALYTICAL TESTING

Appendix D

Results of Analytical Testing

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks St., Suite 3
Anchorage, AK 99518

Report Number: **1226551**

Client Project: **110026 Kasilof Riverview Lodge**

Dear Zach Thon,

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
2022.11.09
15:44:28 -09'00'

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1226551**
Project Name/Site: **110026 Kasilof Riverview Lodge**
Project Contact: **Zach Thon**

Refer to sample receipt form for information on sample condition.

110026-B5S5 (1226551001) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.

1226502018(1694568MSD) (1694570) MSD

8260D - MS/MSD RPD for chloroethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated PS.

1226608007MS (1694871) MS

8270D SIM - PAH Surrogate recovery for 2-methylnapthhalene-d10 does not meet QC criteria due to matrix interference.
8270D SIM - PAH MS recoveries for acenaphthene and pyrene do not meet QC criteria. Refer to LCS for accuracy requirements.
8270D SIM - PAH The LOQs are elevated due to sample dilution. The sample was diluted due to a high concentration of non-target compounds.

1226608007MSD (1694872) MSD

8270D SIM - PAH Surrogate recovery for 2-methylnapthhalene-d10 does not meet QC criteria due to matrix interference.
8270D SIM - PAH MSD recoveries for acenaphthene, fluorene, and pyrene do not meet QC criteria. Refer to LCS for accuracy requirements.
8270D SIM - PAH The LOQs are elevated due to sample dilution. The sample was diluted due to a high concentration of non-target compounds.

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

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIM (PAH)				
1694872	1226608007MSD	XMS13440	Benzo(a)Anthracene	RP

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.

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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, indenmification and jurisdiction issues defined therein.

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 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 SGS QAP and, when applicable, other regulatory authorities.

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

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

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
110026-B5S5	1226551001	10/24/2022	10/26/2022	Soil/Solid (dry weight)
110026-B5S15	1226551002	10/24/2022	10/26/2022	Soil/Solid (dry weight)

Method	Method Description
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel Range Organics (S)
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8260D	VOC 8260 (S) Field Extracted

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Detectable Results Summary

Client Sample ID: **110026-B5S5**
Lab Sample ID: 1226551001

Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Gasoline Range Organics	7.65	mg/kg
1,3,5-Trimethylbenzene	292	ug/kg
4-Isopropyltoluene	51.8J	ug/kg
Benzene	849	ug/kg
Ethylbenzene	596	ug/kg
Isopropylbenzene (Cumene)	232	ug/kg
n-Propylbenzene	364	ug/kg
P & M -Xylene	104	ug/kg
sec-Butylbenzene	46.2	ug/kg
Xylenes (total)	104	ug/kg

Client Sample ID: **110026-B5S15**
Lab Sample ID: 1226551002

Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Gasoline Range Organics	3.10	mg/kg
1,3,5-Trimethylbenzene	95.0	ug/kg
Benzene	173	ug/kg
Ethylbenzene	150	ug/kg
Isopropylbenzene (Cumene)	66.5	ug/kg
n-Propylbenzene	110	ug/kg
P & M -Xylene	28.0J	ug/kg
sec-Butylbenzene	15.8J	ug/kg
Xylenes (total)	28.0J	ug/kg

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Results of **110026-B5S5**

Client Sample ID: **110026-B5S5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551001
Lab Project ID: 1226551

Collection Date: 10/24/22 12:42
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
2-Methylnaphthalene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Acenaphthene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Acenaphthylene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Anthracene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Benzo(a)Anthracene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Benzo[a]pyrene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Benzo[b]Fluoranthene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Benzo[g,h,i]perylene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Benzo[k]fluoranthene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Chrysene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Dibenzo[a,h]anthracene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Fluoranthene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Fluorene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Indeno[1,2,3-c,d] pyrene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Naphthalene	11.4	U	22.7	5.67	ug/kg	1		11/05/22 03:44
Phenanthrene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Pyrene	14.2	U	28.3	7.08	ug/kg	1		11/05/22 03:44
Surrogates								
2-Methylnaphthalene-d10 (surr)	90.7		58-103		%	1		11/05/22 03:44
Fluoranthene-d10 (surr)	90.3		54-113		%	1		11/05/22 03:44

Batch Information

Analytical Batch: XMS13440
Analytical Method: 8270D SIM (PAH)
Analyst: NGG
Analytical Date/Time: 11/05/22 03:44
Container ID: 1226551001-A

Prep Batch: XXX47282
Prep Method: SW3550C
Prep Date/Time: 11/02/22 13:30
Prep Initial Wt./Vol.: 22.595 g
Prep Extract Vol: 5 mL

Print Date: 11/09/2022 7:55:42AM

J flagging is activated

Results of **110026-B5S5**

Client Sample ID: **110026-B5S5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551001
Lab Project ID: 1226551

Collection Date: 10/24/22 12:42
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.2	U	22.4	10.1	mg/kg	1		11/07/22 15:24
Surrogates								
5a Androstane (surr)	89.1		50-150		%	1		11/07/22 15:24

Batch Information

Analytical Batch: XFC16398
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/07/22 15:24
Container ID: 1226551001-A

Prep Batch: XXX47292
Prep Method: SW3550C
Prep Date/Time: 11/07/22 10:00
Prep Initial Wt./Vol.: 30.469 g
Prep Extract Vol: 5 mL

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Results of **110026-B5S5**

Client Sample ID: **110026-B5S5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551001
Lab Project ID: 1226551

Collection Date: 10/24/22 12:42
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	7.65		2.25	0.674	mg/kg	1		10/28/22 21:41
Surrogates								
4-Bromofluorobenzene (surr)	155	*	50-150		%	1		10/28/22 21:41

Batch Information

Analytical Batch: VFC16317
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 10/28/22 21:41
Container ID: 1226551001-B

Prep Batch: VXX39410
Prep Method: SW5035A
Prep Date/Time: 10/24/22 12:42
Prep Initial Wt./Vol.: 91.451 g
Prep Extract Vol: 36.1164 mL

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Results of **110026-B5S5**

Client Sample ID: **110026-B5S5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551001
Lab Project ID: 1226551

Collection Date: 10/24/22 12:42
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.00	U	18.0	5.57	ug/kg	1		10/28/22 19:14
1,1,1-Trichloroethane	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
1,1,2,2-Tetrachloroethane	0.900	U	1.80	0.557	ug/kg	1		10/28/22 19:14
1,1,2-Trichloroethane	0.450	U	0.899	0.450	ug/kg	1		10/28/22 19:14
1,1-Dichloroethane	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
1,1-Dichloroethene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
1,1-Dichloropropene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
1,2,3-Trichlorobenzene	45.0	U	89.9	27.0	ug/kg	1		10/28/22 19:14
1,2,3-Trichloropropane	0.900	U	1.80	0.557	ug/kg	1		10/28/22 19:14
1,2,4-Trichlorobenzene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
1,2,4-Trimethylbenzene	45.0	U	89.9	27.0	ug/kg	1		10/28/22 19:14
1,2-Dibromo-3-chloropropane	45.0	U	89.9	27.9	ug/kg	1		10/28/22 19:14
1,2-Dibromoethane	0.675	U	1.35	0.674	ug/kg	1		10/28/22 19:14
1,2-Dichlorobenzene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
1,2-Dichloroethane	0.900	U	1.80	0.629	ug/kg	1		10/28/22 19:14
1,2-Dichloropropane	4.50	U	8.99	4.50	ug/kg	1		10/28/22 19:14
1,3,5-Trimethylbenzene	292		22.5	7.01	ug/kg	1		10/28/22 19:14
1,3-Dichlorobenzene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
1,3-Dichloropropane	4.50	U	8.99	2.79	ug/kg	1		10/28/22 19:14
1,4-Dichlorobenzene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
2,2-Dichloropropane	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
2-Butanone (MEK)	113	U	225	70.1	ug/kg	1		10/28/22 19:14
2-Chlorotoluene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
2-Hexanone	54.0	U	108	53.9	ug/kg	1		10/28/22 19:14
4-Chlorotoluene	9.00	U	18.0	8.99	ug/kg	1		10/28/22 19:14
4-Isopropyltoluene	51.8	J	71.9	36.0	ug/kg	1		10/28/22 19:14
4-Methyl-2-pentanone (MIBK)	113	U	225	70.1	ug/kg	1		10/28/22 19:14
Acetone	113	U	225	98.9	ug/kg	1		10/28/22 19:14
Benzene	849		11.2	3.51	ug/kg	1		10/28/22 19:14
Bromobenzene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
Bromochloromethane	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
Bromodichloromethane	0.900	U	1.80	0.557	ug/kg	1		10/28/22 19:14
Bromoform	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
Bromomethane	9.00	U	18.0	7.19	ug/kg	1		10/28/22 19:14
Carbon disulfide	45.0	U	89.9	27.9	ug/kg	1		10/28/22 19:14
Carbon tetrachloride	5.60	U	11.2	3.51	ug/kg	1		10/28/22 19:14
Chlorobenzene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14

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J flagging is activated

Results of **110026-B5S5**

Client Sample ID: **110026-B5S5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551001
Lab Project ID: 1226551

Collection Date: 10/24/22 12:42
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	90.0	U	180	55.7	ug/kg	1		10/28/22 19:14
Chloroform	2.69	U	5.39	2.70	ug/kg	1		10/28/22 19:14
Chloromethane	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
cis-1,2-Dichloroethene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
cis-1,3-Dichloropropene	5.60	U	11.2	3.51	ug/kg	1		10/28/22 19:14
Dibromochloromethane	2.25	U	4.50	1.35	ug/kg	1		10/28/22 19:14
Dibromomethane	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
Dichlorodifluoromethane	45.0	U	89.9	27.0	ug/kg	1		10/28/22 19:14
Ethylbenzene	596		22.5	7.01	ug/kg	1		10/28/22 19:14
Freon-113	45.0	U	89.9	27.9	ug/kg	1		10/28/22 19:14
Hexachlorobutadiene	9.00	U	18.0	5.57	ug/kg	1		10/28/22 19:14
Isopropylbenzene (Cumene)	232		22.5	7.01	ug/kg	1		10/28/22 19:14
Methylene chloride	45.0	U	89.9	27.9	ug/kg	1		10/28/22 19:14
Methyl-t-butyl ether	45.0	U	89.9	27.9	ug/kg	1		10/28/22 19:14
Naphthalene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
n-Butylbenzene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
n-Propylbenzene	364		22.5	7.01	ug/kg	1		10/28/22 19:14
o-Xylene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
P & M -Xylene	104		45.0	13.5	ug/kg	1		10/28/22 19:14
sec-Butylbenzene	46.2		22.5	7.01	ug/kg	1		10/28/22 19:14
Styrene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
tert-Butylbenzene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
Tetrachloroethene	5.60	U	11.2	3.51	ug/kg	1		10/28/22 19:14
Toluene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
trans-1,2-Dichloroethene	11.3	U	22.5	7.01	ug/kg	1		10/28/22 19:14
trans-1,3-Dichloropropene	5.60	U	11.2	3.51	ug/kg	1		10/28/22 19:14
Trichloroethene	4.50	U	8.99	2.88	ug/kg	1		10/28/22 19:14
Trichlorofluoromethane	22.5	U	45.0	13.5	ug/kg	1		10/28/22 19:14
Vinyl acetate	45.0	U	89.9	27.9	ug/kg	1		10/28/22 19:14
Vinyl chloride	0.359	U	0.719	0.225	ug/kg	1		10/28/22 19:14
Xylenes (total)	104		67.4	20.5	ug/kg	1		10/28/22 19:14
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.7		71-136		%	1		10/28/22 19:14
4-Bromofluorobenzene (surr)	101		55-151		%	1		10/28/22 19:14
Toluene-d8 (surr)	94.8		85-116		%	1		10/28/22 19:14

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Results of **110026-B5S5**

Client Sample ID: **110026-B5S5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551001
Lab Project ID: 1226551

Collection Date: 10/24/22 12:42
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22109
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 10/28/22 19:14
Container ID: 1226551001-B

Prep Batch: VXX39407
Prep Method: SW5035A
Prep Date/Time: 10/24/22 12:42
Prep Initial Wt./Vol.: 91.451 g
Prep Extract Vol: 36.1164 mL

Results of **110026-B5S15**

Client Sample ID: **110026-B5S15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551002
Lab Project ID: 1226551

Collection Date: 10/24/22 13:12
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
2-Methylnaphthalene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Acenaphthene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Acenaphthylene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Anthracene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Benzo(a)Anthracene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Benzo[a]pyrene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Benzo[b]Fluoranthene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Benzo[g,h,i]perylene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Benzo[k]fluoranthene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Chrysene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Dibenzo[a,h]anthracene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Fluoranthene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Fluorene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Indeno[1,2,3-c,d] pyrene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Naphthalene	11.5	U	23.0	5.74	ug/kg	1		11/05/22 04:00
Phenanthrene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Pyrene	14.4	U	28.7	7.17	ug/kg	1		11/05/22 04:00
Surrogates								
2-Methylnaphthalene-d10 (surr)	92		58-103		%	1		11/05/22 04:00
Fluoranthene-d10 (surr)	90.8		54-113		%	1		11/05/22 04:00

Batch Information

Analytical Batch: XMS13440
Analytical Method: 8270D SIM (PAH)
Analyst: NGG
Analytical Date/Time: 11/05/22 04:00
Container ID: 1226551002-A

Prep Batch: XXX47282
Prep Method: SW3550C
Prep Date/Time: 11/02/22 13:30
Prep Initial Wt./Vol.: 22.606 g
Prep Extract Vol: 5 mL

Print Date: 11/09/2022 7:55:42AM

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Results of **110026-B5S15**

Client Sample ID: **110026-B5S15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551002
Lab Project ID: 1226551

Collection Date: 10/24/22 13:12
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.4	U	22.8	10.3	mg/kg	1		11/07/22 15:34
Surrogates								
5a Androstane (surr)	88.8		50-150		%	1		11/07/22 15:34

Batch Information

Analytical Batch: XFC16398
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/07/22 15:34
Container ID: 1226551002-A

Prep Batch: XXX47292
Prep Method: SW3550C
Prep Date/Time: 11/07/22 10:00
Prep Initial Wt./Vol.: 30.319 g
Prep Extract Vol: 5 mL

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Results of **110026-B5S15**

Client Sample ID: **110026-B5S15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551002
Lab Project ID: 1226551

Collection Date: 10/24/22 13:12
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.10		2.39	0.718	mg/kg	1		10/28/22 21:59
Surrogates								
4-Bromofluorobenzene (surr)	103		50-150		%	1		10/28/22 21:59

Batch Information

Analytical Batch: VFC16317
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 10/28/22 21:59
Container ID: 1226551002-B

Prep Batch: VXX39410
Prep Method: SW5035A
Prep Date/Time: 10/24/22 13:12
Prep Initial Wt./Vol.: 88.592 g
Prep Extract Vol: 36.7755 mL

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Results of **110026-B5S15**

Client Sample ID: **110026-B5S15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551002
Lab Project ID: 1226551

