

October 18, 2021

Mr. John Rescober
Alaska Water and Wastewater Utility
3000 Arctic Boulevard
Anchorage, Alaska 99503

RE: GROUNDWATER MONITORING, 503 EAST 94TH COURT, ANCHORAGE, ALASKA;
ADEC FILE NO. 2100.26.331

Dear Mr. Rescober:

This report presents the results of Shannon & Wilson's June 2021 groundwater sampling activities conducted at the Anchorage Water & Wastewater Utility (AWWU) Warm Storage Building located at 503 East 94th Court in Anchorage, Alaska. An Alaska Department of Environmental Conservation (ADEC)-listed contaminated site is located on the southeast portion of the site and identified as "MOA AWWU Operations Facility 1999 Used Oil Tank Removal" (File No. 2100.26.331). A vicinity map is included as Figure 1.

BACKGROUND

In November 2000, five soil borings completed as monitoring wells were advanced at the facility to evaluate potential areas of concern. One of these soil borings (Boring B5 completed as Monitoring Well B5MW) was advanced north of the AWWU Warm Storage Building near an area that may have been used as a disposal area in the past. An analytical soil sample collected from approximately 5 to 7 feet below ground surface (bgs) in Boring B5 contained 631 milligrams per kilogram (mg/kg) diesel range organics (DRO), which exceeds the ADEC Method Two migration to groundwater cleanup level of 250 mg/kg. Monitoring Well B5MW was sampled in November 2000 and May 2001. The well contained a DRO concentration (930 micrograms per liter [$\mu\text{g/L}$]) below the ADEC cleanup level of 1,500 $\mu\text{g/L}$ in November 2000 and contained a DRO concentration (1,670 $\mu\text{g/L}$) greater than the ADEC cleanup level in May 2001. Residual range organics (RRO) concentrations exceeded the ADEC cleanup level of 1,100 $\mu\text{g/L}$ in both the November 2000 (1,390 $\mu\text{g/L}$) and May 2001 (2,160 $\mu\text{g/L}$) samples.

On November 25, 2015, a representative of Shannon & Wilson attempted to locate and document the viability of Well B5MW. The well could not be located and was assumed to have been destroyed. On January 20, 2016, Boring B5A was advanced in the vicinity of

former Well B5MW and completed as Monitoring Well B5AMW. A soil sample collected from Boring B5A contained 1,980 mg/kg DRO which exceeds the applicable ADEC Method Two cleanup level. A groundwater sample collected from Monitoring Well B5AMW did not contain target analytes at concentrations above the ADEC cleanup levels.

To further delineate the extent of DRO-impacted soil in the vicinity of Boring B5A, fifteen soil borings (Borings PB1 through PB15) were advanced in April 2016. Analytical soil samples were collected from Borings PB2, PB3, PB5, PB10, and PB12 and analyzed for DRO. The samples collected from Borings PB2, PB3, and PB10 contained concentrations of DRO (maximum of 1,630 mg/kg) exceeding the applicable ADEC Method Two cleanup level. DRO was not detected above the applicable Method Two cleanup levels in the remaining samples. Based on field screening results, visual evidence, and/or analytical sample results, contamination was encountered between approximately 4.5 and 7 feet bgs in Borings PB1, PB2, PB3, PB8, PB10, and PB11. A layer of buried asphalt was documented in Borings B12 and B14.

In October 2020, Shannon & Wilson conducted site characterization activities at the site which included advancing six soil borings (Borings B5B and PB16 through PB20), installing three groundwater monitoring wells (Monitoring Wells B5BMW, MW6, and MW7), and collecting soil and groundwater samples. Each groundwater sample contained concentrations of RRO (maximum of 3,060 µg/L) exceeding the ADEC Table C cleanup level of 1,100 µg/L. In addition, the sample collected from Well MW6 contained 1,710 µg/L DRO, which exceeds the ADEC Table C cleanup level of 1,500 µg/L.

As documented in our April 30, 2021 *Final Soil and Groundwater Management Plan, 503 East 94th Court, Anchorage, Alaska; ADEC File Nos. 2100.26.331 and 2100.38.588*, AWWU plans to conduct construction activities at the site. As part of these activities, a classified fill stockpile area, and areas of heavy and light duty pavement, will be constructed in the vicinity of the documented contamination. Up to 44-inches of soil will be excavated from this area. In areas of heavy duty pavement, the excavated material will be replaced with 4-inches of pavement, 4-inches of leveling course, 6-inches of Municipality of Anchorage (MOA) Type IIA Classified Fill, and 30-inches of MOA Type II Classified Fill. The light duty pavement areas will be backfilled with 2-inches of pavement, 4-inches of leveling course, 6-inches of MOA Type IIA Classified Fill, and 12-inches of MOA Type II Classified Fill. In the classified fill stockpile area, the excavated material will be replaced with 12-inches of leveling course, 12-inches of MOA Type IIA Classified Fill, and 12-inches of MOA Type II Classified Fill. In addition, a storm drain will be installed along the western portion of the area. The storm drain excavation will be advanced to approximately 9 feet bgs. The base of the storm drain

excavation will include 24-inches of Class C bedding material. MOA Type II Classified Fill and light duty/heavy duty backfill will be placed above the Class C bedding material. Soil handling during construction will include collecting field screening and analytical soil samples, stockpiling soil, and disposing of impacted, unsuitable, or excess soil. These activities will be conducted in accordance with the ADEC-approved Soil and Groundwater Management Plan.

To evaluate potential biogenic impacts on the DRO and RRO groundwater sample results, we recommended collecting additional groundwater samples from the three site wells and analyzing the samples for DRO and RRO using the silica gel cleanup method, and the standard Alaska (AK) 102 and 103 methods. A site plan is included as Figure 2.

FIELD ACTIVITIES

The project activities consisted of collecting groundwater samples from Monitoring Wells B5BMW, MW6 and MW7. The project was conducted in general accordance with our May 24, 2021 *Work Plan for Groundwater Monitoring, 503 East 94th Court, Anchorage, Alaska; ADEC File No. 2100.26.331*, which was approved by Ms. Jamie Grant of the ADEC, in a letter dated June 18, 2021. The groundwater samples were analyzed by SGS North America Inc. (SGS). Field notes are provided in Attachment 1.

GROUNDWATER SAMPLING

Monitoring Wells B5BMW, MW6, and MW7 were sampled on June 22, 2021. Prior to sampling, depth-to-water and total depth of the wells were measured using an electronic water level meter. Based on groundwater measurements from the June 2021 monitoring event, the groundwater flow at the site is to the north/northwest, which is consistent with previous sampling events.

The wells were purged and sampled with a submersible pump and disposable vinyl tubing, using a low-flow technique. Sampling was initiated by purging the wells to reduce the effects of stagnant well casing water on chemical concentrations and to obtain groundwater samples that are representative of the surrounding water-bearing formation. The submersible pump was placed within the screened portion of the wells. The pump rate was adjusted with a goal of limiting the sustained water drawdown to a maximum of 0.3 foot (typical pump rate of 0.1 to 0.5 liter per minute).

During the purging process, field personnel monitored water quality parameters (temperature, specific conductivity, pH, and turbidity), purge volume, and drawdown at

approximately 5-minute intervals. Stabilization criteria comprised three successive readings of: temperature within 3 percent (minimum 0.2 degree Celsius), pH within 0.1-unit, specific conductivity within 3 percent, and turbidity within 10 percent or less than 10 Nephelometric Turbidity Units (NTU). Purging was considered complete when at least one well volume was removed, and the water quality parameters stabilized. The wells were allowed to recharge to 80 percent of the original water volume before sample collection.

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. A duplicate sample was collected from Well B5BMW. The results of the field measurements and purging data are presented in Table 1.

INVESTIGATION-DERIVED WASTE DISPOSAL

Investigation-derived waste (IDW) from this project consisted of one 55-gallon drum of purge water. The drum is currently located on-site pending disposal. Shannon & Wilson will complete the ADEC's *Transport, Treatment & Disposal Approval Form for the Contaminated Media* for ADEC review and approval prior to coordinating IDW disposal. IDW disposal receipts will be provided under separate cover.

LABORATORY ANALYSIS

The groundwater samples were submitted to SGS using chain-of-custody procedures and analyzed for DRO by AK 102, RRO by AK 103, and DRO/RRO by AK 102/103 using the silica gel cleanup method. The laboratory report and completed ADEC Laboratory Data Review Checklist (LDRC) are provided in Attachment 2. The analytical groundwater sample results are summarized in Table 2. Historical groundwater sample results are summarized in Table 3.

DISCUSSION OF RESULTS

The analytical groundwater results were compared to the ADEC cleanup levels presented in the June 2021, 18 Alaska Administrative Code (AAC) 75 regulations. The applicable groundwater cleanup levels are established in Table C of 18 AAC 75.345.

Groundwater Samples

Each groundwater sample contained concentrations of RRO (maximum of 2,920 µg/L) exceeding the ADEC Table C cleanup level of 1,100 µg/L. In addition, the samples collected

from Wells MW6 and MW7 contained 1,970 µg/L and 1,610 µg/L DRO, respectively, which exceed the ADEC Table C cleanup level of 1,500 µg/L. DRO was detected in the samples collected from B5MW at concentrations (maximum 1,470 µg/L) less than the ADEC Table C cleanup level.

The samples were also separately analyzed for DRO and RRO using the silica gel cleanup method. As part of the method, the laboratory passes the sample through a silica gel concentrate which removes polar material, primarily biogenic material, leaving non-polar material. DRO and RRO were not detected after the silica gel cleanup, which indicates that the DRO and RRO detected in the original samples are likely affected by naturally occurring organics. Mr. Justin Nelson, SGS Project Manager, also noted in a telephone conversation that the sample chromatographs are suggestive of biogenic material. The sample chromatographs are included in the laboratory results provided in Attachment 2.

As shown on Table 3, the concentrations of DRO and RRO detected in the wells appear generally consistent with historical results. Although, based on the limited and infrequent sampling of the wells, there is currently not enough data to fully evaluate contaminant trends.

Quality Control Samples

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

External quality controls include a duplicate sample set. The field duplicate samples were submitted to the laboratory to assess sample homogeneity, and sampling and analytical precision. The relative percent differences (RPDs) of the duplicate sample results are within the data quality objective (DOQ) criterion of 30 percent.

Shannon & Wilson reviewed the data deliverables and completed the ADEC's LDRC, which is included in Attachment 2. Quality control discrepancies and the impact to data quality/usability are described in the further detail in the LDRC. In our opinion, no non-conformances that would adversely impact data usability for the objectives of this project were noted.

SUMMARY/RECOMMENDATIONS

The groundwater sample collected from Wells MW6 and MW7 contained concentrations of DRO and RRO exceeding the ADEC Table C cleanup levels. In addition, the samples collected from Well B5BMW contained concentrations of RRO exceeding the ADEC Table C cleanup level. The groundwater sample results were generally consistent with historical sampling events. The June 2021 groundwater samples were also analyzed for DRO and RRO by the silica gel cleanup method. DRO and RRO were not detected using this method, which suggests the samples were likely affected by naturally occurring organics. Although, petroleum-impacted soil was previously identified at the soil/water interface. Therefore, it is inconclusive whether the DRO and RRO detected in the site's groundwater is anthropogenic or biogenic in origin. We recommend re-evaluating whether further groundwater monitoring or site characterization is required following completion of the planned construction activities scheduled for the site.

