

February 1, 2024

Ms. Hannah Knecht
Crowley Government Services
459 West Port Road
Anchorage, Alaska 99501

RE: DECEMBER 2023 GROUNDWATER MONITORING, 459 WEST BLUFF DRIVE,
ANCHORAGE, ALASKA; ADEC FILE NO. 2100.38.321

Dear Ms. Knecht:

This report presents the results of Shannon & Wilson's December 2023 groundwater monitoring activities conducted at the Crowley Fuels LLC (Crowley) facility located at 459 West Bluff Drive in Anchorage, Alaska. The site is listed in the Alaska Department of Environmental Conservation (ADEC) contaminated site database as "Crowley Facility Port of Anchorage" under File No. 2100.38.321. The 2023 groundwater monitoring activities were conducted by Shannon & Wilson, Inc. on December 7, 2023. Authorization to proceed with the project was provided by Crowley in the form of a signed proposal dated November 10, 2023. A vicinity map is included as Figure 1.

SITE AND PROJECT DESCRIPTION

Site Description

The Crowley facility is a fuel distribution terminal located in the Port of Alaska (POA). The site contains 16 bulk fuel aboveground storage tanks (ASTs) (15 operational and one emergency use), pipelines, a rail loading rack, and office/warehouse/shop buildings. A pipeline linked to the POA valve yard, located approximately 2,000 feet to the north, transfers petroleum products between the tank farm and tankers/barges. A lined detention pond and runoff basin are located in the northeastern portion of the site. A site plan is included as Figure 2.

Background

A site investigation conducted in 1987 identified impacted soil and groundwater at the site. Twenty-one monitoring wells, initially designated Wells MW-1 through MW-21, were installed in 1989 at the site. Over time, several of the wells were destroyed and replaced. The monitoring wells were sampled once in 1989, and annually from 1996 through 2009. In

2010, ten of the wells (Wells MW-2, MW-4, MW-5, MW-7R, MW-10R, MW-11, MW-15R, MW-16R, MW-18, and MW-20) were decommissioned. In 2010 it was noted that three of the wells (Wells MW-8, MW-12, and MW-21) had been destroyed. Well MW-1 was destroyed in 2018 during construction activities for a truck loading rack. Although not discussed in the historical reports, it is also assumed that Well MW-9 was previously destroyed. Currently, Wells MW-6B, MW-13A, MW-14, and MW-19R remain at the site. Wells MW-6B, MW-13A, MW-14, and MW-19R were sampled annually between 2010 and 2014, and in 2017, 2019, and 2021.

During the most recent sampling event conducted in September 2021, the groundwater samples collected from Wells MW-6B, MW-13A, MW-14, and MW-19R contained concentrations of gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), benzene, ethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and/or naphthalene exceeding the ADEC Table C cleanup levels.

In a letter dated March 11, 2022, Ms. Jamie Grant of the Alaska Department of Environmental Conservation (ADEC), requested preparation of a groundwater monitoring work plan for conducting biennial groundwater monitoring in 2023.

Purpose and Objectives

The purpose of this project is to monitor trends in dissolved phase hydrocarbon concentration gradients and distribution across the site. The project objective consisted of sampling Wells MW-6B, MW-13A, Well MW-14, and MW-19R. These wells have historically contained concentrations of GRO, DRO, RRO, benzene and/or ethylbenzene above the ADEC Table C cleanup levels.

FIELD ACTIVITIES

The field activities were conducted in accordance with our November 15, 2023 work plan, approved by Mr. Michael Hooper of the ADEC in a letter dated November 30, 2023.

Field work was conducted by an ADEC-qualified environmental professional, as defined by 18 Alaska Administrative Code (AAC) 75.333. Analytical testing of the project samples was conducted by SGS North America Inc. (SGS) of Anchorage, Alaska. US Ecology of Anchorage, Alaska disposed of the investigative-derived waste (IDW). SGS and US Ecology were subcontracted to Shannon & Wilson. Copies of the field notes are included as Attachment 1.

Groundwater Sampling

Groundwater samples were collected from Wells MW-6B and MW-13A on December 7, 2023. Well MW-14 could not be sampled due to frozen groundwater in the well casing. Additionally, Well MW-19R could not be located due to snow and ice. The wells were purged and sampled using low-flow techniques to reduce the effects of stagnant well casing water on chemical concentrations and to obtain a groundwater sample that is representative of the surrounding water-bearing formation. The wells were purged and sampled with a submersible pump and disposable tubing. The pump inlet was set within approximately 1 foot of the surface of the groundwater column. The pump level was adjusted as necessary to maintain pump rate of about 0.1 to 0.5 liter per minute (L/min) with a goal of limiting the sustained water drawdown to a maximum drawdown of 0.3 feet. During the purging process, field personnel monitored water quality parameters (temperature, specific conductivity, dissolved oxygen [DO], pH, and turbidity), purge volume, and drawdown which were recorded at 3 to 5 minute intervals.

Stabilization criterion is three successive readings of temperature within 3 percent, specific conductivity within 3 percent, DO within 10 percent, pH within 0.1 unit, and turbidity within 10 percent. Water quality parameters stabilized prior to analytical sample collection in each well. The final water quality parameters are listed on Table 1.

For quality control purposes, one field duplicate sample, designated Sample MW-16B, was collected from Well MW-6B. 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.

Groundwater Flow Direction

During the December 7, 2023 sampling event, groundwater elevation was measured at 32.18 feet mean sea level (MSL) in Well MW-13A and 52.03 feet MSL in Well MW-6B. Without additional data points, groundwater flow direction could not be calculated for the December 2023 sampling event. However, the groundwater elevations are within the historical ranges. Historical groundwater data indicate an overall flow direction to the west-southwest. Groundwater flow direction at the site is likely affected by multiple factors, including tidal influence, precipitation, and topography. Tidal effects appear to be the governing factor within 150 to 200 feet of the Cook Inlet. These apparent tidal influences in the western portions of the property are likely contributing to fluctuations in flow direction and gradient in that area.

LABORATORY ANALYSES

The groundwater samples were submitted to SGS for analytical testing, using chain-of-custody procedures. The laboratory report and completed ADEC Laboratory Data Review Checklist (LDRC) are provided in Attachment 2.

Three groundwater samples, including one field duplicate, were submitted to SGS for analytical testing. The groundwater samples were analyzed for GRO by Alaska Method (AK) 101, DRO by AK 102, RRO by AK 103, and volatile organic compounds (VOCs) by EPA Method 8260D. One trip blank accompanied the groundwater samples and was analyzed for GRO and VOCs. The analytical sample results and cleanup levels are listed in Table 2. Summary of historical groundwater data is included in Table 3. Graphs of select constituents are included as Figure 3.

DISCUSSION OF ANALYTICAL RESULTS

The analytical groundwater results were compared to ADEC cleanup levels presented in the October 18, 2023 AAC 75 regulations. The applicable groundwater cleanup levels are established in Table C of 18 AAC 75.345.

The following parameters exceed the ADEC Table C cleanup levels in one or more wells sampled in December 2023:

- DRO concentrations in Wells MW-6B (maximum 8.34 mg/L) and MW-13A (2.44 mg/L);
- RRO concentration in Well MW-13A (1.52 mg/L);
- Benzene concentrations in Wells MW-6B (maximum 0.0272 mg/L) and MW-13A (0.0133 mg/L);
- Ethylbenzene concentrations in Wells MW-6B (maximum 0.0927 mg/L) and MW-13A (0.0207 mg/L);
- 1,2,4-trimethylbenzene concentrations in Well MW-6B (maximum 0.430 mg/L);
- 1,3,5-trimethylbenzene concentrations in Well MW-6B (maximum 0.127 mg/L); and,
- Naphthalene in Wells MW-6B (maximum 0.475 mg/L) and MW-13A (0.0114 mg/L).

By qualitative examination of the graphs on Figure 3, there appears to be a decreasing trend in GRO, DRO, and benzene, toluene, ethylbenzene, and toluene (BTEX) in Well MW-13A. In addition, there appears to be a steady or decreasing trend for GRO, DRO, RRO, and BTEX for Well MW-6B.

QUALITY ASSURANCE SUMMARY

SGS follows on-going quality assurance/quality control (QA/QC) procedures to evaluate conformance to applicable ADEC data quality objectives (DQO). Internal laboratory controls to assess data quality for this project include surrogates, method blanks, matrix spikes/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to measure precision, accuracy, and matrix bias. If a DQO was not met, the project laboratory provides a report specific note identifying the problem in the Case Narrative section of their Laboratory Analysis Report (See Attachment 2).

External quality controls included field records, one duplicate water sample, and a water trip blank. The relative percent difference (RPD) between the project sample and associated duplicate results are a measure of precision affected by matrix heterogeneity, sampling technique, and laboratory analyses. A duplicate set, MW-6B/MW-16B was collected to assess precision of the sampling and analysis processes using the calculated RPD. The ADEC recommends an RPD of less than 30 percent for field duplicate water analysis. The RPDs for each of the detected parameters is less than 30 percent. The calculated RPD results are included in Table 4.

The project laboratory indicated surrogate recovery failures for 4-bromofluorobenzene for Samples MW-6B and MW-16B. The affected results are flagged "J+" in Tables 2 through 4 to represent a potential high bias.

One water trip blank (Sample WTB) accompanied the sample jars from the laboratory to the site during sampling activities and back again to SGS. No detections were reported in the trip blank. Additionally, no detections were reported in the method blanks indicating the project samples were not impacted by laboratory contaminants.

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 LDRC, which is included in Attachment 2. No non-conformances that would adversely affect the quality or usability of the data were noted, with the exceptions noted above.

INVESTIGATION DERIVED WASTE

IDW from this project consisted of purge and decontamination water. The purge and decontamination water from the wells is currently stored onsite in one, labeled 55-gallon

drum. Following approval for transport, treatment, and disposal, the IDW will be collected and disposed by U.S. Ecology.

SUMMARY

The December 2023 groundwater monitoring event included analytical groundwater sampling of two wells. The December 2023 sample results and historical data continue to suggest that the plume is generally stable based on recent trends of most contaminants of concern in Well MW-6B and downgradient Well MW-13A.

CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of our clients and their representatives in the study of this site. The findings we have presented within this report are based on the limited sampling and analyses that we conducted. They should not be construed as a definite conclusion regarding the site's groundwater conditions. Therefore, the sampling and analyses performed can provide you with only our professional judgment as to the environmental characteristics of this site, and in no way guarantees that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our site assessment. Changes in site conditions can occur over time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

Shannon & Wilson has prepared the documents in Attachment 3, "Important Information About Your Geotechnical/Environmental Report", to assist you and others in understanding the use and limitations of our reports. 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, except with your permission or as required by law.

We appreciate the opportunity to be of service. Please call the undersigned at (907) 561-2120 with questions or comments concerning this report.

Sincerely,

SHANNON & WILSON



Alec Rizzo
Environmental Staff



Dan P. McMahon, PMP
Vice President

Enc. Tables 1 through 4, Figures 1 through 3, and Attachments 1 through 3

TABLE 1 - GROUNDWATER SAMPLE LOG

	Monitoring Well Number			
	MW-6B	MW-13A	MW-14	MW-19R
Water Level Measurement Data				
Date Water Level Measured	12/7/2023	12/7/2023	-	-
Time Water Level Measured	11:58	11:46	-	-
MP Elevation, Feet (MSL)*	76.40	38.01	-	-
Depth to Water Below MP, Feet	24.37	5.83	-	-
Groundwater Elevation, Feet	52.03	32.18	-	-
Purging/Sampling Data				
Date Sampled	12/7/2023	12/7/2023	-	-
Time Sampled	13:15	14:13	-	-
Depth to Water Below MP, Feet	24.37	5.83	-	-
Total Depth of Well Below MP, Feet	30.28	10.74	12.60	14.03
Water Column in Well, Feet	5.91	4.91	-	-
Gallons per Foot	0.65	0.65	0.65	0.16
Gallons in Well	3.84	3.19	-	-
Total Gallons Pumped	2.6	1.0	-	-
Purging/Sampling Method	Submersible Pump	Submersible Pump	-	-
Diameter of Well Casing	4-inch	4-inch	4-inch	2-inch
Water Quality Data				
Temperature, °C	5.55	3.20	-	-
Specific Conductance, µS/cm	1,130	263	-	-
Dissolved Oxygen (mg/L)	1.15	2.52	-	-
pH, Standard Units	6.07	6.09	-	-
Turbidity, NTU	3.82	2.84	-	-
Remarks	Hydrocarbon odor; Duplicate sample MW-16B	Hydrocarbon odor	Frozen- Well could not be sampled	Well could not be located

Notes:

Water quality parameters were measured with YSI and Hach Turbidimeter water quality instruments.

* = Previous reports provided by the client indicate that MP elevations were surveyed in 2007 by Karabelnikoff Surveying.