Collection Date: 10/24/22 13:12
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.55	U	19.1	5.94	ug/kg	1		10/28/22 19:30
1,1,1-Trichloroethane	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
1,1,2,2-Tetrachloroethane	0.955	U	1.91	0.594	ug/kg	1		10/28/22 19:30
1,1,2-Trichloroethane	0.478	U	0.957	0.479	ug/kg	1		10/28/22 19:30
1,1-Dichloroethane	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
1,1-Dichloroethene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
1,1-Dichloropropene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
1,2,3-Trichlorobenzene	47.9	U	95.7	28.7	ug/kg	1		10/28/22 19:30
1,2,3-Trichloropropane	0.955	U	1.91	0.594	ug/kg	1		10/28/22 19:30
1,2,4-Trichlorobenzene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
1,2,4-Trimethylbenzene	47.9	U	95.7	28.7	ug/kg	1		10/28/22 19:30
1,2-Dibromo-3-chloropropane	47.9	U	95.7	29.7	ug/kg	1		10/28/22 19:30
1,2-Dibromoethane	0.720	U	1.44	0.718	ug/kg	1		10/28/22 19:30
1,2-Dichlorobenzene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
1,2-Dichloroethane	0.955	U	1.91	0.670	ug/kg	1		10/28/22 19:30
1,2-Dichloropropane	4.79	U	9.57	4.79	ug/kg	1		10/28/22 19:30
1,3,5-Trimethylbenzene	95.0		23.9	7.47	ug/kg	1		10/28/22 19:30
1,3-Dichlorobenzene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
1,3-Dichloropropane	4.79	U	9.57	2.97	ug/kg	1		10/28/22 19:30
1,4-Dichlorobenzene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
2,2-Dichloropropane	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
2-Butanone (MEK)	120	U	239	74.7	ug/kg	1		10/28/22 19:30
2-Chlorotoluene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
2-Hexanone	57.5	U	115	57.4	ug/kg	1		10/28/22 19:30
4-Chlorotoluene	9.55	U	19.1	9.57	ug/kg	1		10/28/22 19:30
4-Isopropyltoluene	38.3	U	76.6	38.3	ug/kg	1		10/28/22 19:30
4-Methyl-2-pentanone (MIBK)	120	U	239	74.7	ug/kg	1		10/28/22 19:30
Acetone	120	U	239	105	ug/kg	1		10/28/22 19:30
Benzene	173		12.0	3.73	ug/kg	1		10/28/22 19:30
Bromobenzene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
Bromochloromethane	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
Bromodichloromethane	0.955	U	1.91	0.594	ug/kg	1		10/28/22 19:30
Bromoform	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
Bromomethane	9.55	U	19.1	7.66	ug/kg	1		10/28/22 19:30
Carbon disulfide	47.9	U	95.7	29.7	ug/kg	1		10/28/22 19:30
Carbon tetrachloride	6.00	U	12.0	3.73	ug/kg	1		10/28/22 19:30
Chlorobenzene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30

Results of **110026-B5S15**

Client Sample ID: **110026-B5S15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551002
Lab Project ID: 1226551

Collection Date: 10/24/22 13:12
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	95.5	U	191	59.4	ug/kg	1		10/28/22 19:30
Chloroform	2.87	U	5.74	2.87	ug/kg	1		10/28/22 19:30
Chloromethane	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
cis-1,2-Dichloroethene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
cis-1,3-Dichloropropene	6.00	U	12.0	3.73	ug/kg	1		10/28/22 19:30
Dibromochloromethane	2.40	U	4.79	1.44	ug/kg	1		10/28/22 19:30
Dibromomethane	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
Dichlorodifluoromethane	47.9	U	95.7	28.7	ug/kg	1		10/28/22 19:30
Ethylbenzene	150		23.9	7.47	ug/kg	1		10/28/22 19:30
Freon-113	47.9	U	95.7	29.7	ug/kg	1		10/28/22 19:30
Hexachlorobutadiene	9.55	U	19.1	5.94	ug/kg	1		10/28/22 19:30
Isopropylbenzene (Cumene)	66.5		23.9	7.47	ug/kg	1		10/28/22 19:30
Methylene chloride	47.9	U	95.7	29.7	ug/kg	1		10/28/22 19:30
Methyl-t-butyl ether	47.9	U	95.7	29.7	ug/kg	1		10/28/22 19:30
Naphthalene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
n-Butylbenzene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
n-Propylbenzene	110		23.9	7.47	ug/kg	1		10/28/22 19:30
o-Xylene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
P & M -Xylene	28.0	J	47.9	14.4	ug/kg	1		10/28/22 19:30
sec-Butylbenzene	15.8	J	23.9	7.47	ug/kg	1		10/28/22 19:30
Styrene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
tert-Butylbenzene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
Tetrachloroethene	6.00	U	12.0	3.73	ug/kg	1		10/28/22 19:30
Toluene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
trans-1,2-Dichloroethene	11.9	U	23.9	7.47	ug/kg	1		10/28/22 19:30
trans-1,3-Dichloropropene	6.00	U	12.0	3.73	ug/kg	1		10/28/22 19:30
Trichloroethene	4.79	U	9.57	3.06	ug/kg	1		10/28/22 19:30
Trichlorofluoromethane	23.9	U	47.9	14.4	ug/kg	1		10/28/22 19:30
Vinyl acetate	47.9	U	95.7	29.7	ug/kg	1		10/28/22 19:30
Vinyl chloride	0.383	U	0.766	0.239	ug/kg	1		10/28/22 19:30
Xylenes (total)	28.0	J	71.8	21.8	ug/kg	1		10/28/22 19:30
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.4		71-136		%	1		10/28/22 19:30
4-Bromofluorobenzene (surr)	105		55-151		%	1		10/28/22 19:30
Toluene-d8 (surr)	97.5		85-116		%	1		10/28/22 19:30

Print Date: 11/09/2022 7:55:42AM

J flagging is activated

Results of **110026-B5S15**

Client Sample ID: **110026-B5S15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226551002
Lab Project ID: 1226551

Collection Date: 10/24/22 13:12
Received Date: 10/26/22 10:38
Matrix: Soil/Solid (dry weight)
Solids (%):86.7
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22109
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 10/28/22 19:30
Container ID: 1226551002-B

Prep Batch: VXX39407
Prep Method: SW5035A
Prep Date/Time: 10/24/22 13:12
Prep Initial Wt./Vol.: 88.592 g
Prep Extract Vol: 36.7755 mL

Print Date: 11/09/2022 7:55:42AM

J flagging is activated

Method Blank

Blank ID: MB for HBN 1847424 [SPT/11670]
Blank Lab ID: 1694559

Matrix: Soil/Solid (dry weight)

QC for Samples:
1226551001, 1226551002

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT11670
Analytical Method: SM21 2540G
Instrument:
Analyst: APS
Analytical Date/Time: 10/28/2022 4:49:00PM

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Duplicate Sample Summary

Original Sample ID: 1226521003
Duplicate Sample ID: 1694563
QC for Samples:
1226551001, 1226551002

Analysis Date: 10/28/2022 16:49
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	83.6	82.9	%	0.80	(< 15)

Batch Information

Analytical Batch: SPT11670
Analytical Method: SM21 2540G
Instrument:
Analyst: APS

Print Date: 11/09/2022 7:55:44AM

Duplicate Sample Summary

Original Sample ID: 1226586004
Duplicate Sample ID: 1694564
QC for Samples:
1226551001, 1226551002

Analysis Date: 10/28/2022 16:49
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	90.3	90.9	%	0.75	(< 15)

Batch Information

Analytical Batch: SPT11670
Analytical Method: SM21 2540G
Instrument:
Analyst: APS

Print Date: 11/09/2022 7:55:44AM

Method Blank

Blank ID: MB for HBN 1847425 [VXX/39407]
Blank Lab ID: 1694565

Matrix: Soil/Solid (dry weight)

QC for Samples:
1226551001, 1226551002

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
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	0.500U	1.00	0.500	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	50.0U	100	30.0	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	50.0U	100	30.0	ug/kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/kg
1,2-Dibromoethane	0.750U	1.50	0.750	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	5.00	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	60.0U	120	60.0	ug/kg
4-Chlorotoluene	10.0U	20.0	10.0	ug/kg
4-Isopropyltoluene	40.0U	80.0	40.0	ug/kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/kg
Acetone	125U	250	110	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	8.00	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

Method Blank

Blank ID: MB for HBN 1847425 [VXX/39407]
Blank Lab ID: 1694565

Matrix: Soil/Solid (dry weight)

QC for Samples:
1226551001, 1226551002

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	3.00U	6.00	3.00	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	50.0U	100	30.0	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	5.00U	10.0	3.20	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)	102	71-136		%
4-Bromofluorobenzene (surr)	103	55-151		%
Toluene-d8 (surr)	97.8	85-116		%

Method Blank

Blank ID: MB for HBN 1847425 [VXX/39407]
Blank Lab ID: 1694565

Matrix: Soil/Solid (dry weight)

QC for Samples:
1226551001, 1226551002

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS22109
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 10/28/2022 11:55:00AM

Prep Batch: VXX39407
Prep Method: SW5035A
Prep Date/Time: 10/28/2022 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226551 [VXX39407]
Blank Spike Lab ID: 1694566
Date Analyzed: 10/28/2022 12:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1226551001, 1226551002

Results by **SW8260D**

Blank Spike (ug/kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	795	106	(78-125)
1,1,1-Trichloroethane	750	776	103	(73-130)
1,1,2,2-Tetrachloroethane	750	751	100	(70-124)
1,1,2-Trichloroethane	750	747	100	(78-121)
1,1-Dichloroethane	750	722	96	(76-125)
1,1-Dichloroethene	750	772	103	(70-131)
1,1-Dichloropropene	750	749	100	(76-125)
1,2,3-Trichlorobenzene	750	790	105	(66-130)
1,2,3-Trichloropropane	750	774	103	(73-125)
1,2,4-Trichlorobenzene	750	796	106	(67-129)
1,2,4-Trimethylbenzene	750	706	94	(75-123)
1,2-Dibromo-3-chloropropane	750	826	110	(61-132)
1,2-Dibromoethane	750	798	106	(78-122)
1,2-Dichlorobenzene	750	791	105	(78-121)
1,2-Dichloroethane	750	745	99	(73-128)
1,2-Dichloropropane	750	763	102	(76-123)
1,3,5-Trimethylbenzene	750	741	99	(73-124)
1,3-Dichlorobenzene	750	722	96	(77-121)
1,3-Dichloropropane	750	759	101	(77-121)
1,4-Dichlorobenzene	750	718	96	(75-120)
2,2-Dichloropropane	750	780	104	(67-133)
2-Butanone (MEK)	2250	2190	97	(51-148)
2-Chlorotoluene	750	713	95	(75-122)
2-Hexanone	2250	2240	100	(53-145)
4-Chlorotoluene	750	734	98	(72-124)
4-Isopropyltoluene	750	725	97	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2450	109	(65-135)
Acetone	2250	2290	102	(36-164)
Benzene	750	755	101	(77-121)
Bromobenzene	750	769	103	(78-121)
Bromochloromethane	750	793	106	(78-125)
Bromodichloromethane	750	833	111	(75-127)
Bromoform	750	827	110	(67-132)
Bromomethane	750	745	99	(53-143)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226551 [VXX39407]
Blank Spike Lab ID: 1694566
Date Analyzed: 10/28/2022 12:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1226551001, 1226551002

Results by **SW8260D**

Blank Spike (ug/kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon disulfide	1130	1230	110	(63-132)
Carbon tetrachloride	750	809	108	(70-135)
Chlorobenzene	750	749	100	(79-120)
Chloroethane	750	854	114	(59-139)
Chloroform	750	756	101	(78-123)
Chloromethane	750	625	83	(50-136)
cis-1,2-Dichloroethene	750	771	103	(77-123)
cis-1,3-Dichloropropene	750	861	115	(74-126)
Dibromochloromethane	750	876	117	(74-126)
Dibromomethane	750	819	109	(78-125)
Dichlorodifluoromethane	750	765	102	(29-149)
Ethylbenzene	750	729	97	(76-122)
Freon-113	1130	1140	102	(66-136)
Hexachlorobutadiene	750	681	91	(61-135)
Isopropylbenzene (Cumene)	750	735	98	(68-134)
Methylene chloride	750	778	104	(70-128)
Methyl-t-butyl ether	1130	1170	104	(73-125)
Naphthalene	750	736	98	(62-129)
n-Butylbenzene	750	714	95	(70-128)
n-Propylbenzene	750	722	96	(73-125)
o-Xylene	750	736	98	(77-123)
P & M -Xylene	1500	1440	96	(77-124)
sec-Butylbenzene	750	720	96	(73-126)
Styrene	750	767	102	(76-124)
tert-Butylbenzene	750	737	98	(73-125)
Tetrachloroethene	750	726	97	(73-128)
Toluene	750	710	95	(77-121)
trans-1,2-Dichloroethene	750	716	95	(74-125)
trans-1,3-Dichloropropene	750	826	110	(71-130)
Trichloroethene	750	784	105	(77-123)
Trichlorofluoromethane	750	796	106	(62-140)
Vinyl acetate	750	771	103	(50-151)
Vinyl chloride	750	741	99	(56-135)
Xylenes (total)	2250	2180	97	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226551 [VXX39407]
Blank Spike Lab ID: 1694566
Date Analyzed: 10/28/2022 12:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1226551001, 1226551002

Results by **SW8260D**

	Blank Spike (ug/kg)			
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750		98	(71-136)
4-Bromofluorobenzene (surr)	750		104	(55-151)
Toluene-d8 (surr)	750		98	(85-116)

Batch Information

Analytical Batch: **VMS22109**
Analytical Method: **SW8260D**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **S.S**

Prep Batch: **VXX39407**
Prep Method: **SW5035A**
Prep Date/Time: **10/28/2022 06:00**
Spike Init Wt./Vol.: 750 ug/kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1694568
MS Sample ID: 1694569 MS
MSD Sample ID: 1694570 MSD

Analysis Date: 10/28/2022 17:38
Analysis Date: 10/28/2022 13:07
Analysis Date: 10/28/2022 13:23
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1226551001, 1226551002

Results by **SW8260D**

		Matrix Spike (ug/kg)			Spike Duplicate (ug/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	10.4U	780	865	111	780	875	112	78-125	1.20	(< 20)
1,1,1-Trichloroethane	13.0U	780	855	110	780	856	110	73-130	0.04	(< 20)
1,1,2,2-Tetrachloroethane	1.04U	780	796	102	780	808	104	70-124	1.60	(< 20)
1,1,2-Trichloroethane	0.520U	780	802	103	780	825	106	78-121	2.80	(< 20)
1,1-Dichloroethane	13.0U	780	796	102	780	796	102	76-125	0.04	(< 20)
1,1-Dichloroethene	13.0U	780	838	107	780	829	106	70-131	1.10	(< 20)
1,1-Dichloropropene	13.0U	780	840	108	780	838	107	76-125	0.25	(< 20)
1,2,3-Trichlorobenzene	52.0U	780	817	105	780	981	126	66-130	18.20	(< 20)
1,2,3-Trichloropropane	1.04U	780	821	105	780	838	107	73-125	2.00	(< 20)
1,2,4-Trichlorobenzene	13.0U	780	846	108	780	934	120	67-129	9.90	(< 20)
1,2,4-Trimethylbenzene	52.0U	780	820	105	780	807	103	75-123	1.60	(< 20)
1,2-Dibromo-3-chloropropane	52.0U	780	884	113	780	921	118	61-132	4.10	(< 20)
1,2-Dibromoethane	0.780U	780	852	109	780	868	111	78-122	1.80	(< 20)
1,2-Dichlorobenzene	13.0U	780	865	111	780	880	113	78-121	1.60	(< 20)
1,2-Dichloroethane	1.04U	780	800	103	780	814	104	73-128	1.70	(< 20)
1,2-Dichloropropane	5.20U	780	840	108	780	843	108	76-123	0.45	(< 20)
1,3,5-Trimethylbenzene	13.0U	780	842	108	780	837	107	73-124	0.65	(< 20)
1,3-Dichlorobenzene	13.0U	780	817	105	780	804	103	77-121	1.60	(< 20)
1,3-Dichloropropane	5.20U	780	810	104	780	827	106	77-121	2.10	(< 20)
1,4-Dichlorobenzene	13.0U	780	793	102	780	797	102	75-120	0.45	(< 20)
2,2-Dichloropropane	13.0U	780	917	117	780	907	116	67-133	1.10	(< 20)
2-Butanone (MEK)	130U	2340	2300	98	2340	2360	101	51-148	2.60	(< 20)
2-Chlorotoluene	13.0U	780	792	101	780	792	102	75-122	0.11	(< 20)
2-Hexanone	62.5U	2340	2360	101	2340	2430	104	53-145	3.10	(< 20)
4-Chlorotoluene	10.4U	780	831	107	780	827	106	72-124	0.58	(< 20)
4-Isopropyltoluene	41.6U	780	824	106	780	822	105	73-127	0.26	(< 20)
4-Methyl-2-pentanone (MIBK)	130U	2340	2570	110	2340	2660	114	65-135	3.20	(< 20)
Acetone	130U	2340	2340	100	2340	2410	103	36-164	2.70	(< 20)
Benzene	6.50U	780	830	106	780	831	106	77-121	0.01	(< 20)
Bromobenzene	13.0U	780	842	108	780	851	109	78-121	1.10	(< 20)
Bromochloromethane	13.0U	780	852	109	780	856	110	78-125	0.54	(< 20)
Bromodichloromethane	1.04U	780	910	117	780	914	117	75-127	0.46	(< 20)
Bromoform	13.0U	780	860	110	780	886	113	67-132	2.90	(< 20)
Bromomethane	10.4U	780	818	105	780	811	104	53-143	0.87	(< 20)
Carbon disulfide	52.0U	1170	1330	113	1170	1320	112	63-132	0.67	(< 20)
Carbon tetrachloride	6.50U	780	900	115	780	898	115	70-135	0.11	(< 20)
Chlorobenzene	13.0U	780	815	104	780	821	105	79-120	0.77	(< 20)