CLOSURE/LIMITATIONS

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

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

Shannon & Wilson has prepared the information in Attachment 3, *Important Information About Your Geotechnical/Environmental Report*, to assist you and others in understanding the use and limitations of our report.

We appreciate this opportunity to be of service and your continued confidence in our firm.
If you have questions or comments concerning this submittal, please contact Dan P.
McMahon or the undersigned at (907) 561-2120.

Sincerely,

SHANNON & WILSON



Zach Thon
Environmental Scientist

Enc. Tables 1 and 2, Figures 1 and 2, and Attachments 1, 2, and 3

TABLE 1
MONITORING WELL DEVELOPMENT & SAMPLING LOG

	Monitoring Well		
	B5BMW	MW6	MW7
Water Level Measurement Data			
Date Water Level Measured	6/22/2021	6/22/2021	6/22/2021
Time Water Level Measured	8:52	9:00	9:05
Surveyed TOC Elevation (ft)	98.37	98.67	98.44
Measured Depth to Water (ft below TOC)^	3.70	6.52	6.60
Water Elevation (ft)	94.55	91.95	91.84
Sampling Data			
Date Sampled	6/22/2021	6/22/2021	6/22/2021
Time Sampled	14:20	12:00	10:13
Measured Depth to Water (ft below TOC)	3.70	6.52	6.60
Total Depth of Well (ft below TOC)	14.22	14.08	14.22
Water Column in Well (ft)	10.52	7.56	7.62
Gallons per Foot	0.16	0.16	0.16
Water Column Volume (gallons)	1.68	1.21	1.22
Total Volume Pumped/Bailed (gallons)	2.25	1.50	1.85
Sampling Method	Submersible Pump	Submersible Pump	Submersible Pump
Diameter of Well Casing	2-inch	2-inch	2-inch
Water Quality Data ^			
Temperature (°C)	10.91	9.74	9.66
pH (Standard Units)	6.09	6.03	5.75
Specific Conductivity (µS/cm)	1,200	1,300	896
Turbidity (NTU)	43.49	8.92	6.01
Remarks	Duplicate Sample B15BMW		

Notes:

Water quality parameters were measured with a Horiba Water Quality Instrument

^ = Water quality data at time of sampling

TOC = Top of casing

ft = Feet

m/V = Millivolts

NTU = Nephelometric Turbidity Unit

°C = Degrees Celsius

µS/cm = Microsiemens per Centimeter

TABLE 2
SUMMARY OF WATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (µg/L)**	Sample ID Number^ and Water Depth in Feet BTOC (See Table 1 and Figure 2)			
			Monitoring Wells			
			MW6	MW7	B5BMW	
			MW-6 6.52	MW-7 6.60	B5BMW 3.70	B15BMW ~ 3.70
Diesel Range Organics (DRO) - µg/L	AK 102	1,500	1,970	1,610	1,430	1,470
Diesel Range Organics (Post Silica Gel Cleanup) - µg/L	AK 102	1,500	<620	<620	<610	<620
Residual Range Organics (RRO) - µg/L	AK 103	1,100	2,920	2,310	1,680	1,660
Residual Range Organics (Post Silica Gel Cleanup) - µg/L	AK 103	1,100	<515	<515	<510	<515

Notes:

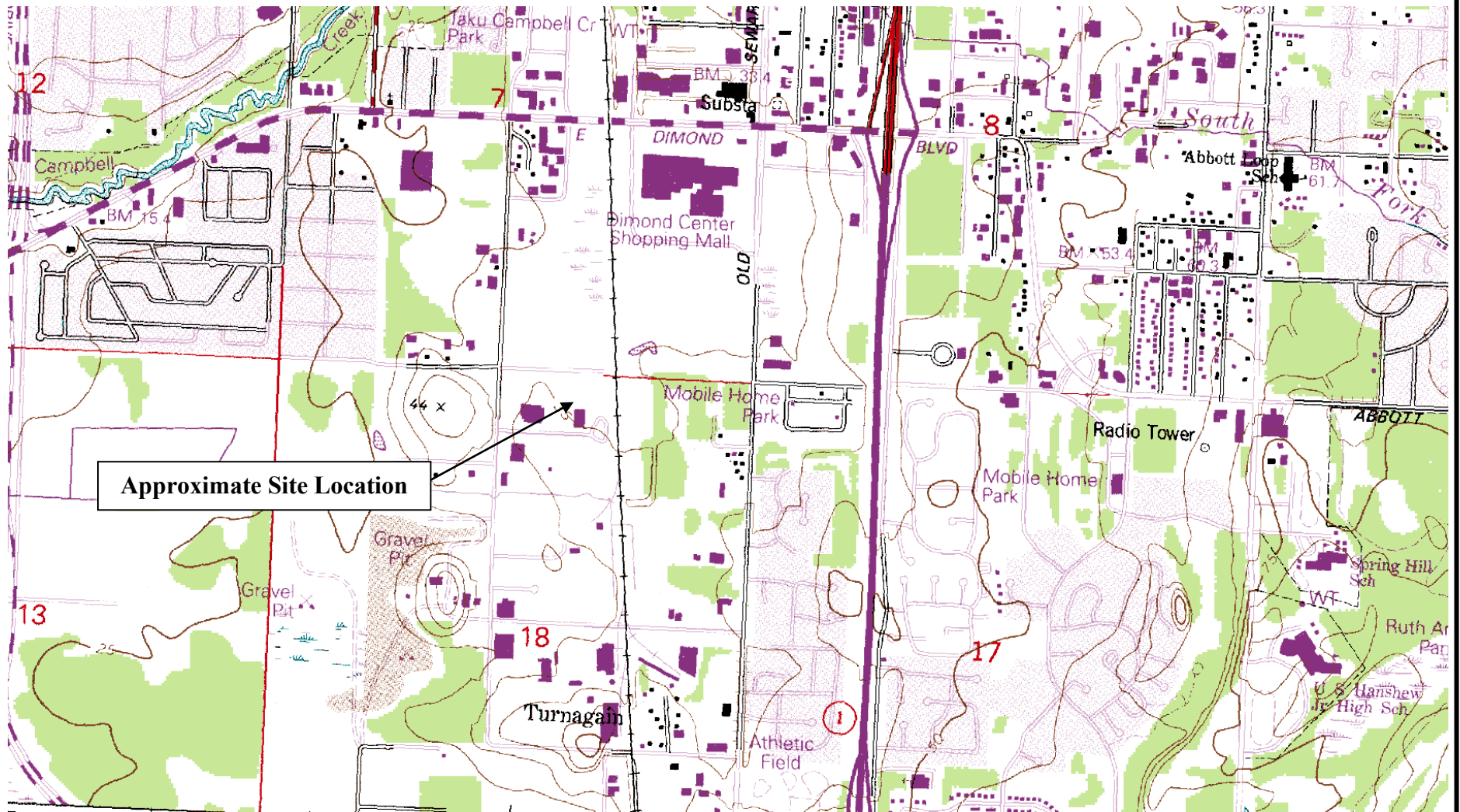
- ^ = Sample ID number preceded by "107101-" on the chain of custody form
- * = See Attachment 2 for compounds tested, methods, and laboratory reporting limits
- ** = Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (June 2021)
- µg/L = micrograms per liter
- 1,970** = Analyte detected at a concentration that exceeds applicable ADEC cleanup level
- 1,430** = Analyte detected
- <515 = Analyte not detected; laboratory limit of detection of 515 µg/L
- ~ = Duplicate of Sample B5BMW.
- BTOC = Below Top of Casing

TABLE 3
HISTORICAL WATER ANALYTICAL RESULTS

Monitoring Well	Date	Depth to Groundwater (feet BTOC)	Parameter Tested, method and ADEC Cleanup Level in µg/L*	
			DRO 1,500	RRO 1,100
Well B5MW/B5AMW/B5BMW				
B5MW	11/22/2000	5.40	930	1,390
B5MW	5/14/2001	-	1,670	2,160
B5AMW^	1/27/2016	6.42	952	256 J
B5BMW^^	10/28/2020	4.30	1,480	2,200
B5BMW	6/22/2021~	3.70	1,470	1,680
Well MW6				
MW6	10/28/2020	6.88	1,710	3,060
MW6	6/22/2021	6.52	1,970	2,920
Well MW7				
MW7	10/28/2020~	6.80	1,340	1,960
MW7	6/22/2021	6.60	1,610	2,310

Notes:

*	= Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (June 2021)
BTOC	= Below top of casing
~	= Listed value based on highest concentration in duplicate sample set
^	= Well B5AMW was a replacement of Well B5MW installed in 2016
^^	= Well B5BMW is a replacement of Well B5AMW installed in 2020
µg/L	= micrograms per liter
952	= Analyte detected at a concentration less than the applicable ADEC cleanup level
2,200	= Reported concentration exceeds the applicable ADEC cleanup level
-	= Not recorded
J	= Estimated concentration less than the limit of quantitation.



Approximate Scale in Miles

Elevation in Meters
 Contour Interval 5 Meters
 Taken From
 Anchorage A-8 NW Quadrangle
 U.S. Geological Survey
 1979 with 1994 revisions