MSL = Mean Sea level

MP = Measuring point

mg/L = Milligrams per liter

µS/cm = Microsiemens per centimeter

NTU = Nephelometric Turbidity Units

mV = Millivolt

°C = Degrees Celsius

- = Not applicable or not measured

TABLE 2 - SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Parameter Tested	Units	Method*	Cleanup Level**	Sample ID Number^ and Water Elevation in Feet Mean Sea Level (See Table 1 and Figure 2)			
				Monitoring Wells			Trip Blank
				MW-6B 52.03	MW-16B~ 52.03	MW-13A 32.18	TB -
Gasoline Range Organics (GRO)	mg/L	AK101	2.2	1.43 J+	1.43 J+	0.302	<0.0500
Diesel Range Organics (DRO)	mg/L	AK102	1.5	8.22	8.34	2.44	-
Residual Range Organics (RRO)	mg/L	AK103	1.1	0.988	0.872	1.52	-
<u>Volatiles Organic Compounds (VOCs)</u>							
Benzene	mg/L	EPA 8260D	0.0046	0.0261	0.0272	0.0133	<0.000200
Toluene	mg/L	EPA 8260D	1.1	<0.00250	<0.00250	0.00102	<0.000500
Ethylbenzene	mg/L	EPA 8260D	0.015	0.0891	0.0927	0.0207	<0.000500
Xylenes	mg/L	EPA 8260D	0.19	0.147	0.154	0.0187	<0.00150
Chloromethane	mg/L	EPA 8260D	0.19	<0.0100	<0.000500	0.000310 J	<0.000500
1,2,4-Trimethylbenzene	mg/L	EPA 8260D	0.056	0.416	0.430	0.00344	<0.000500
1,3,5-Trimethylbenzene	mg/L	EPA 8260D	0.060	0.121	0.127	<0.000500	<0.000500
4-Isopropyltoluene	mg/L	EPA 8260D	-	0.0142	0.0161	<0.000500	<0.000500
Isopropylbenzene (Cumene)	mg/L	EPA 8260D	0.45	0.0464	0.0491	0.00208	<0.000500
Naphthalene	mg/L	EPA 8260D	0.0017	0.454	0.475	0.0114	<0.000500
n-Propylbenzene	mg/L	EPA 8260D	0.66	0.0631	0.0662	0.00237	<0.000500
sec-Butylbenzene	mg/L	EPA 8260D	2.0	0.0227	0.0236	<0.000500	<0.000500
Other VOCs	mg/L	EPA 8260D	Varies	ND	ND	ND	ND

Notes:

- * = See Attachment 2 for compounds tested, methods, and laboratory reporting limits
- ** = Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (October 2023)
- ^ = Sample ID number preceded by "107532-" on the chain of custody form
- <0.0100 = Analyte not detected; laboratory limit of detection of 0.0100 mg/L
- 0.988 = Analyte detected
- 8.22 = Reported concentration exceeds ADEC cleanup level
- J = Estimated concentration less than the limit of quantitation. See the SGS laboratory report for details.
- J+ = Analyte result is potentially biased high due to surrogate failure.
- ~ = Field duplicate of Sample MW-6B
- = Not applicable or sample not tested for this analyte
- mg/L = Milligrams per Liter
- ND = Not detected

TABLE 3 - SUMMARY OF HISTORICAL GROUNDWATER DATA

Monitoring Well	Sample Date	Groundwater Elevation (feet) MSL	Parameter Tested and Cleanup Level* in mg/L			
			GRO 2.2	DRO 1.5	RRO 1.1	Benzene 0.0046
MW-1	05/11/05	32.67	11.0	7.00	-	1.30
	05/16/06	32.58	16.0	5.40	-	1.50
	09/11/07	32.95	14.0	3.20	<0.380	2.10
	08/21/08~	32.87	14.5	4.00	-	1.52
	10/07/08	33.14	-	-	-	-
	08/18/09~	32.79	1.99	1.31	<0.385	0.656
	09/02/10	33.24	2.20	1.10	0.270	0.580
	10/07/11	32.58	3.67	1.13	0.283 J	0.707
	10/10/2012~	34.07	3.56	1.80	0.549	1.12
	10/22/13	33.40	2.31	0.876	0.252 J	0.663
	10/23/2014~	32.81	0.884	0.418 J	<0.250	0.214
MW-6B	05/11/05	53.00	2.20	15.0	-	0.0900
	05/15/06	52.58	2.30	23.0	-	0.0540
	09/12/07	50.37	1.80	9.00	<0.380	0.0600
	08/21/08	50.94	1.60	13.2	-	0.0472
	10/08/08	50.75	-	-	<3.54	0.0461
	08/19/09	50.30	1.52	13.0	1.45	0.0310
	09/01/10	50.62	1.10	23.0	<3.50	0.0310
	10/07/11	49.87	0.933	17.6	1.85	0.0175
	10/10/12	52.25	1.27 J+	7.58	0.836	0.0232
	10/22/13	53.00	2.05	7.64	0.683	0.0540
	10/23/14	50.78	1.18	6.16	0.596	0.0446
	11/21/17	50.98	0.697 J+	29.10	2.070	0.0192
	10/21/19	50.69	0.565 J+	8.27	0.769	0.0113
	9/9/2021~	76.40	0.944 J+	30.9	2.21	0.00694
	12/7/2023~	52.03	1.43 J+	8.34	0.988	0.0272
MW-13A	05/11/05	31.53	14.0	11.0	-	0.430
	05/16/06	31.28	15.0	22.0	-	0.330
	09/12/07	32.73	13.0	7.90	<0.410	0.400
	08/21/08	31.61	17.1	16.4	-	0.291
	10/09/08	32.32	-	-	<3.54	0.293
	08/18/09	32.31	9.73	10.3	1.35	0.232
	09/01/10~	32.46	8.70	18.0	<1.40	0.260
	10/7/2011~	31.59	8.62	16.7	2.98	0.248
	10/10/12	33.76	6.52	10.1	1.55	0.167
	10/22/13	32.77	7.15	11.3	1.48	0.208
	10/23/14	32.16	5.56	11.2	1.47	0.154
	11/21/2017~	31.62	2.15	5.5	1.22	0.067
	10/21/2019~	32.72	2.22 J+	3.24	1.11	0.00468
	09/09/21	32.97	0.483	3.92	2.15	0.0133
	12/07/23	32.18	0.302	2.44	1.52	0.0133
MW-14	05/11/05	33.50	5.00	11.0	-	0.012
	05/15/06	33.81	5.20	15.0	-	0.018
	08/21/08	32.93	4.38	13.4	-	0.00804
	10/08/08	33.48	-	-	1.65	0.00715
	08/19/09	33.41	2.38	5.25	0.596	0.0021
	09/01/10	33.55	2.70	9.00	<0.780	0.0040
	10/07/11	32.51	2.64	8.44	1.18	0.00371
	10/26/12	-	1.56 J+	2.90	0.195 J	0.00723

See Notes on Page 2

TABLE 3 - SUMMARY OF HISTORICAL GROUNDWATER DATA

Monitoring Well	Sample Date	Groundwater Elevation (feet) MSL	Parameter Tested and Cleanup Level* in mg/L			
			GRO 2.2	DRO 1.5	RRO 1.1	Benzene 0.0046
MW-14 (Continued)	10/22/13	-	3.06	3.98	0.332 J	0.00731
	10/23/14	-	0.641 J	1.03	<0.250	0.00498 J
	11/21/17	Well Frozen - could not sample				
	10/21/19	-	0.620 J+	0.951	0.243 J	0.00139
	09/13/21	-	1.31 J+	1.98	0.365 J	0.00143
	12/07/23	Well Frozen - could not sample				
MW-19R	09/12/07	34.49	3.50	6.90	6.50	0.020
	08/21/08	34.24	5.16	4.19	-	0.00448
	10/08/08	34.26	-	-	1.09	0.00373
	08/18/09	35.09	4.01	1.92	<0.385	0.00530
	09/02/10	34.42	4.80	2.80	<0.350	0.00300
	10/07/11	33.89	6.05	3.92	1.07	0.00214
	10/10/12	35.59	3.25 J+	2.57	0.717	0.00159
	10/22/13~	35.10	5.04	3.01	0.348 J	0.00398
	10/23/14	32.49	5.31	1.88	0.416 J	0.0186
	11/21/17	34.00	3.43	1.59	0.338 J	0.029
	10/21/19	34.40	4.09 J+	1.34	0.371 J	0.00181
	09/09/21	34.46	4.18	2.85	0.807	0.00149
	12/07/23	Well could not be located				

Notes: Data prior to 2011 provided by ARCADIS

- * = Groundwater cleanup levels are from Table C, 18 AAC 75.345 (October 2023)
- mg/L = Milligrams per liter
- MSL = Mean sea level
- GRO = Gasoline Range Organics
- DRO = Diesel Range Organics
- RRO = Residual Range Organics
- <0.380 = Analyte not detected at or above the laboratory reporting limit of 0.380 mg/L
- <3.54 = Laboratory limit of detection is greater than the ADEC Table C cleanup level
- 1.99 = Analyte detected
- 3.50** = Reported concentration exceeds ADEC cleanup level
- = Not applicable or sample not tested for this analyte
- ~ = The higher concentrations between primary and duplicate samples are listed
- J = Analyte detected, but at a concentration less than the laboratory reporting limit
- J+ = Project result may be biased high due to surrogate failure
- J- = Project result may be biased low due to surrogate failure

TABLE 4 - QUALITY CONTROL DATA

Parameter Tested	Units	Primary Sample	Duplicate Sample	Precision	Precision
		MW-6B	MW-16B	(RPD)	QC Limit
Gasoline Range Organics (GRO)	mg/L	1.43 J+	1.43 J+	1%	30%
Diesel Range Organics (DRO)	mg/L	8.22	8.34	1%	30%
Residual Range Organics (RRO)	mg/L	0.988	0.872	12%	30%
Volatile Organic Compounds (VOCs)					
Benzene	mg/L	0.0261	0.0272	4%	30%
Ethylbenzene	mg/L	0.0891	0.0927	4%	30%
Xylenes	mg/L	0.147	0.154	5%	30%
1,2,4-Trimethylbenzene	mg/L	0.416	0.430	3%	30%
1,3,5-Trimethylbenzene	mg/L	0.121	0.127	5%	30%
4-Isopropyltoluene	mg/L	0.0142	0.0161	13%	30%
Isopropylbenzene (Cumene)	mg/L	0.0464	0.0491	6%	30%
Naphthalene	mg/L	0.454	0.475	5%	30%
n-Propylbenzene	mg/L	0.0631	0.0662	5%	30%
sec-Butylbenzene	mg/L	0.0227	0.0236	4%	30%
Other VOCs	mg/L	ND	ND	NA	30%

Notes:

RPD = Relative percent difference

QC = Quality control

ND = Analyte not detected

mg/L = Milligrams per liter

1% = RPD is less than the precision QC limit

E = Result is an estimate due to a primary/duplicate sample relative percent difference (RPD) failure.

J = Estimated concentration less than the limit of quantitation. See the SGS laboratory report for details.

J+ = Analyte result is potentially biased high due to surrogate failure.

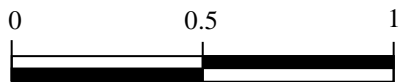
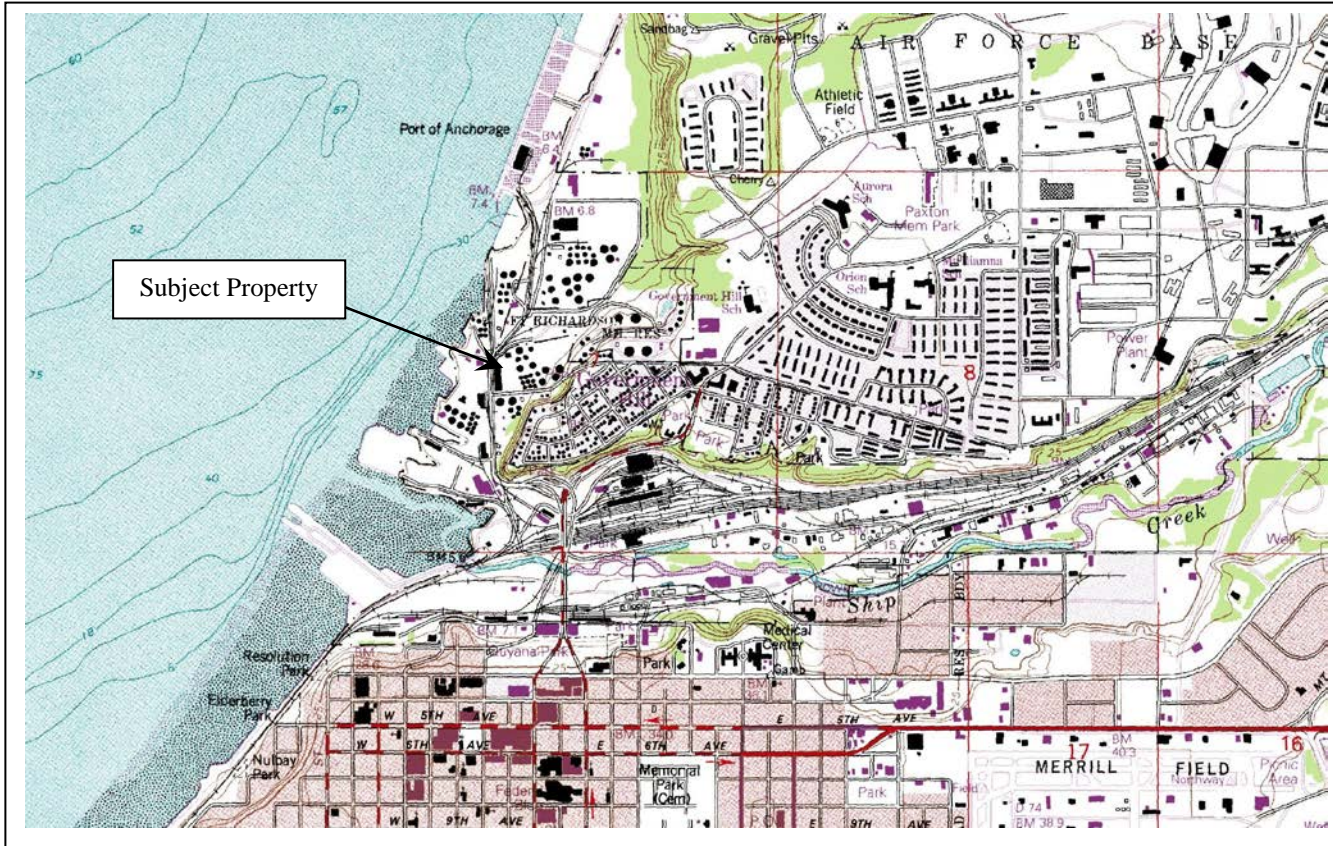
ft = Feet