Print Date: 11/09/2022 7:55:51AM

Matrix Spike Summary

Original Sample ID: 1694568
MS Sample ID: 1694569 MS
MSD Sample ID: 1694570 MSD

Analysis Date: 10/28/2022 17:38
Analysis Date: 10/28/2022 13:07
Analysis Date: 10/28/2022 13:23
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1226551001, 1226551002

Results by **SW8260D**

		Matrix Spike (ug/kg)			Spike Duplicate (ug/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	104U	780	782	100	780	615	79	59-139	24.00 *	(< 20)
Chloroform	3.12U	780	829	106	780	839	107	78-123	1.10	(< 20)
Chloromethane	13.0U	780	679	87	780	677	87	50-136	0.24	(< 20)
cis-1,2-Dichloroethene	13.0U	780	853	109	780	854	109	77-123	0.14	(< 20)
cis-1,3-Dichloropropene	6.50U	780	954	122	780	957	123	74-126	0.26	(< 20)
Dibromochloromethane	2.60U	780	943	121	780	964	124	74-126	2.20	(< 20)
Dibromomethane	13.0U	780	878	113	780	889	114	78-125	1.20	(< 20)
Dichlorodifluoromethane	52.0U	780	690	88	780	699	90	29-149	1.40	(< 20)
Ethylbenzene	13.0U	780	833	107	780	829	106	76-122	0.52	(< 20)
Freon-113	52.0U	1170	1270	109	1170	1260	108	66-136	1.10	(< 20)
Hexachlorobutadiene	10.4U	780	770	99	780	817	105	61-135	5.90	(< 20)
Isopropylbenzene (Cumene)	13.0U	780	824	106	780	825	106	68-134	0.03	(< 20)
Methylene chloride	52.0U	780	839	108	780	851	109	70-128	1.40	(< 20)
Methyl-t-butyl ether	52.0U	1170	1240	106	1170	1270	108	73-125	2.60	(< 20)
Naphthalene	13.0U	780	778	100	780	869	111	62-129	11.10	(< 20)
n-Butylbenzene	13.0U	780	849	109	780	858	110	70-128	1.00	(< 20)
n-Propylbenzene	13.0U	780	838	107	780	822	105	73-125	1.90	(< 20)
o-Xylene	13.0U	780	828	106	780	848	109	77-123	2.40	(< 20)
P & M -Xylene	26.0U	1560	1680	108	1560	1680	108	77-124	0.13	(< 20)
sec-Butylbenzene	13.0U	780	818	105	780	806	103	73-126	1.50	(< 20)
Styrene	13.0U	780	843	108	780	853	109	76-124	1.20	(< 20)
tert-Butylbenzene	13.0U	780	835	107	780	825	106	73-125	1.20	(< 20)
Tetrachloroethene	6.50U	780	845	108	780	822	105	73-128	2.70	(< 20)
Toluene	13.0U	780	791	101	780	790	101	77-121	0.07	(< 20)
trans-1,2-Dichloroethene	13.0U	780	864	111	780	858	110	74-125	0.61	(< 20)
trans-1,3-Dichloropropene	6.50U	780	912	117	780	929	119	71-130	1.90	(< 20)
Trichloroethene	5.20U	780	874	112	780	870	111	77-123	0.45	(< 20)
Trichlorofluoromethane	26.0U	780	855	110	780	817	105	62-140	4.50	(< 20)
Vinyl acetate	52.0U	780	814	104	780	841	108	50-151	3.30	(< 20)
Vinyl chloride	0.416U	780	797	102	780	761	98	56-135	4.70	(< 20)
Xylenes (total)	39.0U	2340	2510	107	2340	2530	108	78-124	0.73	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		780	766	98	780	763	98	71-136	0.41	
4-Bromofluorobenzene (surr)		1300	1130	87	1300	1130	87	55-151	0.15	
Toluene-d8 (surr)		780	765	98	780	764	98	85-116	0.12	

Print Date: 11/09/2022 7:55:51AM

Matrix Spike Summary

Original Sample ID: 1694568
MS Sample ID: 1694569 MS
MSD Sample ID: 1694570 MSD

QC for Samples: 1226551001, 1226551002

Analysis Date:
Analysis Date: 10/28/2022 13:07
Analysis Date: 10/28/2022 13:23
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260D**

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

Batch Information

Analytical Batch: VMS22109
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 10/28/2022 1:07:00PM

Prep Batch: VXX39407
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 10/28/2022 6:00:00AM
Prep Initial Wt./Vol.: 48.05g
Prep Extract Vol: 25.00mL

Print Date: 11/09/2022 7:55:51AM

Method Blank

Blank ID: MB for HBN 1847479 [VXX/39410]
Blank Lab ID: 1694732

Matrix: Soil/Solid (dry weight)

QC for Samples:
1226551001, 1226551002

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.43J	2.50	0.750	mg/kg
Surrogates				
4-Bromofluorobenzene (surr)	79.2	50-150		%

Batch Information

Analytical Batch: VFC16317
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: JY
Analytical Date/Time: 10/28/2022 2:03:00PM

Prep Batch: VXX39410
Prep Method: SW5035A
Prep Date/Time: 10/28/2022 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226551 [VXX39410]
Blank Spike Lab ID: 1694733
Date Analyzed: 10/28/2022 13:26

Spike Duplicate ID: LCSD for HBN 1226551 [VXX39410]
Spike Duplicate Lab ID: 1694734
Matrix: Soil/Solid (dry weight)

QC for Samples: 1226551001, 1226551002

Results by **AK101**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	12.4	99	12.5	12.3	98	(60-120)	0.97	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25		81	1.25		81	(50-150)	0.20	

Batch Information

Analytical Batch: **VFC16317**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **JY**

Prep Batch: **VXX39410**
Prep Method: **SW5035A**
Prep Date/Time: **10/28/2022 06:00**
Spike Init Wt./Vol.: 1.25 mg/kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1847516 [XXX/47282]
Blank Lab ID: 1694869

Matrix: Soil/Solid (dry weight)

QC for Samples:
1226551001, 1226551002

Results by **8270D SIM (PAH)**

Parameter	Results	LOQ/CL	DL	Units
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)	93	58-103		%
Fluoranthene-d10 (surr)	94.5	54-113		%

Batch Information

Analytical Batch: XMS13440
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent 8890 GC/MS US2210A024
Analyst: NGG
Analytical Date/Time: 11/5/2022 2:25:00AM

Prep Batch: XXX47282
Prep Method: SW3550C
Prep Date/Time: 11/2/2022 1:30:51PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226551 [XXX47282]
Blank Spike Lab ID: 1694870
Date Analyzed: 11/05/2022 02:40

Matrix: Soil/Solid (dry weight)

QC for Samples: 1226551001, 1226551002

Results by **8270D SIM (PAH)**

	Blank Spike (ug/kg)			
Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	105	95	(43-111)
2-Methylnaphthalene	111	110	99	(39-114)
Acenaphthene	111	108	97	(44-111)
Acenaphthylene	111	103	93	(39-116)
Anthracene	111	104	94	(50-114)
Benzo(a)Anthracene	111	109	98	(54-122)
Benzo[a]pyrene	111	103	93	(50-125)
Benzo[b]Fluoranthene	111	109	98	(53-128)
Benzo[g,h,i]perylene	111	98.8	89	(49-127)
Benzo[k]fluoranthene	111	108	97	(56-123)
Chrysene	111	108	97	(57-118)
Dibenzo[a,h]anthracene	111	103	93	(50-129)
Fluoranthene	111	109	98	(55-119)
Fluorene	111	106	96	(47-114)
Indeno[1,2,3-c,d] pyrene	111	103	92	(49-130)
Naphthalene	111	106	95	(38-111)
Phenanthrene	111	104	94	(49-113)
Pyrene	111	109	98	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	111		94	(58-103)
Fluoranthene-d10 (surr)	111		95	(54-113)

Batch Information

Analytical Batch: **XMS13440**
Analytical Method: **8270D SIM (PAH)**
Instrument: **Agilent 8890 GC/MS US2210A024**
Analyst: **NGG**

Prep Batch: **XXX47282**
Prep Method: **SW3550C**
Prep Date/Time: **11/02/2022 13:30**
Spike Init Wt./Vol.: 111 ug/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1226608007
MS Sample ID: 1694871 MS
MSD Sample ID: 1694872 MSD

Analysis Date: 11/05/2022 2:56
Analysis Date: 11/05/2022 3:12
Analysis Date: 11/05/2022 3:28
Matrix: Soil/Solid (dry weight)

QC for Samples: 1226551001, 1226551002

Results by **8270D SIM (PAH)**

		Matrix Spike (ug/kg)				Spike Duplicate (ug/kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	136U	121	120J	99		119	119J	100		43-111	0.35	(< 20)
2-Methylnaphthalene	136U	121	123J	102		119	121J	102		39-114	2.50	(< 20)
Acenaphthene	136U	121	135J	112	*	119	135J	114	*	44-111	0.11	(< 20)
Acenaphthylene	136U	121	132J	109		119	135J	114		39-116	2.20	(< 20)
Anthracene	136U	121	126J	105		119	129J	108		50-114	1.70	(< 20)
Benzo(a)Anthracene	136U	121	130J	107		119	129J	109		54-122	0.19	(< 20)
Benzo[a]pyrene	136U	121	125J	104		119	124J	105		50-125	0.73	(< 20)
Benzo[b]Fluoranthene	136U	121	133J	110		119	133J	112		53-128	0.16	(< 20)
Benzo[g,h,i]perylene	136U	121	121J	100		119	122J	103		49-127	0.90	(< 20)
Benzo[k]fluoranthene	136U	121	129J	106		119	129J	108		56-123	0.21	(< 20)
Chrysene	136U	121	132J	110		119	125J	105		57-118	5.60	(< 20)
Dibenzo[a,h]anthracene	136U	121	119J	98		119	118J	99		50-129	0.67	(< 20)
Fluoranthene	136U	121	139	115		119	139	117		55-119	0.01	(< 20)
Fluorene	136U	121	136	113		119	143	121	*	47-114	4.80	(< 20)
Indeno[1,2,3-c,d] pyrene	136U	121	119J	98		119	118J	99		49-130	1.10	(< 20)
Naphthalene	108U	121	121	100		119	119	100		38-111	1.70	(< 20)
Phenanthrene	136U	121	126J	105		119	125J	106		49-113	0.97	(< 20)
Pyrene	136U	121	174	103		119	202	128	*	55-117	14.70	(< 20)
Surrogates												
2-Methylnaphthalene-d10 (surr)		121	159	131	*	119	171	144	*	58-103	7.60	
Fluoranthene-d10 (surr)		121	129	107		119	126	106		54-113	2.20	

Batch Information

Analytical Batch: XMS13440
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent 8890 GC/MS US2210A024
Analyst: NGG
Analytical Date/Time: 11/5/2022 3:12:00AM

Prep Batch: XXX47282
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 11/2/2022 1:30:51PM
Prep Initial Wt./Vol.: 22.56g
Prep Extract Vol: 5.00mL

Print Date: 11/09/2022 7:56:01AM

Method Blank

Blank ID: MB for HBN 1847611 [XXX/47292]
Blank Lab ID: 1695288

Matrix: Soil/Solid (dry weight)

QC for Samples:
1226551001, 1226551002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	9.00	mg/kg
Surrogates				
5a Androstane (surr)	98.9	60-120		%

Batch Information

Analytical Batch: XFC16398
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: HMW
Analytical Date/Time: 11/7/2022 2:35:00PM

Prep Batch: XXX47292
Prep Method: SW3550C
Prep Date/Time: 11/7/2022 10:00:55AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226551 [XXX47292]
Blank Spike Lab ID: 1695289
Date Analyzed: 11/07/2022 14:44

Spike Duplicate ID: LCSD for HBN 1226551 [XXX47292]
Spike Duplicate Lab ID: 1695290
Matrix: Soil/Solid (dry weight)

QC for Samples: 1226551001, 1226551002

Results by **AK102**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	667	679	102	667	639	96	(75-125)	5.90	(< 20)
Surrogates									
5a Androstane (surr)	16.7		105	16.7		102	(60-120)	3.40	

Batch Information

Analytical Batch: **XFC16398**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **HMW**

Prep Batch: **XXX47292**
Prep Method: **SW3550C**
Prep Date/Time: **11/07/2022 10:00**
Spike Init Wt./Vol.: 16.7 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 16.7 mg/kg Extract Vol: 5 mL

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1226551

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Anchorage, Alaska 99518
(907) 561-2120
Fax (206) 695-6777

Prolic #305753

SGS North America

Date	Time	Sample ID	Total Containers	GRO-AK101 Amber MeOH	VOCs- EPA Method 8260D Amber MeOH	DRO- AK102 Amber	PAHs- EPA Method 8270D SIM Amber				
10/24/2022	12:42	110026-B5S5 1AB	2	X	X	X	X				
10/24/2022	13:12	110026-B5S15 2AB	2	X	X	X	X				

Relinquished By:	Relinquished By:	Project Information
Signature: ZJT	Signature:	Project Number: 110026
Print Name: Zach Thon	Print Name:	Project Name: Kasilof Riverview Lodge
Company: Shannon & Wilson, Inc.	Company:	Contact: Dan McMahon, Zach Thon
Date: 10/26/22	Date:	Sampler: ZJT
Time: 10:30	Time:	Special Instructions:
Received By:	**Received By:**	**Sample Receipt**
Signature:	Signature:	Shipped Via: Hand Delivered
Print Name:	Print Name: Alexandra Thurston-Carnes	
Company:	Company: SGS	Cooler Temperature Upon Arrival: 1.5°C DCB
Date:	Date: 10/26/22	Sample Matrix: Water
Time:	Time: 1030	**10 Working DAY TAT**

e-Sample Receipt Form

SGS Workorder #:	1226551	1226551

Review Criteria	Condition (Yes, No, N/A	Exceptions Noted below
Chain of Custody / Temperature Requirements	*Note:* Temperature and COC seal information is found on the chain of custody form	
DOD only: Did all sample coolers have a corresponding COC?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note containers received with ice:		
Identify any 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 and sample containers.	
Were samples received within analytical holding time?	Yes	
Do sample labels match COC? Record discrepancies.	Yes	
Note: *If information on containers differs from COC, default to COC information for login. If times differ <1hr, record details & login per COC.*		
Were analytical requests clear? *(i.e. method is specified for analyses with multiple option for method (Eg, BTEX 8021 vs 8260, Metals 6020 vs 200.8)*	Yes	
Were proper containers (type/mass/volume/preservative)used? Note: Exemption for metals analysis by 200.8/6020 in water.	Yes	
Volatile Analysis Requirements (VOC, GRO, LL-Hg, etc.)		
Were all soil VOAs received with a corresponding % solids container?	Yes	
Were Trip Blanks (e.g., VOAs, LL-Hg) in cooler with samples?	No	
Were all water VOA vials free of headspace (e.g., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with Methanol+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

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1226551001-A	No Preservative Required	OK			
1226551001-B	Methanol field pres. 4 C	OK			
1226551002-A	No Preservative Required	OK			
1226551002-B	Methanol field pres. 4 C	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates 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.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Alec Rizzo	**CS Site Name:**	Kasilof Riverview Lodge	**Lab Name:**	SGS
Title:	Geoscientist	**ADEC File No.:**	2319.26.002	**Lab Report No.:**	1226551
Consulting Firm:	Shannon & Wilson	**Hazard ID No.:**	22950	**Lab Report Date:**	11/09/22

Note: *Any N/A or No box checked must have an explanation in the comments box.*

1. **Laboratory**

   a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?
   Yes ☒ No ☐ N/A ☐
   Comments: .