503 East 94th Court
 Anchorage, Alaska

VICINITY MAP

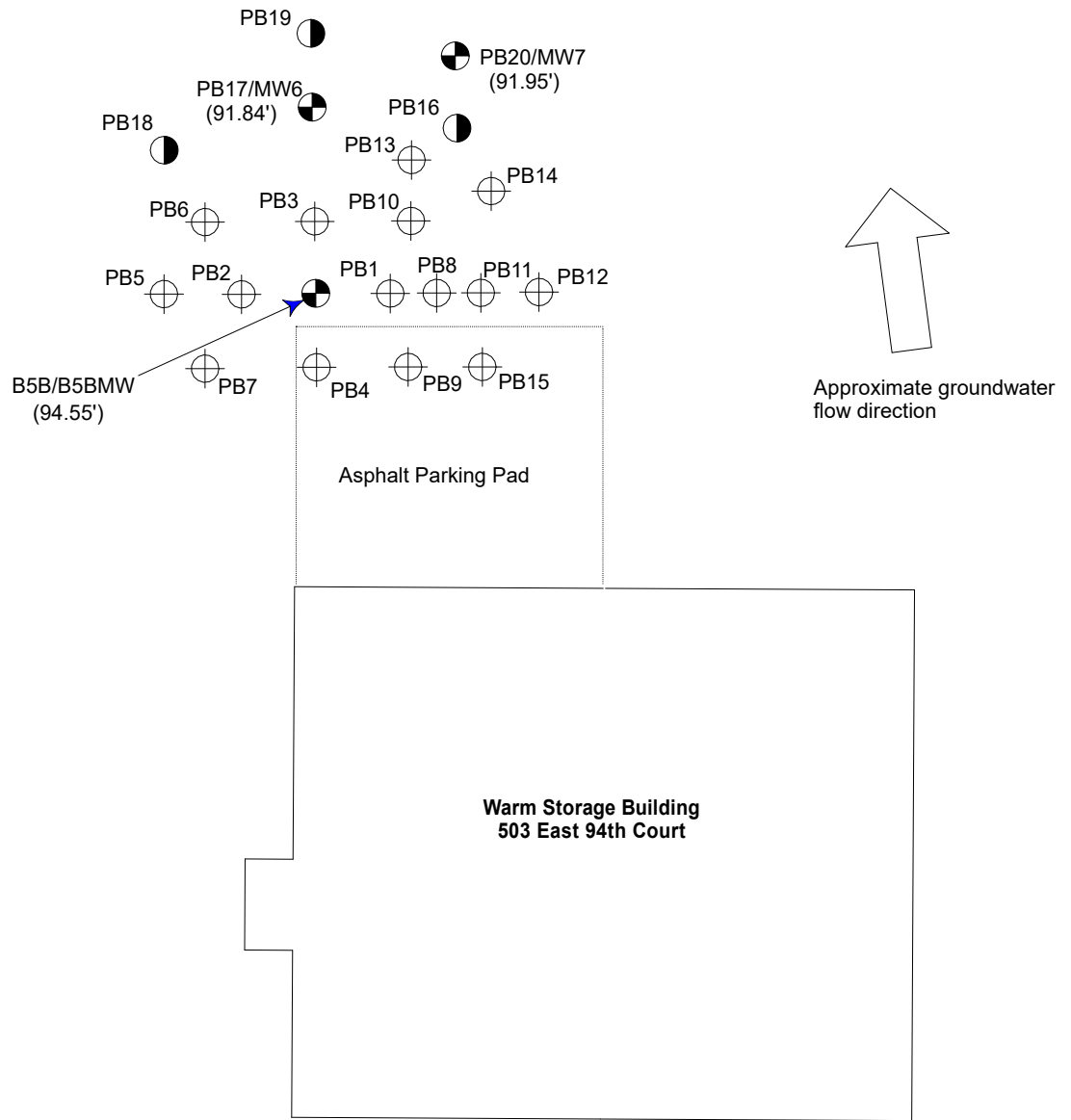
October 2021

107101-003





SHANNON & WILSON, INC.
 Geotechnical & Environmental Consultants


Fig. 1



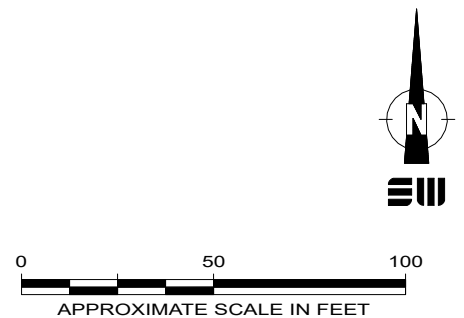
LEGEND


- 

B5B/B5AMW Approximate location of Boring B5B/Monitoring Well B5BMW advanced/installed by Shannon & Wilson in October 2020.
- 

PB1 Approximate location of Boring PB1 advanced by Shannon & Wilson in April 2016.
- 

PB16 Approximate location of Boring PB16 advanced by Shannon & Wilson in October 2020.
- (94.55')** Water level elevation measured according to a level loop survey and water level measurements recorded on June 21, 2021.



503 East 94th Court Anchorage, Alaska	
SITE PLAN	
October 2021	107101-003
 SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	Fig. 2

Attachment 1

FIELD NOTES



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 107101 Location: Southeast Area Weather: 56° partly cloudy
 Well No.: ~~02100~~ B5BMW
 Date: 6-22-21 Time Started: 12:50 Time Completed: 15:15
 Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 8:52 Date of Depth Measurement: 6-22-21
 Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other:
 Diameter of Casing: 2" Well Screen Interval: —
 Total Depth of Well Below MP: 14.22 Product Thickness, if noted: —
 Depth-to-Water (DTW) Below MP: 3.70
 Water Column in Well: 10.52 (Total Depth of Well Below MP - DTW Below MP)
 Gallons per foot: 0.16
 Gallons in Well: 1.68 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 6-22-21 Time Started: 13:00 Time Completed: 15:20
 Three Well Volumes: 5.05 (Gallons in Well x 3)
 Gallons Purged: 2.25 Depth of Pump (generally 2 ft from bottom): 12.0'
 Max. Drawdown (generally 0.3 ft): 1.29 Pump Rate: 0.1
 Well Purged Dry: Yes ☐ No ☒ (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
13:05	0.15	0.1	4.60	0.90	9.56	1,130	↓	6.18	↓	82.56
13:10	0.30	0.1	4.76	1.06	9.77	1,160	↓	6.16	↓	79.44
13:15	0.45	0.1	4.85	1.15	9.82	1,180	↓	6.14	↓	85.69
13:20	0.60	0.1	4.90	1.20	10.50	1,170	↓	6.12	↓	89.12
13:25	0.75	0.1	4.94	1.24	10.94	1,170	↓	6.10	↓	90.02
13:30	<u>0.9</u> 235	0.1	4.94	1.24	10.94	1,170	↓	6.09	↓	89.32

SAMPLING DATA

Odor: None Color: Tan tint to clear
 Sample Designation: 107101-B5BMW Time / Date: 14:20 6-22-21
 QC Sample Designation: 107101-B5BMW Time / Date: 14:50 6-22-21
 QA Sample Designation: — Time / Date: —

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

Water Quality Instruments Used/Manufacturer/Model Number Horiba + Micro TFW

Calibration Info (Time, Ranges, etc) 8:30 6-22-21

Remarks: —

Sampling Personnel: 235

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



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Continued from previous page

Job No: 107101
Well No.: B5BMW
Date: 6-22-21

Location: Southwest Area Site: Awuall Facility
King St Campus

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
13:35	1.05	0.1	4.97	1.27	10.84	1,180		6.07		87.11
13:40	1.20	0.1	4.99	1.29	10.78	1,170		6.05		79.99
13:45	1.35	0.1	4.99	1.29	10.90	1,170		6.01		71.79
13:50	1.50	0.1	4.99	1.29	10.94	1,170		6.00		65.76
13:55	1.65	0.1	4.99	1.29	10.92	1,180		6.03		59.99
14:00	1.80	0.1	4.99	1.29	10.89	1,180		6.09		52.18
14:05	1.95	0.1	4.99	1.29	10.92	1,190		6.07		52.63
14:10	2.05	0.1	4.99	1.29	10.90	1,190		6.08		46.56
14:13	2.15	0.1	4.99	1.29	10.89	1,200		6.07		44.05
14:16	2.25	0.1	4.99	1.29	10.91	1,200		6.09		43.49

Sampled @ 14:20

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

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.



LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 107101 Location: Southeast Area Weather: 56° partly cloudy
Well No.: MW-6
Date: 6-22-21 Time Started: 11:00 Time Completed: 12:35
Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 9:00 Date of Depth Measurement: 6-22-21
Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: —
Diameter of Casing: 2" Well Screen Interval: —
Total Depth of Well Below MP: 14.08 Product Thickness, if noted: —
Depth-to-Water (DTW) Below MP: 6.52
Water Column in Well: 7.56 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.21 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 6-22-21 Time Started: 11:06 Time Completed: 12:22
Three Well Volumes: 3.63 (Gallons in Well x 3)
Gallons Purged: 1.5 Depth of Pump (generally 2 ft from bottom): 12.0'
Max. Drawdown (generally 0.3 ft): 1.27 Pump Rate: 0.1 L/min
Well Purged Dry: Yes ☐ No ☒ (If yes, use Well Purged Dry Log)

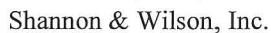
Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
<u>11:11</u>	<u>0.15</u>	<u>0.1</u>	<u>6.84</u>	<u>0.32</u>	<u>8.97</u>	<u>1,230</u>	<u>—</u>	<u>6.14</u>	<u>—</u>	<u>31.58</u>
<u>11:16</u>	<u>0.30</u>	<u>0.1</u>	<u>6.97</u>	<u>0.45</u>	<u>9.20</u>	<u>1,300</u>	<u>—</u>	<u>6.10</u>	<u>—</u>	<u>40.42</u>
<u>11:21</u>	<u>0.45</u>	<u>0.1</u>	<u>7.09</u>	<u>0.57</u>	<u>9.15</u>	<u>1,310</u>	<u>—</u>	<u>6.09</u>	<u>—</u>	<u>23.71</u>
<u>11:26</u>	<u>0.60</u>	<u>0.1</u>	<u>7.19</u>	<u>0.67</u>	<u>9.40</u>	<u>1,300</u>	<u>—</u>	<u>6.08</u>	<u>—</u>	<u>18.63</u>
<u>11:31</u>	<u>0.75</u>	<u>0.1</u>	<u>7.30</u>	<u>0.78</u>	<u>9.26</u>	<u>1,310</u>	<u>—</u>	<u>6.05</u>	<u>—</u>	<u>15.09</u>
<u>11:36</u>	<u>9.0</u>	<u>0.1</u>	<u>7.40</u>	<u>0.98</u>	<u>9.38</u>	<u>1,300</u>	<u>↓</u>	<u>6.09</u>	<u>↓</u>	<u>11.98</u>

SAMPLING DATA

Odor: None Color: Clear / Tan tint
Sample Designation: 107101-MW-6 Time / Date: 12:00 6-22-21
QC Sample Designation: — Time / Date: —
QA Sample Designation: — Time / Date: —
Evacuation Method: Submersible Pump / Other: Single Whisk
Sampling Method: Submersible Pump / Other: Single Whisk
Water Quality Instruments Used/Manufacturer/Model Number Haniba + Micro TFW
Calibration Info (Time, Ranges, etc) 8:30 6-22-21
Remarks: —

Sampling Personnel: ZST

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



Continued from previous page

Site: Awali Facility
King St. Campus

Date: 6.22.21

Sampled @ 12:00

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



Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 107101 Location: Southeast Area Weather: 56° sunny
Well No.: MW7
Date: 6.22.21 Time Started: 9:00 Time Completed: 10:40
Develop Date: — Develop End Time: — (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 9:05 Date of Depth Measurement: 6.22.21
Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: —
Diameter of Casing: 2" Well Screen Interval: —
Total Depth of Well Below MP: 14.22 Product Thickness, if noted: —
Depth-to-Water (DTW) Below MP: 6.60
Water Column in Well: 7.62 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.22 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 6.22.21 Time Started: 9:15 Time Completed: 10:28
Three Well Volumes: 3.66 (Gallons in Well x 3)
Gallons Purged: 1.85 Depth of Pump (generally 2 ft from bottom): 12.0'
Max. Drawdown (generally 0.3 ft): 0.54 Pump Rate: 0.1 - 0.2 L/min
Well Purged Dry: Yes ☐ No ☒ (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
9:20	0.25	0.2	6.72	0.12	8.10	991	↓	5.86	↓	43.38
9:25	0.50	0.2	6.79	0.19	8.92	974	↓	5.76	↓	38.73
9:30	0.65	0.2	6.82	0.22	9.33	968	↓	5.72	↓	38.92
9:35	0.80	0.2	6.88	0.28	9.28	971	↓	5.70	↓	36.70
9:40	0.95	0.2	6.90	0.30	9.87	942	↓	5.79	↓	26.65
9:45	1.10	0.1	6.94	0.34	9.67	938	↓	5.73	↓	20.60

SAMPLING DATA

Odor: None Color: Clear w/ Tan tint
Sample Designation: 107101-MW-7 Time / Date: 10:13 6.22.21
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 Horiba + Micro TFW
Calibration Info (Time, Ranges, etc) 8:30 6.22.21
Remarks: —

Sampling Personnel: ZST

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



Continued from previous page

Location: Southeast Area Site: AWWL Facility

King St. Campus

Date: 6.22.21

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

Attachment 2

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

Laboratory Report of Analysis

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

Report Number: **1213547**

Client Project: **107101 Southeast Area**

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.