mV = Millivolts

NTU = Nephelometric Turbidity Unit

°C = Degrees Celsius

µS/cm = Microsiemens per Centimeter



Approximate scale
1 inch equals approximately 1/2 mile

Taken from
Anchorage A-8 NE Quadrangle
U.S. Geological Survey




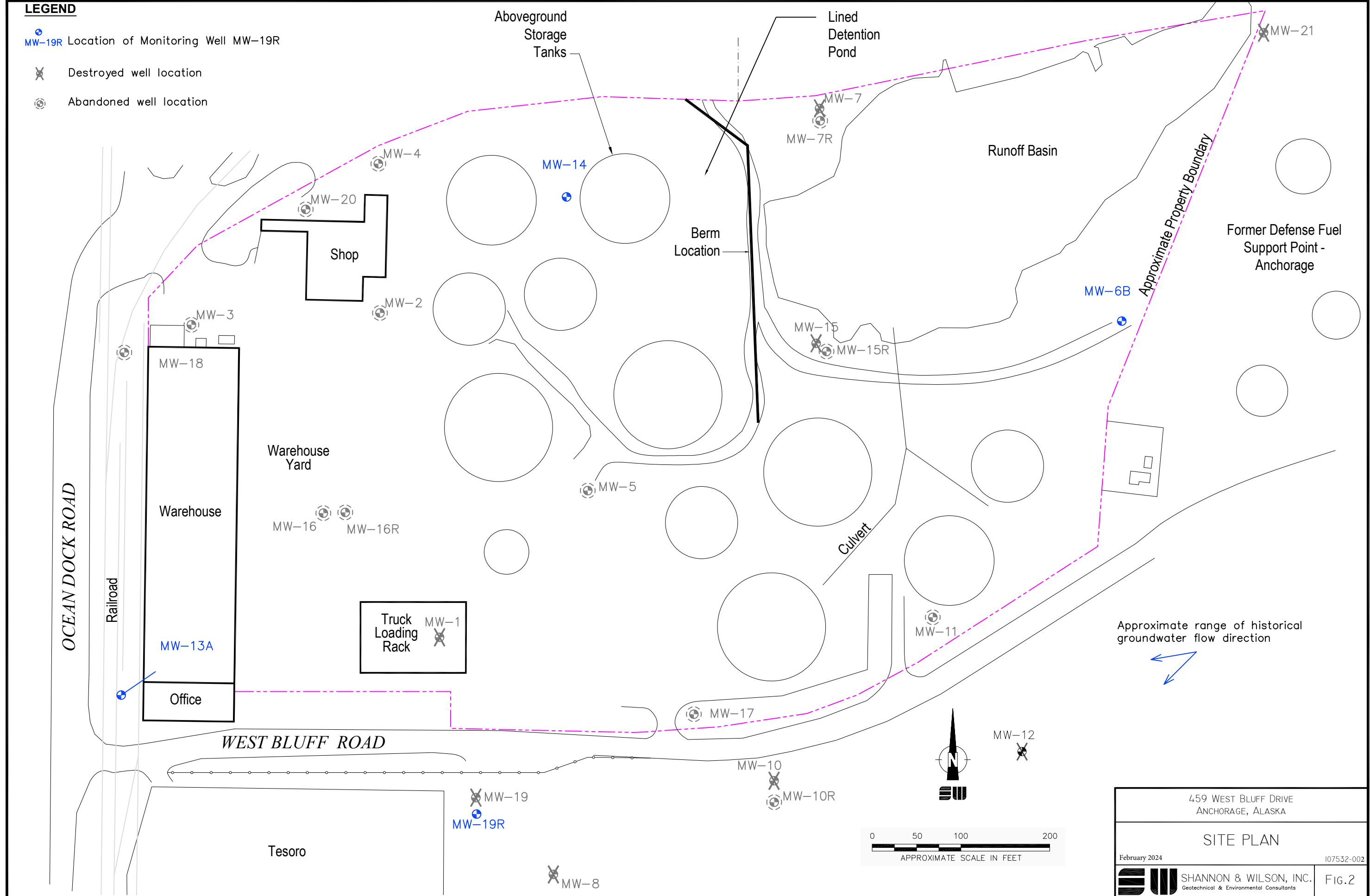
459 West Bluff Drive Anchorage, Alaska	
VICINITY MAP	
February 2024	107532-002
 SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	Fig. 1

LEGEND

 MW-19R Location of Monitoring Well MW-19R

 Destroyed well location

 Abandoned well location



459 WEST BLUFF DRIVE ANCHORAGE, ALASKA	
SITE PLAN	
February 2024	107532-002
 SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	FIG. 2

**FIGURE 3
GRAPHS OF SELECT CONSTITUENTS IN MILLIGRAMS PER LITER**

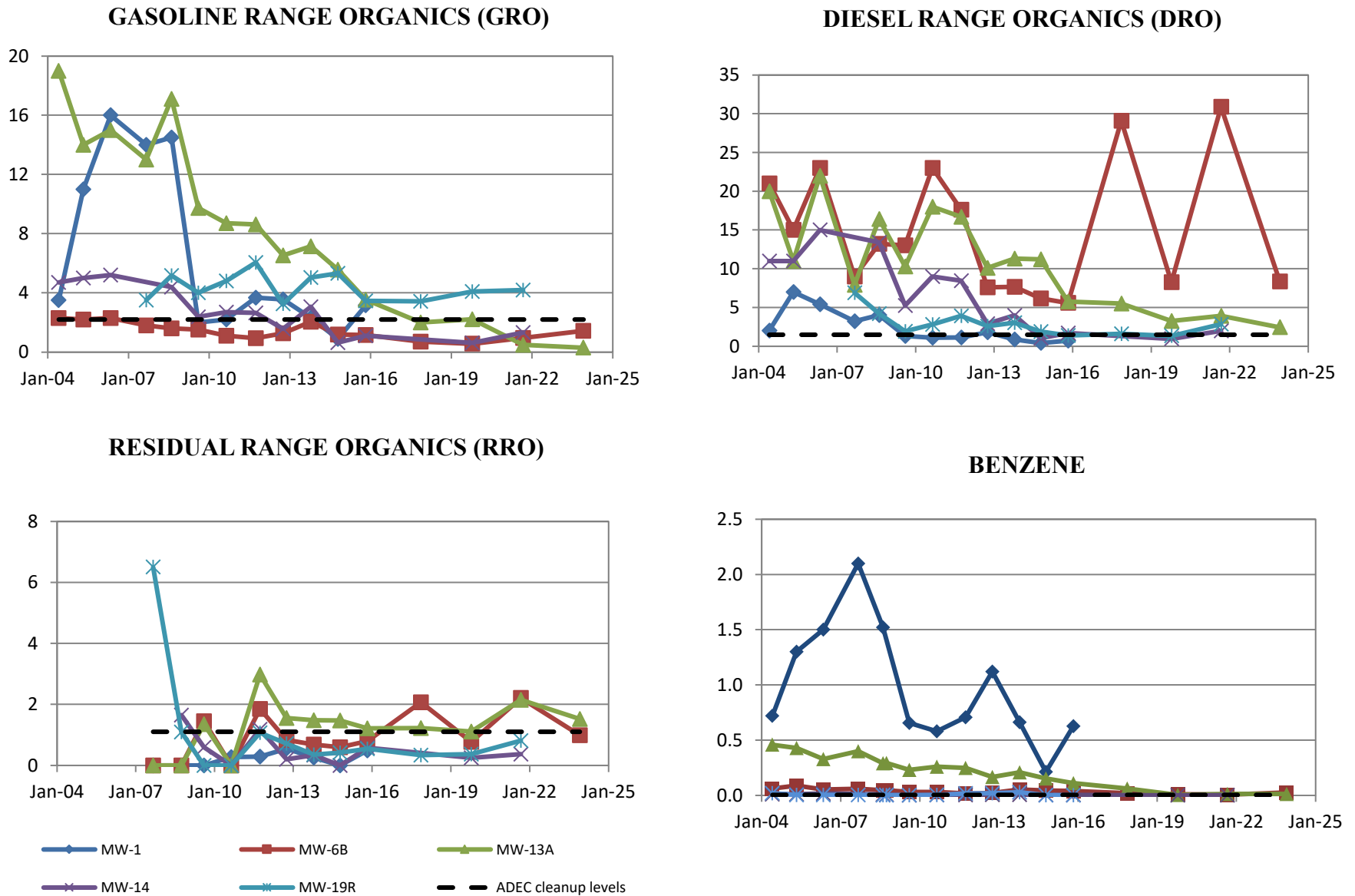
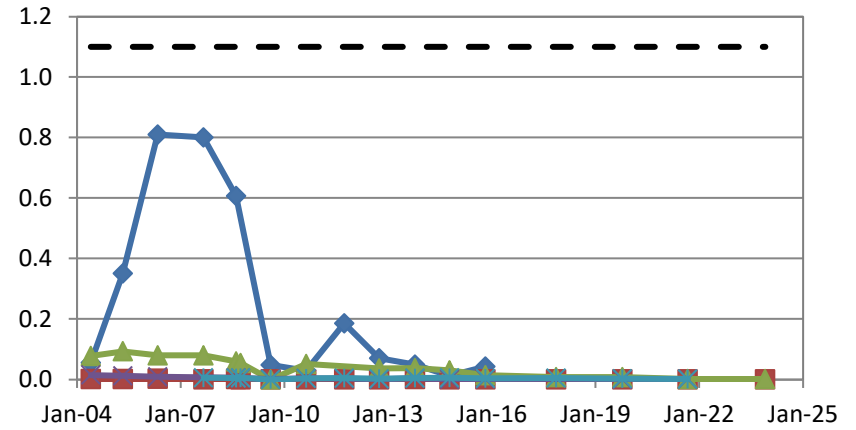
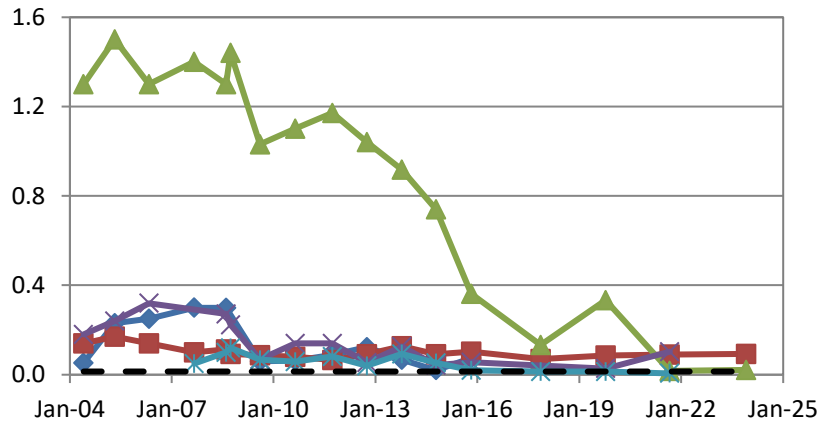


FIGURE 3
GRAPHS OF SELECT CONSTITUENTS IN MILLIGRAMS PER LITER

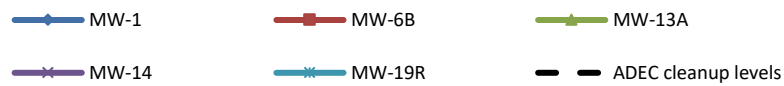
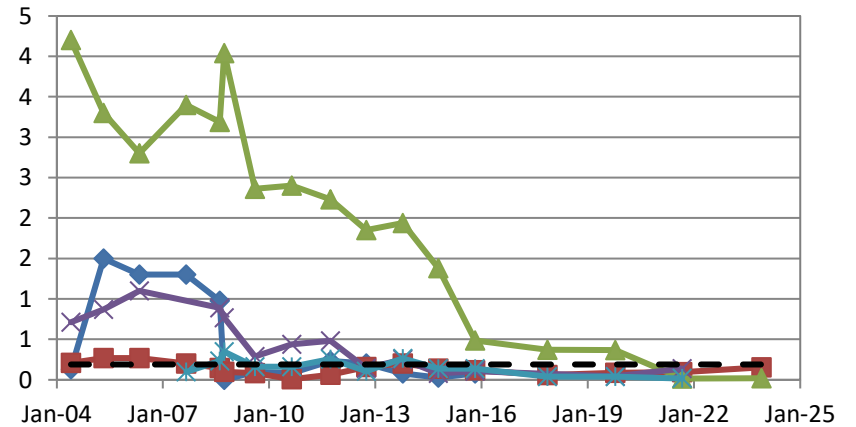
TOLUENE