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?
   Yes ☐ No ☐ N/A ☒
   Comments: *The samples were not transferred to another "network" laboratory or subcontracted to an alternated laboratory.*

2. **Chain of Custody (CoC)**

   a. Is the CoC information completed, signed, and dated (including released/received by)?
   Yes ☒ No ☐ N/A ☐
   Comments: .

   b. Were the correct analyses requested?
   Yes ☒ No ☐ N/A ☐
   Analyses requested: *GRO by AK101, DRO by AK102, VOCs by EPA Method 8260D, and PAHs by EPA Method 8270D SIM.*
   Comments: .

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes ☒ No ☐ N/A ☐
Cooler temperature(s): *1.5° C*
Sample temperature(s): N/A
Comments: .

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?
Yes ☒ No ☐ N/A ☐
Comments: .

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?
Yes ☒ No ☐ N/A ☐
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, canister not holding a vacuum, etc.?
Yes ☒ No ☐ N/A ☐
Comments: *Trip blanks were not included in this work order.*

e. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: *A soil trip blank was inadvertently not submitted.*

4. Case Narrative

a. Is the case narrative present and understandable?
Yes ☒ No ☐ N/A ☐
Comments: .

b. Are there discrepancies, errors, or QC failures identified by the lab?
Yes ☒ No ☐ N/A ☐
Comments: *The case narrative noted the following:*

-Sample B5S5- AK101- Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.
-MSD- 8260D- MS/MSD RPD for chloroethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated PS.
-MS- 8270D SIM- PAH surrogate recovery for 2-methylnaphthalene-d10 does not meet QC criteria due to matrix interference
-MS- 8270D SIM- PAH MS recoveries for acenaphthene and pyrene do not meet

QC criteria. Refer to LCS for accuracy requirements.
-MS- 8270D SIM- The LOQs are elevated due to sample dilution. The sample was diluted due to a high concentration of non-target compounds.

c. Were all the corrective actions documented?
Yes ☒ No ☐ N/A ☐
Comments*: See above.*

d. What is the effect on data quality/usability according to the case narrative?
Comments: *See above.*

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?
Yes ☒ No ☐ N/A ☐
Comments: .

b. Are all applicable holding times met?
Yes ☒ No ☐ N/A ☐
Comments: .

c. Are all soils reported on a dry weight basis?
Yes ☒ No ☐ N/A ☐
Comments: .

d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?
Yes ☐ No ☒ N/A ☐
Comments: *The LOQs for 1,2-dibromoethane and 1,2,3-trichloropropane are greater than their respective ADEC Table C cleanup levels.*

e. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: *There is a potential that the target analytes are present at concentrations greater than the ADEC cleanup levels, but less than the LOQs.*

6. QC Samples

a. Method Blank

i. Was one method blank reported per matrix, analysis, and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: .

ii. Are all method blank results less than LOQ (or RL)?
Yes ☒ No ☐
Comments: *Although less than the LOQ, an estimated concentration of GRO (1.43 J mg/kg) was detected in the method blank.*

iii. If above LoQ or RL, what samples are affected?
Comments: *All project samples are potentially affected.*

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☒ No ☐ N/A ☐
Comments: *Although less than the LOQ, samples are flagged "B" in Table 3 when the reported sample concentration is within 10x the reported method blank concentration. The concentration of GRO detected in Sample B5S15 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. The concentration of GRO detected in Sample B5S5 is within 5x and 10x the method blank detection, therefore the results are flagged "B", and reported at the detected concentration.*

v. Data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments*: See above.*

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

i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)
Yes ☒ No ☐ N/A ☐
Comments: .

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: .

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
Yes ☒ No ☐ N/A ☐
Comments: .

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
Yes ☒ No ☐ N/A ☐
Comments: .

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

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: .

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: .

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

i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: .

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: .

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?
Yes ☐ No ☒ N/A ☐
Comments: *The MS/MSD %R for acenaphthene, fluorene, and/or pyrene are greater than QC criteria.*

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.
Yes ☐ No ☒ N/A ☐
Comments: *The RPD for chloroethane is greater than QC criteria.*

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: *All project samples are potentially affected.*

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☒ N/A ☐
Comments: *The MS/MSD parent sample is from a separate work order. Therefore, flagging is not required.*

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: *See above.*

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

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?
Yes ☒ No ☐ N/A ☐
Comments: .

ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)
Yes ☐ No ☒ N/A ☐
Comments: *The surrogate recovery for 4-bromofluorobenzene is greater than QC criteria in Sample B5S5.*

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☒ N/A ☐
Comments: *The GRO results are flagged due to the method blank detection.*

iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: *See above.*

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☒ N/A ☐
Comments: *A trip blank was inadvertently not submitted in this work order.*

ii. Are all results less than LoQ or RL?
Yes ☐ No ☐ N/A ☒
Comments: .

iii. If above LoQ or RL, what samples are affected?
Comments: .

iv. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: *Cannot determine whether potential cross-contamination impacted the volatile sample results.*

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?
Yes ☒ No ☐ N/A ☐
Comments: *Sample B5S15 (duplicate of Sample B5S5) was submitted to the laboratory.*

ii. Was the duplicate submitted blind to lab?
Yes ☐ No ☐ N/A ☐
Comments: .

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD\ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X\ 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Comments: *The RPDs for multiple analytes are greater than QC criteria and are flagged "E" in Table 3.*

iv. Is the data quality or usability affected? (Explain)
Yes ☒ No ☐ N/A ☐
Comments: *See above.*

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?
Yes ☐ No ☒ N/A ☐
Comments: *A decontamination and equipment blank were not included in our ADEC-approved work plan.*

ii. Are all results less than LoQ or RL?
Yes ☐ No ☐ N/A ☒
Comments: .

iii. If above LoQ or RL, specify what samples are affected.
Comments:

iv. Are data quality or usability affected?
Yes ☐ No ☐ N/A ☒
Comments: *See above.*

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

a. Are they defined and appropriate?
Yes ☒ No ☐ N/A ☐
Comments: *A key is included on page 4 of the laboratory report.*

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks St., Suite 3
Anchorage, AK 99518

Report Number: **1226565**

Client Project: **110026 Kasilof Riverview Lodge**

Dear Zach Thon,

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
2022.11.16
16:20:40 -09'00'

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1226565**
Project Name/Site: **110026 Kasilof Riverview Lodge**
Project Contact: **Zach Thon**

Refer to sample receipt form for information on sample condition.

MB for HBN 1847498 [XXX/47276] (1694796) MB

8270D SIM - PAH MB results for 1-methylnapthalene and 2-methylnaphthalene are above 1/2 the LOQ.

LCSD for HBN 1847631 [VXX/3942 (1695400) LCSD

AK101 - LCS/LCSD RPD for GRO does not meet QC criteria. GRO was not detected above LOQ in associated samples.

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

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIM LV (PAH)				
1226565003	110026-MW2	XMS13445	1-Methylnaphthalene	SP
1226565003	110026-MW2	XMS13445	2-Methylnaphthalene	BLC
1226565005	110026-MW4	XMS13445	1-Methylnaphthalene	SP
1226565006	110026-MW5	XMS13445	1-Methylnaphthalene	SP
1694711	MB for HBN 1847468 [XXX/47271]	XMS13444	2-Methylnaphthalene	BLC
1694796	MB for HBN 1847498 [XXX/47276]	XMS13445	1-Methylnaphthalene	SP
1694796	MB for HBN 1847498 [XXX/47276]	XMS13445	2-Methylnaphthalene	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.

Print Date: 11/15/2022 4:15:02PM

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, indenmification and jurisdiction issues defined therein.

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 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 SGS QAP and, when applicable, other regulatory authorities.

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

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

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
110026-DW	1226565001	10/24/2022	10/26/2022	Water (Surface, Eff., Ground)
110026-MW1	1226565002	10/24/2022	10/26/2022	Water (Surface, Eff., Ground)
110026-MW2	1226565003	10/25/2022	10/26/2022	Water (Surface, Eff., Ground)
110026-MW3	1226565004	10/25/2022	10/26/2022	Water (Surface, Eff., Ground)
110026-MW4	1226565005	10/25/2022	10/26/2022	Water (Surface, Eff., Ground)
110026-MW5	1226565006	10/25/2022	10/26/2022	Water (Surface, Eff., Ground)
110026-MW15	1226565007	10/25/2022	10/26/2022	Water (Surface, Eff., Ground)
Trip Blank	1226565008	10/24/2022	10/26/2022	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS LV
AK102	DRO Low Volume (W)
AK101	Gasoline Range Organics (W)
SW8260D	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **110026-DW**
Lab Sample ID: 1226565001

Polynuclear Aromatics GC/MS
Volatile GC/MS

Parameter	Result	Units
2-Methylnaphthalene	0.0185J	ug/L
Toluene	0.470J	ug/L

Client Sample ID: **110026-MW1**
Lab Sample ID: 1226565002

Polynuclear Aromatics GC/MS

Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
2-Methylnaphthalene	0.0183J	ug/L
Fluoranthene	0.0156J	ug/L
Diesel Range Organics	0.277J	mg/L
Gasoline Range Organics	0.0686J	mg/L
Benzene	4.81	ug/L
Ethylbenzene	0.430J	ug/L

Client Sample ID: **110026-MW2**
Lab Sample ID: 1226565003

Polynuclear Aromatics GC/MS

Parameter	Result	Units
1-Methylnaphthalene	0.0185J	ug/L
2-Methylnaphthalene	0.0208J	ug/L

Client Sample ID: **110026-MW3**
Lab Sample ID: 1226565004

Polynuclear Aromatics GC/MS

Parameter	Result	Units
1-Methylnaphthalene	0.0173J	ug/L
2-Methylnaphthalene	0.0288J	ug/L

Client Sample ID: **110026-MW4**
Lab Sample ID: 1226565005

Polynuclear Aromatics GC/MS

Parameter	Result	Units
1-Methylnaphthalene	0.0167J	ug/L
2-Methylnaphthalene	0.0298J	ug/L

Client Sample ID: **110026-MW5**
Lab Sample ID: 1226565006

Polynuclear Aromatics GC/MS

Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
1-Methylnaphthalene	0.0386J	ug/L
2-Methylnaphthalene	0.0645	ug/L
Naphthalene	0.0316J	ug/L
Gasoline Range Organics	0.0765J	mg/L
Benzene	8.96	ug/L
Ethylbenzene	1.05	ug/L
n-Propylbenzene	0.320J	ug/L
Toluene	0.370J	ug/L

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Detectable Results Summary

Client Sample ID: **110026-MW15**
Lab Sample ID: 1226565007

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.0622	ug/L
	2-Methylnaphthalene	0.112	ug/L
	Fluoranthene	0.0412J	ug/L
	Fluorene	0.0402J	ug/L
	Naphthalene	0.0386J	ug/L
	Phenanthrene	0.113	ug/L
	Pyrene	0.0323J	ug/L
Volatile Fuels	Gasoline Range Organics	0.0700J	mg/L
Volatile GC/MS	Benzene	7.75	ug/L
	Ethylbenzene	0.990J	ug/L
	n-Propylbenzene	0.310J	ug/L
	Toluene	0.320J	ug/L

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Results of **110026-DW**

Client Sample ID: **110026-DW**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565001
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
2-Methylnaphthalene	0.0185	J	0.0490	0.0147	ug/L	1		11/10/22 16:09
Acenaphthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		11/10/22 16:09
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		11/10/22 16:09
Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Fluorene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Naphthalene	0.0490	U	0.0980	0.0304	ug/L	1		11/10/22 16:09
Phenanthrene	0.0490	U	0.0980	0.0304	ug/L	1		11/10/22 16:09
Pyrene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 16:09
Surrogates								
2-Methylnaphthalene-d10 (surr)	72.5		38-100		%	1		11/10/22 16:09
Fluoranthene-d10 (surr)	79.1		30-111		%	1		11/10/22 16:09

Batch Information

Analytical Batch: XMS13445
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 11/10/22 16:09
Container ID: 1226565001-I

Prep Batch: XXX47271
Prep Method: SW3535A
Prep Date/Time: 10/31/22 17:41
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **110026-DW**

Client Sample ID: **110026-DW**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565001
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.288	U	0.577	0.192	mg/L	1		11/04/22 13:59
Surrogates								
5a Androstane (surr)	78.8		50-150		%	1		11/04/22 13:59

Batch Information

Analytical Batch: XFC16397
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/04/22 13:59
Container ID: 1226565001-G

Prep Batch: XXX47287
Prep Method: SW3520C
Prep Date/Time: 11/03/22 15:49
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

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Results of **110026-DW**

Client Sample ID: **110026-DW**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565001
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		11/04/22 23:13
Surrogates								
4-Bromofluorobenzene (surr)	75.2		50-150		%	1		11/04/22 23:13

Batch Information

Analytical Batch: VFC16320
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 11/04/22 23:13
Container ID: 1226565001-B

Prep Batch: VXX39421
Prep Method: SW5030B
Prep Date/Time: 11/04/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-DW**

Client Sample ID: **110026-DW**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565001
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:21
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:21
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/29/22 22:21
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/29/22 22:21
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/29/22 22:21
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:21
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:21
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
Benzene	0.200	U	0.400	0.120	ug/L	1		10/29/22 22:21
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:21
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/29/22 22:21
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:21
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **110026-DW**

Client Sample ID: **110026-DW**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565001
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:21
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:21
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/29/22 22:21
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Styrene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Toluene	0.470	J	1.00	0.310	ug/L	1		10/29/22 22:21
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:21
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:21
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/29/22 22:21
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/29/22 22:21
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.3		81-118		%	1		10/29/22 22:21
4-Bromofluorobenzene (surr)	97.9		85-114		%	1		10/29/22 22:21
Toluene-d8 (surr)	101		89-112		%	1		10/29/22 22:21

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Results of **110026-DW**

Client Sample ID: **110026-DW**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565001
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22118
Analytical Method: SW8260D
Analyst: AZL
Analytical Date/Time: 10/29/22 22:21
Container ID: 1226565001-D

Prep Batch: VXX39424
Prep Method: SW5030B
Prep Date/Time: 10/29/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-MW1**

Client Sample ID: **110026-MW1**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565002
Lab Project ID: 1226565

Collection Date: 10/24/22 18:18
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
2-Methylnaphthalene	0.0183	J	0.0500	0.0150	ug/L	1		11/10/22 16:29
Acenaphthene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Acenaphthylene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Benzo(a)Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Benzo[a]pyrene	0.0100	U	0.0200	0.00620	ug/L	1		11/10/22 16:29
Benzo[b]Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Benzo[g,h,i]perylene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Benzo[k]fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Chrysene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Dibenzo[a,h]anthracene	0.0100	U	0.0200	0.00620	ug/L	1		11/10/22 16:29
Fluoranthene	0.0156	J	0.0500	0.0150	ug/L	1		11/10/22 16:29
Fluorene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Indeno[1,2,3-c,d] pyrene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Naphthalene	0.0500	U	0.100	0.0310	ug/L	1		11/10/22 16:29
Phenanthrene	0.0500	U	0.100	0.0310	ug/L	1		11/10/22 16:29
Pyrene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 16:29
Surrogates								
2-Methylnaphthalene-d10 (surr)	78.9		38-100		%	1		11/10/22 16:29
Fluoranthene-d10 (surr)	85.6		30-111		%	1		11/10/22 16:29