Stephen C. Ede Stephen C. Ede
2021.06.30
09:26:07 -08'00'

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1213547**
Project Name/Site: **107101 Southeast Area**
Project Contact: **Zach Thon**

Refer to sample receipt form for information on sample condition.

107101-B5BMW (1213547001) PS

AKFUELID - The hydrocarbon pattern is consistent with unknown hydrocarbons.

107101-B15BMW (1213547002) PS

AKFUELID - The hydrocarbon pattern is consistent with unknown hydrocarbons.

107101-MW-6 (1213547003) PS

AKFUELID - The hydrocarbon pattern is consistent with unknown hydrocarbons.

107101-MW-7 (1213547004) PS

AKFUELID - The hydrocarbon pattern is consistent with unknown hydrocarbons.

*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: 07/13/2021 2:34:47PM

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 DW Chemistry (Provisionally Certified as of 05/27/2021 for Mercury by EPA200.8, Nitrate as N by SM 4500NO3-F and VOCs by EPA 524.2) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the

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

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

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

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
107101-B5BMW	1213547001	06/22/2021	06/22/2021	Water (Surface, Eff., Ground)
107101-B15BMW	1213547002	06/22/2021	06/22/2021	Water (Surface, Eff., Ground)
107101-MW-6	1213547003	06/22/2021	06/22/2021	Water (Surface, Eff., Ground)
107101-MW-7	1213547004	06/22/2021	06/22/2021	Water (Surface, Eff., Ground)

<u>Method</u>	<u>Method Description</u>
AK102	Diesel/Residual Range Organics w/ Silica
AK103	Diesel/Residual Range Organics w/ Silica
AK102	Diesel/Residual Range Organics Water
AK103	Diesel/Residual Range Organics Water

Print Date: 07/13/2021 2:34:51PM

Detectable Results Summary

Client Sample ID: **107101-B5BMW**

Lab Sample ID: 1213547001

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1.43	mg/L
Residual Range Organics	1.68	mg/L

Client Sample ID: **107101-B15BMW**

Lab Sample ID: 1213547002

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1.47	mg/L
Residual Range Organics	1.66	mg/L

Client Sample ID: **107101-MW-6**

Lab Sample ID: 1213547003

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1.97	mg/L
Residual Range Organics	2.92	mg/L

Client Sample ID: **107101-MW-7**

Lab Sample ID: 1213547004

Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1.61	mg/L
Residual Range Organics	2.31	mg/L



Results of 107101-B5BMW

Client Sample ID: **107101-B5BMW**
Client Project ID: **107101 Southeast Area**
Lab Sample ID: 1213547001
Lab Project ID: 1213547

Collection Date: 06/22/21 14:20
Received Date: 06/22/21 16:02
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>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1.43	1.22	0.367	mg/L	1		06/25/21 18:08
Surrogates							
5a Androstane (surr)	82.6	50-150		%	1		06/25/21 18:08

Batch Information

Analytical Batch: XFC15970
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/25/21 18:08
Container ID: 1213547001-A

Prep Batch: XXX45028
Prep Method: SW3520C
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 980 mL
Prep Extract Vol: 2 mL

<u>Parameter</u>	<u>Result</u> <u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	1.68	1.02	0.306	mg/L	1		06/25/21 18:08
Surrogates							
n-Triacontane-d62 (surr)	81.4	50-150		%	1		06/25/21 18:08

Batch Information

Analytical Batch: XFC15970
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 06/25/21 18:08
Container ID: 1213547001-A

Prep Batch: XXX45028
Prep Method: SW3520C
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 980 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:54PM

J flagging is activated



Results of 107101-B5BMW

Client Sample ID: **107101-B5BMW**
Client Project ID: **107101 Southeast Area**
Lab Sample ID: 1213547001
Lab Project ID: 1213547

Collection Date: 06/22/21 14:20
Received Date: 06/22/21 16:02
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels Department, Silica G

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
DRO Silica Gel	0.610 U	1.22	0.367	mg/L	1		06/25/21 14:59

Surrogates

5a Androstane (surr)	75.9	50-150		%	1		06/25/21 14:59
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Batch Information

Analytical Batch: XFC15972
Analytical Method: AK102-
Analyst: IVM
Analytical Date/Time: 06/25/21 14:59
Container ID: 1213547001-A

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup-SG
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 980 mL
Prep Extract Vol: 2 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
RRO Silica Gel	0.510 U	1.02	0.306	mg/L	1		06/25/21 14:59

Surrogates

n-Triacontane-d62 (surr)	76.8	50-150		%	1		06/25/21 14:59
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Batch Information

Analytical Batch: XFC15972
Analytical Method: AK103-
Analyst: IVM
Analytical Date/Time: 06/25/21 14:59
Container ID: 1213547001-A

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup-SG
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 980 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:54PM

J flagging is activated



Results of 107101-B15BMW

Client Sample ID: **107101-B15BMW**
Client Project ID: **107101 Southeast Area**
Lab Sample ID: 1213547002
Lab Project ID: 1213547

Collection Date: 06/22/21 14:50
Received Date: 06/22/21 16:02
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>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1.47	1.24	0.371	mg/L	1		06/25/21 18:18
Surrogates							
5a Androstane (surr)	90.1	50-150		%	1		06/25/21 18:18

Batch Information

Analytical Batch: XFC15970
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/25/21 18:18
Container ID: 1213547002-A

Prep Batch: XXX45028
Prep Method: SW3520C
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

<u>Parameter</u>	<u>Result</u> <u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	1.66	1.03	0.309	mg/L	1		06/25/21 18:18
Surrogates							
n-Triacontane-d62 (surr)	87	50-150		%	1		06/25/21 18:18

Batch Information

Analytical Batch: XFC15970
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 06/25/21 18:18
Container ID: 1213547002-A

Prep Batch: XXX45028
Prep Method: SW3520C
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:54PM

J flagging is activated



Results of 107101-B15BMW

Client Sample ID: **107101-B15BMW**
Client Project ID: **107101 Southeast Area**
Lab Sample ID: 1213547002
Lab Project ID: 1213547

Collection Date: 06/22/21 14:50
Received Date: 06/22/21 16:02
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels Department, Silica G

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
DRO Silica Gel	0.620 U	1.24	0.371	mg/L	1		06/25/21 15:09
Surrogates							
5a Androstane (surr)	73.1	50-150		%	1		06/25/21 15:09

Batch Information

Analytical Batch: XFC15972
Analytical Method: AK102-
Analyst: IVM
Analytical Date/Time: 06/25/21 15:09
Container ID: 1213547002-A

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup-SG
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
RRO Silica Gel	0.515 U	1.03	0.309	mg/L	1		06/25/21 15:09
Surrogates							
n-Triacontane-d62 (surr)	73.3	50-150		%	1		06/25/21 15:09

Batch Information

Analytical Batch: XFC15972
Analytical Method: AK103-
Analyst: IVM
Analytical Date/Time: 06/25/21 15:09
Container ID: 1213547002-A

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup-SG
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:54PM

J flagging is activated

SGS North America Inc.

200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

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Results of 107101-MW-6

Client Sample ID: **107101-MW-6**
Client Project ID: **107101 Southeast Area**
Lab Sample ID: 1213547003
Lab Project ID: 1213547

Collection Date: 06/22/21 12:00
Received Date: 06/22/21 16:02
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1.97	1.24	0.371	mg/L	1		06/25/21 18:28
Surrogates							
5a Androstane (surr)	84.9	50-150		%	1		06/25/21 18:28

Batch Information

Analytical Batch: XFC15970
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/25/21 18:28
Container ID: 1213547003-A

Prep Batch: XXX45028
Prep Method: SW3520C
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	2.92	1.03	0.309	mg/L	1		06/25/21 18:28
Surrogates							
n-Triacontane-d62 (surr)	82.8	50-150		%	1		06/25/21 18:28

Batch Information

Analytical Batch: XFC15970
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 06/25/21 18:28
Container ID: 1213547003-A

Prep Batch: XXX45028
Prep Method: SW3520C
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:54PM

J flagging is activated

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200 West Potter Drive Anchorage, AK 95518
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Results of 107101-MW-6

Client Sample ID: **107101-MW-6**
Client Project ID: **107101 Southeast Area**
Lab Sample ID: 1213547003
Lab Project ID: 1213547

Collection Date: 06/22/21 12:00
Received Date: 06/22/21 16:02
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels Department, Silica G

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
DRO Silica Gel	0.620 U	1.24	0.371	mg/L	1		06/25/21 15:19
Surrogates							
5a Androstane (surr)	79.4	50-150		%	1		06/25/21 15:19

Batch Information

Analytical Batch: XFC15972
Analytical Method: AK102-
Analyst: IVM
Analytical Date/Time: 06/25/21 15:19
Container ID: 1213547003-A

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup-SG
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
RRO Silica Gel	0.515 U	1.03	0.309	mg/L	1		06/25/21 15:19
Surrogates							
n-Triacontane-d62 (surr)	80.2	50-150		%	1		06/25/21 15:19

Batch Information

Analytical Batch: XFC15972
Analytical Method: AK103-
Analyst: IVM
Analytical Date/Time: 06/25/21 15:19
Container ID: 1213547003-A

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup-SG
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:54PM

J flagging is activated

SGS North America Inc.

200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

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Results of 107101-MW-7

Client Sample ID: **107101-MW-7**
Client Project ID: **107101 Southeast Area**
Lab Sample ID: 1213547004
Lab Project ID: 1213547

Collection Date: 06/22/21 10:13
Received Date: 06/22/21 16:02
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>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1.61	1.24	0.371	mg/L	1		06/25/21 18:38
Surrogates							
5a Androstane (surr)	84	50-150		%	1		06/25/21 18:38

Batch Information

Analytical Batch: XFC15970
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 06/25/21 18:38
Container ID: 1213547004-A

Prep Batch: XXX45028
Prep Method: SW3520C
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

<u>Parameter</u>	<u>Result</u> <u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	2.31	1.03	0.309	mg/L	1		06/25/21 18:38
Surrogates							
n-Triacontane-d62 (surr)	83.3	50-150		%	1		06/25/21 18:38

Batch Information

Analytical Batch: XFC15970
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 06/25/21 18:38
Container ID: 1213547004-A

Prep Batch: XXX45028
Prep Method: SW3520C
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:54PM

J flagging is activated

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Results of 107101-MW-7

Client Sample ID: **107101-MW-7**
Client Project ID: **107101 Southeast Area**
Lab Sample ID: 1213547004
Lab Project ID: 1213547

Collection Date: 06/22/21 10:13
Received Date: 06/22/21 16:02
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels Department, Silica G

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
DRO Silica Gel	0.620 U	1.24	0.371	mg/L	1		06/25/21 15:29
Surrogates							
5a Androstane (surr)	71	50-150		%	1		06/25/21 15:29

Batch Information

Analytical Batch: XFC15972
Analytical Method: AK102-
Analyst: IVM
Analytical Date/Time: 06/25/21 15:29
Container ID: 1213547004-A

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup-SG
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
RRO Silica Gel	0.515 U	1.03	0.309	mg/L	1		06/25/21 15:29
Surrogates							
n-Triacontane-d62 (surr)	72.9	50-150		%	1		06/25/21 15:29

Batch Information

Analytical Batch: XFC15972
Analytical Method: AK103-
Analyst: IVM
Analytical Date/Time: 06/25/21 15:29
Container ID: 1213547004-A