ETHYLBENZENE



TOTAL XYLENES



ATTACHMENT 1

FIELD NOTES



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 107532 Location: 459 West Bluff Ave Weather: 14° overcast
 Well No.: MW-6B
 Date: 12/7/23 Time Started: 1225 Time Completed: 1330

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 1158 Date of Depth Measurement: 12/7/23
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other:
 Diameter of Casing: 4" Well Screen Interval:
 Total Depth of Well Below MP: 30.28 Product Thickness, if noted:
 Depth-to-Water (DTW) Below MP: 24.37
 Water Column in Well: 5.91 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.65
 Gallons in Well: 3.84 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 12/7/23 Time Started: 1253 Time Completed: 1320
 Three Well Volumes: 11.52 (Gallons in Well x 3)
 Gallons Purged: 2.6 Depth of Pump (generally 2 ft from bottom): ~26.5'
 Max. Drawdown (generally 0.3 ft): 0.17 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)
<u>12:58</u>	<u>0.6</u>	<u>0.5</u>	<u>24.52</u>	<u>0.15</u>	<u>5.49</u>	<u>6140</u>	<u>1.42</u>	<u>6.13</u>	ORP: (mV)	<u>9.52</u>
<u>13:03</u>	<u>1.2</u>	<u>0.5</u>	<u>24.54</u>	<u>0.17</u>	<u>5.52</u>	<u>6130</u>	<u>1.19</u>	<u>6.07</u>		<u>8.19</u>
<u>13:08</u>	<u>1.8</u>	<u>0.5</u>	<u>24.54</u>	<u>0.17</u>	<u>5.54</u>	<u>6130</u>	<u>1.18</u>	<u>6.07</u>		<u>4.73</u>
<u>13:11</u>	<u>2.2</u>	<u>0.5</u>	<u>24.54</u>	<u>0.17</u>	<u>5.54</u>	<u>6130</u>	<u>1.16</u>	<u>6.07</u>		<u>5.91</u>
<u>13:14</u>	<u>2.6</u>	<u>0.5</u>	<u>24.54</u>	<u>0.17</u>	<u>5.55</u>	<u>6130</u>	<u>1.15</u>	<u>6.07</u>		<u>3.82</u>

SAMPLING DATA

Odor: Hydro Carbons Color: Clear
 Sample Designation: 107532-MW-6B Time / Date: 1315 12/7/23
 QC Sample Designation: 107532-MW-6B Time / Date: 1345 12/7/23
 QA Sample Designation: Time / Date:

Evacuation Method: Submersible Pump / Other: Double Whake
 Sampling Method: Submersible Pump / Other: Double Whake
 Water Quality Instruments Used/Manufacturer/Model Number Hanna + Micro TAP
 Calibration Info (Time, Ranges, etc) 8:00 12/7/23

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



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 107532 Location: 459 west bluff Dr. Weather: 14° overcast
 Well No.: MW-13A
 Date: 12/7/23 Time Started: 13:37 Time Completed: 14:35

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 11:46 Date of Depth Measurement: 12/7/23
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other:
 Diameter of Casing: 4" Well Screen Interval: _____
 Total Depth of Well Below MP: 10.74 Product Thickness, if noted: _____
 Depth-to-Water (DTW) Below MP: 5.83
 Water Column in Well: 4.91 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.65
 Gallons in Well: 3.19 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 12/7/23 Time Started: 13:48 Time Completed: 14:25
 Three Well Volumes: 9.57 (Gallons in Well x 3)
 Gallons Purged: 120 Depth of Pump (generally 2 ft from bottom): ~3.0'
 Max. Drawdown (generally 0.3 ft): 0.77 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)
<u>13:53</u>	<u>0.3</u>	<u>0.2</u>	<u>6.19</u>	<u>0.36</u>	<u>3.59</u>	<u>283</u>	<u>2.67</u>	<u>6.25</u>	↑ ↓	<u>3.89</u>
<u>13:58</u>	<u>0.5</u>	<u>0.1</u>	<u>6.29</u>	<u>0.46</u>	<u>3.00</u>	<u>279</u>	<u>2.53</u>	<u>6.25</u>		<u>3.27</u>
<u>14:03</u>	<u>0.7</u>	<u>0.1</u>	<u>6.49</u>	<u>0.56</u>	<u>3.44</u>	<u>269</u>	<u>2.47</u>	<u>6.17</u>		<u>2.92</u>
<u>14:06</u>	<u>0.8</u>	<u>0.1</u>	<u>6.56</u>	<u>0.63</u>	<u>3.37</u>	<u>266</u>	<u>2.50</u>	<u>6.13</u>		<u>3.64</u>
<u>14:09</u>	<u>0.9</u>	<u>0.1</u>	<u>6.64</u>	<u>0.71</u>	<u>3.29</u>	<u>264</u>	<u>2.53</u>	<u>6.11</u>		<u>3.02</u>
<u>14:12</u>	<u>1.0</u>	<u>0.1</u>	<u>6.70</u>	<u>0.77</u>	<u>3.20</u>	<u>263</u>	<u>2.52</u>	<u>6.09</u>		<u>2.84</u>

SAMPLING DATA

Odor: Hydrocarbons Color: Clear
 Sample Designation: 107532-MW-13A Time / Date: 14:13 12/7/23
 QC Sample Designation: _____ Time / Date: _____
 QA Sample Designation: _____ Time / Date: _____

Evacuation Method: Submersible Pump / Other: Single Whake
 Sampling Method: Submersible Pump / Other: Single Whake

Water Quality Instruments Used/Manufacturer/Model Number Hanba + Micro TPW

Calibration Info (Time, Ranges, etc) 8100 12/7/23

Remarks: _____

Sampling Personnel: ZYT

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



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 107532 Location: 459 West Bluff drive Weather: 14° overcast
Well No.: MW-14
Date: 12/7/23 Time Started: 12:00 Time Completed: 12:13

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 12:12 Date of Depth Measurement: 12/7/23
Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other:
Diameter of Casing: 4" Well Screen Interval: _____
Total Depth of Well Below MP: 12.60 Product Thickness, if noted: _____
Depth-to-Water (DTW) Below MP: 3.60 - Frozen
Water Column in Well: _____ (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.65
Gallons in Well: _____ (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: _____ Time Started: _____ Time Completed: _____
Three Well Volumes: _____ (Gallons in Well x 3)
Gallons Purged: _____ Depth of Pump (generally 2 ft from bottom): _____
Max. Drawdown (generally 0.3 ft): _____ Pump Rate: _____
Well Purged Dry: Yes No (If yes, use Well Purged Dry Log)

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

SAMPLING DATA

Odor: _____ Color: _____
Sample Designation: _____ Time / Date: _____
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 _____
Calibration Info (Time, Ranges, etc) _____

Remarks: Could not sample, H₂O frozen @ ground surface.

Sampling Personnel: WT

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: 107532 Location: 459 West Bluff Dr. Weather: 14° overcast
Well No.: MW-19R
Date: 12/17/23 Time Started: _____ Time Completed: _____

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: _____ Date of Depth Measurement: 12/17/23
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: 14.03 Product Thickness, if noted: _____
Depth-to-Water (DTW) Below MP: _____
Water Column in Well: _____ (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: _____ (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: _____ Time Started: _____ Time Completed: _____
Three Well Volumes: _____ (Gallons in Well x 3)
Gallons Purged: _____ Depth of Pump (generally 2 ft from bottom): _____
Max. Drawdown (generally 0.3 ft): _____ Pump Rate: _____
Well Purged Dry: Yes No (If yes, use Well Purged Dry Log)

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

SAMPLING DATA

Odor: _____ Color: _____
Sample Designation: _____ Time / Date: _____
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 _____
Calibration Info (Time, Ranges, etc) _____

Remarks: could not locate under ice + frozen gravel
7 6" bgs
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

ATTACHMENT 2
RESULTS OF ANALYTICAL TESTING BY
SGS NORTH AMERICA INC. OF ANCHORAGE, ALASKA
AND
ADEC LABORATORY DATA REVIEW CHECKLIST

Laboratory Report of Analysis

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

Report Number: **1236655**

Client Project: **107532-002; 459 W Bluff Drive**

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

2023.12.28

14:35:26 -09'00'

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1236655**
Project Name/Site: **107532-002; 459 W Bluff Drive**
Project Contact: **Zach Thon**

Refer to sample receipt form for information on sample condition.

107532-MW-6B (1236655001) PS

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

107532-MW-16B (1236655002) PS

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

LCSD for HBN 1869085 [VXX/4084 (1749177) LCSD

8260D - LCS/LCSD RPD for trichlorofluoromethane does not meet QC criteria. This analyte was not reported 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.

Print Date: 12/27/2023 4:45:05PM

Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
SW8260D				
1236655001	107532-MW-6B	VMS23021	4-Isopropyltoluene	SP
1236655002	107532-MW-16B	VMS23021	4-Isopropyltoluene	SP
1236655003	107532-MW-13A	VMS23024	Chloromethane	SP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 12/27/2023 4:45:06PM

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 / (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC (Provisionally Certified as of 11/27/2023 for Turbidity SM2130B) 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.

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
107532-MW-6B	1236655001	12/07/2023	12/07/2023	Water (Surface, Eff., Ground)
107532-MW-16B	1236655002	12/07/2023	12/07/2023	Water (Surface, Eff., Ground)
107532-MW-13A	1236655003	12/07/2023	12/07/2023	Water (Surface, Eff., Ground)
107532-WTB	1236655004	12/07/2023	12/07/2023	Water (Surface, Eff., Ground)

<u>Method</u>	<u>Method Description</u>
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (W)
SW8260D	Volatile Organic Compounds (W) FULL

Print Date: 12/27/2023 4:45:09PM

Detectable Results Summary

Client Sample ID: **107532-MW-6B**

Lab Sample ID: 1236655001

Semivolatile Organic Fuels

Volatile Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	8.22	mg/L
Residual Range Organics	0.988	mg/L
Gasoline Range Organics	1.43	mg/L
1,2,4-Trimethylbenzene	416	ug/L
1,3,5-Trimethylbenzene	121	ug/L
4-Isopropyltoluene	14.2	ug/L
Benzene	26.1	ug/L
Ethylbenzene	89.1	ug/L
Isopropylbenzene (Cumene)	46.4	ug/L
Naphthalene	454	ug/L
n-Propylbenzene	63.1	ug/L
o-Xylene	1.55J	ug/L
P & M -Xylene	146	ug/L
sec-Butylbenzene	22.7	ug/L
Xylenes (total)	147	ug/L

Client Sample ID: **107532-MW-16B**

Lab Sample ID: 1236655002

Semivolatile Organic Fuels

Volatile Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	8.34	mg/L
Residual Range Organics	0.872	mg/L
Gasoline Range Organics	1.43	mg/L
1,2,4-Trimethylbenzene	430	ug/L
1,3,5-Trimethylbenzene	127	ug/L
4-Isopropyltoluene	16.1	ug/L
Benzene	27.2	ug/L
Ethylbenzene	92.7	ug/L
Isopropylbenzene (Cumene)	49.1	ug/L
Naphthalene	475	ug/L
n-Propylbenzene	66.2	ug/L
o-Xylene	1.65J	ug/L
P & M -Xylene	152	ug/L
sec-Butylbenzene	23.6	ug/L
Xylenes (total)	154	ug/L

Detectable Results Summary

Client Sample ID: **107532-MW-13A**

Lab Sample ID: 1236655003

Semivolatile Organic Fuels

Volatile Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	2.44	mg/L
Residual Range Organics	1.52	mg/L
Gasoline Range Organics	0.302	mg/L
1,2,4-Trimethylbenzene	3.44	ug/L
Benzene	13.3	ug/L
Chloromethane	0.310J	ug/L
Ethylbenzene	20.7	ug/L
Isopropylbenzene (Cumene)	2.08	ug/L
Naphthalene	11.4	ug/L
n-Propylbenzene	2.37	ug/L
o-Xylene	0.690J	ug/L
P & M -Xylene	18.0	ug/L
Toluene	1.02	ug/L
Xylenes (total)	18.7	ug/L

Print Date: 12/27/2023 4:45:11PM

Results of 107532-MW-6B

Client Sample ID: **107532-MW-6B**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655001
 Lab Project ID: 1236655

Collection Date: 12/07/23 13:15
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	8.22		0.600	0.200	0.300	mg/L	1		12/22/23 23:26

Surrogates

5a Androstane (surr)	84.6		50-150			%	1		12/22/23 23:26
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Batch Information

Analytical Batch: XFC16770
 Analytical Method: AK102
 Analyst: HMW
 Analytical Date/Time: 12/22/23 23:26
 Container ID: 1236655001-G

Prep Batch: XXX49114
 Prep Method: SW3520C
 Prep Date/Time: 12/18/23 18:55
 Prep Initial Wt./Vol.: 250 mL
 Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.988		0.500	0.200	0.250	mg/L	1		12/22/23 23:26

Surrogates

n-Triacontane-d62 (surr)	91.6		50-150			%	1		12/22/23 23:26
--------------------------	------	--	--------	--	--	---	---	--	----------------

Batch Information

Analytical Batch: XFC16770
 Analytical Method: AK103
 Analyst: HMW
 Analytical Date/Time: 12/22/23 23:26
 Container ID: 1236655001-G

Prep Batch: XXX49114
 Prep Method: SW3520C
 Prep Date/Time: 12/18/23 18:55
 Prep Initial Wt./Vol.: 250 mL
 Prep Extract Vol: 1 mL

Results of 107532-MW-6B

Client Sample ID: **107532-MW-6B**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655001
 Lab Project ID: 1236655

Collection Date: 12/07/23 13:15
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.43		0.100	0.0450	0.0500	mg/L	1		12/11/23 20:35
Surrogates									
4-Bromofluorobenzene (surr)	263	*	50-150			%	1		12/11/23 20:35

Batch Information

Analytical Batch: VFC16707
 Analytical Method: AK101
 Analyst: PHK
 Analytical Date/Time: 12/11/23 20:35
 Container ID: 1236655001-A

Prep Batch: VXX40843
 Prep Method: SW5030B
 Prep Date/Time: 12/11/23 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of 107532-MW-6B

Client Sample ID: **107532-MW-6B**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655001
 Lab Project ID: 1236655

Collection Date: 12/07/23 13:15
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
1,1,1-Trichloroethane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,1,2,2-Tetrachloroethane	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
1,1,2-Trichloroethane	1.00	U	2.00	0.600	1.00	ug/L	5		12/11/23 22:16
1,1-Dichloroethane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,1-Dichloroethene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,1-Dichloropropene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,2,3-Trichlorobenzene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,2,3-Trichloropropane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,2,4-Trichlorobenzene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,2,4-Trimethylbenzene	416		5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,2-Dibromo-3-chloropropane	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
1,2-Dibromoethane	0.188	U	0.375	0.0900	0.188	ug/L	5		12/11/23 22:16
1,2-Dichlorobenzene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,2-Dichloroethane	1.25	U	2.50	1.00	1.25	ug/L	5		12/11/23 22:16
1,2-Dichloropropane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,3,5-Trimethylbenzene	121		5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,3-Dichlorobenzene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
1,3-Dichloropropane	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
1,4-Dichlorobenzene	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
2,2-Dichloropropane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
2-Butanone (MEK)	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
2-Chlorotoluene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
2-Hexanone	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
4-Chlorotoluene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
4-Isopropyltoluene	14.2		5.00	1.55	2.50	ug/L	5		12/11/23 22:16
4-Methyl-2-pentanone (MIBK)	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
Benzene	26.1		2.00	0.600	1.00	ug/L	5		12/11/23 22:16
Bromobenzene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Bromochloromethane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Bromodichloromethane	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
Bromoform	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Bromomethane	15.0	U	30.0	15.0	15.0	ug/L	5		12/11/23 22:16
Carbon disulfide	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
Carbon tetrachloride	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Chlorobenzene	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
Chloroethane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16

Print Date: 12/27/2023 4:45:13PM

J flagging is activated



Results of 107532-MW-6B

Client Sample ID: **107532-MW-6B**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655001
 Lab Project ID: 1236655

Collection Date: 12/07/23 13:15
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroform	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Chloromethane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
cis-1,2-Dichloroethene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
cis-1,3-Dichloropropene	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
Dibromochloromethane	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
Dibromomethane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Dichlorodifluoromethane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Ethylbenzene	89.1		5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Freon-113	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
Hexachlorobutadiene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Isopropylbenzene (Cumene)	46.4		5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Methylene chloride	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
Methyl-t-butyl ether	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
Naphthalene	454		5.00	1.55	2.50	ug/L	5		12/11/23 22:16
n-Butylbenzene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
n-Propylbenzene	63.1		5.00	1.55	2.50	ug/L	5		12/11/23 22:16
o-Xylene	1.55	J	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
P & M -Xylene	146		10.0	3.10	5.00	ug/L	5		12/11/23 22:16
sec-Butylbenzene	22.7		5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Styrene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
tert-Butylbenzene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Tetrachloroethene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Toluene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
trans-1,2-Dichloroethene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
trans-1,3-Dichloropropene	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Trichloroethene	1.25	U	2.50	0.750	1.25	ug/L	5		12/11/23 22:16
Trichlorofluoromethane	2.50	U	5.00	1.55	2.50	ug/L	5		12/11/23 22:16
Vinyl acetate	25.0	U	50.0	15.5	25.0	ug/L	5		12/11/23 22:16
Vinyl chloride	0.375	U	0.750	0.250	0.375	ug/L	5		12/11/23 22:16
Xylenes (total)	147		15.0	5.00	7.50	ug/L	5		12/11/23 22:16
Surrogates									
1,2-Dichloroethane-D4 (surr)	114		81-118			%	5		12/11/23 22:16
4-Bromofluorobenzene (surr)	104		85-114			%	5		12/11/23 22:16
Toluene-d8 (surr)	99.4		89-112			%	5		12/11/23 22:16

Results of 107532-MW-6B

Client Sample ID: **107532-MW-6B**
Client Project ID: **107532-002; 459 W Bluff Drive**
Lab Sample ID: 1236655001
Lab Project ID: 1236655

Collection Date: 12/07/23 13:15
Received Date: 12/07/23 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS23021
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 12/11/23 22:16
Container ID: 1236655001-D

Prep Batch: VXX40841
Prep Method: SW5030B
Prep Date/Time: 12/11/23 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **107532-MW-16B**

Client Sample ID: **107532-MW-16B**
Client Project ID: **107532-002; 459 W Bluff Drive**
Lab Sample ID: 1236655002
Lab Project ID: 1236655

Collection Date: 12/07/23 13:45
Received Date: 12/07/23 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	8.34		0.577	0.192	0.288	mg/L	1		12/22/23 23:38

Surrogates

5a Androstane (surr)	98.7		50-150			%	1		12/22/23 23:38
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Batch Information

Analytical Batch: XFC16770
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 12/22/23 23:38
Container ID: 1236655002-G

Prep Batch: XXX49114
Prep Method: SW3520C
Prep Date/Time: 12/18/23 18:55
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	0.872		0.481	0.192	0.240	mg/L	1		12/22/23 23:38

Surrogates

n-Triacontane-d62 (surr)	96.6		50-150			%	1		12/22/23 23:38
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Batch Information

Analytical Batch: XFC16770
Analytical Method: AK103
Analyst: HMW
Analytical Date/Time: 12/22/23 23:38
Container ID: 1236655002-G

Prep Batch: XXX49114
Prep Method: SW3520C
Prep Date/Time: 12/18/23 18:55
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of 107532-MW-16B

Client Sample ID: **107532-MW-16B**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655002
 Lab Project ID: 1236655

Collection Date: 12/07/23 13:45
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.43		0.100	0.0450	0.0500	mg/L	1		12/11/23 21:12
Surrogates									
4-Bromofluorobenzene (surr)	262	*	50-150			%	1		12/11/23 21:12

Batch Information

Analytical Batch: VFC16707
 Analytical Method: AK101
 Analyst: PHK
 Analytical Date/Time: 12/11/23 21:12
 Container ID: 1236655002-A

Prep Batch: VXX40843
 Prep Method: SW5030B
 Prep Date/Time: 12/11/23 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of 107532-MW-16B

Client Sample ID: 107532-MW-16B
Client Project ID: 107532-002; 459 W Bluff Drive
Lab Sample ID: 1236655002
Lab Project ID: 1236655

Collection Date: 12/07/23 13:45
Received Date: 12/07/23 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 9 columns: Parameter, Result, Qual, LOQ/CL, DL, LOD, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical compounds and their detection results.

Print Date: 12/27/2023 4:45:13PM

J flagging is activated



Results of 107532-MW-16B

Client Sample ID: 107532-MW-16B
Client Project ID: 107532-002; 459 W Bluff Drive
Lab Sample ID: 1236655002
Lab Project ID: 1236655

Collection Date: 12/07/23 13:45
Received Date: 12/07/23 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Table with 9 columns: Parameter, Result, Qual, LOQ/CL, DL, LOD, Units, DF, Allowable Limits, Date Analyzed. Lists various chemical parameters like Chloroform, Chloromethane, etc., with their respective results and quality indicators.

Results of 107532-MW-16B

Client Sample ID: **107532-MW-16B**
Client Project ID: **107532-002; 459 W Bluff Drive**
Lab Sample ID: 1236655002
Lab Project ID: 1236655

Collection Date: 12/07/23 13:45
Received Date: 12/07/23 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS23021
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 12/11/23 22:32
Container ID: 1236655002-D

Prep Batch: VXX40841
Prep Method: SW5030B
Prep Date/Time: 12/11/23 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Results of **107532-MW-13A**

Client Sample ID: **107532-MW-13A**
Client Project ID: **107532-002; 459 W Bluff Drive**
Lab Sample ID: 1236655003
Lab Project ID: 1236655

Collection Date: 12/07/23 14:13
Received Date: 12/07/23 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	2.44		0.600	0.200	0.300	mg/L	1		12/22/23 23:51

Surrogates

5a Androstane (surr)	86.4		50-150			%	1		12/22/23 23:51
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Batch Information

Analytical Batch: XFC16770	Prep Batch: XXX49114
Analytical Method: AK102	Prep Method: SW3520C
Analyst: HMW	Prep Date/Time: 12/18/23 18:55
Analytical Date/Time: 12/22/23 23:51	Prep Initial Wt./Vol.: 250 mL
Container ID: 1236655003-G	Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	1.52		0.500	0.200	0.250	mg/L	1		12/22/23 23:51

Surrogates

n-Triacontane-d62 (surr)	95.8		50-150			%	1		12/22/23 23:51
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Batch Information

Analytical Batch: XFC16770	Prep Batch: XXX49114
Analytical Method: AK103	Prep Method: SW3520C
Analyst: HMW	Prep Date/Time: 12/18/23 18:55
Analytical Date/Time: 12/22/23 23:51	Prep Initial Wt./Vol.: 250 mL
Container ID: 1236655003-G	Prep Extract Vol: 1 mL

Results of 107532-MW-13A

Client Sample ID: **107532-MW-13A**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655003
 Lab Project ID: 1236655

Collection Date: 12/07/23 14:13
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.302		0.100	0.0450	0.0500	mg/L	1		12/11/23 20:54

Surrogates

4-Bromofluorobenzene (surr)	97.4		50-150			%	1		12/11/23 20:54
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Batch Information

Analytical Batch: VFC16707
 Analytical Method: AK101
 Analyst: PHK
 Analytical Date/Time: 12/11/23 20:54
 Container ID: 1236655003-A

Prep Batch: VXX40843
 Prep Method: SW5030B
 Prep Date/Time: 12/11/23 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of 107532-MW-13A

Client Sample ID: **107532-MW-13A**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655003
 Lab Project ID: 1236655

Collection Date: 12/07/23 14:13
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
1,1,1-Trichloroethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
1,1,2-Trichloroethane	0.200	U	0.400	0.120	0.200	ug/L	1		12/12/23 18:29
1,1-Dichloroethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,1-Dichloroethene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,1-Dichloropropene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,2,3-Trichloropropane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,2,4-Trimethylbenzene	3.44		1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	0.0375	ug/L	1		12/12/23 18:29
1,2-Dichlorobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,2-Dichloroethane	0.250	U	0.500	0.200	0.250	ug/L	1		12/12/23 18:29
1,2-Dichloropropane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,3-Dichlorobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
1,3-Dichloropropane	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
1,4-Dichlorobenzene	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
2,2-Dichloropropane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
2-Butanone (MEK)	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
2-Chlorotoluene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
2-Hexanone	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
4-Chlorotoluene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
4-Isopropyltoluene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
Benzene	13.3		0.400	0.120	0.200	ug/L	1		12/12/23 18:29
Bromobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Bromochloromethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Bromodichloromethane	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
Bromoform	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Bromomethane	3.00	U	6.00	3.00	3.00	ug/L	1		12/12/23 18:29
Carbon disulfide	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
Carbon tetrachloride	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Chlorobenzene	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
Chloroethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29

Print Date: 12/27/2023 4:45:13PM

J flagging is activated



Results of 107532-MW-13A

Client Sample ID: **107532-MW-13A**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655003
 Lab Project ID: 1236655

Collection Date: 12/07/23 14:13
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Chloromethane	0.310	J	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
Dibromochloromethane	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
Dibromomethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Dichlorodifluoromethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Ethylbenzene	20.7		1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Freon-113	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
Hexachlorobutadiene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Isopropylbenzene (Cumene)	2.08		1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Methylene chloride	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
Methyl-t-butyl ether	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
Naphthalene	11.4		1.00	0.310	0.500	ug/L	1		12/12/23 18:29
n-Butylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
n-Propylbenzene	2.37		1.00	0.310	0.500	ug/L	1		12/12/23 18:29
o-Xylene	0.690	J	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
P & M -Xylene	18.0		2.00	0.620	1.00	ug/L	1		12/12/23 18:29
sec-Butylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Styrene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
tert-Butylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Tetrachloroethene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Toluene	1.02		1.00	0.310	0.500	ug/L	1		12/12/23 18:29
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Trichloroethene	0.250	U	0.500	0.150	0.250	ug/L	1		12/12/23 18:29
Trichlorofluoromethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/12/23 18:29
Vinyl acetate	5.00	U	10.0	3.10	5.00	ug/L	1		12/12/23 18:29
Vinyl chloride	0.0750	U	0.150	0.0500	0.0750	ug/L	1		12/12/23 18:29
Xylenes (total)	18.7		3.00	1.00	1.50	ug/L	1		12/12/23 18:29
Surrogates									
1,2-Dichloroethane-D4 (surr)	108		81-118			%	1		12/12/23 18:29
4-Bromofluorobenzene (surr)	101		85-114			%	1		12/12/23 18:29
Toluene-d8 (surr)	98.3		89-112			%	1		12/12/23 18:29

Results of 107532-MW-13A

Client Sample ID: **107532-MW-13A**
Client Project ID: **107532-002; 459 W Bluff Drive**
Lab Sample ID: 1236655003
Lab Project ID: 1236655

Collection Date: 12/07/23 14:13
Received Date: 12/07/23 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS23024
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 12/12/23 18:29
Container ID: 1236655003-E

Prep Batch: VXX40846
Prep Method: SW5030B
Prep Date/Time: 12/12/23 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 107532-WTB

Client Sample ID: **107532-WTB**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655004
 Lab Project ID: 1236655

Collection Date: 12/07/23 08:00
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.0500	U	0.100	0.0450	0.0500	mg/L	1		12/11/23 16:34

Surrogates

4-Bromofluorobenzene (surr)	92.2		50-150			%	1		12/11/23 16:34
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Batch Information

Analytical Batch: VFC16707
 Analytical Method: AK101
 Analyst: PHK
 Analytical Date/Time: 12/11/23 16:34
 Container ID: 1236655004-A

Prep Batch: VXX40843
 Prep Method: SW5030B
 Prep Date/Time: 12/11/23 06:00
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL



Results of 107532-WTB

Client Sample ID: **107532-WTB**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655004
 Lab Project ID: 1236655

Collection Date: 12/07/23 08:00
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
1,1,1-Trichloroethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
1,1,2-Trichloroethane	0.200	U	0.400	0.120	0.200	ug/L	1		12/11/23 17:48
1,1-Dichloroethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,1-Dichloroethene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,1-Dichloropropene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,2,3-Trichloropropane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	0.0375	ug/L	1		12/11/23 17:48
1,2-Dichlorobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,2-Dichloroethane	0.250	U	0.500	0.200	0.250	ug/L	1		12/11/23 17:48
1,2-Dichloropropane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,3-Dichlorobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
1,3-Dichloropropane	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
1,4-Dichlorobenzene	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
2,2-Dichloropropane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
2-Butanone (MEK)	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
2-Chlorotoluene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
2-Hexanone	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
4-Chlorotoluene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
4-Isopropyltoluene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
Benzene	0.200	U	0.400	0.120	0.200	ug/L	1		12/11/23 17:48
Bromobenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Bromochloromethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Bromodichloromethane	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
Bromoform	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Bromomethane	3.00	U	6.00	3.00	3.00	ug/L	1		12/11/23 17:48
Carbon disulfide	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
Carbon tetrachloride	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Chlorobenzene	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
Chloroethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48

Print Date: 12/27/2023 4:45:13PM

J flagging is activated



Results of 107532-WTB

Client Sample ID: **107532-WTB**
 Client Project ID: **107532-002; 459 W Bluff Drive**
 Lab Sample ID: 1236655004
 Lab Project ID: 1236655

Collection Date: 12/07/23 08:00
 Received Date: 12/07/23 15:55
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Chloromethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
Dibromochloromethane	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
Dibromomethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Dichlorodifluoromethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Ethylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Freon-113	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
Hexachlorobutadiene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Methylene chloride	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
Methyl-t-butyl ether	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
Naphthalene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
n-Butylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
n-Propylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
o-Xylene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
P & M -Xylene	1.00	U	2.00	0.620	1.00	ug/L	1		12/11/23 17:48
sec-Butylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Styrene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
tert-Butylbenzene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Tetrachloroethene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Toluene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Trichloroethene	0.250	U	0.500	0.150	0.250	ug/L	1		12/11/23 17:48
Trichlorofluoromethane	0.500	U	1.00	0.310	0.500	ug/L	1		12/11/23 17:48
Vinyl acetate	5.00	U	10.0	3.10	5.00	ug/L	1		12/11/23 17:48
Vinyl chloride	0.0750	U	0.150	0.0500	0.0750	ug/L	1		12/11/23 17:48
Xylenes (total)	1.50	U	3.00	1.00	1.50	ug/L	1		12/11/23 17:48

Surrogates

1,2-Dichloroethane-D4 (surr)	105		81-118			%	1		12/11/23 17:48
4-Bromofluorobenzene (surr)	99.9		85-114			%	1		12/11/23 17:48
Toluene-d8 (surr)	99		89-112			%	1		12/11/23 17:48

Results of 107532-WTB

Client Sample ID: **107532-WTB**
Client Project ID: **107532-002; 459 W Bluff Drive**
Lab Sample ID: 1236655004
Lab Project ID: 1236655

Collection Date: 12/07/23 08:00
Received Date: 12/07/23 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS23021
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 12/11/23 17:48
Container ID: 1236655004-D

Prep Batch: VXX40841
Prep Method: SW5030B
Prep Date/Time: 12/11/23 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1869036 [VXX/40841]

Blank Lab ID: 1748934

QC for Samples:

1236655001, 1236655002, 1236655004

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	0.200	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	5.00	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	0.0375	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	0.250	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	0.250	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	0.250	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	5.00	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
2-Hexanone	5.00U	10.0	3.10	5.00	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	0.500	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	5.00	ug/L
Benzene	0.200U	0.400	0.120	0.200	ug/L
Bromobenzene	0.500U	1.00	0.310	0.500	ug/L
Bromochloromethane	0.500U	1.00	0.310	0.500	ug/L
Bromodichloromethane	0.250U	0.500	0.150	0.250	ug/L
Bromoform	0.500U	1.00	0.310	0.500	ug/L
Bromomethane	3.00U	6.00	3.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	5.00	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	0.500	ug/L
Chlorobenzene	0.250U	0.500	0.150	0.250	ug/L
Chloroethane	0.500U	1.00	0.310	0.500	ug/L
Chloroform	0.500U	1.00	0.310	0.500	ug/L
Chloromethane	0.500U	1.00	0.310	0.500	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	0.250	ug/L
Dibromochloromethane	0.250U	0.500	0.150	0.250	ug/L

Print Date: 12/27/2023 4:45:16PM



Method Blank

Blank ID: MB for HBN 1869036 [VXX/40841]
Blank Lab ID: 1748934

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1236655001, 1236655002, 1236655004

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>
Dibromomethane	0.500U	1.00	0.310	0.500	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	0.500	ug/L
Ethylbenzene	0.500U	1.00	0.310	0.500	ug/L
Freon-113	5.00U	10.0	3.10	5.00	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	0.500	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	0.500	ug/L
Methylene chloride	5.00U	10.0	3.10	5.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	5.00	ug/L
Naphthalene	0.500U	1.00	0.310	0.500	ug/L
n-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
n-Propylbenzene	0.500U	1.00	0.310	0.500	ug/L
o-Xylene	0.500U	1.00	0.310	0.500	ug/L
P & M -Xylene	1.00U	2.00	0.620	1.00	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Styrene	0.500U	1.00	0.310	0.500	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Tetrachloroethene	0.500U	1.00	0.310	0.500	ug/L
Toluene	0.500U	1.00	0.310	0.500	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
Trichloroethene	0.250U	0.500	0.150	0.250	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	0.500	ug/L
Vinyl acetate	5.00U	10.0	3.10	5.00	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	0.0750	ug/L
Xylenes (total)	1.50U	3.00	1.00	1.50	ug/L

Surrogates

1,2-Dichloroethane-D4 (surr)	103	81-118		0	%
4-Bromofluorobenzene (surr)	99.1	85-114		0	%
Toluene-d8 (surr)	99.6	89-112		0	%

Batch Information

Analytical Batch: VMS23021
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JY
Analytical Date/Time: 12/11/2023 3:09:00PM

Prep Batch: VXX40841
Prep Method: SW5030B
Prep Date/Time: 12/11/2023 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 12/27/2023 4:45:16PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [VXX40841]
 Blank Spike Lab ID: 1748935
 Date Analyzed: 12/11/2023 15:24

Spike Duplicate ID: LCSD for HBN 1236655
 [VXX40841]
 Spike Duplicate Lab ID: 1748936
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655001, 1236655002, 1236655004

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	31.3	104	30	31.1	104	(78-124)	0.77	(< 20)
1,1,1-Trichloroethane	30	32.6	109	30	32.4	108	(74-131)	0.49	(< 20)
1,1,2,2-Tetrachloroethane	30	28.6	95	30	28.3	94	(71-121)	1.10	(< 20)
1,1,2-Trichloroethane	30	29.2	97	30	28.1	94	(80-119)	3.90	(< 20)
1,1-Dichloroethane	30	30.4	101	30	30.3	101	(77-125)	0.40	(< 20)
1,1-Dichloroethene	30	33.3	111	30	32.6	109	(71-131)	2.00	(< 20)
1,1-Dichloropropene	30	32.1	107	30	32.2	107	(79-125)	0.12	(< 20)
1,2,3-Trichlorobenzene	30	29.7	99	30	29.6	99	(69-129)	0.64	(< 20)
1,2,3-Trichloropropane	30	29.0	97	30	28.0	93	(73-122)	3.70	(< 20)
1,2,4-Trichlorobenzene	30	30.3	101	30	30.1	100	(69-130)	0.83	(< 20)
1,2,4-Trimethylbenzene	30	30.8	103	30	30.3	101	(79-124)	1.40	(< 20)
1,2-Dibromo-3-chloropropane	30	30.0	100	30	29.1	97	(62-128)	3.20	(< 20)
1,2-Dibromoethane	30	31.5	105	30	30.3	101	(77-121)	3.70	(< 20)
1,2-Dichlorobenzene	30	29.5	98	30	29.3	98	(80-119)	0.58	(< 20)
1,2-Dichloroethane	30	29.1	97	30	28.2	94	(73-128)	2.90	(< 20)
1,2-Dichloropropane	30	31.2	104	30	30.5	102	(78-122)	2.40	(< 20)
1,3,5-Trimethylbenzene	30	30.9	103	30	31.3	104	(75-124)	1.10	(< 20)
1,3-Dichlorobenzene	30	30.1	100	30	30.1	100	(80-119)	0.03	(< 20)
1,3-Dichloropropane	30	30.2	101	30	29.1	97	(80-119)	3.40	(< 20)
1,4-Dichlorobenzene	30	29.6	99	30	29.7	99	(79-118)	0.27	(< 20)
2,2-Dichloropropane	30	32.5	108	30	32.6	109	(60-139)	0.12	(< 20)
2-Butanone (MEK)	90	101	112	90	97.4	108	(56-143)	3.70	(< 20)
2-Chlorotoluene	30	30.6	102	30	30.4	101	(79-122)	0.56	(< 20)
2-Hexanone	90	93.6	104	90	90.0	100	(57-139)	3.90	(< 20)
4-Chlorotoluene	30	30.0	100	30	29.9	100	(78-122)	0.27	(< 20)
4-Isopropyltoluene	30	31.8	106	30	32.0	107	(77-127)	0.38	(< 20)
4-Methyl-2-pentanone (MIBK)	90	96.4	107	90	91.7	102	(67-130)	5.00	(< 20)
Benzene	30	30.5	102	30	30.1	100	(79-120)	1.30	(< 20)
Bromobenzene	30	29.8	99	30	29.5	98	(80-120)	0.88	(< 20)
Bromochloromethane	30	30.9	103	30	30.2	101	(78-123)	2.30	(< 20)
Bromodichloromethane	30	32.0	107	30	31.1	104	(79-125)	2.80	(< 20)
Bromoform	30	31.6	105	30	30.5	102	(66-130)	3.50	(< 20)
Bromomethane	30	29.0	97	30	29.7	99	(53-141)	2.50	(< 20)

Print Date: 12/27/2023 4:45:19PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [VXX40841]
 Blank Spike Lab ID: 1748935
 Date Analyzed: 12/11/2023 15:24

Spike Duplicate ID: LCSD for HBN 1236655 [VXX40841]
 Spike Duplicate Lab ID: 1748936
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655001, 1236655002, 1236655004