Batch Information

Analytical Batch: XMS13445
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 11/10/22 16:29
Container ID: 1226565002-I

Prep Batch: XXX47271
Prep Method: SW3535A
Prep Date/Time: 10/31/22 17:41
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **110026-MW1**

Client Sample ID: **110026-MW1**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565002
Lab Project ID: 1226565

Collection Date: 10/24/22 18:18
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.277	J	0.588	0.196	mg/L	1		11/04/22 14:09
Surrogates								
5a Androstane (surr)	88.1		50-150		%	1		11/04/22 14:09

Batch Information

Analytical Batch: XFC16397
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/04/22 14:09
Container ID: 1226565002-G

Prep Batch: XXX47287
Prep Method: SW3520C
Prep Date/Time: 11/03/22 15:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **110026-MW1**

Client Sample ID: **110026-MW1**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565002
Lab Project ID: 1226565

Collection Date: 10/24/22 18:18
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0686	J	0.100	0.0450	mg/L	1		10/31/22 22:16
Surrogates								
4-Bromofluorobenzene (surr)	75.9		50-150		%	1		10/31/22 22:16

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 10/31/22 22:16
Container ID: 1226565002-A

Prep Batch: VXX39411
Prep Method: SW5030B
Prep Date/Time: 10/31/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **110026-MW1**

Client Sample ID: **110026-MW1**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565002
Lab Project ID: 1226565

Collection Date: 10/24/22 18:18
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:35
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:35
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/29/22 22:35
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/29/22 22:35
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/29/22 22:35
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:35
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:35
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
Benzene	4.81		0.400	0.120	ug/L	1		10/29/22 22:35
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:35
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/29/22 22:35
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:35
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35

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Results of **110026-MW1**

Client Sample ID: **110026-MW1**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565002
Lab Project ID: 1226565

Collection Date: 10/24/22 18:18
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:35
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 22:35
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Ethylbenzene	0.430	J	1.00	0.310	ug/L	1		10/29/22 22:35
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/29/22 22:35
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Styrene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Toluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 22:35
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/29/22 22:35
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/29/22 22:35
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/29/22 22:35
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.8		81-118		%	1		10/29/22 22:35
4-Bromofluorobenzene (surr)	95.2		85-114		%	1		10/29/22 22:35
Toluene-d8 (surr)	96.6		89-112		%	1		10/29/22 22:35

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Results of **110026-MW1**

Client Sample ID: **110026-MW1**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565002
Lab Project ID: 1226565

Collection Date: 10/24/22 18:18
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22118
Analytical Method: SW8260D
Analyst: AZL
Analytical Date/Time: 10/29/22 22:35
Container ID: 1226565002-D

Prep Batch: VXX39424
Prep Method: SW5030B
Prep Date/Time: 10/29/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-MW2**

Client Sample ID: **110026-MW2**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565003
Lab Project ID: 1226565

Collection Date: 10/25/22 12:14
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0185	J	0.0481	0.0144	ug/L	1		11/10/22 17:51
2-Methylnaphthalene	0.0208	J	0.0481	0.0144	ug/L	1		11/10/22 17:51
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		11/10/22 17:51
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		11/10/22 17:51
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		11/10/22 17:51
Phenanthrene	0.0481	U	0.0962	0.0298	ug/L	1		11/10/22 17:51
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 17:51
Surrogates								
2-Methylnaphthalene-d10 (surr)	68.4		38-100		%	1		11/10/22 17:51
Fluoranthene-d10 (surr)	78.5		30-111		%	1		11/10/22 17:51

Batch Information

Analytical Batch: XMS13445
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 11/10/22 17:51
Container ID: 1226565003-I

Prep Batch: XXX47276
Prep Method: SW3535A
Prep Date/Time: 11/01/22 17:23
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:06PM

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Results of **110026-MW2**

Client Sample ID: **110026-MW2**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565003
Lab Project ID: 1226565

Collection Date: 10/25/22 12:14
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.294	U	0.588	0.196	mg/L	1		11/04/22 14:19
Surrogates								
5a Androstane (surr)	86.8		50-150		%	1		11/04/22 14:19

Batch Information

Analytical Batch: XFC16397
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/04/22 14:19
Container ID: 1226565003-G

Prep Batch: XXX47287
Prep Method: SW3520C
Prep Date/Time: 11/03/22 15:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **110026-MW2**

Client Sample ID: **110026-MW2**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565003
Lab Project ID: 1226565

Collection Date: 10/25/22 12:14
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		10/31/22 23:10
Surrogates								
4-Bromofluorobenzene (surr)	71.4		50-150		%	1		10/31/22 23:10

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 10/31/22 23:10
Container ID: 1226565003-A

Prep Batch: VXX39412
Prep Method: SW5030B
Prep Date/Time: 10/31/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **110026-MW2**

Client Sample ID: **110026-MW2**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565003
Lab Project ID: 1226565

Collection Date: 10/25/22 12:14
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:38
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:38
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/31/22 01:38
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/31/22 01:38
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/31/22 01:38
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:38
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:38
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
Benzene	0.200	U	0.400	0.120	ug/L	1		10/31/22 01:38
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:38
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/31/22 01:38
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:38
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38

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J flagging is activated

Results of **110026-MW2**

Client Sample ID: **110026-MW2**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565003
Lab Project ID: 1226565

Collection Date: 10/25/22 12:14
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:38
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:38
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/31/22 01:38
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Styrene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Toluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:38
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:38
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/31/22 01:38
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/31/22 01:38
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		10/31/22 01:38
4-Bromofluorobenzene (surr)	94.8		85-114		%	1		10/31/22 01:38
Toluene-d8 (surr)	98.6		89-112		%	1		10/31/22 01:38

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Results of **110026-MW2**

Client Sample ID: **110026-MW2**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565003
Lab Project ID: 1226565

Collection Date: 10/25/22 12:14
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22120
Analytical Method: SW8260D
Analyst: AZL
Analytical Date/Time: 10/31/22 01:38
Container ID: 1226565003-D

Prep Batch: VXX39426
Prep Method: SW5030B
Prep Date/Time: 10/30/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-MW3**

Client Sample ID: **110026-MW3**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565004
Lab Project ID: 1226565

Collection Date: 10/25/22 13:20
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0173	J	0.0481	0.0144	ug/L	1		11/10/22 18:12
2-Methylnaphthalene	0.0288	J	0.0481	0.0144	ug/L	1		11/10/22 18:12
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		11/10/22 18:12
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		11/10/22 18:12
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		11/10/22 18:12
Phenanthrene	0.0481	U	0.0962	0.0298	ug/L	1		11/10/22 18:12
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		11/10/22 18:12
Surrogates								
2-Methylnaphthalene-d10 (surr)	64		38-100		%	1		11/10/22 18:12
Fluoranthene-d10 (surr)	78.6		30-111		%	1		11/10/22 18:12

Batch Information

Analytical Batch: XMS13445
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 11/10/22 18:12
Container ID: 1226565004-I

Prep Batch: XXX47276
Prep Method: SW3535A
Prep Date/Time: 11/01/22 17:23
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **110026-MW3**

Client Sample ID: **110026-MW3**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565004
Lab Project ID: 1226565

Collection Date: 10/25/22 13:20
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.288	U	0.577	0.192	mg/L	1		11/04/22 14:29
Surrogates								
5a Androstane (surr)	89.3		50-150		%	1		11/04/22 14:29

Batch Information

Analytical Batch: XFC16397
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/04/22 14:29
Container ID: 1226565004-G

Prep Batch: XXX47287
Prep Method: SW3520C
Prep Date/Time: 11/03/22 15:49
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **110026-MW3**

Client Sample ID: **110026-MW3**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565004
Lab Project ID: 1226565

Collection Date: 10/25/22 13:20
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		10/31/22 23:28
Surrogates								
4-Bromofluorobenzene (surr)	73.8		50-150		%	1		10/31/22 23:28

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 10/31/22 23:28
Container ID: 1226565004-A

Prep Batch: VXX39412
Prep Method: SW5030B
Prep Date/Time: 10/31/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **110026-MW3**

Client Sample ID: **110026-MW3**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565004
Lab Project ID: 1226565

Collection Date: 10/25/22 13:20
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:52
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:52
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/31/22 01:52
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/31/22 01:52
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/31/22 01:52
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:52
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:52
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
Benzene	0.200	U	0.400	0.120	ug/L	1		10/31/22 01:52
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:52
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/31/22 01:52
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:52
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **110026-MW3**

Client Sample ID: **110026-MW3**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565004
Lab Project ID: 1226565

Collection Date: 10/25/22 13:20
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:52
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 01:52
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/31/22 01:52
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Styrene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Toluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 01:52
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/31/22 01:52
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/31/22 01:52
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/31/22 01:52
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		10/31/22 01:52
4-Bromofluorobenzene (surr)	93.3		85-114		%	1		10/31/22 01:52
Toluene-d8 (surr)	97.7		89-112		%	1		10/31/22 01:52

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **110026-MW3**

Client Sample ID: **110026-MW3**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565004
Lab Project ID: 1226565

Collection Date: 10/25/22 13:20
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22120
Analytical Method: SW8260D
Analyst: AZL
Analytical Date/Time: 10/31/22 01:52
Container ID: 1226565004-D

Prep Batch: VXX39426
Prep Method: SW5030B
Prep Date/Time: 10/30/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-MW4**

Client Sample ID: **110026-MW4**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565005
Lab Project ID: 1226565

Collection Date: 10/25/22 14:30
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0167	J	0.0490	0.0147	ug/L	1		11/10/22 18:33
2-Methylnaphthalene	0.0298	J	0.0490	0.0147	ug/L	1		11/10/22 18:33
Acenaphthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		11/10/22 18:33
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		11/10/22 18:33
Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Fluorene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Naphthalene	0.0490	U	0.0980	0.0304	ug/L	1		11/10/22 18:33
Phenanthrene	0.0490	U	0.0980	0.0304	ug/L	1		11/10/22 18:33
Pyrene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 18:33
Surrogates								
2-Methylnaphthalene-d10 (surr)	94.9		38-100		%	1		11/10/22 18:33
Fluoranthene-d10 (surr)	93.5		30-111		%	1		11/10/22 18:33

Batch Information

Analytical Batch: XMS13445
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 11/10/22 18:33
Container ID: 1226565005-I

Prep Batch: XXX47276
Prep Method: SW3535A
Prep Date/Time: 11/01/22 17:23
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:06PM

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Results of **110026-MW4**

Client Sample ID: **110026-MW4**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565005
Lab Project ID: 1226565

Collection Date: 10/25/22 14:30
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.288	U	0.577	0.192	mg/L	1		11/08/22 12:43
Surrogates								
5a Androstane (surr)	90.5		50-150		%	1		11/08/22 12:43

Batch Information

Analytical Batch: XFC16399
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/08/22 12:43
Container ID: 1226565005-G

Prep Batch: XXX47298
Prep Method: SW3520C
Prep Date/Time: 11/07/22 16:03
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

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Results of **110026-MW4**

Client Sample ID: **110026-MW4**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565005
Lab Project ID: 1226565

Collection Date: 10/25/22 14:30
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		10/31/22 23:46
Surrogates								
4-Bromofluorobenzene (surr)	76.1		50-150		%	1		10/31/22 23:46

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 10/31/22 23:46
Container ID: 1226565005-A

Prep Batch: VXX39412
Prep Method: SW5030B
Prep Date/Time: 10/31/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-MW4**

Client Sample ID: **110026-MW4**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565005
Lab Project ID: 1226565

Collection Date: 10/25/22 14:30
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:07
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:07
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/31/22 02:07
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:07
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/31/22 02:07
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/31/22 02:07
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:07
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:07
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:07
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:07
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:07
Benzene	0.200	U	0.400	0.120	ug/L	1		10/31/22 02:07
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:07
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/31/22 02:07
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:07
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:07
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:07

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Results of **110026-MW4**

Client Sample ID: **110026-MW4**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565005
Lab Project ID: 1226565

Collection Date: 10/25/22 14:30
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/31/22 02:07
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/31/22 02:07
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/31/22 02:07
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		10/31/22 02:07
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/31/22 02:07
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/31/22 02:07
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Styrene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Toluene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:07
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/31/22 02:07
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/31/22 02:07
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/31/22 02:07
Surrogates								
1,2-Dichloroethane-D4 (surr)	100		81-118		%	1		10/31/22 02:07
4-Bromofluorobenzene (surr)	98.5		85-114		%	1		10/31/22 02:07
Toluene-d8 (surr)	94.5		89-112		%	1		10/31/22 02:07

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Results of **110026-MW4**

Client Sample ID: **110026-MW4**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565005
Lab Project ID: 1226565

Collection Date: 10/25/22 14:30
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22120
Analytical Method: SW8260D
Analyst: AZL
Analytical Date/Time: 10/31/22 02:07
Container ID: 1226565005-D

Prep Batch: VXX39426
Prep Method: SW5030B
Prep Date/Time: 10/30/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-MW5**

Client Sample ID: **110026-MW5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565006
Lab Project ID: 1226565

Collection Date: 10/25/22 10:25
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0386	J	0.0500	0.0150	ug/L	1		11/10/22 18:53
2-Methylnaphthalene	0.0645		0.0500	0.0150	ug/L	1		11/10/22 18:53
Acenaphthene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Acenaphthylene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Benzo(a)Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Benzo[a]pyrene	0.0100	U	0.0200	0.00620	ug/L	1		11/10/22 18:53
Benzo[b]Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Benzo[g,h,i]perylene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Benzo[k]fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Chrysene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Dibenzo[a,h]anthracene	0.0100	U	0.0200	0.00620	ug/L	1		11/10/22 18:53
Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Fluorene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Indeno[1,2,3-c,d] pyrene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Naphthalene	0.0316	J	0.100	0.0310	ug/L	1		11/10/22 18:53
Phenanthrene	0.0500	U	0.100	0.0310	ug/L	1		11/10/22 18:53
Pyrene	0.0250	U	0.0500	0.0150	ug/L	1		11/10/22 18:53
Surrogates								
2-Methylnaphthalene-d10 (surr)	70.3		38-100		%	1		11/10/22 18:53
Fluoranthene-d10 (surr)	82.9		30-111		%	1		11/10/22 18:53

Batch Information

Analytical Batch: XMS13445
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 11/10/22 18:53
Container ID: 1226565006-I

Prep Batch: XXX47276
Prep Method: SW3535A
Prep Date/Time: 11/01/22 17:23
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:06PM

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Results of **110026-MW5**

Client Sample ID: **110026-MW5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565006
Lab Project ID: 1226565

Collection Date: 10/25/22 10:25
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.294	U	0.588	0.196	mg/L	1		11/08/22 13:34
Surrogates								
5a Androstane (surr)	102		50-150		%	1		11/08/22 13:34

Batch Information

Analytical Batch: XFC16399
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/08/22 13:34
Container ID: 1226565006-G

Prep Batch: XXX47298
Prep Method: SW3520C
Prep Date/Time: 11/07/22 16:03
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **110026-MW5**

Client Sample ID: **110026-MW5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565006
Lab Project ID: 1226565

Collection Date: 10/25/22 10:25
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0765	J	0.100	0.0450	mg/L	1		11/01/22 00:05
Surrogates								
4-Bromofluorobenzene (surr)	77.6		50-150		%	1		11/01/22 00:05

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 11/01/22 00:05
Container ID: 1226565006-A

Prep Batch: VXX39412
Prep Method: SW5030B
Prep Date/Time: 10/31/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **110026-MW5**

Client Sample ID: **110026-MW5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565006
Lab Project ID: 1226565

Collection Date: 10/25/22 10:25
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:22
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:22
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/31/22 02:22
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:22
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/31/22 02:22
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/31/22 02:22
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:22
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:22
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:22
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:22
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:22
Benzene	8.96		0.400	0.120	ug/L	1		10/31/22 02:22
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:22
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/31/22 02:22
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:22
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:22
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:22

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J flagging is activated

Results of **110026-MW5**

Client Sample ID: **110026-MW5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565006
Lab Project ID: 1226565

Collection Date: 10/25/22 10:25
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/31/22 02:22
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/31/22 02:22
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Ethylbenzene	1.05		1.00	0.310	ug/L	1		10/31/22 02:22
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/31/22 02:22
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		10/31/22 02:22
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/31/22 02:22
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
n-Propylbenzene	0.320 J		1.00	0.310	ug/L	1		10/31/22 02:22
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/31/22 02:22
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Styrene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Toluene	0.370 J		1.00	0.310	ug/L	1		10/31/22 02:22
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/31/22 02:22
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/31/22 02:22
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/31/22 02:22
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/31/22 02:22
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.3		81-118		%	1		10/31/22 02:22
4-Bromofluorobenzene (surr)	97.8		85-114		%	1		10/31/22 02:22
Toluene-d8 (surr)	97.7		89-112		%	1		10/31/22 02:22

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J flagging is activated

Results of **110026-MW5**

Client Sample ID: **110026-MW5**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565006
Lab Project ID: 1226565

Collection Date: 10/25/22 10:25
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22120
Analytical Method: SW8260D
Analyst: AZL
Analytical Date/Time: 10/31/22 02:22
Container ID: 1226565006-D

Prep Batch: VXX39426
Prep Method: SW5030B
Prep Date/Time: 10/30/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-MW15**

Client Sample ID: **110026-MW15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565007
Lab Project ID: 1226565

Collection Date: 10/25/22 10:55
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0622		0.0490	0.0147	ug/L	1		11/10/22 19:14
2-Methylnaphthalene	0.112		0.0490	0.0147	ug/L	1		11/10/22 19:14
Acenaphthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		11/10/22 19:14
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		11/10/22 19:14
Fluoranthene	0.0412	J	0.0490	0.0147	ug/L	1		11/10/22 19:14
Fluorene	0.0402	J	0.0490	0.0147	ug/L	1		11/10/22 19:14
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		11/10/22 19:14
Naphthalene	0.0386	J	0.0980	0.0304	ug/L	1		11/10/22 19:14
Phenanthrene	0.113		0.0980	0.0304	ug/L	1		11/10/22 19:14
Pyrene	0.0323	J	0.0490	0.0147	ug/L	1		11/10/22 19:14
Surrogates								
2-Methylnaphthalene-d10 (surr)	70.7		38-100		%	1		11/10/22 19:14
Fluoranthene-d10 (surr)	82.5		30-111		%	1		11/10/22 19:14

Batch Information

Analytical Batch: XMS13445
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 11/10/22 19:14
Container ID: 1226565007-I

Prep Batch: XXX47276
Prep Method: SW3535A
Prep Date/Time: 11/01/22 17:23
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **110026-MW15**

Client Sample ID: **110026-MW15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565007
Lab Project ID: 1226565

Collection Date: 10/25/22 10:55
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.300	U	0.600	0.200	mg/L	1		11/08/22 13:44
Surrogates								
5a Androstane (surr)	86.4		50-150		%	1		11/08/22 13:44

Batch Information

Analytical Batch: XFC16399
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 11/08/22 13:44
Container ID: 1226565007-G

Prep Batch: XXX47298
Prep Method: SW3520C
Prep Date/Time: 11/07/22 16:03
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **110026-MW15**

Client Sample ID: **110026-MW15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565007
Lab Project ID: 1226565

Collection Date: 10/25/22 10:55
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0700	J	0.100	0.0450	mg/L	1		11/01/22 00:23
Surrogates								
4-Bromofluorobenzene (surr)	78.3		50-150		%	1		11/01/22 00:23

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 11/01/22 00:23
Container ID: 1226565007-A

Prep Batch: VXX39412
Prep Method: SW5030B
Prep Date/Time: 10/31/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **110026-MW15**

Client Sample ID: **110026-MW15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565007
Lab Project ID: 1226565

Collection Date: 10/25/22 10:55
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:37
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:37
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/31/22 02:37
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/31/22 02:37
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/31/22 02:37
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:37
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:37
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
Benzene	7.75		0.400	0.120	ug/L	1		10/31/22 02:37
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:37
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/31/22 02:37
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:37
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37

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J flagging is activated

Results of **110026-MW15**

Client Sample ID: **110026-MW15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565007
Lab Project ID: 1226565

Collection Date: 10/25/22 10:55
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:37
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/31/22 02:37
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Ethylbenzene	0.990	J	1.00	0.310	ug/L	1		10/31/22 02:37
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
n-Propylbenzene	0.310	J	1.00	0.310	ug/L	1		10/31/22 02:37
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/31/22 02:37
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Styrene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Toluene	0.320	J	1.00	0.310	ug/L	1		10/31/22 02:37
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/31/22 02:37
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/31/22 02:37
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/31/22 02:37
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/31/22 02:37
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.4		81-118		%	1		10/31/22 02:37
4-Bromofluorobenzene (surr)	97.9		85-114		%	1		10/31/22 02:37
Toluene-d8 (surr)	97.8		89-112		%	1		10/31/22 02:37

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J flagging is activated

Results of **110026-MW15**

Client Sample ID: **110026-MW15**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565007
Lab Project ID: 1226565

Collection Date: 10/25/22 10:55
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22120
Analytical Method: SW8260D
Analyst: AZL
Analytical Date/Time: 10/31/22 02:37
Container ID: 1226565007-D

Prep Batch: VXX39426
Prep Method: SW5030B
Prep Date/Time: 10/30/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565008
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		10/31/22 16:11
Surrogates								
4-Bromofluorobenzene (surr)	74.2		50-150		%	1		10/31/22 16:11

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 10/31/22 16:11
Container ID: 1226565008-A

Prep Batch: VXX39411
Prep Method: SW5030B
Prep Date/Time: 10/31/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565008
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 19:38
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 19:38
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/29/22 19:38
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/29/22 19:38
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/29/22 19:38
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/29/22 19:38
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/29/22 19:38
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
Benzene	0.200	U	0.400	0.120	ug/L	1		10/29/22 19:38
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 19:38
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/29/22 19:38
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/29/22 19:38
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565008
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/29/22 19:38
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/29/22 19:38
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/29/22 19:38
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Styrene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Toluene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/29/22 19:38
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/29/22 19:38
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/29/22 19:38
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/29/22 19:38
Surrogates								
1,2-Dichloroethane-D4 (surr)	91.9		81-118		%	1		10/29/22 19:38
4-Bromofluorobenzene (surr)	98.9		85-114		%	1		10/29/22 19:38
Toluene-d8 (surr)	97.5		89-112		%	1		10/29/22 19:38

Print Date: 11/15/2022 4:15:06PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **110026 Kasilof Riverview Lodge**
Lab Sample ID: 1226565008
Lab Project ID: 1226565

Collection Date: 10/24/22 16:15
Received Date: 10/26/22 10:31
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22118
Analytical Method: SW8260D
Analyst: AZL
Analytical Date/Time: 10/29/22 19:38
Container ID: 1226565008-D

Prep Batch: VXX39424
Prep Method: SW5030B
Prep Date/Time: 10/29/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1847488 [VXX/39411]
Blank Lab ID: 1694769

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565002, 1226565008

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	75.4	50-150		%

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: JY
Analytical Date/Time: 10/31/2022 12:38:00PM

Prep Batch: VXX39411
Prep Method: SW5030B
Prep Date/Time: 10/31/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39411]
Blank Spike Lab ID: 1694772
Date Analyzed: 10/31/2022 13:32

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39411]
Spike Duplicate Lab ID: 1694773
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565002, 1226565008

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.874	87	1.00	0.874	87	(60-120)	0.06	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		76	0.0500		78	(50-150)	2.90	

Batch Information

Analytical Batch: **VFC16318**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **JY**

Prep Batch: **VXX39411**
Prep Method: **SW5030B**
Prep Date/Time: **10/31/2022 06:00**
Spike Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1847490 [VXX/39412]
Blank Lab ID: 1694778

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	73.5	50-150		%

Batch Information

Analytical Batch: VFC16318
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: JY
Analytical Date/Time: 10/31/2022 10:52:00PM

Prep Batch: VXX39412
Prep Method: SW5030B
Prep Date/Time: 10/31/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39412]
Blank Spike Lab ID: 1694779
Date Analyzed: 10/31/2022 22:34

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39412]
Spike Duplicate Lab ID: 1694780
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.893	89	1.00	0.849	85	(60-120)	5.00	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		81	0.0500		75	(50-150)	7.60	

Batch Information

Analytical Batch: **VFC16318**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **JY**

Prep Batch: **VXX39412**
Prep Method: **SW5030B**
Prep Date/Time: **10/31/2022 06:00**
Spike Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1847631 [VXX/39421]
Blank Lab ID: 1695396

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565001

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	82.1	50-150		%

Batch Information

Analytical Batch: VFC16320
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: JY
Analytical Date/Time: 11/4/2022 12:13:00PM

Prep Batch: VXX39421
Prep Method: SW5030B
Prep Date/Time: 11/4/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39421]
Blank Spike Lab ID: 1695399
Date Analyzed: 11/04/2022 13:07

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39421]
Spike Duplicate Lab ID: 1695400
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565001

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	1.06	106	1.00	0.838	84	(60-120)	23.00 *	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		95	0.0500		92	(50-150)	2.80	

Batch Information

Analytical Batch: **VFC16320**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **JY**

Prep Batch: **VXX39421**
Prep Method: **SW5030B**
Prep Date/Time: **11/04/2022 06:00**
Spike Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1847642 [VXX/39424]
Blank Lab ID: 1695428

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565001, 1226565002, 1226565008

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
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	0.200	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	3.00U	6.00	3.00	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

Method Blank

Blank ID: MB for HBN 1847642 [VXX/39424]
Blank Lab ID: 1695428

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565001, 1226565002, 1226565008

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
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)	98.4	81-118		%
4-Bromofluorobenzene (surr)	98.4	85-114		%
Toluene-d8 (surr)	96.5	89-112		%

Method Blank

Blank ID: MB for HBN 1847642 [VXX/39424]
Blank Lab ID: 1695428

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565001, 1226565002, 1226565008

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS22118
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: AZL
Analytical Date/Time: 10/29/2022 5:38:00PM

Prep Batch: VXX39424
Prep Method: SW5030B
Prep Date/Time: 10/29/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39424]
Blank Spike Lab ID: 1695429
Date Analyzed: 10/29/2022 17:53

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39424]
Spike Duplicate Lab ID: 1695430
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565001, 1226565002, 1226565008

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	29.4	98	30	29.2	97	(78-124)	0.65	(< 20)
1,1,1-Trichloroethane	30	30.1	100	30	29.7	99	(74-131)	1.20	(< 20)
1,1,2,2-Tetrachloroethane	30	28.8	96	30	28.5	95	(71-121)	1.10	(< 20)
1,1,2-Trichloroethane	30	28.4	95	30	28.1	94	(80-119)	1.10	(< 20)
1,1-Dichloroethane	30	29.0	97	30	28.5	95	(77-125)	1.40	(< 20)
1,1-Dichloroethene	30	31.2	104	30	30.5	102	(71-131)	2.30	(< 20)
1,1-Dichloropropene	30	31.6	105	30	31.3	104	(79-125)	0.99	(< 20)
1,2,3-Trichlorobenzene	30	32.0	107	30	31.8	106	(69-129)	0.53	(< 20)
1,2,3-Trichloropropane	30	28.3	94	30	28.3	94	(73-122)	0.18	(< 20)
1,2,4-Trichlorobenzene	30	32.3	108	30	32.3	108	(69-130)	0.03	(< 20)
1,2,4-Trimethylbenzene	30	31.8	106	30	32.2	107	(79-124)	1.10	(< 20)
1,2-Dibromo-3-chloropropane	30	28.3	94	30	27.7	92	(62-128)	2.00	(< 20)
1,2-Dibromoethane	30	29.2	97	30	28.8	96	(77-121)	1.30	(< 20)
1,2-Dichlorobenzene	30	29.1	97	30	29.1	97	(80-119)	0.10	(< 20)
1,2-Dichloroethane	30	27.4	91	30	26.9	90	(73-128)	2.00	(< 20)
1,2-Dichloropropane	30	30.2	101	30	29.9	100	(78-122)	1.20	(< 20)
1,3,5-Trimethylbenzene	30	31.5	105	30	31.7	106	(75-124)	0.51	(< 20)
1,3-Dichlorobenzene	30	29.6	99	30	29.9	100	(80-119)	1.00	(< 20)
1,3-Dichloropropane	30	28.9	96	30	28.5	95	(80-119)	1.10	(< 20)
1,4-Dichlorobenzene	30	30.0	100	30	29.8	99	(79-118)	0.74	(< 20)
2,2-Dichloropropane	30	30.4	101	30	30.2	101	(60-139)	0.73	(< 20)
2-Butanone (MEK)	90	82.9	92	90	80.2	89	(56-143)	3.40	(< 20)
2-Chlorotoluene	30	29.7	99	30	29.7	99	(79-122)	0.10	(< 20)
2-Hexanone	90	80.7	90	90	79.0	88	(57-139)	2.10	(< 20)
4-Chlorotoluene	30	30.0	100	30	29.8	99	(78-122)	0.47	(< 20)
4-Isopropyltoluene	30	32.6	109	30	32.8	109	(77-127)	0.43	(< 20)
4-Methyl-2-pentanone (MIBK)	90	93.8	104	90	91.7	102	(67-130)	2.40	(< 20)
Benzene	30	30.4	101	30	30.0	100	(79-120)	1.30	(< 20)
Bromobenzene	30	30.0	100	30	29.9	100	(80-120)	0.57	(< 20)
Bromochloromethane	30	29.6	99	30	29.0	97	(78-123)	2.10	(< 20)
Bromodichloromethane	30	30.0	100	30	29.6	99	(79-125)	1.40	(< 20)
Bromoform	30	29.5	98	30	28.9	96	(66-130)	1.90	(< 20)
Bromomethane	30	28.7	96	30	28.9	96	(53-141)	0.63	(< 20)
Carbon disulfide	45	46.2	103	45	45.2	100	(64-133)	2.20	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39424]
Blank Spike Lab ID: 1695429
Date Analyzed: 10/29/2022 17:53

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39424]
Spike Duplicate Lab ID: 1695430
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565001, 1226565002, 1226565008