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup-SG
Prep Date/Time: 06/23/21 17:13
Prep Initial Wt./Vol.: 970 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:54PM

J flagging is activated

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Method Blank

Blank ID: MB for HBN 1821248 [XXX/45028]

Blank Lab ID: 1618207

QC for Samples:

1213547001, 1213547002, 1213547003, 1213547004

Matrix: Water (Surface, Eff., Ground)

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	0.600U	1.20	0.360	mg/L
Surrogates				
5a Androstane (surr)	92.4	60-120		%

Batch Information

Analytical Batch: XFC15970

Analytical Method: AK102

Instrument: Agilent 7890B F

Analyst: IVM

Analytical Date/Time: 6/25/2021 3:58:00PM

Prep Batch: XXX45028

Prep Method: SW3520C

Prep Date/Time: 6/23/2021 5:13:00PM

Prep Initial Wt./Vol.: 1000 mL

Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:34:57PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1213547 [XXX45028]
Blank Spike Lab ID: 1618208
Date Analyzed: 06/25/2021 16:08

Spike Duplicate ID: LCSD for HBN 1213547
[XXX45028]
Spike Duplicate Lab ID: 1618209
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1213547001, 1213547002, 1213547003, 1213547004

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	10	10.6	106	10	10.5	105	(75-125)	0.52	(< 20)
Surrogates									
5a Androstane (surr)	0.2		111	0.2		103	(60-120)	7.90	

Batch Information

Analytical Batch: **XFC15970**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **IVM**

Prep Batch: **XXX45028**
Prep Method: **SW3520C**
Prep Date/Time: **06/23/2021 17:13**
Spike Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL
Dupe Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL

Print Date: 07/13/2021 2:35:00PM



Method Blank

Blank ID: MB for HBN 1821248 [XXX/45028]

Blank Lab ID: 1618207

QC for Samples:

1213547001, 1213547002, 1213547003, 1213547004

Matrix: Water (Surface, Eff., Ground)

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	0.500U	1.00	0.300	mg/L
Surrogates				
n-Triacontane-d62 (surr)	94	60-120		%

Batch Information

Analytical Batch: XFC15970

Analytical Method: AK103

Instrument: Agilent 7890B F

Analyst: IVM

Analytical Date/Time: 6/25/2021 3:58:00PM

Prep Batch: XXX45028

Prep Method: SW3520C

Prep Date/Time: 6/23/2021 5:13:00PM

Prep Initial Wt./Vol.: 1000 mL

Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:35:02PM

SGS North America Inc.

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1213547 [XXX45028]
Blank Spike Lab ID: 1618208
Date Analyzed: 06/25/2021 16:08

Spike Duplicate ID: LCSD for HBN 1213547
[XXX45028]
Spike Duplicate Lab ID: 1618209
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1213547001, 1213547002, 1213547003, 1213547004

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	10	11.0	110	10	10.5	105	(60-120)	4.50	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.2		107	0.2		97	(60-120)	9.70	

Batch Information

Analytical Batch: **XFC15970**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **IVM**

Prep Batch: **XXX45028**
Prep Method: **SW3520C**
Prep Date/Time: **06/23/2021 17:13**
Spike Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL
Dupe Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL

Print Date: 07/13/2021 2:35:05PM



Method Blank

Blank ID: MB for HBN 1821249 [XXX/45029]

Blank Lab ID: 1618210

QC for Samples:

1213547001, 1213547002, 1213547003, 1213547004

Matrix: Water (Surface, Eff., Ground)

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
DRO Silica Gel	0.600U	1.20	0.360	mg/L
Surrogates				
5a Androstane (surr)	81.8	70-125		%

Batch Information

Analytical Batch: XFC15972

Analytical Method: AK102

Instrument: Agilent 7890B F

Analyst: IVM

Analytical Date/Time: 6/25/2021 12:52:00PM

Prep Batch: XXX45029

Prep Method: SW3520C w/SG Cleanup

Prep Date/Time: 6/23/2021 5:13:00PM

Prep Initial Wt./Vol.: 1000 mL

Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:35:07PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1213547 [XXX45029]
Blank Spike Lab ID: 1618211
Date Analyzed: 06/25/2021 13:01

Spike Duplicate ID: LCSD for HBN 1213547
[XXX45029]
Spike Duplicate Lab ID: 1618212
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1213547001, 1213547002, 1213547003, 1213547004

Results by AK102

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
DRO Silica Gel	10	8.68	87	10	9.27	93	(70-125)	6.70	(< 20)
Surrogates									
5a Androstane (surr)	0.2		95	0.2		94	(70-125)	1.80	

Batch Information

Analytical Batch: **XFC15972**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **IVM**

Prep Batch: **XXX45029**
Prep Method: **SW3520C w/SG Cleanup**
Prep Date/Time: **06/23/2021 17:13**
Spike Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL
Dupe Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL

Print Date: 07/13/2021 2:35:10PM



Method Blank

Blank ID: MB for HBN 1821249 [XXX/45029]
Blank Lab ID: 1618210

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1213547001, 1213547002, 1213547003, 1213547004

Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
RRO Silica Gel	0.500U	1.00	0.300	mg/L
Surrogates				
n-Triacontane-d62 (surr)	84.8	70-125		%

Batch Information

Analytical Batch: XFC15972
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: IVM
Analytical Date/Time: 6/25/2021 12:52:00PM

Prep Batch: XXX45029
Prep Method: SW3520C w/SG Cleanup
Prep Date/Time: 6/23/2021 5:13:00PM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 2 mL

Print Date: 07/13/2021 2:35:12PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1213547 [XXX45029]
 Blank Spike Lab ID: 1618211
 Date Analyzed: 06/25/2021 13:01

Spike Duplicate ID: LCSD for HBN 1213547
 [XXX45029]
 Spike Duplicate Lab ID: 1618212
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1213547001, 1213547002, 1213547003, 1213547004

Results by AK103

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
RRO Silica Gel	10	9.33	93	10	9.64	96	(70-125)	3.30	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.2		86	0.2		85	(70-125)	0.90	

Batch Information

Analytical Batch: **XFC15972**
 Analytical Method: **AK103**
 Instrument: **Agilent 7890B F**
 Analyst: **IVM**

Prep Batch: **XXX45029**
 Prep Method: **SW3520C w/SG Cleanup**
 Prep Date/Time: **06/23/2021 17:13**
 Spike Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL
 Dupe Init Wt./Vol.: 10 mg/L Extract Vol: 2 mL

Print Date: 07/13/2021 2:35:15PM

1213547

365 753 76



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1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

CHAIN-OF-CUSTODY RECORD

Laboratory SGS Anchorage Page 1 of 1
Attn: Justin Nelson

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	DRO AK 102	RRO AK 103	DRO/RRO Si-Gel Clean	Total Number of Containers	Remarks/Matrix
107101-B5BMW	1AB	14:20		X	X	X	X		2	Groundwater
107101-B5BMW	2AB	14:50		X	X	X	X		2	
107101-MW-6	3AB	12:00		X	X	X	X		2	
107101-MW-7	4AB	10:13		X	X	X	X		2	

Project Information		Sample Receipt		Relinquished By: 1.		Relinquished By: 2.		Relinquished By: 3.	
Project Number: <u>107101</u>		Total Number of Containers		Signature: <u>[Signature]</u> Time: <u>15:59</u>		Signature: _____ Time: _____		Signature: _____ Time: _____	
Project Name: <u>Southeast Area</u>		COC Seals/Intact? Y/N/NA		Printed Name: <u>Zach Thon</u> Date: <u>6-22-21</u>		Printed Name: _____ Date: _____		Printed Name: _____ Date: _____	
Contact: <u>Zach Thon</u>		Received Good Cond./Cold		Company: <u>Shannon & Wilson</u>		Company: _____		Company: _____	
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Delivery Method:		Received By: 1.		Received By: 2.		Received By: 3.	
Sampler: <u>ZJT</u>		(attach shipping bill, if any)		Signature: _____ Time: _____		Signature: _____ Time: _____		Signature: <u>[Signature]</u> Time: <u>16:02</u>	
Instructions				Printed Name: _____ Date: _____		Printed Name: _____ Date: _____		Printed Name: <u>Chris Cleaver</u> Date: <u>06/22/21</u>	
Requested Turnaround Time: <u>Standard 10 day</u>				Company: _____		Company: _____		Company: <u>SGS</u> <u>2.3 D80</u> <u>HO Alan</u>	
Special Instructions: <u>SGS + S:W PSA</u>									
Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report Yellow - w/shipment - for consignee files Pink - Shannon & Wilson - Job File									



e-Sample Receipt Form

SGS Workorder #:

1213547



1 2 1 3 5 4 7

Review Criteria		Condition (Yes, No, N/A)	Exceptions Noted below	
Chain of Custody / Temperature Requirements			N/A	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	Absent		
COC accompanied samples?	Yes			
DOD: Were samples received in COC corresponding coolers?	N/A			
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required				
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID:	1	@ 2.3 °C Therm. ID: D80
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID:		@ °C Therm. ID:
		Cooler ID:		@ °C Therm. ID:
		Cooler ID:		@ °C Therm. ID:
		Cooler ID:		@ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?		N/A		
If <0°C, were sample containers ice free?		N/A		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.				
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.		
Were samples received within holding time?	Yes			
Do samples match COC** (i.e., sample IDs, dates/times collected)?	No	No collection date. Proceeded with date on labels.		
Note: If times differ <1hr, record details & login per COC. *Note: If sample information on containers differs from COC, SGS will default to COC information				
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes			
		N/A	***Exemption permitted for metals (e.g. 200.8/6020B).	
Were proper containers (type/mass/volume/preservative***) used?	Yes			
Volatile / LL-Hg Requirements				
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	N/A			
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A			
Were all soil VOAs field extracted with MeOH+BFB?	N/A			
Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.				
Additional notes (if applicable):				



Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1213547001-A	HCL to pH < 2	OK			
1213547001-B	HCL to pH < 2	OK			
1213547002-A	HCL to pH < 2	OK			
1213547002-B	HCL to pH < 2	OK			
1213547003-A	HCL to pH < 2	OK			
1213547003-B	HCL to pH < 2	OK			
1213547004-A	HCL to pH < 2	OK			
1213547004-B	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.