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon disulfide	45	48.4	108	45	47.9	106	(64-133)	1.00	(< 20)
Carbon tetrachloride	30	33.9	113	30	34.1	114	(72-136)	0.35	(< 20)
Chlorobenzene	30	30.8	103	30	30.4	101	(82-118)	1.30	(< 20)
Chloroethane	30	29.6	99	30	28.5	95	(60-138)	4.00	(< 20)
Chloroform	30	30.4	101	30	29.9	100	(79-124)	1.70	(< 20)
Chloromethane	30	29.4	98	30	29.2	98	(50-139)	0.41	(< 20)
cis-1,2-Dichloroethene	30	30.1	100	30	30.1	100	(78-123)	0.07	(< 20)
cis-1,3-Dichloropropene	30	32.4	108	30	31.7	106	(75-124)	2.40	(< 20)
Dibromochloromethane	30	32.0	107	30	31.0	103	(74-126)	3.20	(< 20)
Dibromomethane	30	30.3	101	30	29.2	98	(79-123)	3.70	(< 20)
Dichlorodifluoromethane	30	29.5	98	30	29.1	97	(32-152)	1.40	(< 20)
Ethylbenzene	30	30.9	103	30	30.8	103	(79-121)	0.52	(< 20)
Freon-113	45	50.0	111	45	49.9	111	(70-136)	0.26	(< 20)
Hexachlorobutadiene	30	31.2	104	30	31.6	105	(66-134)	1.40	(< 20)
Isopropylbenzene (Cumene)	30	31.3	104	30	31.5	105	(72-131)	0.83	(< 20)
Methylene chloride	30	32.1	107	30	31.3	104	(74-124)	2.60	(< 20)
Methyl-t-butyl ether	45	46.6	104	45	45.0	100	(71-124)	3.50	(< 20)
Naphthalene	30	30.7	102	30	30.5	102	(61-128)	0.42	(< 20)
n-Butylbenzene	30	31.3	104	30	31.5	105	(75-128)	0.70	(< 20)
n-Propylbenzene	30	31.0	103	30	31.2	104	(76-126)	0.55	(< 20)
o-Xylene	30	31.1	104	30	30.6	102	(78-122)	1.70	(< 20)
P & M -Xylene	60	61.7	103	60	61.6	103	(80-121)	0.21	(< 20)
sec-Butylbenzene	30	31.3	104	30	31.4	105	(77-126)	0.42	(< 20)
Styrene	30	31.8	106	30	31.5	105	(78-123)	0.82	(< 20)
tert-Butylbenzene	30	31.1	104	30	31.5	105	(78-124)	1.50	(< 20)
Tetrachloroethene	30	31.6	105	30	32.0	107	(74-129)	1.30	(< 20)
Toluene	30	29.9	100	30	29.8	99	(80-121)	0.37	(< 20)
trans-1,2-Dichloroethene	30	31.8	106	30	31.1	104	(75-124)	2.10	(< 20)
trans-1,3-Dichloropropene	30	32.7	109	30	31.6	105	(73-127)	3.50	(< 20)
Trichloroethene	30	31.4	105	30	31.0	103	(79-123)	1.50	(< 20)
Trichlorofluoromethane	30	32.3	108	30	29.5	98	(65-141)	8.80	(< 20)
Vinyl acetate	30	32.5	108	30	31.1	104	(54-146)	4.50	(< 20)
Vinyl chloride	30	29.6	99	30	29.0	97	(58-137)	2.10	(< 20)

Print Date: 12/27/2023 4:45:19PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [VXX40841]
 Blank Spike Lab ID: 1748935
 Date Analyzed: 12/11/2023 15:24

Spike Duplicate ID: LCSD for HBN 1236655 [VXX40841]
 Spike Duplicate Lab ID: 1748936
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655001, 1236655002, 1236655004

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Xylenes (total)	90	92.9	103	90	92.2	102	(79-121)	0.69	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		98	30		96	(81-118)	2.40	
4-Bromofluorobenzene (surr)	30		99	30		98	(85-114)	1.70	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.20	

Batch Information

Analytical Batch: VMS23021
 Analytical Method: SW8260D
 Instrument: VPA 780/5975 GC/MS
 Analyst: JY

Prep Batch: VXX40841
 Prep Method: SW5030B
 Prep Date/Time: 12/11/2023 06:00
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1869040 [VXX/40843]
Blank Lab ID: 1748942

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1236655001, 1236655002, 1236655003, 1236655004

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>
Gasoline Range Organics	0.0500U	0.100	0.0450	0.0500	mg/L
Surrogates					
4-Bromofluorobenzene (surr)	90.8	50-150		0	%

Batch Information

Analytical Batch: VFC16707
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: PHK
Analytical Date/Time: 12/11/2023 2:15:00PM

Prep Batch: VXX40843
Prep Method: SW5030B
Prep Date/Time: 12/11/2023 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 12/27/2023 4:45:21PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [VXX40843]
 Blank Spike Lab ID: 1748945
 Date Analyzed: 12/11/2023 15:11

Spike Duplicate ID: LCSD for HBN 1236655
 [VXX40843]
 Spike Duplicate Lab ID: 1748946
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655001, 1236655002, 1236655003, 1236655004

Results by AK101

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	1.00	1.03	103	1.00	0.983	98	(60-120)	4.70	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		96	0.0500		91	(50-150)	5.60	

Batch Information

Analytical Batch: **VFC16707**
 Analytical Method: **AK101**
 Instrument: **Agilent 7890 PID/FID**
 Analyst: **PHK**

Prep Batch: **VXX40843**
 Prep Method: **SW5030B**
 Prep Date/Time: **12/11/2023 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

Print Date: 12/27/2023 4:45:25PM

Method Blank

Blank ID: MB for HBN 1869085 [VXX/40846]

Blank Lab ID: 1749175

QC for Samples:

1236655003

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	0.200	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	5.00	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	0.0375	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	0.250	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	0.250	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	0.250	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	5.00	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
2-Hexanone	5.00U	10.0	3.10	5.00	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	0.500	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	5.00	ug/L
Benzene	0.200U	0.400	0.120	0.200	ug/L
Bromobenzene	0.500U	1.00	0.310	0.500	ug/L
Bromochloromethane	0.500U	1.00	0.310	0.500	ug/L
Bromodichloromethane	0.250U	0.500	0.150	0.250	ug/L
Bromoform	0.500U	1.00	0.310	0.500	ug/L
Bromomethane	3.00U	6.00	3.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	5.00	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	0.500	ug/L
Chlorobenzene	0.250U	0.500	0.150	0.250	ug/L
Chloroethane	0.500U	1.00	0.310	0.500	ug/L
Chloroform	0.500U	1.00	0.310	0.500	ug/L
Chloromethane	0.500U	1.00	0.310	0.500	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	0.250	ug/L
Dibromochloromethane	0.250U	0.500	0.150	0.250	ug/L

Print Date: 12/27/2023 4:45:28PM



Method Blank

Blank ID: MB for HBN 1869085 [VXX/40846]

Matrix: Water (Surface, Eff., Ground)

Blank Lab ID: 1749175

QC for Samples:
1236655003

Results by SW8260D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>
Dibromomethane	0.500U	1.00	0.310	0.500	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	0.500	ug/L
Ethylbenzene	0.500U	1.00	0.310	0.500	ug/L
Freon-113	5.00U	10.0	3.10	5.00	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	0.500	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	0.500	ug/L
Methylene chloride	5.00U	10.0	3.10	5.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	5.00	ug/L
Naphthalene	0.500U	1.00	0.310	0.500	ug/L
n-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
n-Propylbenzene	0.500U	1.00	0.310	0.500	ug/L
o-Xylene	0.500U	1.00	0.310	0.500	ug/L
P & M -Xylene	1.00U	2.00	0.620	1.00	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Styrene	0.500U	1.00	0.310	0.500	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Tetrachloroethene	0.500U	1.00	0.310	0.500	ug/L
Toluene	0.500U	1.00	0.310	0.500	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
Trichloroethene	0.250U	0.500	0.150	0.250	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	0.500	ug/L
Vinyl acetate	5.00U	10.0	3.10	5.00	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	0.0750	ug/L
Xylenes (total)	1.50U	3.00	1.00	1.50	ug/L

Surrogates

1,2-Dichloroethane-D4 (surr)	110	81-118		0	%
4-Bromofluorobenzene (surr)	98.9	85-114		0	%
Toluene-d8 (surr)	97.5	89-112		0	%

Batch Information

Analytical Batch: VMS23024
 Analytical Method: SW8260D
 Instrument: VPA 780/5975 GC/MS
 Analyst: JY
 Analytical Date/Time: 12/12/2023 3:23:00PM

Prep Batch: VXX40846
 Prep Method: SW5030B
 Prep Date/Time: 12/12/2023 6:00:00AM
 Prep Initial Wt./Vol.: 5 mL
 Prep Extract Vol: 5 mL

Print Date: 12/27/2023 4:45:28PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [VXX40846]
 Blank Spike Lab ID: 1749176
 Date Analyzed: 12/12/2023 16:59

Spike Duplicate ID: LCSD for HBN 1236655
 [VXX40846]
 Spike Duplicate Lab ID: 1749177
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655003

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	31.6	105	30	30.4	101	(78-124)	3.80	(< 20)
1,1,1-Trichloroethane	30	32.3	108	30	32.1	107	(74-131)	0.59	(< 20)
1,1,2,2-Tetrachloroethane	30	30.6	102	30	29.7	99	(71-121)	3.00	(< 20)
1,1,2-Trichloroethane	30	29.9	100	30	28.6	95	(80-119)	4.30	(< 20)
1,1-Dichloroethane	30	30.4	101	30	29.8	99	(77-125)	2.10	(< 20)
1,1-Dichloroethene	30	34.4	115	30	32.2	107	(71-131)	6.60	(< 20)
1,1-Dichloropropene	30	33.4	111	30	33.0	110	(79-125)	1.20	(< 20)
1,2,3-Trichlorobenzene	30	30.1	100	30	29.5	98	(69-129)	1.90	(< 20)
1,2,3-Trichloropropane	30	30.1	100	30	29.2	97	(73-122)	2.90	(< 20)
1,2,4-Trichlorobenzene	30	31.4	105	30	30.1	100	(69-130)	4.40	(< 20)
1,2,4-Trimethylbenzene	30	32.8	109	30	31.8	106	(79-124)	2.80	(< 20)
1,2-Dibromo-3-chloropropane	30	30.5	102	30	30.3	101	(62-128)	0.66	(< 20)
1,2-Dibromoethane	30	31.5	105	30	30.4	101	(77-121)	3.70	(< 20)
1,2-Dichlorobenzene	30	30.1	100	30	29.1	97	(80-119)	3.30	(< 20)
1,2-Dichloroethane	30	28.9	96	30	27.6	92	(73-128)	4.60	(< 20)
1,2-Dichloropropane	30	32.0	107	30	30.4	101	(78-122)	5.00	(< 20)
1,3,5-Trimethylbenzene	30	33.1	110	30	32.4	108	(75-124)	2.00	(< 20)
1,3-Dichlorobenzene	30	31.1	104	30	30.2	101	(80-119)	2.90	(< 20)
1,3-Dichloropropane	30	31.1	104	30	30.0	100	(80-119)	3.70	(< 20)
1,4-Dichlorobenzene	30	30.8	103	30	29.4	98	(79-118)	4.70	(< 20)
2,2-Dichloropropane	30	32.8	109	30	32.7	109	(60-139)	0.40	(< 20)
2-Butanone (MEK)	90	102	114	90	100	111	(56-143)	2.20	(< 20)
2-Chlorotoluene	30	32.8	109	30	31.5	105	(79-122)	4.00	(< 20)
2-Hexanone	90	96.5	107	90	94.2	105	(57-139)	2.30	(< 20)
4-Chlorotoluene	30	32.2	107	30	31.3	104	(78-122)	2.80	(< 20)
4-Isopropyltoluene	30	33.1	110	30	31.9	106	(77-127)	3.60	(< 20)
4-Methyl-2-pentanone (MIBK)	90	96.9	108	90	92.3	103	(67-130)	4.90	(< 20)
Benzene	30	31.4	105	30	30.2	101	(79-120)	3.90	(< 20)
Bromobenzene	30	30.8	103	30	30.2	101	(80-120)	1.90	(< 20)
Bromochloromethane	30	29.0	97	30	27.9	93	(78-123)	3.80	(< 20)
Bromodichloromethane	30	31.2	104	30	30.0	100	(79-125)	4.10	(< 20)
Bromoform	30	30.1	100	30	28.5	95	(66-130)	5.50	(< 20)
Bromomethane	30	40.4	135	30	37.8	126	(53-141)	6.70	(< 20)

Print Date: 12/27/2023 4:45:31PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [VXX40846]
 Blank Spike Lab ID: 1749176
 Date Analyzed: 12/12/2023 16:59

Spike Duplicate ID: LCSD for HBN 1236655 [VXX40846]
 Spike Duplicate Lab ID: 1749177
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655003

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon disulfide	45	50.6	112	45	46.1	103	(64-133)	9.20	(< 20)
Carbon tetrachloride	30	33.4	111	30	33.1	110	(72-136)	1.00	(< 20)
Chlorobenzene	30	30.8	103	30	29.4	98	(82-118)	4.60	(< 20)
Chloroethane	30	33.3	111	30	30.7	102	(60-138)	8.00	(< 20)
Chloroform	30	30.0	100	30	29.1	97	(79-124)	3.00	(< 20)
Chloromethane	30	30.5	102	30	29.5	98	(50-139)	3.20	(< 20)
cis-1,2-Dichloroethene	30	29.8	100	30	28.6	95	(78-123)	4.30	(< 20)
cis-1,3-Dichloropropene	30	32.4	108	30	31.3	104	(75-124)	3.50	(< 20)
Dibromochloromethane	30	31.1	104	30	30.1	100	(74-126)	3.10	(< 20)
Dibromomethane	30	29.3	98	30	28.1	94	(79-123)	4.00	(< 20)
Dichlorodifluoromethane	30	32.2	107	30	31.6	105	(32-152)	2.10	(< 20)
Ethylbenzene	30	31.2	104	30	30.3	101	(79-121)	3.10	(< 20)
Freon-113	45	51.8	115	45	48.6	108	(70-136)	6.40	(< 20)
Hexachlorobutadiene	30	31.5	105	30	30.1	100	(66-134)	4.70	(< 20)
Isopropylbenzene (Cumene)	30	31.8	106	30	30.6	102	(72-131)	4.10	(< 20)
Methylene chloride	30	31.0	103	30	29.9	100	(74-124)	3.30	(< 20)
Methyl-t-butyl ether	45	46.1	103	45	44.3	98	(71-124)	4.10	(< 20)
Naphthalene	30	31.3	104	30	31.2	104	(61-128)	0.13	(< 20)
n-Butylbenzene	30	33.6	112	30	32.2	107	(75-128)	4.40	(< 20)
n-Propylbenzene	30	33.5	112	30	32.5	108	(76-126)	2.90	(< 20)
o-Xylene	30	31.1	104	30	29.8	99	(78-122)	4.30	(< 20)
P & M -Xylene	60	63.1	105	60	60.2	100	(80-121)	4.70	(< 20)
sec-Butylbenzene	30	33.0	110	30	32.2	107	(77-126)	2.40	(< 20)
Styrene	30	31.4	105	30	30.4	101	(78-123)	3.30	(< 20)
tert-Butylbenzene	30	33.0	110	30	31.7	106	(78-124)	4.00	(< 20)
Tetrachloroethene	30	32.8	109	30	32.1	107	(74-129)	2.30	(< 20)
Toluene	30	30.7	102	30	29.8	99	(80-121)	2.80	(< 20)
trans-1,2-Dichloroethene	30	30.9	103	30	30.3	101	(75-124)	2.10	(< 20)
trans-1,3-Dichloropropene	30	33.1	110	30	32.3	108	(73-127)	2.40	(< 20)
Trichloroethene	30	31.6	105	30	31.1	104	(79-123)	1.70	(< 20)
Trichlorofluoromethane	30	40.9	136	30	31.6	105	(65-141)	25.60	* (< 20)
Vinyl acetate	30	34.2	114	30	32.1	107	(54-146)	6.10	(< 20)
Vinyl chloride	30	33.1	110	30	31.5	105	(58-137)	5.00	(< 20)

Print Date: 12/27/2023 4:45:31PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [VXX40846]
 Blank Spike Lab ID: 1749176
 Date Analyzed: 12/12/2023 16:59

Spike Duplicate ID: LCSD for HBN 1236655 [VXX40846]
 Spike Duplicate Lab ID: 1749177
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655003

Results by SW8260D

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Xylenes (total)	90	94.2	105	90	90.0	100	(79-121)	4.60	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		95	30		93	(81-118)	2.10	
4-Bromofluorobenzene (surr)	30		102	30		102	(85-114)	0.75	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.27	

Batch Information

Analytical Batch: VMS23024
 Analytical Method: SW8260D
 Instrument: VPA 780/5975 GC/MS
 Analyst: JY

Prep Batch: VXX40846
 Prep Method: SW5030B
 Prep Date/Time: 12/12/2023 06:00
 Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
 Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



Method Blank

Blank ID: MB for HBN 1869539 [XXX/49114]
Blank Lab ID: 1749620

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1236655001, 1236655002, 1236655003

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>
Diesel Range Organics	0.300U	0.600	0.200	0.300	mg/L
Surrogates					
5a Androstane (surr)	75.6	60-120		0	%

Batch Information

Analytical Batch: XFC16770
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: HMW
Analytical Date/Time: 12/22/2023 10:49:00PM

Prep Batch: XXX49114
Prep Method: SW3520C
Prep Date/Time: 12/18/2023 6:55:00PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 12/27/2023 4:45:33PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [XXX49114]
 Blank Spike Lab ID: 1749621
 Date Analyzed: 12/22/2023 23:01

Spike Duplicate ID: LCSD for HBN 1236655
 [XXX49114]
 Spike Duplicate Lab ID: 1749622
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655001, 1236655002, 1236655003

Results by AK102

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	20	17.5	88	20	19.3	97	(75-125)	9.90	(< 20)
Surrogates									
5a Androstane (surr)	0.4		97	0.4		107	(60-120)	10.10	

Batch Information

Analytical Batch: **XFC16770**
 Analytical Method: **AK102**
 Instrument: **Agilent 7890B R**
 Analyst: **HMW**

Prep Batch: **XXX49114**
 Prep Method: **SW3520C**
 Prep Date/Time: **12/18/2023 18:55**
 Spike Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL

Print Date: 12/27/2023 4:45:36PM



Method Blank

Blank ID: MB for HBN 1869539 [XXX/49114]
Blank Lab ID: 1749620

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1236655001, 1236655002, 1236655003

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>LOD</u>	<u>Units</u>
Residual Range Organics	0.250U	0.500	0.200	0.250	mg/L
Surrogates					
n-Triacontane-d62 (surr)	95.3	60-120		0	%

Batch Information

Analytical Batch: XFC16770
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: HMW
Analytical Date/Time: 12/22/2023 10:49:00PM

Prep Batch: XXX49114
Prep Method: SW3520C
Prep Date/Time: 12/18/2023 6:55:00PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 12/27/2023 4:45:40PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1236655 [XXX49114]
 Blank Spike Lab ID: 1749621
 Date Analyzed: 12/22/2023 23:01

Spike Duplicate ID: LCSD for HBN 1236655
 [XXX49114]
 Spike Duplicate Lab ID: 1749622
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1236655001, 1236655002, 1236655003

Results by AK103

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	20	20.2	101	20	21.5	107	(60-120)	6.00	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4		88	0.4		105	(60-120)	17.00	

Batch Information

Analytical Batch: **XFC16770**
 Analytical Method: **AK103**
 Instrument: **Agilent 7890B R**
 Analyst: **HMW**

Prep Batch: **XXX49114**
 Prep Method: **SW3520C**
 Prep Date/Time: **12/18/2023 18:55**
 Spike Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL
 Dupe Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL

Print Date: 12/27/2023 4:45:43PM



SGS North America Inc.

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

Date	Time	Sample ID	Total Containers	GRO-AK101	VOCs- EPA Method 8260D	DRO- AK102	RRO - AK103				
				VOA Vials HCl	VOA Vials HCl	Amber HCl	Amber 4C				
12/7/2023	13:15	107532-MW-6B	10	X	X	X	X				
12/7/2023	13:45	107532-MW-16B	10	X	X	X	X				
12/7/2023	14:13	107532-MW-13A	10	X	X	X	X				
12/7/2023	8:00	107532-WTB	2 Set	X	X						

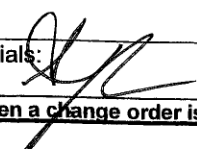
Relinquished By:		Relinquished By:		Project Information	
Signature: <i>[Signature]</i>	Signature:	Project Number: 107532-002			
Print Name: Zach Thon	Print Name:	Project Name: 459 West Bluff Drive			
Company: Shannon & Wilson, Inc.	Company:	Contact: Zach Thon			
Date: 12/7/23	Date:	Sampler: ZJT			
Time: 15:53	Time:	Special Instructions:			
Received By:		Received By:		Sample Receipt	
Signature: <i>[Signature]</i>	Signature: Jeremy Coe, MN	Shipped Via: Hand Delivered			
Print Name:	Print Name: Jeremy Coe, MN				
Company:	Company: SCS	Cooler Temperature Upon Arrival: 0.0 D30			
Date:	Date: 12/7/23	Sample Matrix: Water			
Time:	Time: 15:55	10 Working DAY TAT <i>profile # 365753</i>			



SAMPLE RECEIPT FORM

1236655



Project Manager Completion				
Was all necessary information recorded on the COC upon receipt? (temperature, COC seals, etc.?)	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	
Was temperature between 0-6° C?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	If "No", are the samples either exempt* or sampled <8 hours prior to receipt?
Were all analyses received within holding time*?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	
Was a method specified for each analysis, where applicable? If no, please note correct methods.	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	
Are compound lists specified, where applicable? For project specific or special compound lists please note correct analysis code.	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A	
If rush was requested by the client, was the requested TAT approved?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A	If "NO", what is the approved TAT?
If SEDD Deliverables are required, were Location ID's and an NPDL Number provided?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A	If "NO", contact client for information.
Sample Login Completion				
Do ID's on sample containers match COC?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	
If provided on containers, do dates/times collected match COC?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	Note: If times differ <1 hr., record details below and login per COC.
Were all sample containers received in good condition?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	
Were proper containers (type/mass/volume/preservative) received for all samples? *See form F-083 "Sample Guide"	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	Note: If 200.8/6020 Total Metals are received unpreserved, preserve and note HNO3 lot here: If 200.8/6020 Dissolved Metals are received unpreserved, log in for LABFILTER and do not preserve. For all non-metals methods, inform Project Manager.
Were Trip Blanks (VOC, GRO, Low-Level Hg, etc.) received with samples, where applicable*?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	
Were all VOA vials free of headspace >6mm?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	
Were all soil VOA samples received field extracted with Methanol?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A	
Did all soil VOA samples have an accompanying unpreserved container for % solids?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A	
If special handling is required, were containers labelled appropriately? e.g. MI/ISM, foreign soils, lab filter, Ref Lab, limited volume	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A	
For Rush/Short Holding time, was the lab notified?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A	
For any question answered "NO", was the Project Manager notified?	<input type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> N/A	PM Initials:
Was Peer Review of sample numbering/labelling completed?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> N/A	Reviewer Initials: 
Additional Notes/Clarification where Applicable, including resolution of "No" answers when a change order is not attached:				



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1236655001-A	HCL to pH < 2	OK			
1236655001-B	HCL to pH < 2	OK			
1236655001-C	HCL to pH < 2	OK			
1236655001-D	HCL to pH < 2	OK			
1236655001-E	HCL to pH < 2	OK			
1236655001-F	HCL to pH < 2	OK			
1236655001-G	HCL to pH < 2	OK			
1236655001-H	HCL to pH < 2	OK			
1236655002-A	HCL to pH < 2	OK			
1236655002-B	HCL to pH < 2	OK			
1236655002-C	HCL to pH < 2	OK			
1236655002-D	HCL to pH < 2	OK			
1236655002-E	HCL to pH < 2	OK			
1236655002-F	HCL to pH < 2	OK			
1236655002-G	HCL to pH < 2	OK			
1236655002-H	HCL to pH < 2	OK			
1236655003-A	HCL to pH < 2	OK			
1236655003-B	HCL to pH < 2	OK			
1236655003-C	HCL to pH < 2	OK			
1236655003-D	HCL to pH < 2	OK			
1236655003-E	HCL to pH < 2	OK			
1236655003-F	HCL to pH < 2	OK			
1236655003-G	HCL to pH < 2	OK			
1236655003-H	HCL to pH < 2	OK			
1236655004-A	HCL to pH < 2	OK			
1236655004-B	HCL to pH < 2	OK			
1236655004-C	HCL to pH < 2	OK			
1236655004-D	HCL to pH < 2	OK			
1236655004-E	HCL to pH < 2	OK			
1236655004-F	HCL to pH < 2	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:	Zach Thon	CS Site Name:	459 West Bluff Drive	Lab Name:	SGS North America Inc.
Title:	Environmental Scientist	ADEC File No.:	2100.38.321	Lab Report No.:	1236655
Consulting Firm:	Shannon & Wilson	Hazard ID No.:	605	Lab Report Date:	1.29.23

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 sub-contracted to an alternate 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, DRO, RRO, and VOCs.

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): 0.6° C

CS Site Name: 459 West Bluff Drive

Lab Report No.: 1236655

- 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: *No discrepancies were noted.*
- e. Is the data quality or usability affected?
Yes No N/A
Comments: *See above.*

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 following discrepancies, errors, or QC failures were noted by the laboratory in the case narrative:*
-PS MW-6B – AK101 – Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.
- PS MW-16B – AK101 – Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.
- LCSD – 8260D – LCS/LCSD RPD for trichlorofluoromethane does not meet QC criteria. This analyte was not reported above 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.*

CS Site Name: 459 West Bluff Drive

Lab Report No.: 1236655

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 chloroform, bromomethane, hexachlorobutadiene, 1,2-dibromoethane, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,2,3-trichloropropane, and vinyl chloride are greater than their respective ADEC Method Two cleanup levels in at least one sample.*

- 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:

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

Comments:

CS Site Name: 459 West Bluff Drive

Lab Report No.: 1236655

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

Yes No N/A

Comments:

- v. Data quality or usability affected?

Yes No N/A

Comments:

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: *The case narrative noted the following:*

-LCS/LCSD – 8260D – RPD for trichlorofluoromethane does not meet QC criteria. This analyte was not reported above the LOQ in associated samples.

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

Comments: *Sample MW-13A is potentially affected.*

CS Site Name: 459 West Bluff Drive

Lab Report No.: 1236655

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

Yes No N/A

Comments: *Although outside of the established QC ranges for accuracy and precision, the affected analyte was not detected in the project samples, and therefore flagging was 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: .

CS Site Name: 459 West Bluff Drive

Lab Report No.: 1236655

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 case narrative noted the following:*

-Sample MW-6B/MW-16B – surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.

- 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: *Samples MW-6B, MW-16B, and MW-14 may be biased high due to surrogate recoveries of the project samples; therefore, these sample results are “J+” flagged in Tables 2 through 4. .*

- 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. Is one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes No N/A

Comments: .

- ii. Was the duplicate submitted blind to lab?

Yes No N/A

Comments: *Sample MW-16B (duplicate of Sample MW-6) was submitted to the lab.*

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No N/A

Comments: *The RPDs for the duplicate sample set were within QC criteria.*

- iv. Is the data quality or usability affected? (Explain)

Yes No N/A

Comments: .

g. Decontamination or Equipment Blanks

- i. Were decontamination or equipment blanks collected?

Yes No N/A

Comments: *Decontamination and equipment blanks 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:

CS Site Name: 459 West Bluff Drive

Lab Report No.: 1236655

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

a. Are they defined and appropriate?

Yes No N/A

Comments: *See Page 4 of the laboratory report.*

ATTACHMENT 3
IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL/ENVIRONMENTAL REPORT

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