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	31.2	104	30	30.8	103	(72-136)	1.30	(< 20)
Chlorobenzene	30	29.3	98	30	29.5	98	(82-118)	0.75	(< 20)
Chloroethane	30	28.8	96	30	27.6	92	(60-138)	4.20	(< 20)
Chloroform	30	29.0	97	30	28.6	95	(79-124)	1.40	(< 20)
Chloromethane	30	28.4	95	30	27.7	92	(50-139)	2.40	(< 20)
cis-1,2-Dichloroethene	30	30.0	100	30	29.4	98	(78-123)	2.00	(< 20)
cis-1,3-Dichloropropene	30	30.9	103	30	30.8	103	(75-124)	0.49	(< 20)
Dibromochloromethane	30	28.8	96	30	28.6	95	(74-126)	0.98	(< 20)
Dibromomethane	30	28.8	96	30	28.5	95	(79-123)	1.20	(< 20)
Dichlorodifluoromethane	30	28.9	96	30	28.6	95	(32-152)	1.00	(< 20)
Ethylbenzene	30	30.3	101	30	30.1	100	(79-121)	0.56	(< 20)
Freon-113	45	47.2	105	45	46.5	103	(70-136)	1.50	(< 20)
Hexachlorobutadiene	30	34.3	114	30	34.2	114	(66-134)	0.09	(< 20)
Isopropylbenzene (Cumene)	30	30.9	103	30	30.6	102	(72-131)	1.00	(< 20)
Methylene chloride	30	30.6	102	30	29.9	100	(74-124)	2.30	(< 20)
Methyl-t-butyl ether	45	46.1	103	45	45.6	101	(71-124)	1.20	(< 20)
Naphthalene	30	32.3	108	30	32.4	108	(61-128)	0.12	(< 20)
n-Butylbenzene	30	31.8	106	30	32.0	107	(75-128)	0.47	(< 20)
n-Propylbenzene	30	30.4	101	30	30.3	101	(76-126)	0.23	(< 20)
o-Xylene	30	30.5	102	30	30.4	101	(78-122)	0.56	(< 20)
P & M -Xylene	60	60.5	101	60	60.9	101	(80-121)	0.53	(< 20)
sec-Butylbenzene	30	31.7	106	30	31.5	105	(77-126)	0.38	(< 20)
Styrene	30	30.8	103	30	31.1	104	(78-123)	0.84	(< 20)
tert-Butylbenzene	30	31.3	104	30	31.5	105	(78-124)	0.57	(< 20)
Tetrachloroethene	30	30.7	102	30	30.9	103	(74-129)	0.75	(< 20)
Toluene	30	28.1	94	30	27.9	93	(80-121)	0.43	(< 20)
trans-1,2-Dichloroethene	30	30.6	102	30	29.9	100	(75-124)	2.10	(< 20)
trans-1,3-Dichloropropene	30	29.9	100	30	29.6	99	(73-127)	1.20	(< 20)
Trichloroethene	30	31.1	104	30	30.6	102	(79-123)	1.80	(< 20)
Trichlorofluoromethane	30	34.4	115	30	30.9	103	(65-141)	10.90	(< 20)
Vinyl acetate	30	28.8	96	30	28.2	94	(54-146)	2.10	(< 20)
Vinyl chloride	30	30.7	102	30	30.4	101	(58-137)	1.30	(< 20)
Xylenes (total)	90	91.1	101	90	91.2	101	(79-121)	0.16	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39424]
Blank Spike Lab ID: 1695429
Date Analyzed: 10/29/2022 17:53

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39424]
Spike Duplicate Lab ID: 1695430
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565001, 1226565002, 1226565008

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		93	30		92	(81-118)	1.00	
4-Bromofluorobenzene (surr)	30		99	30		100	(85-114)	0.64	
Toluene-d8 (surr)	30		98	30		99	(89-112)	0.81	

Batch Information

Analytical Batch: **VMS22118**
Analytical Method: **SW8260D**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **AZL**

Prep Batch: **VXX39424**
Prep Method: **SW5030B**
Prep Date/Time: **10/29/2022 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1847652 [VXX/39426]
Blank Lab ID: 1695470

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
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	0.200	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	3.00U	6.00	3.00	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

Method Blank

Blank ID: MB for HBN 1847652 [VXX/39426]
Blank Lab ID: 1695470

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
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)	98.1	81-118		%
4-Bromofluorobenzene (surr)	98	85-114		%
Toluene-d8 (surr)	96.3	89-112		%

Method Blank

Blank ID: MB for HBN 1847652 [VXX/39426]
Blank Lab ID: 1695470

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS22120
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: AZL
Analytical Date/Time: 10/30/2022 10:56:00PM

Prep Batch: VXX39426
Prep Method: SW5030B
Prep Date/Time: 10/30/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39426]
Blank Spike Lab ID: 1695471
Date Analyzed: 10/30/2022 23:10

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39426]
Spike Duplicate Lab ID: 1695472
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	28.9	96	30	28.5	95	(78-124)	1.10	(< 20)
1,1,1-Trichloroethane	30	29.6	99	30	29.6	99	(74-131)	0.07	(< 20)
1,1,2,2-Tetrachloroethane	30	27.5	92	30	28.3	94	(71-121)	2.80	(< 20)
1,1,2-Trichloroethane	30	27.3	91	30	27.2	91	(80-119)	0.40	(< 20)
1,1-Dichloroethane	30	27.9	93	30	28.2	94	(77-125)	1.20	(< 20)
1,1-Dichloroethene	30	31.1	104	30	30.6	102	(71-131)	1.60	(< 20)
1,1-Dichloropropene	30	30.5	102	30	30.5	102	(79-125)	0.00	(< 20)
1,2,3-Trichlorobenzene	30	31.1	104	30	31.3	104	(69-129)	0.64	(< 20)
1,2,3-Trichloropropane	30	27.2	91	30	27.7	92	(73-122)	1.70	(< 20)
1,2,4-Trichlorobenzene	30	31.3	104	30	31.6	105	(69-130)	0.73	(< 20)
1,2,4-Trimethylbenzene	30	31.2	104	30	31.5	105	(79-124)	1.10	(< 20)
1,2-Dibromo-3-chloropropane	30	27.0	90	30	27.6	92	(62-128)	2.20	(< 20)
1,2-Dibromoethane	30	28.0	93	30	28.2	94	(77-121)	0.75	(< 20)
1,2-Dichlorobenzene	30	28.2	94	30	28.7	96	(80-119)	1.70	(< 20)
1,2-Dichloroethane	30	26.1	87	30	26.6	89	(73-128)	1.70	(< 20)
1,2-Dichloropropane	30	28.8	96	30	29.1	97	(78-122)	1.00	(< 20)
1,3,5-Trimethylbenzene	30	30.7	102	30	31.0	103	(75-124)	1.10	(< 20)
1,3-Dichlorobenzene	30	29.1	97	30	29.7	99	(80-119)	1.90	(< 20)
1,3-Dichloropropane	30	27.5	92	30	27.8	93	(80-119)	1.00	(< 20)
1,4-Dichlorobenzene	30	29.1	97	30	29.7	99	(79-118)	2.10	(< 20)
2,2-Dichloropropane	30	29.9	100	30	30.0	100	(60-139)	0.33	(< 20)
2-Butanone (MEK)	90	75.8	84	90	76.0	85	(56-143)	0.24	(< 20)
2-Chlorotoluene	30	28.9	96	30	29.6	99	(79-122)	2.50	(< 20)
2-Hexanone	90	75.5	84	90	76.9	85	(57-139)	1.90	(< 20)
4-Chlorotoluene	30	29.2	97	30	30.0	100	(78-122)	2.70	(< 20)
4-Isopropyltoluene	30	32.2	107	30	32.4	108	(77-127)	0.80	(< 20)
4-Methyl-2-pentanone (MIBK)	90	87.6	97	90	88.9	99	(67-130)	1.50	(< 20)
Benzene	30	29.1	97	30	29.2	97	(79-120)	0.51	(< 20)
Bromobenzene	30	29.1	97	30	29.6	99	(80-120)	1.50	(< 20)
Bromochloromethane	30	28.4	95	30	28.8	96	(78-123)	1.50	(< 20)
Bromodichloromethane	30	29.1	97	30	29.3	98	(79-125)	0.89	(< 20)
Bromoform	30	28.5	95	30	29.0	97	(66-130)	1.80	(< 20)
Bromomethane	30	23.7	79	30	25.4	85	(53-141)	6.90	(< 20)
Carbon disulfide	45	45.4	101	45	44.7	99	(64-133)	1.60	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39426]
Blank Spike Lab ID: 1695471
Date Analyzed: 10/30/2022 23:10

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39426]
Spike Duplicate Lab ID: 1695472
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.8	103	30	30.6	102	(72-136)	0.52	(< 20)
Chlorobenzene	30	28.7	96	30	28.8	96	(82-118)	0.42	(< 20)
Chloroethane	30	27.9	93	30	27.7	92	(60-138)	0.50	(< 20)
Chloroform	30	27.9	93	30	28.3	94	(79-124)	1.50	(< 20)
Chloromethane	30	25.9	86	30	25.8	86	(50-139)	0.43	(< 20)
cis-1,2-Dichloroethene	30	28.7	96	30	29.1	97	(78-123)	1.30	(< 20)
cis-1,3-Dichloropropene	30	29.5	98	30	29.9	100	(75-124)	1.50	(< 20)
Dibromochloromethane	30	28.0	93	30	27.9	93	(74-126)	0.29	(< 20)
Dibromomethane	30	27.4	92	30	28.0	93	(79-123)	1.90	(< 20)
Dichlorodifluoromethane	30	27.2	91	30	26.5	88	(32-152)	2.40	(< 20)
Ethylbenzene	30	29.4	98	30	29.5	98	(79-121)	0.20	(< 20)
Freon-113	45	47.5	106	45	46.1	103	(70-136)	2.90	(< 20)
Hexachlorobutadiene	30	33.5	112	30	33.1	110	(66-134)	1.10	(< 20)
Isopropylbenzene (Cumene)	30	30.1	100	30	30.1	100	(72-131)	0.13	(< 20)
Methylene chloride	30	29.4	98	30	29.7	99	(74-124)	0.85	(< 20)
Methyl-t-butyl ether	45	43.8	97	45	44.4	99	(71-124)	1.50	(< 20)
Naphthalene	30	31.3	104	30	32.0	107	(61-128)	2.10	(< 20)
n-Butylbenzene	30	31.0	103	30	31.4	105	(75-128)	1.30	(< 20)
n-Propylbenzene	30	29.5	98	30	30.1	100	(76-126)	2.00	(< 20)
o-Xylene	30	29.6	99	30	30.1	100	(78-122)	1.70	(< 20)
P & M -Xylene	60	58.7	98	60	59.9	100	(80-121)	2.00	(< 20)
sec-Butylbenzene	30	31.1	104	30	31.2	104	(77-126)	0.39	(< 20)
Styrene	30	30.2	101	30	30.5	102	(78-123)	0.82	(< 20)
tert-Butylbenzene	30	30.7	102	30	31.0	103	(78-124)	1.10	(< 20)
Tetrachloroethene	30	30.3	101	30	30.1	100	(74-129)	0.73	(< 20)
Toluene	30	27.1	90	30	27.2	91	(80-121)	0.18	(< 20)
trans-1,2-Dichloroethene	30	30.0	100	30	29.8	99	(75-124)	0.64	(< 20)
trans-1,3-Dichloropropene	30	28.6	95	30	28.3	94	(73-127)	0.88	(< 20)
Trichloroethene	30	30.1	100	30	30.2	101	(79-123)	0.23	(< 20)
Trichlorofluoromethane	30	33.8	113	30	33.1	110	(65-141)	2.30	(< 20)
Vinyl acetate	30	26.4	88	30	26.9	90	(54-146)	2.00	(< 20)
Vinyl chloride	30	29.5	99	30	29.3	98	(58-137)	0.71	(< 20)
Xylenes (total)	90	88.3	98	90	90.0	100	(79-121)	1.90	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [VXX39426]
Blank Spike Lab ID: 1695471
Date Analyzed: 10/30/2022 23:10

Spike Duplicate ID: LCSD for HBN 1226565 [VXX39426]
Spike Duplicate Lab ID: 1695472
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		92	30		93	(81-118)	0.18	
4-Bromofluorobenzene (surr)	30		99	30		100	(85-114)	1.20	
Toluene-d8 (surr)	30		99	30		99	(89-112)	0.03	

Batch Information

Analytical Batch: **VMS22120**
Analytical Method: **SW8260D**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **AZL**

Prep Batch: **VXX39426**
Prep Method: **SW5030B**
Prep Date/Time: **10/30/2022 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1847468 [XXX/47271]
Blank Lab ID: 1694711

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565001, 1226565002

Results by **8270D SIM LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0221J	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	0.0500U	0.100	0.0310	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	73.6	38-100		%
Fluoranthene-d10 (surr)	87.5	30-111		%

Batch Information

Analytical Batch: XMS13444
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: NGG
Analytical Date/Time: 11/9/2022 10:55:00PM

Prep Batch: XXX47271
Prep Method: SW3535A
Prep Date/Time: 10/31/2022 5:41:50PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:28PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [XXX47271]
Blank Spike Lab ID: 1694712
Date Analyzed: 11/09/2022 23:15

Spike Duplicate ID: LCSD for HBN 1226565 [XXX47271]
Spike Duplicate Lab ID: 1694713
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565001, 1226565002

Results by **8270D SIM LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.35	67	2	1.35	68	(41-115)	0.35	(< 20)
2-Methylnaphthalene	2	1.33	66	2	1.31	66	(39-114)	1.30	(< 20)
Acenaphthene	2	1.56	78	2	1.52	76	(48-114)	2.60	(< 20)
Acenaphthylene	2	1.55	77	2	1.50	75	(35-121)	3.00	(< 20)
Anthracene	2	1.58	79	2	1.48	74	(53-119)	6.40	(< 20)
Benzo(a)Anthracene	2	1.52	76	2	1.42	71	(59-120)	6.70	(< 20)
Benzo[a]pyrene	2	1.65	82	2	1.54	77	(53-120)	6.60	(< 20)
Benzo[b]Fluoranthene	2	1.54	77	2	1.45	73	(53-126)	6.00	(< 20)
Benzo[g,h,i]perylene	2	1.75	88	2	1.69	85	(44-128)	3.30	(< 20)
Benzo[k]fluoranthene	2	1.74	87	2	1.67	84	(54-125)	4.20	(< 20)
Chrysene	2	1.62	81	2	1.53	77	(57-120)	5.70	(< 20)
Dibenzo[a,h]anthracene	2	1.78	89	2	1.70	85	(44-131)	4.70	(< 20)
Fluoranthene	2	1.56	78	2	1.45	73	(58-120)	7.10	(< 20)
Fluorene	2	1.54	77	2	1.51	75	(50-118)	1.70	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.73	86	2	1.66	83	(48-130)	4.20	(< 20)
Naphthalene	2	1.37	68	2	1.37	68	(43-114)	0.18	(< 20)
Phenanthrene	2	1.60	80	2	1.51	75	(53-115)	5.90	(< 20)
Pyrene	2	1.57	79	2	1.47	74	(53-121)	6.40	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2		69	2		69	(38-100)	0.49	
Fluoranthene-d10 (surr)	2		81	2		77	(30-111)	5.60	

Batch Information

Analytical Batch: **XMS13444**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **NGG**

Prep Batch: **XXX47271**
Prep Method: **SW3535A**
Prep Date/Time: **10/31/2022 17:41**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:30PM

Method Blank

Blank ID: MB for HBN 1847498 [XXX/47276]
Blank Lab ID: 1694796

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **8270D SIM LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0274J	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0384J	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	0.0500U	0.100	0.0310	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	70.6	38-100		%
Fluoranthene-d10 (surr)	75.6	30-111		%

Batch Information

Analytical Batch: XMS13445
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: NGG
Analytical Date/Time: 11/10/2022 4:50:00PM

Prep Batch: XXX47276
Prep Method: SW3535A
Prep Date/Time: 11/1/2022 5:23:50PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [XXX47276]
Blank Spike Lab ID: 1694797
Date Analyzed: 11/10/2022 17:10

Spike Duplicate ID: LCSD for HBN 1226565 [XXX47276]
Spike Duplicate Lab ID: 1694798
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565003, 1226565004, 1226565005, 1226565006, 1226565007

Results by **8270D SIM LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.24	62	2	1.29	64	(41-115)	3.50	(< 20)
2-Methylnaphthalene	2	1.22	61	2	1.26	63	(39-114)	3.40	(< 20)
Acenaphthene	2	1.41	70	2	1.43	72	(48-114)	1.90	(< 20)
Acenaphthylene	2	1.37	69	2	1.39	70	(35-121)	1.50	(< 20)
Anthracene	2	1.55	77	2	1.57	78	(53-119)	1.20	(< 20)
Benzo(a)Anthracene	2	1.59	80	2	1.55	77	(59-120)	2.90	(< 20)
Benzo[a]pyrene	2	1.73	87	2	1.71	85	(53-120)	1.30	(< 20)
Benzo[b]Fluoranthene	2	1.66	83	2	1.65	83	(53-126)	0.17	(< 20)
Benzo[g,h,i]perylene	2	1.81	91	2	1.77	88	(44-128)	2.60	(< 20)
Benzo[k]fluoranthene	2	1.83	92	2	1.75	88	(54-125)	4.40	(< 20)
Chrysene	2	1.68	84	2	1.61	81	(57-120)	4.20	(< 20)
Dibenzo[a,h]anthracene	2	1.85	93	2	1.79	90	(44-131)	3.30	(< 20)
Fluoranthene	2	1.54	77	2	1.50	75	(58-120)	2.20	(< 20)
Fluorene	2	1.47	73	2	1.53	76	(50-118)	3.80	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.79	89	2	1.76	88	(48-130)	1.50	(< 20)
Naphthalene	2	1.26	63	2	1.32	66	(43-114)	5.00	(< 20)
Phenanthrene	2	1.51	76	2	1.54	77	(53-115)	1.60	(< 20)
Pyrene	2	1.54	77	2	1.51	76	(53-121)	1.70	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2		61	2		63	(38-100)	4.10	
Fluoranthene-d10 (surr)	2		80	2		80	(30-111)	0.42	

Batch Information

Analytical Batch: **XMS13445**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **NGG**

Prep Batch: **XXX47276**
Prep Method: **SW3535A**
Prep Date/Time: **11/01/2022 17:23**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 11/15/2022 4:15:34PM

Method Blank

Blank ID: MB for HBN 1847553 [XXX/47287]
Blank Lab ID: 1695027

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565001, 1226565002, 1226565003, 1226565004

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.200	mg/L
Surrogates				
5a Androstane (surr)	73.1	60-120		%

Batch Information

Analytical Batch: XFC16397
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: HMW
Analytical Date/Time: 11/4/2022 11:38:00AM

Prep Batch: XXX47287
Prep Method: SW3520C
Prep Date/Time: 11/3/2022 3:49:27PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [XXX47287]
Blank Spike Lab ID: 1695028
Date Analyzed: 11/04/2022 11:48

Spike Duplicate ID: LCSD for HBN 1226565 [XXX47287]
Spike Duplicate Lab ID: 1695029
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565001, 1226565002, 1226565003, 1226565004

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	16.5	83	20	16.2	81	(75-125)	2.00	(< 20)
Surrogates									
5a Androstane (surr)	0.4		103	0.4		102	(60-120)	0.77	

Batch Information

Analytical Batch: **XFC16397**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **HMW**

Prep Batch: **XXX47287**
Prep Method: **SW3520C**
Prep Date/Time: **11/03/2022 15:49**
Spike Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1847681 [XXX/47298]
Blank Lab ID: 1695556

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1226565005, 1226565006, 1226565007

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.200	mg/L
Surrogates				
5a Androstane (surr)	93.5	60-120		%

Batch Information

Analytical Batch: XFC16399
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: HMW
Analytical Date/Time: 11/8/2022 12:14:00PM

Prep Batch: XXX47298
Prep Method: SW3520C
Prep Date/Time: 11/7/2022 4:03:59PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1226565 [XXX47298]
Blank Spike Lab ID: 1695557
Date Analyzed: 11/08/2022 12:54

Spike Duplicate ID: LCSD for HBN 1226565 [XXX47298]
Spike Duplicate Lab ID: 1695558
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1226565005, 1226565006, 1226565007

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	18.1	91	20	19.8	99	(75-125)	8.80	(< 20)
Surrogates									
5a Androstane (surr)	0.4		109	0.4		119	(60-120)	9.30	

Batch Information

Analytical Batch: **XFC16399**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **HMW**

Prep Batch: **XXX47298**
Prep Method: **SW3520C**
Prep Date/Time: **11/07/2022 16:03**
Spike Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL

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1226565

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Profile # 305753 QM

SGS North America

Date	Time	Sample ID	Total Containers	GRO-AK101 VOA Vials HCl	VOCs- EPA Method 8260D VOA Vials HCl	DRO- AK102 Amber HCl	PAHs- EPA Method 8270D SIM Amber 4C				
10/24/2022	16:15	**110026-DW**	10	X	X	X	X				1AJ
10/24/2022	18:18	**110026-MW1**	10	X	X	X	X				2AJ
10/25/2022	12:14	**110026-MW2**	10	X	X	X	X				3AJ
10/25/2022	13:20	**110026-MW3**	10	X	X	X	X				4AJ
10/25/2022	14:30	**110026-MW4**	10	X	X	X	X				5AJ
10/25/2022	10:25	**110026-MW5**	10	X	X	X	X				6AJ
10/25/2022	10:55	**110026-MW15**	10	X	X	X	X				7AJ

Relinquished By:	**Relinquished By:**	**Project Information** (8AF)
Signature: ZJT	Signature:	Project Number: 110026
Print Name: Zach Thon	Print Name:	Project Name: Kasilof Riverview Lodge
Company: Shannon & Wilson, Inc.	Company:	Contact: Dan McMahon, Zach Thon
Date: 10/26/22	Date:	Sampler: ZJT
Time: 10:30	Time:	Special Instructions:
Received By:	**Received By:**	**Sample Receipt**
Signature:	Signature:	Shipped Via: Hand Delivered
Print Name:	Print Name: Alexandra Johnston-Carnes	
Company:	Company: SGS	Cooler Temperature Upon Arrival: 3.0°C NDS
Date:	Date: 10/26/22	Sample Matrix: Water
Time:	Time: 10:31	**10 Working DAY TAT**

e-Sample Receipt Form

SGS Workorder #:	1226565	1226565

Review Criteria	Condition (Yes, No, N/A	Exceptions Noted below
Chain of Custody / Temperature Requirements	*Note:* Temperature and COC seal information is found on the chain of custody form	
DOD only: Did all sample coolers have a corresponding COC?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note containers received with ice:		
Identify any 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 and sample containers.	
Were samples received within analytical holding time?	Yes	
Do sample labels match COC? Record discrepancies. ***Note:*** *If information on containers differs from COC, default to COC information for login. If times differ <1hr, record details & login per COC.*	Yes	
Were analytical requests clear? *(i.e. method is specified for analyses with multiple option for method (Eg, BTEX 8021 vs 8260, Metals 6020 vs 200.8)*	Yes	
Were proper containers (type/mass/volume/preservative)used? Note: Exemption for metals analysis by 200.8/6020 in water.	Yes	
Volatile Analysis Requirements (VOC, GRO, LL-Hg, etc.)		
Were all soil VOAs received with a corresponding % solids container?	N/A	
Were Trip Blanks (e.g., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (e.g., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with Methanol+BFB?	N/A	
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

Container Id	Preservative	Container Condition
1226565001-A	HCL to pH < 2	OK
1226565001-B	HCL to pH < 2	OK
1226565001-C	HCL to pH < 2	OK
1226565001-D	HCL to pH < 2	OK
1226565001-E	HCL to pH < 2	OK
1226565001-F	HCL to pH < 2	OK
1226565001-G	HCL to pH < 2	OK
1226565001-H	HCL to pH < 2	OK
1226565001-I	No Preservative Required	OK
1226565001-J	No Preservative Required	OK
1226565002-A	HCL to pH < 2	OK
1226565002-B	HCL to pH < 2	OK
1226565002-C	HCL to pH < 2	OK
1226565002-D	HCL to pH < 2	OK
1226565002-E	HCL to pH < 2	OK
1226565002-F	HCL to pH < 2	OK
1226565002-G	HCL to pH < 2	OK
1226565002-H	HCL to pH < 2	OK
1226565002-I	No Preservative Required	OK
1226565002-J	No Preservative Required	OK
1226565003-A	HCL to pH < 2	OK
1226565003-B	HCL to pH < 2	OK
1226565003-C	HCL to pH < 2	OK
1226565003-D	HCL to pH < 2	OK
1226565003-E	HCL to pH < 2	OK
1226565003-F	HCL to pH < 2	OK
1226565003-G	HCL to pH < 2	OK
1226565003-H	HCL to pH < 2	OK
1226565003-I	No Preservative Required	OK
1226565003-J	No Preservative Required	OK
1226565004-A	HCL to pH < 2	OK
1226565004-B	HCL to pH < 2	OK
1226565004-C	HCL to pH < 2	OK
1226565004-D	HCL to pH < 2	OK
1226565004-E	HCL to pH < 2	OK
1226565004-F	HCL to pH < 2	OK
1226565004-G	HCL to pH < 2	OK
1226565004-H	HCL to pH < 2	OK
1226565004-I	No Preservative Required	OK
1226565004-J	No Preservative Required	OK
1226565005-A	HCL to pH < 2	OK
1226565005-B	HCL to pH < 2	OK
1226565005-C	HCL to pH < 2	OK
1226565005-D	HCL to pH < 2	OK
1226565005-E	HCL to pH < 2	OK
1226565005-F	HCL to pH < 2	OK
1226565005-G	HCL to pH < 2	OK
1226565005-H	HCL to pH < 2	OK
1226565005-I	No Preservative Required	OK
1226565005-J	No Preservative Required	OK
1226565006-A	HCL to pH < 2	OK
1226565006-B	HCL to pH < 2	OK
1226565006-C	HCL to pH < 2	OK
1226565006-D	HCL to pH < 2	OK
1226565006-E	HCL to pH < 2	OK
1226565006-F	HCL to pH < 2	OK
1226565006-G	HCL to pH < 2	OK
1226565006-H	HCL to pH < 2	OK
1226565006-I	No Preservative Required	OK
1226565006-J	No Preservative Required	OK
1226565007-A	HCL to pH < 2	OK
1226565007-B	HCL to pH < 2	OK
1226565007-C	HCL to pH < 2	OK
1226565007-D	HCL to pH < 2	OK
1226565007-E	HCL to pH < 2	OK
1226565007-F	HCL to pH < 2	OK
1226565007-G	HCL to pH < 2	OK
1226565007-H	HCL to pH < 2	OK
1226565007-I	No Preservative Required	OK
1226565007-J	No Preservative Required	OK
1226565008-A	HCL to pH < 2	OK
1226565008-B	HCL to pH < 2	OK
1226565008-C	HCL to pH < 2	OK
1226565008-D	HCL to pH < 2	OK
1226565008-E	HCL to pH < 2	OK
1226565008-F	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.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Alec Rizzo	**CS Site Name:**	Kasilof Riverview Lodge	**Lab Name:**	SGS
Title:	Geoscientist	**ADEC File No.:**	2319.26.002	**Lab Report No.:**	1226565
Consulting Firm:	Shannon & Wilson	**Hazard ID No.:**	22950	**Lab Report Date:**	11/16/22

Note: *Any N/A or No box checked must have an explanation in the comments box.*

1. **Laboratory**

   a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?
   Yes ☒ No ☐ N/A ☐
   Comments: .

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?
   Yes ☐ No ☐ N/A ☒
   Comments: *The samples were not transferred to another "network" laboratory or subcontracted to an alternated laboratory.*

2. **Chain of Custody (CoC)**

   a. Is the CoC information completed, signed, and dated (including released/received by)?
   Yes ☒ No ☐ N/A ☐
   Comments: *The field sampler inadvertently forgot to write in the water trip blank on the COC. The laboratory fixed the error and ran the trip blank for the proper analyses.*

   b. Were the correct analyses requested?
   Yes ☒ No ☐ N/A ☐
   Analyses requested: *GRO by AK101, DRO by AK102, VOCs by EPA Method 8260D, and PAHs by EPA Method 8270D SIM.*
   Comments: .

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes ☒ No ☐ N/A ☐
Cooler temperature(s): *3.0° C*
Sample temperature(s): N/A
Comments: .

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?
Yes ☒ No ☐ N/A ☐
Comments: .

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?
Yes ☒ No ☐ N/A ☐
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, canister not holding a vacuum, etc.?
Yes ☐ No ☐ N/A ☒
Comments: *None noted.*

e. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: .

4. Case Narrative

a. Is the case narrative present and understandable?
Yes ☒ No ☐ N/A ☐
Comments: .

b. Are there discrepancies, errors, or QC failures identified by the lab?
Yes ☒ No ☐ N/A ☐
Comments: *The case narrative noted the following:*

-MB- 8270D SIM- MB results for 1-methylnaphthalene and 2-methylnaphthalene are above ½ the LOQ.
-LCSD- AK101- LCS/LCSD RPD for GRO does not meet QC criteria. GRO was not detected above the LOQ in associated samples.

c. Were all the corrective actions documented?
Yes ☒ No ☐ N/A ☐
Comments*: See above.*

d. What is the effect on data quality/usability according to the case narrative?
Comments: *See above.*

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?
Yes ☒ No ☐ N/A ☐
Comments: .

b. Are all applicable holding times met?
Yes ☒ No ☐ N/A ☐
Comments: .

c. Are all soils reported on a dry weight basis?
Yes ☒ No ☐ N/A ☐
Comments: .

d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?
Yes ☒ No ☐ N/A ☐
Comments: *The LOQ for 1,2,3-trichloropropane is greater than the ADEC Table C cleanup level.*

e. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: *There is a potential that the target analyte is present at a concentration greater than the ADEC cleanup level, but less than the LOQ.*

6. QC Samples

a. Method Blank

i. Was one method blank reported per matrix, analysis, and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: .

ii. Are all method blank results less than LOQ (or RL)?
Yes ☒ No ☐
Comments: Although less than the LOQ, estimated concentrations of 1-methylnaphthalene (0.0274 J µg/L) and/or 2-methylnaphthalene (0.0221 J µg/L and 0.0384 J µg/L) were detected in at least one method blank.

iii. If above LoQ or RL, what samples are affected?
Comments: *All project samples are potentially affected.*

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☒ No ☐ N/A ☐
Comments: *Although less than the LOQ, samples are flagged "B" in Table 4 when the reported sample concentration is within 10x the reported method blank concentration. Estimated concentrations of 1-methylnaphthalene and/or 2-methylnaphthalene were detected in Samples DW, MW1, MW2, MW3, MW4, and MW5 at levels less than the LOQ; therefore, the sample concentrations are reported as non-detect at the LOQ and flagged "B" in Table 4. In addition, 1-methylnaphthalene and/or 2-methylnaphthalene were detected in Samples MW5 and MW15 at concentrations 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?
Yes ☒ No ☐ N/A ☐
Comments*: See above.*

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

i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)
Yes ☒ No ☐ N/A ☐
Comments: .

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: .

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
Yes ☒ No ☐ N/A ☐
Comments: .

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or

sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
Yes ☐ No ☒ N/A ☐
Comments: *RPD for GRO does not meet QC criteria.*

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: *Sample DW is potentially affected.*

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☒ N/A ☐
Comments: *GRO was not detected above the LOQ in associated samples. Therefore, flagging is not required.*

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: *See above.*

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

i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: .

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: .

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?
Yes ☒ No ☐ N/A ☐
Comments: .

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.
Yes ☒ No ☐ N/A ☐
Comments: .

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

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: .

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: *See above.*

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

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?
Yes ☒ No ☐ N/A ☐
Comments: .

ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)
Yes ☒ No ☐ N/A ☐
Comments: .

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: .

iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: *See above.*

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☒ No ☐ N/A ☐
Comments: .

ii. Are all results less than LoQ or RL?
Yes ☒ No ☐ N/A ☐
Comments: .

iii. If above LoQ or RL, what samples are affected?
Comments: .

iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: .

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?
Yes ☒ No ☐ N/A ☐
Comments: *Sample MW15 (duplicate of Sample MW5) was submitted to the laboratory.*

ii. Was the duplicate submitted blind to lab?
Yes ☒ No ☐ N/A ☐
Comments: .

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD\ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X\ 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

iv. Is the data quality or usability affected? (Explain)
Yes ☐ No ☒ N/A ☐
Comments: *See above.*

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?
Yes ☐ No ☐ N/A ☐
Comments: *A decontamination and equipment blank were not included in our ADEC-approved work plan.*

ii. Are all results less than LoQ or RL?
Yes ☐ No ☐ N/A ☒
Comments: .

iii. If above LoQ or RL, specify what samples are affected.
Comments:

iv. Are data quality or usability affected?
Yes ☐ No ☐ N/A ☒
Comments: *See above.*

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

a. Are they defined and appropriate?
Yes ☒ No ☐ N/A ☐
Comments: *A key is included on page 4 of the laboratory report.*

IMPORTANT INFORMATION

Appendix E

Important Information

About Your Geotechnical/ Environmental Report

SHANNON & WILSON
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Attachment to and part of Report: 110026-001
Date: December 2022
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 that 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 GBA, Silver Spring, Maryland