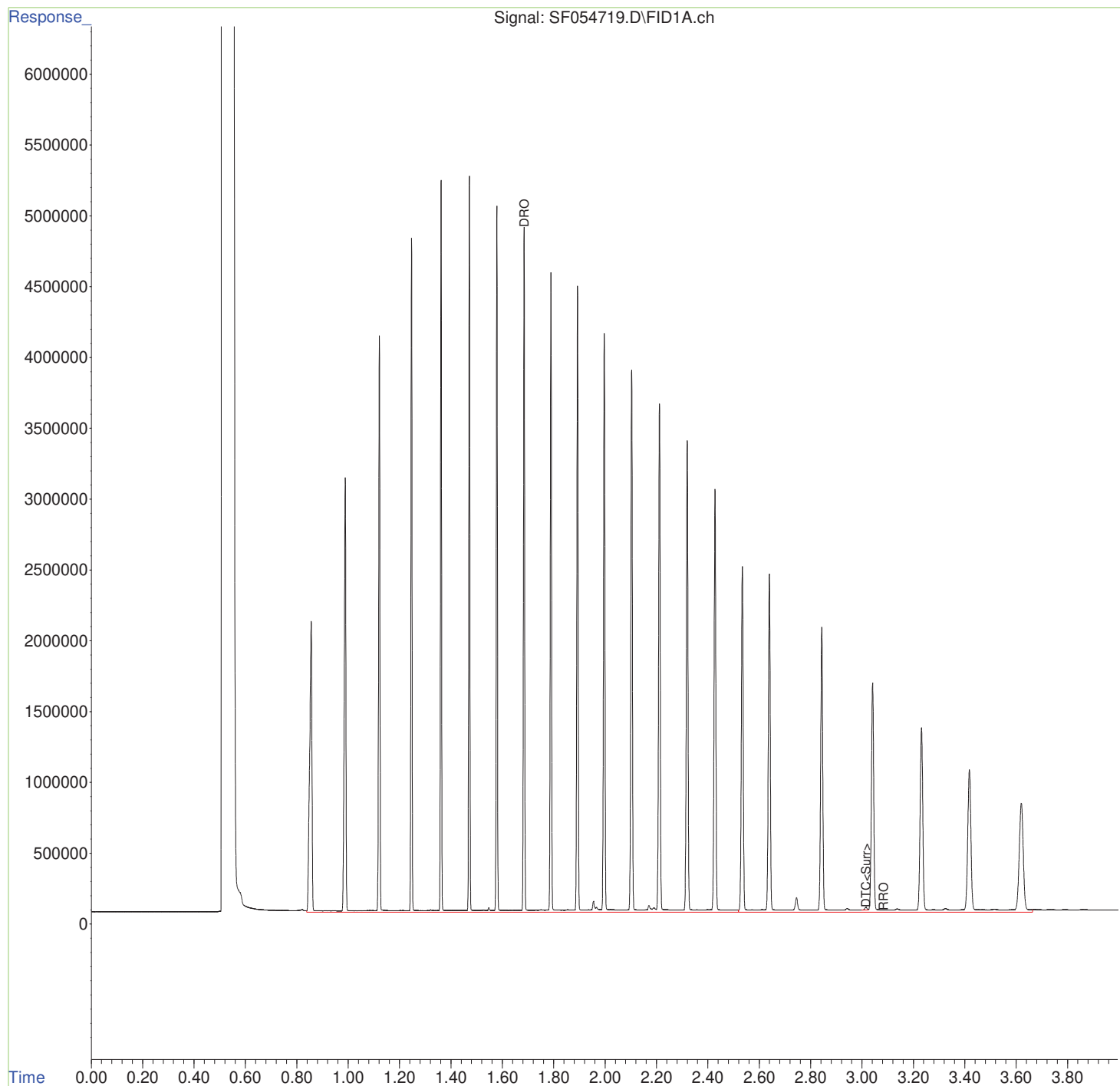
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.

Data Path : Z:\DATA\SF\Data\SF06252021\
Data File : SF054719.D
Signal(s) : FID1A.ch
Acq On : 25 Jun 2021 11:09 am
Operator : IVM
Sample : NAS
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jun 25 15:34:49 2021
Quant Method : Y:\GC\DATA\DATA\SF\Method\SFF2021-0615_D.M
Quant Title : DRO/RRO by Method AK 102/103
QLast Update : Tue Jun 15 16:21:40 2021
Response via : Initial Calibration
Integrator: ChemStation

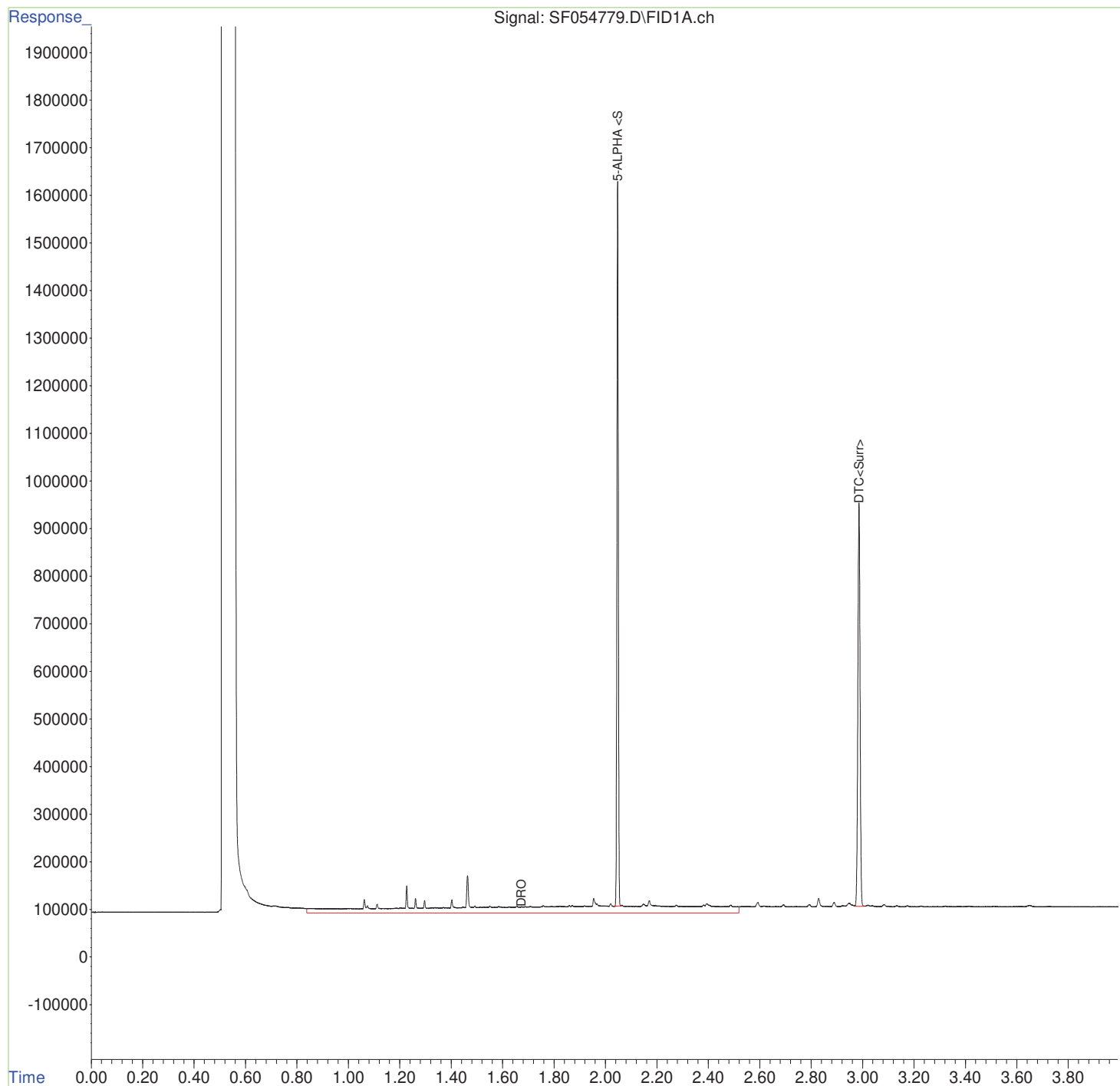
Volume Inj. :
Signal Phase :
Signal Info :



Data Path : Z:\DATA\SF\Data\SF06252021\
Data File : SF054779.D
Signal(s) : FID1A.ch
Acq On : 25 Jun 2021 3:58 pm
Operator : IVM
Sample : 1618207 MB 45028
Misc :
ALS Vial : 22 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jun 25 17:02:59 2021
Quant Method : Y:\GC DATA\DATA\SF\Method\SFF2021-0615_D.M
Quant Title : DRO/RRO by Method AK 102/103
QLast Update : Tue Jun 15 16:21:40 2021
Response via : Initial Calibration
Integrator: ChemStation

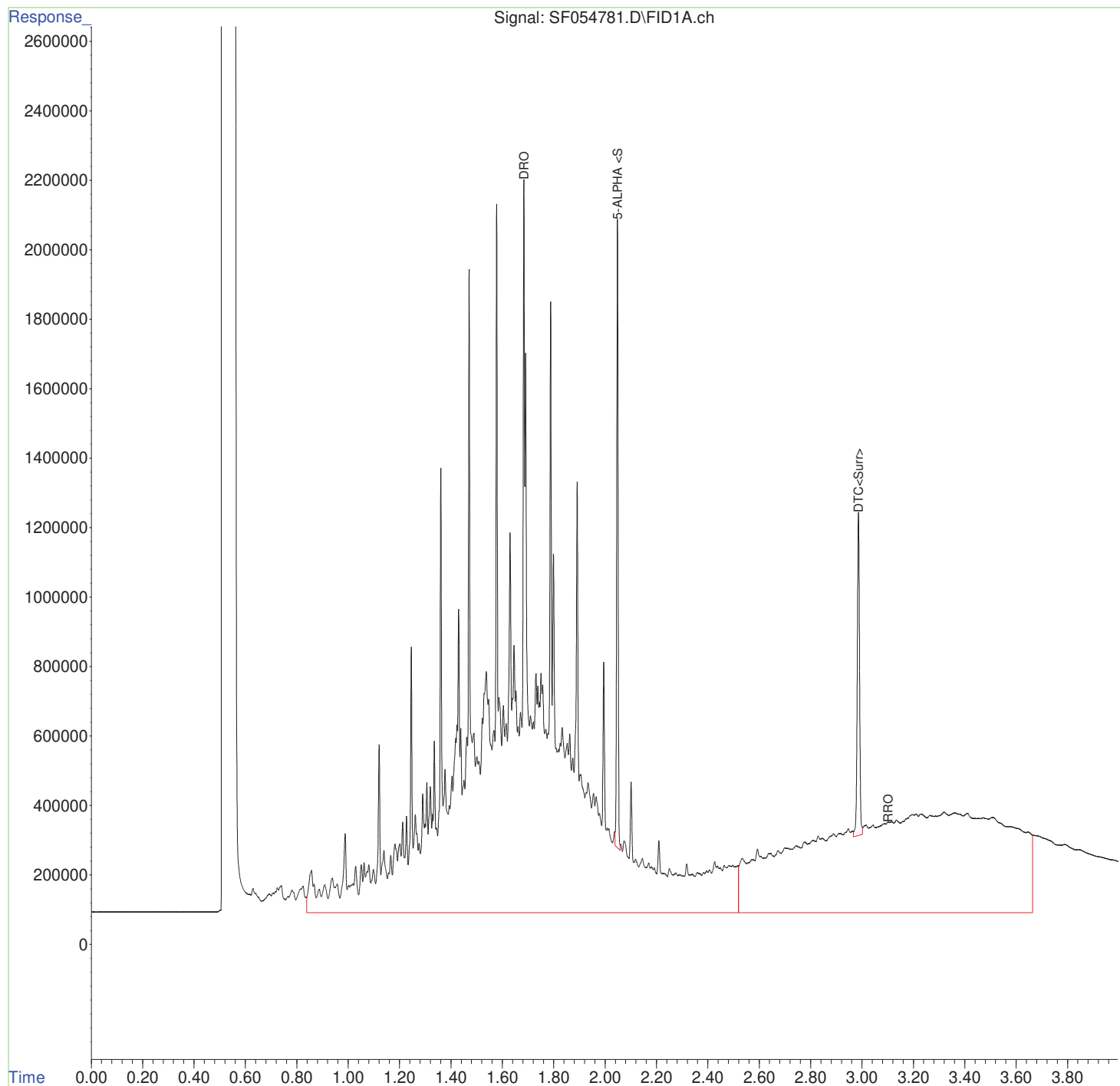
Volume Inj. :
Signal Phase :
Signal Info :



Data Path : Z:\DATA\SF\Data\SF06252021\
Data File : SF054781.D
Signal(s) : FID1A.ch
Acq On : 25 Jun 2021 4:08 pm
Operator : IVM
Sample : 1618208 LCS
Misc :
ALS Vial : 23 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Jun 25 19:09:47 2021
Quant Method : Y:\GC DATA\DATA\SF\Method\SFF2021-0615_D.M
Quant Title : DRO/RRO by Method AK 102/103
QLast Update : Tue Jun 15 16:21:40 2021
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : Y:\GC\DATA\DATA\SF\Data\SF06252021\
Data File : SF054805.D
Signal(s) : FID1A.ch
Acq On : 25 Jun 2021 6:08 pm
Operator : IVM
Sample : 1213547001
Misc :
ALS Vial : 35 Sample Multiplier: 1

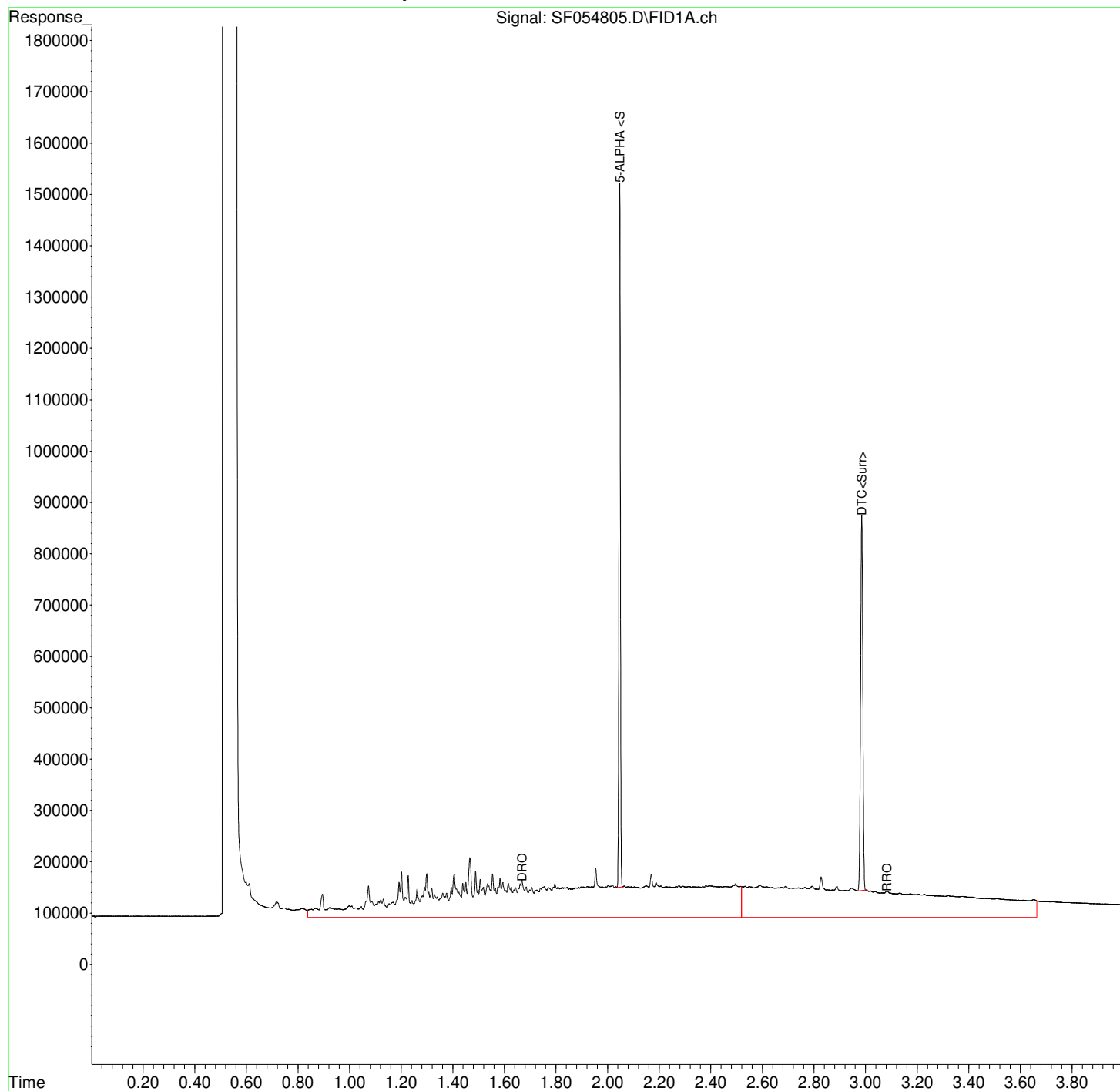
Integration File: autoint1.e
Quant Time: Jun 25 19:13:03 2021
Quant Method : Y:\GC\DATA\DATA\SF\Method\SFF2021-0615_D.M
Quant Title : DRO/RRO by Method AK 102/103
QLast Update : Tue Jun 15 16:21:40 2021
Response via : Initial Calibration
Integrator: ChemStation

Jul 02, 2021



Volume Inj. :
Signal Phase :
Signal Info :

AKFUELID - The hydrocarbon pattern is consistent with unknown hydrocarbons.



Data Path : Y:\GC\DATA\DATA\SF\Data\SF06252021\
Data File : SF054807.D
Signal(s) : FID1A.ch
Acq On : 25 Jun 2021 6:18 pm
Operator : IVM
Sample : 1213547002
Misc :
ALS Vial : 36 Sample Multiplier: 1

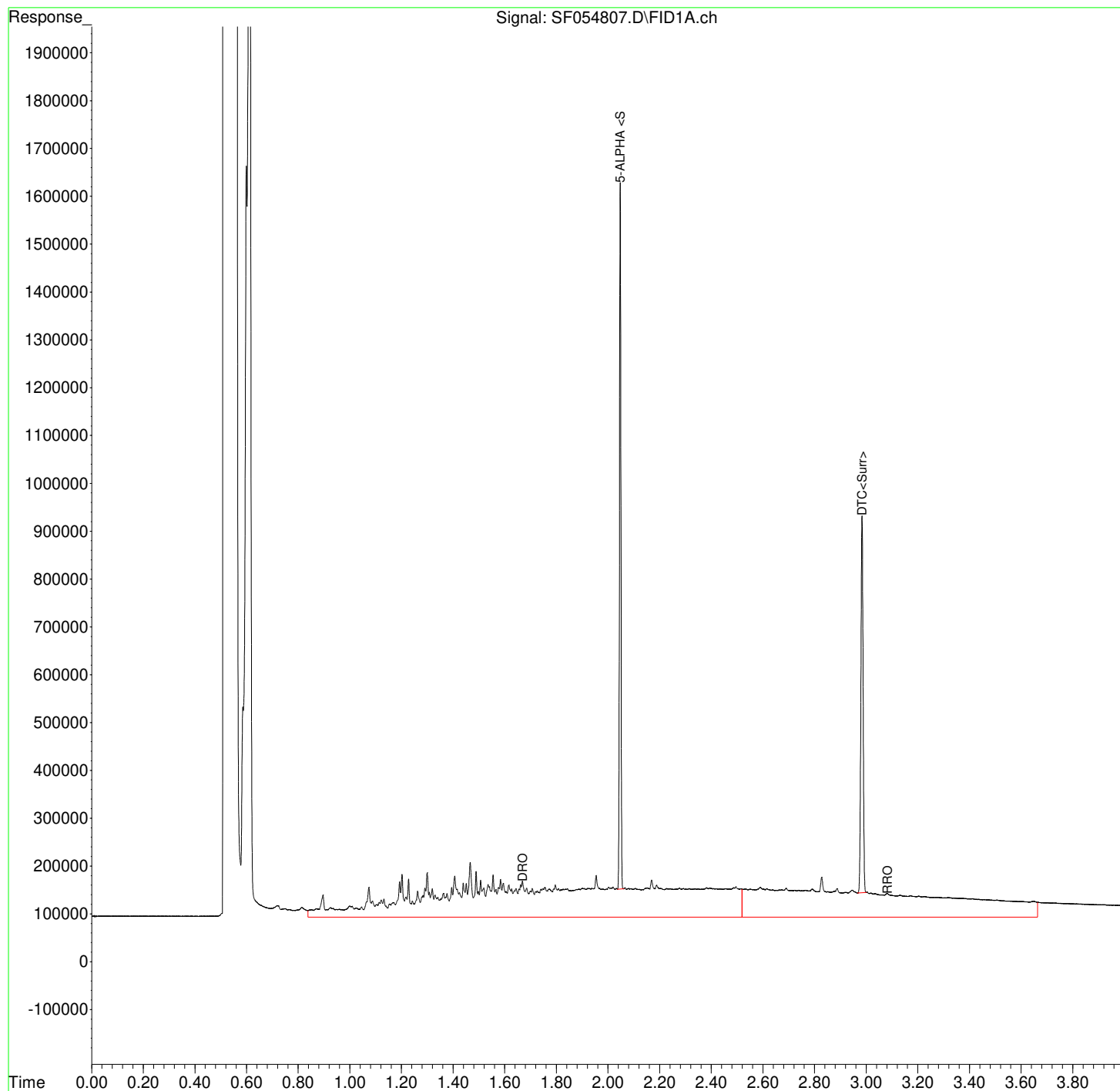
Integration File: autoint1.e
Quant Time: Jun 25 19:13:15 2021
Quant Method : Y:\GC\DATA\DATA\SF\Method\SFF2021-0615_D.M
Quant Title : DRO/RRO by Method AK 102/103
QLast Update : Tue Jun 15 16:21:40 2021
Response via : Initial Calibration
Integrator: ChemStation

Jul 02, 2021



Volume Inj. :
Signal Phase :
Signal Info :

**AKFUELID - The hydrocarbon pattern is consistent with
unknown hydrocarbons.**



Data Path : Y:\GC\DATA\DATA\SF\Data\SF06252021\
Data File : SF054809.D
Signal(s) : FID1A.ch
Acq On : 25 Jun 2021 6:28 pm
Operator : IVM
Sample : 1213547003
Misc :
ALS Vial : 37 Sample Multiplier: 1

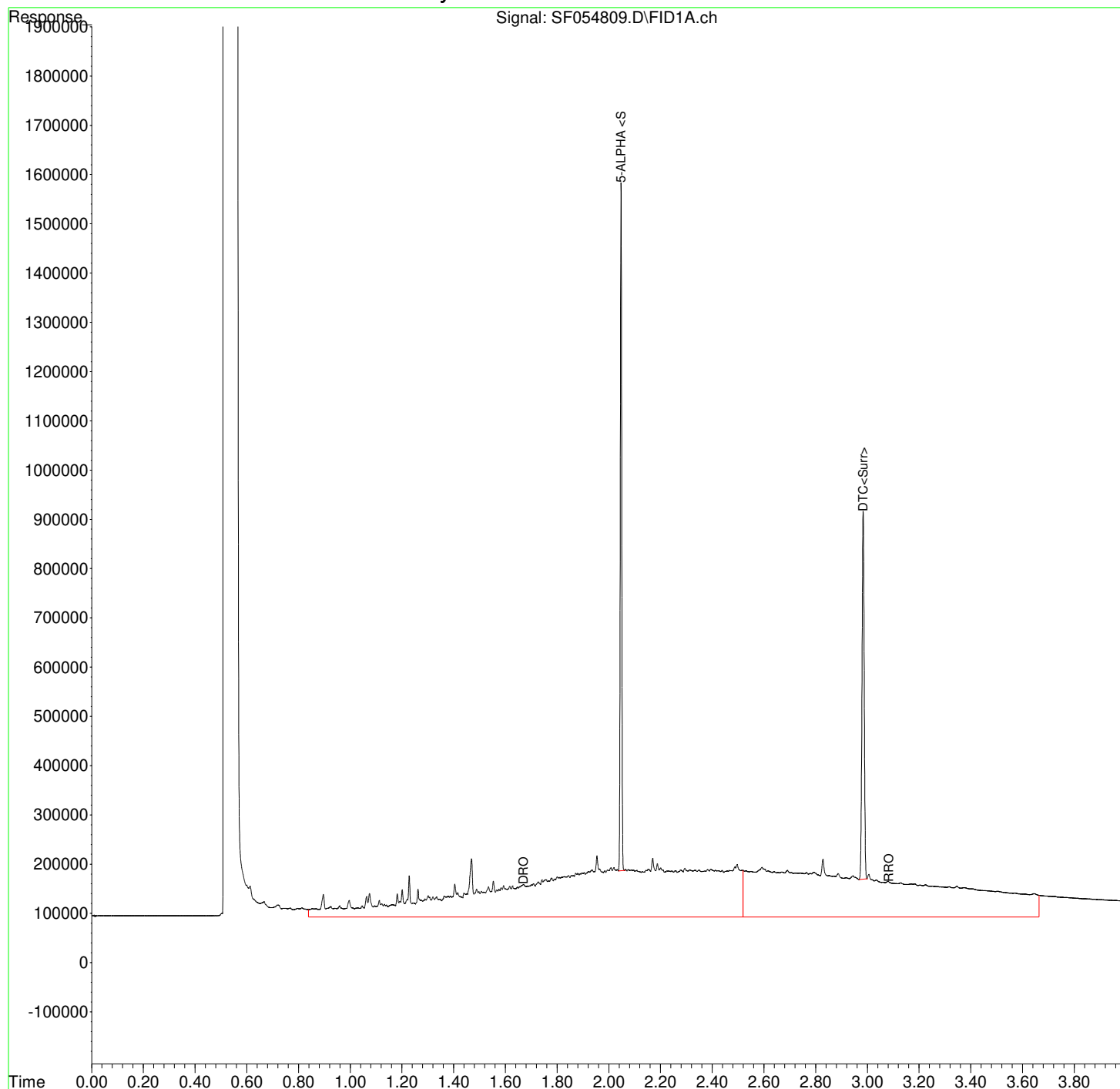
Integration File: autoint1.e
Quant Time: Jun 25 19:13:25 2021
Quant Method : Y:\GC\DATA\DATA\SF\Method\SFF2021-0615_D.M
Quant Title : DRO/RRO by Method AK 102/103
QLast Update : Tue Jun 15 16:21:40 2021
Response via : Initial Calibration
Integrator: ChemStation

Jul 02, 2021



Volume Inj. :
Signal Phase :
Signal Info :

AKFUELID - The hydrocarbon pattern is consistent with unknown hydrocarbons.



Data Path : Y:\GC\DATA\DATA\SF\Data\SF06252021\
Data File : SF054811.D
Signal(s) : FID1A.ch
Acq On : 25 Jun 2021 6:38 pm
Operator : IVM
Sample : 1213547004
Misc :
ALS Vial : 38 Sample Multiplier: 1

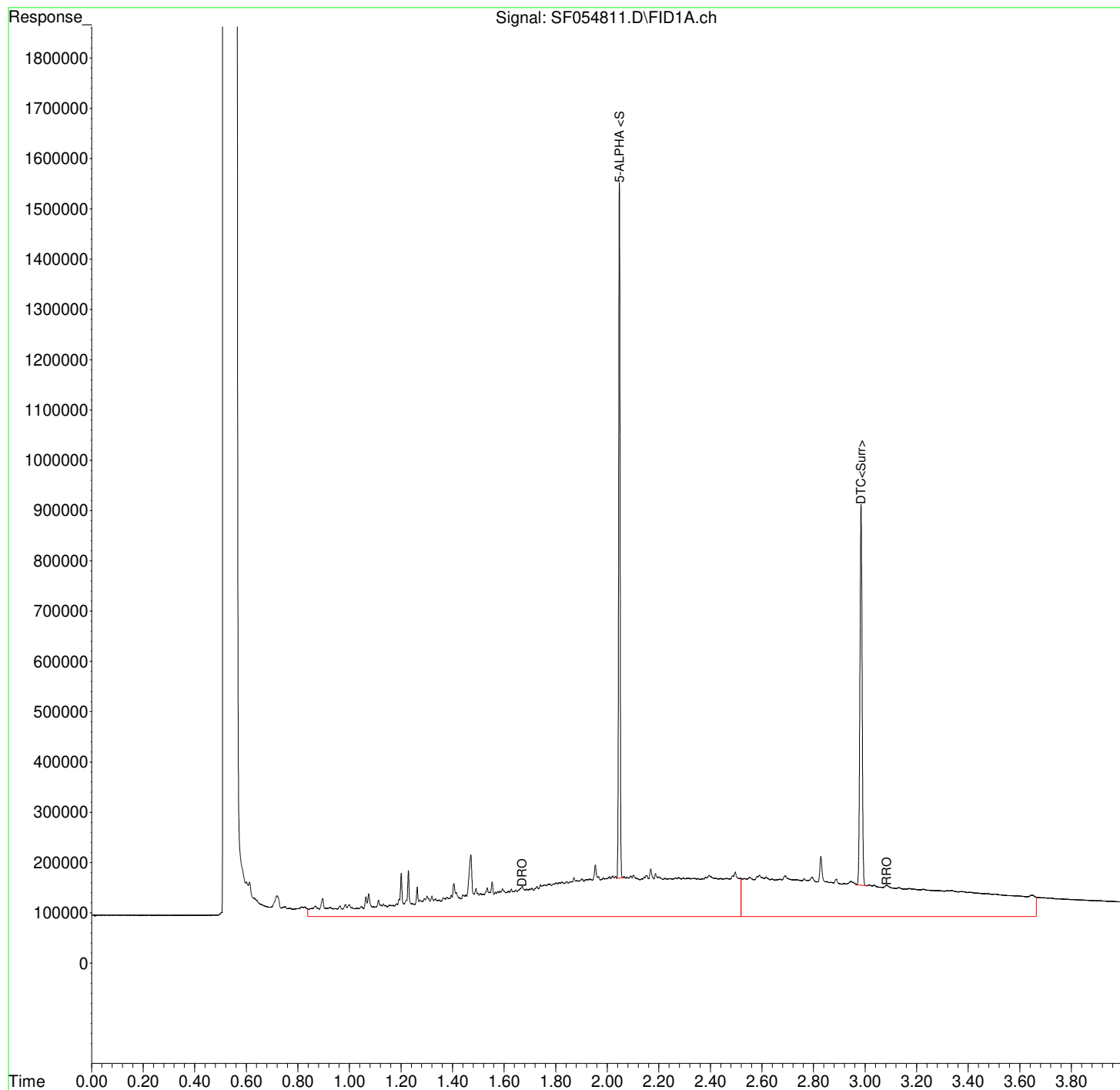
Integration File: autoint1.e
Quant Time: Jun 25 19:13:45 2021
Quant Method : Y:\GC\DATA\DATA\SF\Method\SFF2021-0615_D.M
Quant Title : DRO/RRO by Method AK 102/103
QLast Update : Tue Jun 15 16:21:40 2021
Response via : Initial Calibration
Integrator: ChemStation

Jul 02, 2021



Volume Inj. :
Signal Phase :
Signal Info :

**AKFUELID - The hydrocarbon pattern is consistent with
unknown hydrocarbons.**



LABORATORY DATA REVIEW CHECKLIST

Completed by: Zach Thon
Title: Environmental Scientist
Date: June 2021

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc.
Laboratory Report Number: 1213547
Laboratory Report Date: 6/30/2021

Contaminated Site Name: MOA AWWU 503 E 94th Court
ADEC File Number: 2100.26.331
Hazard Identification Number: 24744

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

1. Laboratory

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

Comments:

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

Yes / No / **NA**

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

2. Chain of Custody (COC)

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

Yes / **No** / NA

Comments: *Collection dates unintentionally omitted; lab proceeded with date on labels.*

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

Comments:

3. Laboratory Sample Receipt Documentation

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

Yes / No / NA

Comments: *The cooler temperature blank was 2.3° Celsius.*

- b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, VOCs, etc.)? **Yes** / No / NA

Comments:

- c. Sample condition documented - broken, leaking (MeOH), zero headspace (VOC vials)?

Yes / No / NA

Comments:

- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.? Yes / No / **NA**

Comments: *No discrepancies were noted.*

- e. Data quality or usability affected?

Comments: *Data quality/usability considered unaffected; see above.*

4. Case Narrative

- a. Present and understandable? **Yes** / No / NA

Comments:

- b. Discrepancies, errors or QC failures noted by the lab? Yes / **No** / NA

Comments:

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

Comments: *See above.*

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

Comments: *Data quality/usability considered unaffected; see above.*

5. Sample Results

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

Comments:

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

Comments:

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

Comments:

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

Comments:

- e. Data quality or usability affected?
Comments:

6. QC Samples

a. Method Blank

- i. One method blank reported per matrix, analysis, and 20 samples?
Yes / No / NA
Comments:
- ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
Yes / No / NA
Comments:
- iii. If above LOQ or project specified objectives, what samples are affected?
Comments:
- iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes / No / **NA**
Comments:
- v. Data quality or usability affected?
Comments: *See above.*

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

- i. Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846) **Yes** / No / NA
Comments:
- ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? Yes / No / **NA**
Comments:
- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) **Yes** / No / NA
Comments:

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

Comments:

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

Comments:

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

Yes / No / **NA**

Comments:

- vii. Data quality or usability affected?

Comments: *No, see above.*

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

Note: Leave blank if not required for project

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

Yes / No / NA

Comments:

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

Comments:

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

Comments:

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

Comments:

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

Comments:

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

Yes / No / NA

Comments:

vii. Data quality or usability affected?

Comments:

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

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

Comments:

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

Comments:

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

Comments:

- iv.** Data quality or usability affected?

Comments: *See above.*

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

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

Comments: *Volatile analysis was not included with this work order.*

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

Comments:

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

Comments:

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

Comments:

- v.** Data quality or usability affected?

Comments: *No, see above.*

f. Field Duplicate

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

Yes / No / NA

Comments: *Sample B15BMW is a duplicate of Sample B5BMW.*

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

Comments:

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

Comments:

- iv. Data quality or usability affected?

Comments:

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

Yes / **No** / NA

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

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

Yes / No / **NA**

Comments:

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

Comments:

- iii. Data quality or usability affected?

Comments:

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

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

Comments: *A key is provided on Page 3 of the SGS Laboratory Report.*

Attachment 3

IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL/ENVIRONMENTAL REPORT



Date: October 2021

To: AWWU

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland