SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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January 31, 2017

Begich Towers, Inc.
P.O. Box 725
Whittier, AK 99693

Attn: Ms. Karen Dempster

RE: RELEASE INVESTIGATION, 100 KENAI STREET, WHITTIER, ALASKA; *ADEC FILE NO. 2114.26.002*

This letter presents the results of Shannon & Wilson's Release Investigation activities conducted at 100 Kenai Street, Whittier, Alaska. A vicinity map showing the project site and surrounding area is included as Figure 1. The property is identified by the Alaska Department of Environmental Conservation (ADEC) as File No. 2100.26.002.

Authorization to proceed with the project was received on September 19, 2016 by Ms. Karen Dempster, President of Begich Towers, Inc. (BTI) in the form of a signed proposal.

BACKGROUND

As documented in IT Alaska, Inc.'s (IT Alaska) October 2, 2000 Corrective Action Report, a 15,000-gallon heating fuel underground storage tank (UST) was removed from the site in September 1999. Soil samples collected from the UST excavation contained a maximum of 4,080 milligrams per kilogram (mg/kg) diesel range organics (DRO) which exceeds the Alaska Department of Environmental Conservation (ADEC) Method Two cleanup level of 230 mg/kg. At that time, approximately 93 tons of impacted soil were removed and thermally remediated offsite.

In 2000, IT Alaska conducted a limited removal action, followed by collecting field screening and analytical soil samples from the excavation base. The excavation was advanced to a maximum depth of 12 feet below ground surface (bgs). Groundwater was not encountered during the excavation activities. At this time, an additional 125 tons of impacted soil were transported to Anchorage for thermal treatment. Analytical samples collected from the limits of the cleanup excavation contained a maximum of 1,220 mg/kg DRO.

In a compliance letter dated July 1, 2016, Mr. Joshua Barsis of the ADEC requested further characterization of the extent of contamination at the site. The purpose of this project is to address the ADEC's request.

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FIELD ACTIVITIES

The project was conducted in general accordance with our October 19, 2016 *Work Plan for Release Investigation, 100 Kenai Street, Whittier, Alaska*, which was approved by the ADEC in the form of a letter dated November 1, 2016. The project activities included advancing four soil borings, installing three temporary groundwater monitoring wells, and collecting analytical soil and groundwater samples. Discovery Drilling (Discovery) provided the equipment and personnel to advance borings and install temporary groundwater monitoring wells. SGS North America, Inc. (SGS) provided chemical analysis of soil and groundwater samples. A Shannon & Wilson representative was present during field activities to identify the boring locations, log subsurface materials, screen and sample subsurface soil, and collect groundwater samples.

Prior to advancing the borings, the local utility locate center was contacted to mark buried utilities within the project area. The locations of the borings/temporary monitoring wells and general site features are shown on Figure 2. Site photographs are included in Attachment 1 and boring logs are included in Attachment 2.

Soil Borings

Four soil borings, designated Borings B1 though B4, were advanced by Discovery on November 22, 2016. Boring B1 was positioned to evaluate impacted soil and/or groundwater at the former UST/excavation area. Borings B2 and B3 were advanced north and east of the former UST/excavation area, respectively, to delineate the lateral extent of potentially impacted soil and/or groundwater. Boring B4 was positioned southwest (upgradient) of the former UST/excavation area (Photo 1). The borings were advanced with a truck-mounted drill rig with 4.25-inch inside diameter hollow-stem augers. Borings B1, B2, and B3 were advanced to about 17 to 18.5 feet below ground surface (bgs), approximately 5 feet beyond the observed soil/groundwater contact, to facilitate installation of the temporary monitoring wells. Boring B4 was advanced to approximately 27 feet bgs.

Soil samples were collected from the borings using a 3-inch outside diameter split-spoon sampler driven using a 340-pound hammer. Soil screening samples were collected at 2.5-foot intervals until groundwater was encountered, at depths of approximately 12 to 13 feet bgs in Boring B1, B2, and B3. In Boring B4, soil screening samples were collected at 2.5-foot intervals to the base of the boring at 27 feet bgs. Groundwater was not encountered in Boring B4. The soil samples were evaluated in the field using visual descriptions and semi-quantitative headspace screening. Headspace screening was conducted in accordance with ADEC guidelines using an OVM 580B photoionization detector (PID) calibrated with 100 parts per million (ppm) isobutylene standard

gas. The field screening samples were collected in re-sealable bags, warmed, and tested within 60 minutes of collection.

One analytical sample was collected from each boring from the sample interval with the highest PID headspace reading. The analytical soil samples for volatile analysis were collected using methanol preservation. At least 25 grams of soil were placed into a laboratory supplied 4-ounce jar that had been pre-weighed. Immediately afterward, 25 milliliters of reagent grade methanol was added to submerge the soil. The methanol extracts the hydrocarbons from the soil at the time of sampling, thereby reducing the possible loss of volatile constituents prior to sample analysis. The samples were transferred to the appropriate laboratory-supplied jars using decontaminated stainless steel spoons. Field screening results are summarized in Table 1.

Groundwater Sampling

Borings B1, B2, and B3 were completed as Temporary Monitoring Wells TMW1, TMW2, and TMW3, respectively (Photo 2). The monitoring wells were constructed of 1-inch diameter polyvinyl chloride (PVC) pipe. The bottom 10-foot section of each well was constructed of PVC well screen with 0.010-inch slots. Prior to sampling, the depth to water was measured in each well using an electronic depth to water probe after allowing the well equilibrate for approximately 10 minutes. A groundwater sample was collected from each well using disposable polyethylene mini-bailers without development or purging. Analytical samples were collected by transferring water from the bailer directly into laboratory-supplied containers. The wells were removed and the borings were backfilled with drill cuttings and hydrated bentonite chips following groundwater sampling (Photo 3) and the ground surface was restored to match the existing grade (Photo 4).

LABORATORY ANALYSES

The analytical soil and groundwater samples were submitted to SGS in coolers with ice packs using chain-of-custody procedures. The SGS laboratory report and completed ADEC Laboratory Data Review Checklist are provided in Attachment 3.

Five soil samples, including one duplicate, were analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101, diesel range organics (DRO) by AK 102, and residual range organics (RRO) by AK 103. In addition, four of the soils samples were also analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B. The fifth soil sample (Sample B2S6) was analyzed for volatile organic compounds (VOCs) by EPA Method 8260B and polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D SIM. Four groundwater samples, including one duplicate, were analyzed for GRO by

AK 101, DRO by AK 102, RRO by AK 103. In addition, two of the groundwater samples were also analyzed for BTEX by EPA Method 8021B. The primary and duplicate samples collected from Well TMW1 (TMW1 and TMW11) were analyzed for VOCs by EPA Method 8260B. Sample TMW1 was also analyzed for PAHs by EPA Method 8270D SIM. One methanol soil trip blank and one water trip blank were analyzed for GRO/ BTEX by AK 101/EPA Method 8021B.

SUBSURFACE CONDITIONS

During drilling, in Borings B1, B2, and B3, soil generally consisted of poorly-graded sand with gravel from the surface to the groundwater contact at about 12.5 feet bgs. Poorly-graded gravel with sand was documented from the groundwater contact to the base Borings B1, B2, and B3. Soil in Boring B4 consisted of poorly graded sand with gravel to about 17.5 feet bgs, underlain by 2.5 feet of poorly-graded sand with silt, and then poorly graded sand with gravel from 20 feet bgs to the bottom of the boring. Soil was frozen from the ground surface to about 1 foot bgs. Groundwater was encountered during drilling at approximately 12 feet bgs in Boring B1 and at approximately 13 feet bgs in Borings B2 and B3. Groundwater was not encountered in Boring B4. After drilling, groundwater was measured at depths ranging between 11.70 and 15.06 feet bgs. Borings logs are included as Attachment 2.

DISCUSSION OF ANALYTICAL RESULTS

The analytical soil and groundwater sample results were compared to the ADEC cleanup levels presented in the November 2016, 18 Alaska Administrative Code (AAC) 75 regulations. The applicable soil criteria consist of the most stringent ADEC Method Two cleanup levels listed in Tables B1 and B2 of 18 AAC 75.341, for the “over 40-inch (precipitation) zone”, and groundwater cleanup levels are established in Table C of 18 AAC 75.345. The analytical sample results are summarized in Tables 2 and 3.

Soil Samples

DRO concentrations in samples from Boring B1 through B3 are greater than the ADEC Method Two Migration to Groundwater cleanup level of 230 mg/kg. DRO concentrations ranged from 260 milligrams per kilogram (mg/kg) in Sample B1S5 to 1,940 mg/kg in Sample B2S6. Naphthalene was detected in Boring B2 at an estimated concentration of 0.0472 mg/kg, which is greater than the ADEC Method Two Migration to Groundwater cleanup level of 0.038 mg/kg. The remaining analytes either were not detected in the analytical soil samples, or were measured at concentrations less than ADEC cleanup levels.

Groundwater Samples

DRO concentrations in Samples TMW1, TMW11, TMW2, and TMW3 are greater than the ADEC cleanup level of 1,500 micrograms per liter (µg/L). The groundwater samples contained DRO concentrations ranging from 4,860 µg/L in Sample TMW1 to 26,100 µg/L in Sample TMW2. Sample TMW3 contained an RRO concentration of 3,970 µg/L, which is greater than the ADEC cleanup level of 1,100 µg/L. High sediment content in the groundwater samples was noted by the laboratory. It is possible that the high sediment present in the samples may bias the DRO results high although this bias is unlikely to account for all these elevated concentrations. Seven PAH analytes were measured at concentrations greater than the applicable ADEC cleanup levels in Sample TMW1. The remaining analytes were not detected in the groundwater samples, or were detected at concentrations less than ADEC cleanup levels.

Quality Control

The project laboratory follows on-going quality assurance/quality control procedures to evaluate conformance to applicable ADEC data quality objectives (DQOs). Internal laboratory controls to assess data quality for this project include surrogates, method blanks, matrix spike/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to assess precision, accuracy, and matrix bias. If a DQO was not met, the project laboratory provides a brief narrative concerning the problem in the case narrative of their laboratory report (see Attachment 3).

External quality controls include one soil duplicate sample set, one groundwater duplicate sample set, one soil trip blank, and groundwater trip blank. The relative percent difference (RPD) between the project sample and associated duplicate results is a measure of precision affected by matrix heterogeneity, sampling technique, and laboratory analyses. The RPDs for multiple analytes are greater than the ADEC's DQO of 30 and 50 percent for soil and groundwater, respectively. Potentially impacted sample results from the failed RPDs are flagged "E" in Tables 2 and 3 with further detail provided in the Laboratory Data Review Checklists (LDRCs).

Laboratory-prepared trip blank samples accompanied the project sample jars from the laboratory to the site during sampling activities and back again to SGS. The trip blanks did not contain GRO, BTEX, or VOCs indicating that the project samples were not cross contaminated or exposed to contamination from the sample handling, storage process, or testing.

The method blank associated with the soil samples contained detectable estimated concentrations of GRO. The project samples and trip blank with estimated (J-flagged) detections of GRO are reported as non-detect at the LOQ and flagged "B" in Table 2.

Shannon & Wilson conducted a limited data assessment to review the laboratory's compliance with precision, accuracy, sensitivity, and completeness to the DQOs. Shannon & Wilson reviewed the SGS data deliverables and completed the ADEC's Laboratory Data Review Checklist, which is included in Attachment 3. Other non-conformances that would adversely affect the quality or usability of the data were noted.

CONCLUSIONS

The results of our release investigation activities indicate that soil and groundwater contamination is present in the vicinity of the former UST at concentrations greater than ADEC cleanup levels. The sample collected from Boring B4 contained RRO at an estimated concentration less than ADEC cleanup levels. The extent of the soil and groundwater contamination is currently undefined at the site.

CLOSURE/LIMITATIONS

This report was prepared for the exclusive use of Begich Towers, Inc. and its 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 definite conclusions regarding the site's soil or groundwater. It is possible that our tests missed higher levels of target contaminants, although our intention was to sample areas likely to be impacted and in accordance with our proposal. As a result, the sampling, analyses, and data interpretations can provide you with only our professional judgment as to the environmental characteristics of this site, and in no way guarantee that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our site assessment. Changes in site conditions can occur over time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

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

SHANNON & WILSON, INC.

Shannon & Wilson has prepared the documents in Attachment 4, "Important Information About Your Geotechnical/Environmental Report", to assist you and others in understanding the use and limitations of our report.

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

Sincerely,

SHANNON & WILSON, INC.

Jessa Tibbetts

Digitally signed by Jessa Tibbetts
DN: cn=Jessa Tibbetts, o=Shannon & Wilson, Inc., ou, email=jht@shanwil.com, c=US
Date: 2017.02.06 12:10:01 -09'00'

Jessa Tibbetts
Environmental Scientist

Matt Hemry, P.E.
Vice President

Encl: Tables 1 through 3, Figures 1 and 2, and Attachments 1 through 4

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 2)	Depth (feet bgs or btoc)	Headspace (ppm) ^
Soil Samples				
Boring B1				
B1S1	11/22/2016	Boring B1, Sample 1	0-2	4.3
B1S2	11/22/2016	Boring B1, Sample 2	2.5-3	6.7
B1S3	11/22/2016	Boring B1, Sample 3	5-5.6	8.9
B1S4	11/22/2016	Boring B1, Sample 4	7.5-9.3	12
* B1S5	11/22/2016	Boring B1, Sample 5	10-11.2	80
* B1S15	11/22/2016	Duplicate of Sample B1S5	10-11.2	80
B1S6	11/22/2016	Boring B1, Sample 6	12.5-14.3	-
Boring B2				
B2S1	11/22/2016	Boring B2, Sample 1	0-2	3.1
B2S2	11/22/2016	Boring B2, Sample 2	2.5-4.3	6.9
B2S3	11/22/2016	Boring B2, Sample 3	5-6.6	10
B2S4	11/22/2016	Boring B2, Sample 4	7.5-9.5	12
B2S5	11/22/2016	Boring B2, Sample 5	10-11.8	12
* B2S6	11/22/2016	Boring B2, Sample 6	12.5-14.3	130
Boring B3				
B3S1	11/22/2016	Boring B3, Sample 1	0-2	3.1
B3S2	11/22/2016	Boring B3, Sample 2	2.5-4.3	7.0
B3S3	11/22/2016	Boring B3, Sample 3	5-6.6	9.9
B3S4	11/22/2016	Boring B3, Sample 4	7.5-9.1	12
B3S5	11/22/2016	Boring B3, Sample 5	10-12	11
* B3S6	11/22/2016	Boring B3, Sample 6	12.5-14.5	41
Boring B4				
B4S1	11/22/2016	Boring B4, Sample 1	0-2	2.2
B4S2	11/22/2016	Boring B4, Sample 2	2.5-4.3	5.0
B4S3	11/22/2016	Boring B4, Sample 3	5-5.5	7.5
B4S4	11/22/2016	Boring B4, Sample 4	7.5-9.5	6.0
B4S5	11/22/2016	Boring B4, Sample 5	10	-
B4S6	11/22/2016	Boring B4, Sample 6	12.5-14.5	6.9
* B4S7	11/22/2016	Boring B4, Sample 7	15-16	13
B4S8	11/22/2016	Boring B4, Sample 8	17.5-19.5	5.5
B4S9	11/22/2016	Boring B4, Sample 9	20-21.8	11
B4S10	11/22/2016	Boring B4, Sample 10	22.5-23.5	8.4
B4S11	11/22/2016	Boring B4, Sample 11	25-27	6.2
Water Samples				
* TMW1	11/22/2016	Temporary Well TMW1	15.06	-
* TMW11	11/22/2016	Duplicate of Temporary Well TMW1	15.06	-
* TMW2	11/22/2016	Temporary Well TMW2	11.70	-
* TMW3	11/22/2016	Temporary Well TMW3	13.00	-
Quality Control Samples				-
* STB	11/22/2016	Soil Trip Blank	-	-
* WTB	11/22/2016	Water Trip Blank	-	-

Notes:

* = Sample analyzed by the project laboratory (See Tables 2 and 3)

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

\- = Measurement not recorded or not applicable

bgs = below ground surface

btoc = below top of casing

ppm = parts per million

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample ID Number^ and Soil Sample Depth in Feet bgs (See Table 1, Figure 2, and Attachment 2)					
			Boring B1		Boring B2	Boring B3	Boring B4	Trip Blank
			B1S5 10-12	B1S15~ 10-12	B2S6 12.5-14.5	B3S6 12.5-14.5	B4S7 15-17	STB -
PID Headspace Reading - ppm	580B PID	-	80	80	130	41	13	-
Gasoline Range Organics (GRO) - mg/kg	AK 101	260	<3.67 B	<2.92 B	<2.93 B	< 2.40 B	<2.15 B	<2.49 B
Diesel Range Organics (DRO) - mg/kg	AK 102	230	**260**	**365**	**1,940**	**486**	**9.13 J**	-
Residual Range Organics (RRO) - mg/kg	AK 103	9,700	**13.6 J**	**18.1 J**	**21.3 J**	<10.9	<10.6	-
Volatile Organic Compounds (VOC)								
Benzene - mg/kg	EPA 8021B/8260B	0.022	<0.00570	<0.00730	<0.00595	<0.00600	<0.00540	<0.00625
Toluene - mg/kg	EPA 8021B/8260B	6.7	<0.0114	<0.0146	<0.0119	<0.0120	<0.0108	<0.0124
Ethylbenzene - mg/kg	EPA 8021B/8260B	0.13	<0.0114	<0.0146	<0.0119	<0.0120	<0.0108	<0.0124
Xylenes (total) - mg/kg	EPA 8021B/8260B	1.5	**0.0218 J, E**	**0.0114 J, E**	<0.0355	**0.00792 J**	<0.0324	<0.0373
4 -Isopropytoluene - mg/kg	EPA 8260B	-	-	-	**0.0206 J**	-	-	-
Naphthalene - mg/kg	EPA 8260B	0.038	-	-	**0.0472 J**	-	-	
Other VOCs - mg/kg	EPA 8260B	Various	-	-	ND	-	-	-
Polynuclear Aromatic Hydrocarbons (PAH)								
1-Methylnaphthalene - mg/kg	EPA 8270D SIM	0.41	-	-	**0.0436 J**	-	-	-
2-Methylnaphthalene - mg/kg	EPA 8270D SIM	1.3	-	-	**0.0658 J**	-	-	-
Acenaphthene - mg/kg	EPA 8270D SIM	37	-	-	**0.0654 J**	-	-	-
Anthracene- mg/kg	EPA 8270D SIM	390	-	-	**0.0880 J**	-	-	-
Fluorene - mg/kg	EPA 8270D SIM	36	-	-	**0.168**	-	-	-
Phenanthrene -mg/kg	EPA 8270D SIM	39	-	-	**0.229**	-	-	-
Other PAHs - mg/kg	EPA 8270D SIM	Various	-	-	ND	-	-	-

Notes:

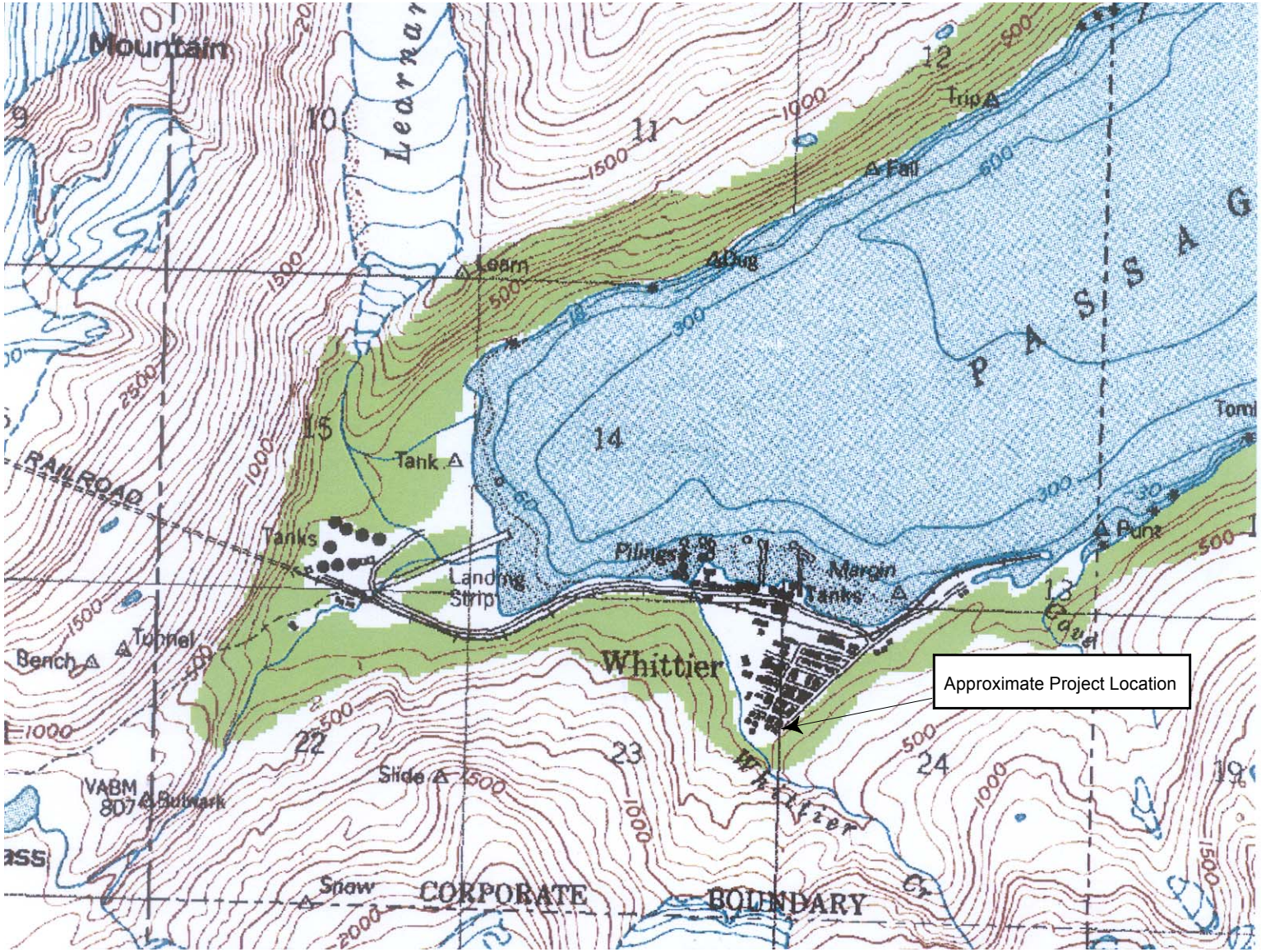
*	= See the SGS laboratory report for compounds tested, methods, and laboratory reporting limits
**	= Soil cleanup level is the most stringent ADEC Method 2 standard listed in Table B1 or B2, 18 AAC 75 (November 2016), for the "over 40 inches (precipitation) zone"
^	= Sample ID number preceded by "17826-" on the chain of custody form
mg/kg	= milligram per kilogram
<0.00600	= Analyte not detected; laboratory limit of detection of 0.00600 mg/kg
0.00570	= Analyte detected
260	= Reported concentration exceeds the applicable ADEC cleanup level
-	= Not applicable or sample not tested for this analyte
~	= Duplicate of Sample B1S5
ND	= Not detected
B	= Reported concentration potentially affected by method blank detection. See ADEC Laboratory Data Review Checklist in Attachment 3 for details.
J	= Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
E	= Result is an estimate due to a primary/field duplicate sample pair relative percent difference (RPD) failure
ppm	= part per million

TABLE 3
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 Well				Trip Blank
			TMW1 15.06	TMW11~ 15.06	TMW2 11.70	TMW3 13.00	WTB -
Gasoline Range Organics (GRO) - µg/L	AK 101	2,200	**108 E**	**175 E**	**76.8 J**	**84.3 J**	<50.0
Diesel Range Organics (DRO) - µg/L	AK 102	1,500	**4,860 E**	**31,500 E**	**26,100**	**10,500**	-
Residual Range Organics (RRO) - µg/L	AK 103	1,100	**322**	**320 J**	**375 J**	**3,970**	-
Volatile Organic Compounds (VOC)							
Benzene - µg/L	EPA 8021B/8260B	4.6	<2.00	<2.00	**0.270 J**	**0.270 J**	<0.250
Toluene - µg/L	EPA 8021B/8260B	1,100	<5.00	<5.00	<0.500	<0.500	<0.500
Ethylbenzene - µg/L	EPA 8021B/8260B	15	<5.00	<5.00	<0.500	<0.500	<0.500
Xylenes (total) - µg/L	EPA 8021B/8260B	190	<15.0	<15.0	**0.660 J**	**1.36 J**	<1.50
1,2,4-Trimethylbenzene - µg/L	EPA 8021B	15	**3.30 J**	**3.50 J**	-	-	-
4-Isopropyltoluene - µg/L	EPA 8021B	-	**8.10 J, E**	**4.40 J, E**	-	-	-
sec-Butylbenzene - µg/L	EPA 8021B	2,000	**3.60 J**	**3.80 J**	-	-	-
Other VOCs - µg/L	EPA 8021B	Various	ND	ND	-	-	-
Polynuclear Aromatic Hydrocarbons (PAH)							
1-Methylnaphthalene - µg/L	EPA 8270D SIM	11	**6.63**	-	-	-	-
2-Methylnaphthalene - µg/L	EPA 8270D SIM	36	**2.49**	-	-	-	-
Acenaphthene - µg/L	EPA 8270D SIM	530	**3.39**	-	-	-	-
Acenaphthylene - µg/L	EPA 8270D SIM	260	<0.0925	-	-	-	-
Anthracene - µg/L	EPA 8270D SIM	43	**0.779**	-	-	-	-
Benzo(a)Anthracene - µg/L	EPA 8270D SIM	0.12	**0.957**	-	-	-	-
Benozo(a)pyrene - µg/L	EPA 8270D SIM	0.034	**1.25**	-	-	-	-
Benzo(b)Fluoranthene - µg/L	EPA 8270D SIM	0.34	**1.64**	-	-	-	-
Benzo(g,h,i)perylene - µg/L	EPA 8270D SIM	0.26	**0.659**	-	-	-	-
Benzo(k)floranthene - µg/L	EPA 8270D SIM	0.80	**0.657**	-	-	-	-
Chrysene - µg/L	EPA 8270D SIM	2.0	**1.14**	-	-	-	-
Dibenzo(a,h)anthracene - µg/L	EPA 8270D SIM	0.034	**0.197**	-	-	-	-
Fluoranthene - µg/L	EPA 8270D SIM	260	**3.27**	-	-	-	-
Fluorene - µg/L	EPA 8270D SIM	290	<0.0925	-	-	-	-
Indeno(1,2,3-c,d)pyrene - µg/L	EPA 8270D SIM	0.19	**0.605**	-	-	-	-
Naphthalene - µg/L	EPA 8270D SIM	1.7	**11.90**	-	-	-	-
Phenanthrene - µg/L	EPA 8270D SIM	170	**8.09**	-	-	-	-
Pyrene - µg/L	EPA 8270D SIM	120	**4.97**	-	-	-	-

Notes:

*	= See the SGS laboratory report for compounds tested, methods, and laboratory reporting limits
**	= Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (November 2016)
^	= Sample ID number preceded by "17826-" on the chain of custody form
µg/L	= micrograms per liter
<2.00	= Analyte not detected; laboratory limit of detection of 2.00 µ/L
108	= Analyte detected
1.64	= Reported concentration exceeds the applicable ADEC cleanup level
-	= Not applicable or sample not tested for this analyte
~	= Duplicate of Sample TMW1
J	= Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
E	= Result is an estimate due to a primary/field duplicate sample pair relative percent difference (RPD) failure.
btoc	= Below Top of Casing
ND	= Not detected



Elevation in Feet
Contour Interval 100 Feet
Taken from Seward D-5 SE
U.S. Geological Survey Quadrangle

0 0.5 Mile 1.0 Mile
APPROXIMATE SCALE IN FEET

N

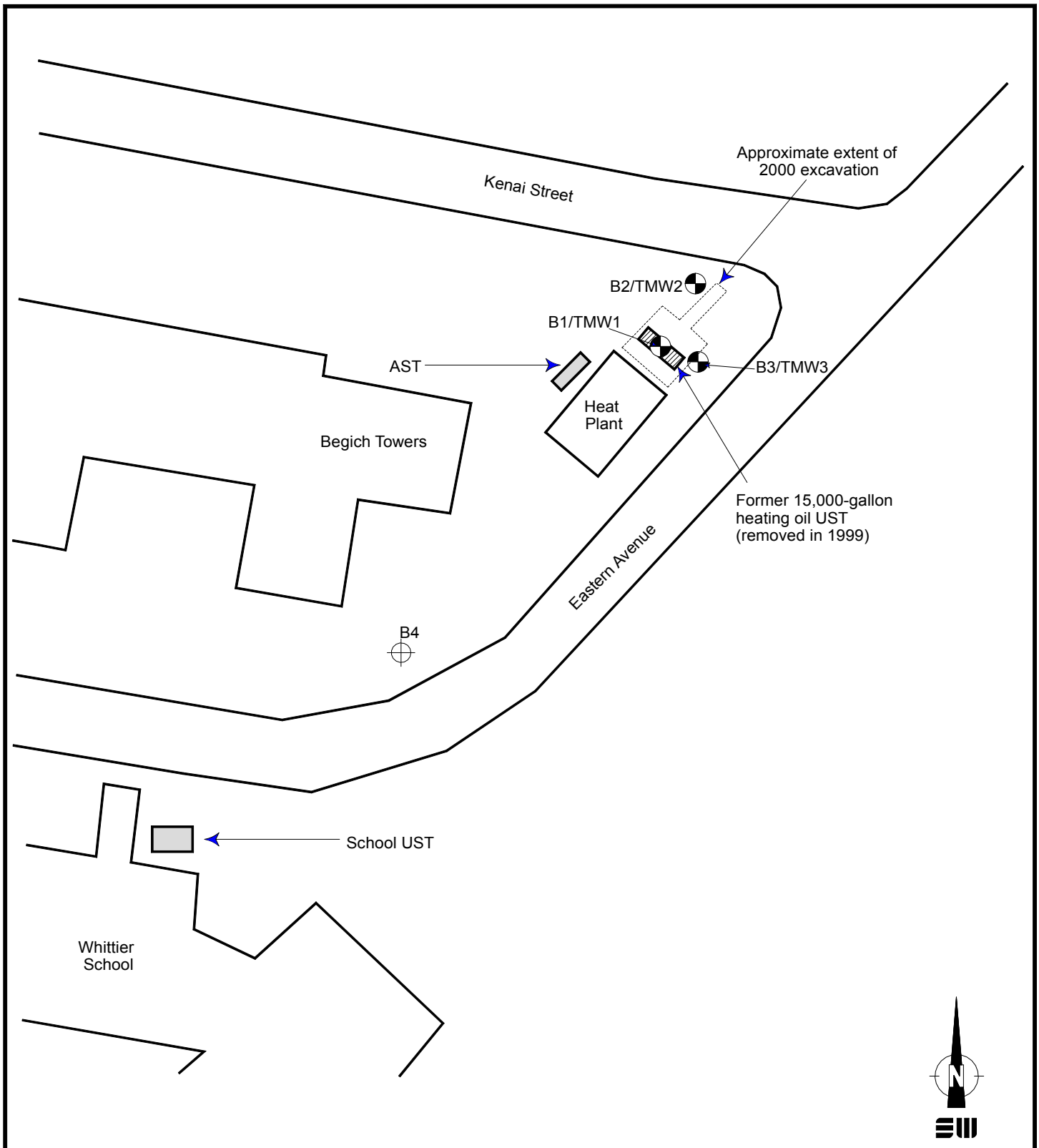
100 Kenai Street
Whittier, Alaska

VICINITY MAP

January 2017 32-1-17826-001

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 1



LEGEND

B4 — Approximate location of Boring B4

B1/TMW1 — Approximate location of Boring/Temporary Monitoring Well B1/TMW1

AST = Aboveground Storage Tank

UST = Underground Storage Tank

100 Kenai Street
Whittier, Alaska

SITE PLAN

January 2017

32-1-17826-001

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Fig. 2

ATTACHMENT 1

SITE PHOTOGRAPHS

Photo 1: Advancing Boring B4 to the southwest (upgradient) of the former UST/excavation. (November 22, 2017)

Photo 2: Installing Temporary Monitoring Well TMW1 in Boring B1. (November 22, 2017)

100 Kenai Street,
Whittier, Alaska

PHOTOS 1 AND 2

January 2017 32-1-17826-001

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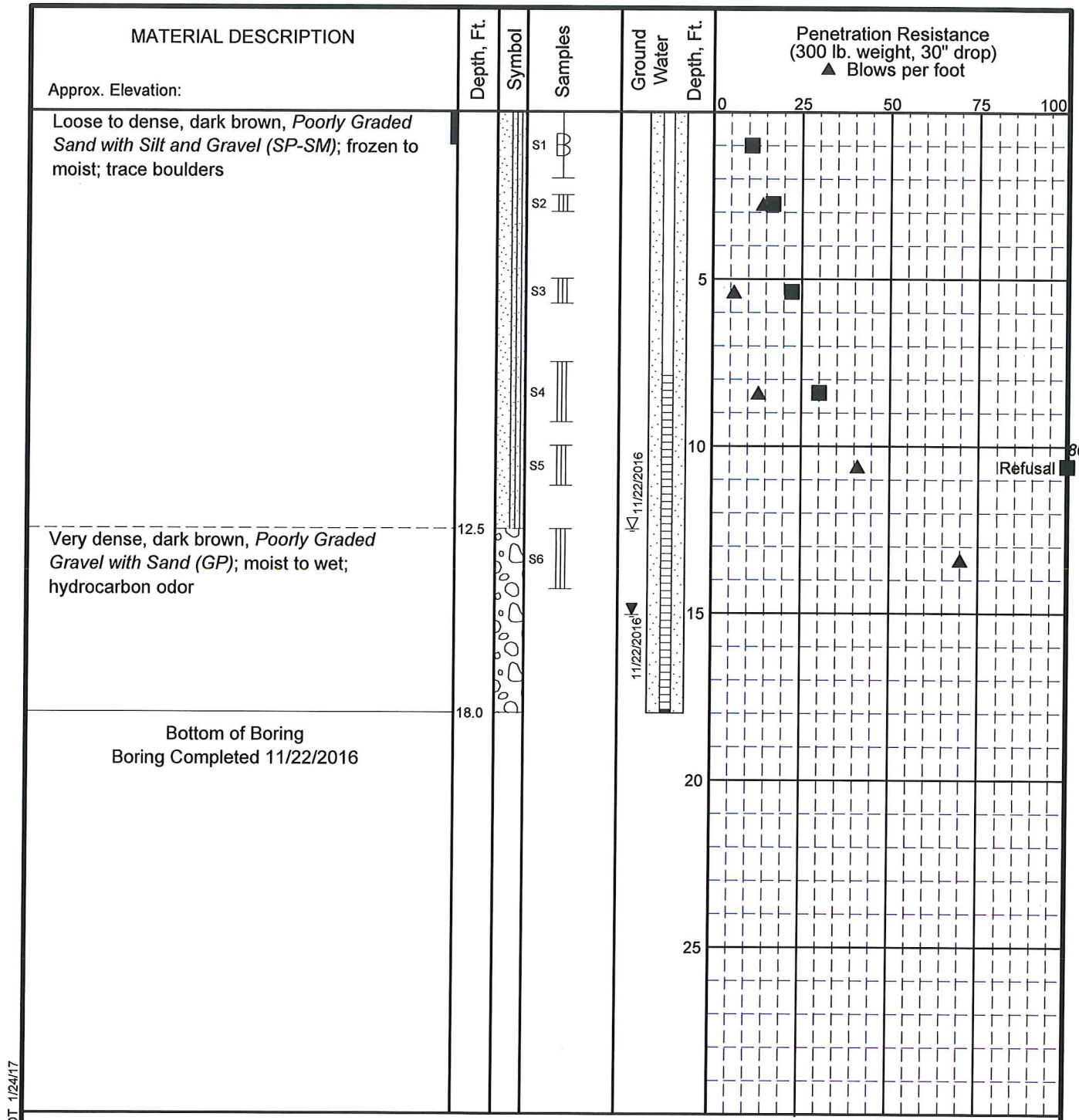
Photo 3: The PVC casing was removed from Temporary Well TMW2 and the boring was backfilled with drill cuttings and hydrated bentonite chips. (November 22, 2017)

Photo 4: The ground surface at Boring B4 was restored to match the existing grade. (November 22, 2017)

ATTACHMENT 2

BORING LOGS



LEGEND

- * Sample not recovered
- 3" O.D. Split Spoon Sample
- Grab Sample
- ■ Frozen
- Ground Water Level At Time Of Drilling
- Static Water Level
- Solid Casing, Sand Pack
- Solid Casing and Annular Seal
- Slotted Section, Filter Sand
- Solid Casing, Cuttings Backfill

NOTES

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

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LOG OF BORING B1

January 2017

32-1-17826-001

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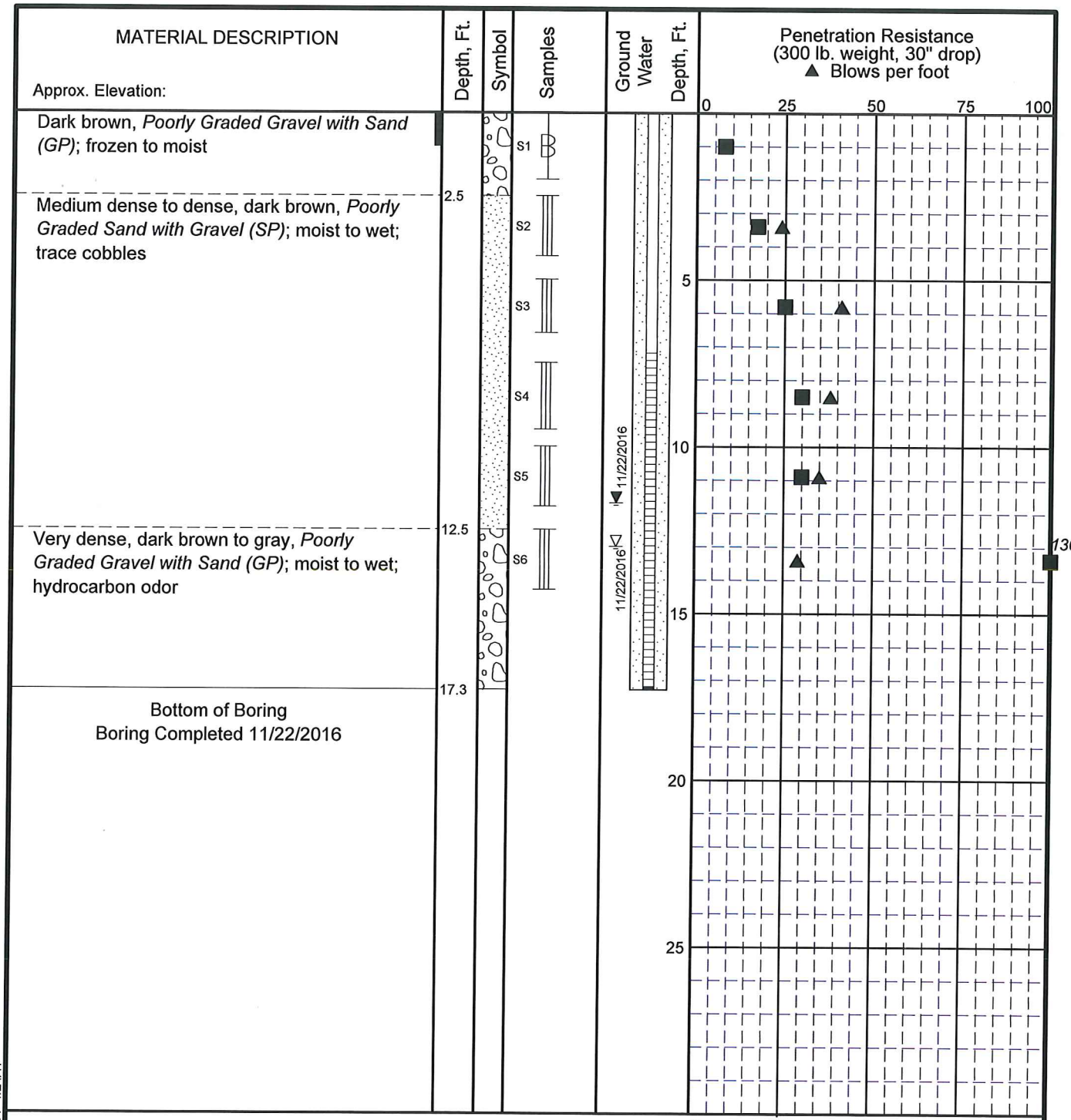
FIG. 2-1

ENVIRONMENTAL LOG 7826 BORING LOG.GPJ S&W GEO1.GDT 1/24/17



LEGEND

- * Sample not recovered
- 3" O.D. Split Spoon Sample
- Grab Sample
- ▮ Frozen
- Ground Water Level At Time Of Drilling
- Static Water Level
- Solid Casing, Sand Pack
- Solid Casing and Annular Seal
- Slotted Section, Filter Sand
- Solid Casing, Cuttings Backfill

NOTES

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

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LOG OF BORING B2

January 2017

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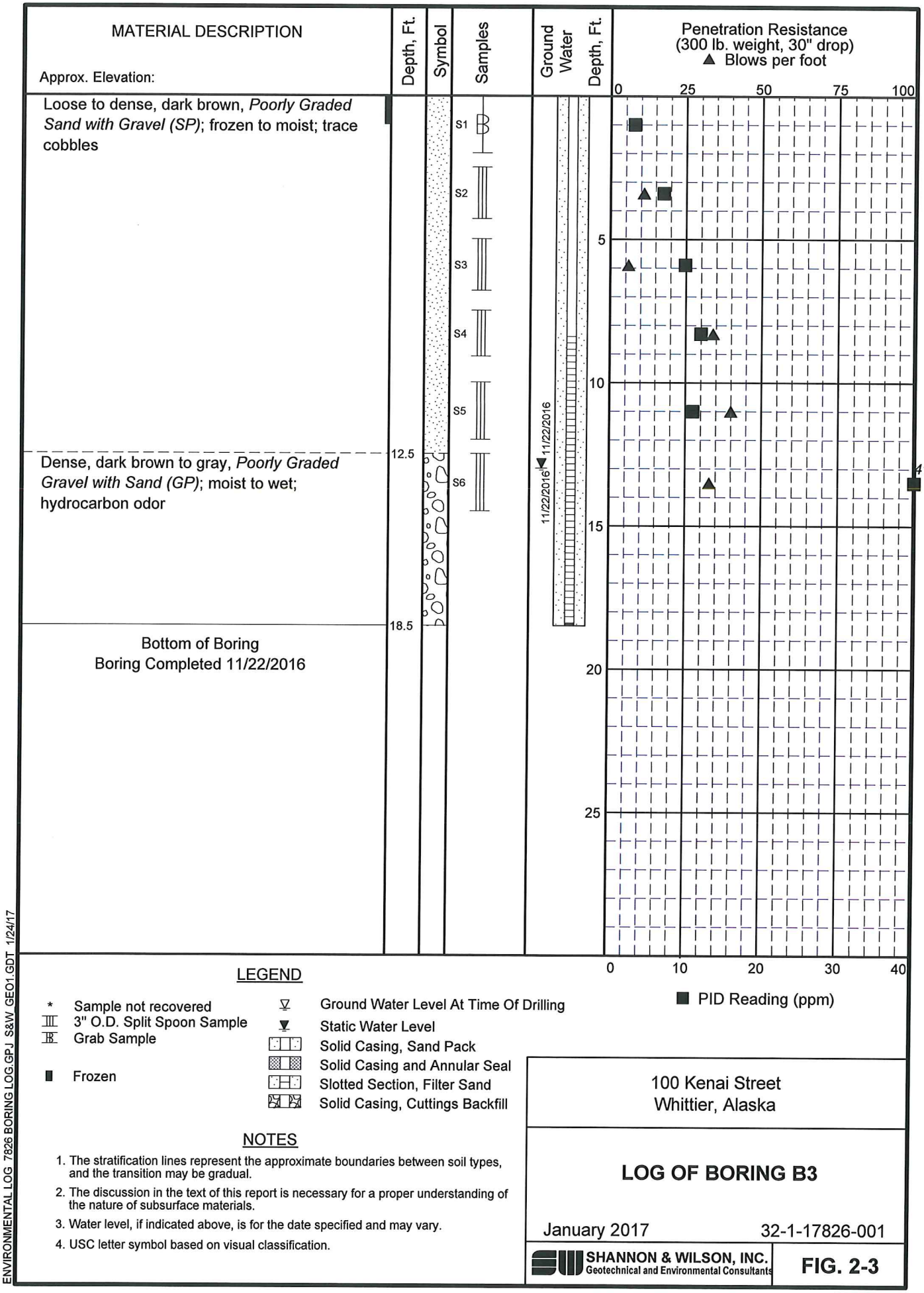
FIG. 2-2

ENVIRONMENTAL LOG 7826 BORING LOG.GPJ S&W GEO1.GDT 1/24/17



LEGEND

* Sample not recovered	Ground Water Level At Time Of Drilling
3" O.D. Split Spoon Sample	Static Water Level
Grab Sample	Solid Casing, Sand Pack
	Solid Casing and Annular Seal
■ Frozen	Slotted Section, Filter Sand
	Solid Casing, Cuttings Backfill

NOTES

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

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LOG OF BORING B3

January 2017 32-1-17826-001

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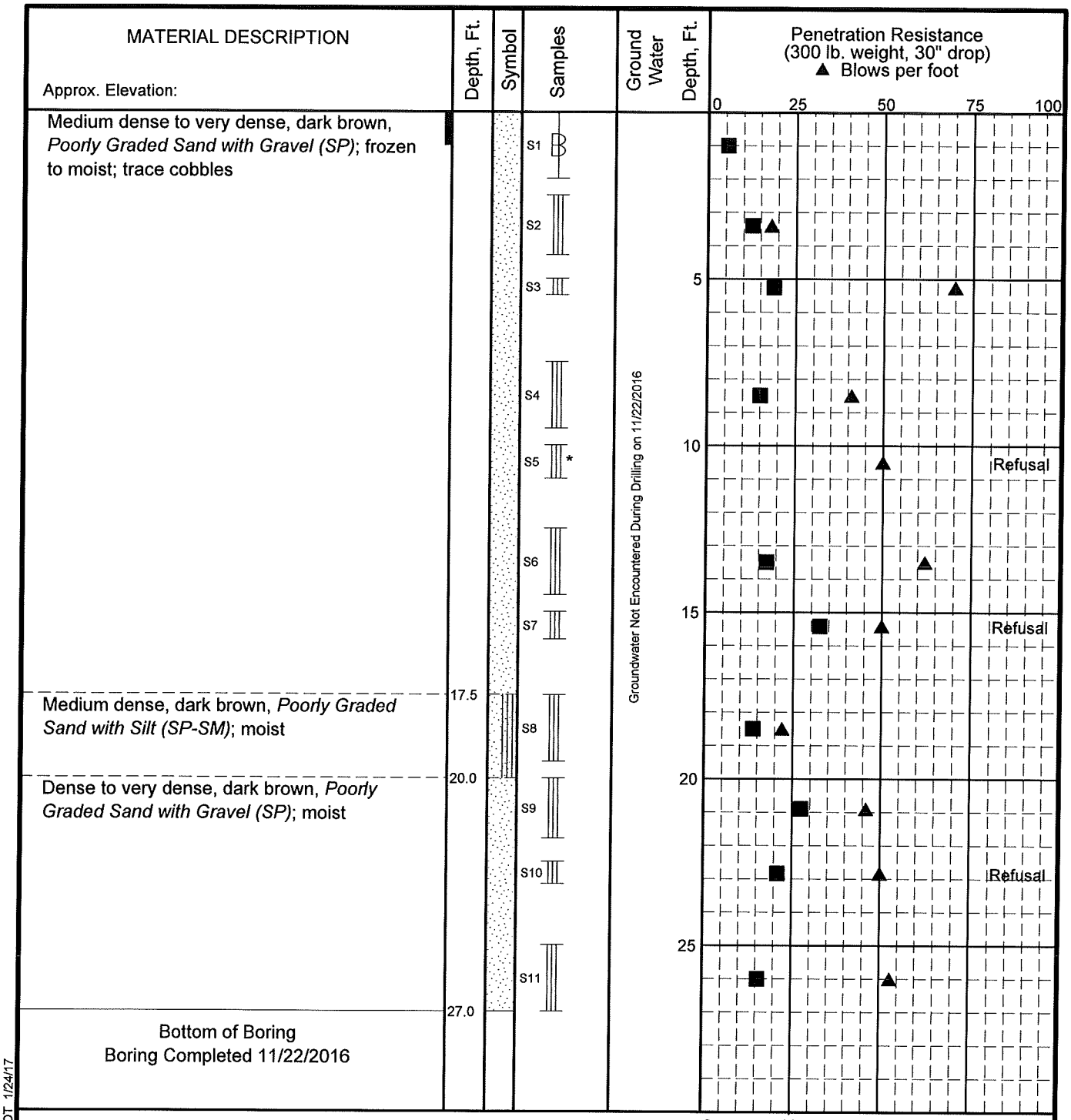
FIG. 2-3

ENVIRONMENTAL LOG 7826 BORING LOG.GPJ S&W GEO1.GDT 1/24/17



LEGEND

* Sample not recovered
3" O.D. Split Spoon Sample
Grab Sample

■ Frozen

NOTES

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

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LOG OF BORING B4

January 2017 32-1-17826-001

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FIG. 2-4

ENVIRONMENTAL LOG 7826 BORING LOG.GPJ S&W GEO1.GDT 1/24/17

ATTACHMENT 3

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
(907)561-2120

Report Number: **1166939**

Client Project: **17826-001 Whittier**

Dear Jacob Tracy,

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

If there are any questions about the report or services performed during this project, please call Victoria 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.

Victoria Pennick Date
Project Manager
Victoria.Pennick@sgs.com

Print Date: 12/07/2016 4:47:12PM

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1166939**
Project Name/Site: **17826-001 Whittier**
Project Contact: **Jacob Tracy**

Refer to sample receipt form for information on sample condition.

17826-TMW1 (1166939007) PS

Sample contained significant amounts of sediment.
8270D SIM - PAH surrogate recoveries for terphenyl-d14 (10.5%) and 2-fluorobiphenyl (28%) do not meet QC criteria due to sample dilution (4X).
8260B - Elevated LOQs due to matrix interference (10X dilution).

17826-TMW11 (1166939008) PS

Sample contained significant amounts of sediment.
8260B - Elevated LOQs due to matrix interference (10X dilution).

17826-TMW2 (1166939009) PS

Sample contained significant amounts of sediment.

17826-TMW3 (1166939010) PS

Sample contained significant amounts of sediment.

LCSD for HBN 1749825 [VXX/3002 (1366880) LCSD

8260B - LCS/LCSD RPD for bromomethane (23.5) does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.
8260B - LCSD recovery for carbon disulfide (134%) does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

1168868001MS (1366328) MS

8270D SIM - PAH MS surrogate recovery for 2-fluorobiphenyl (52.4%) does not meet QC criteria. Surrogate recoveries in the parent sample and the MSD meet criteria; therefore, the sample was not reextracted.

1168868005MS (1367584) MS

8270D SIM - PAH MS recoveries for several analytes do not meet QC criteria due to sample dilution (4X). Refer to the LCS for accuracy requirements.

1168868001MSD (1366329) MSD

8270D SIM - PAH MS/MSD RPDs for several analytes do not meet QC criteria. Results for these analytes may be considered estimated in the parent sample only.

1166910001MSD (1367049) MSD

8260B - MS/MSD RPD recovery for vinyl acetate (23) does not meet QC criteria. This analyte was not detected above the LOQ in the parent sample.

1168868005MSD (1367585) MSD

8270D SIM - PAH MSD recoveries for several analytes do not meet QC criteria due to sample dilution (4X). Refer to the LCS for accuracy requirements.
8270D SIM - PAH MS/MSD RPDs for several analytes do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.

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

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t 907.562.2343 f 907.561.5301 www.us.sgs.com

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIM (PAH)				
1168868005	LABREFQC	XMS9778	Benzo[g,h,i]perylene	PNF
1168868005	LABREFQC	XMS9778	Benzo[k]fluoranthene	RP
1168868005	LABREFQC	XMS9778	Chrysene	RP
1367585	1168868005MSD	XMS9778	Chrysene	RP
8270D SIM LV (PAH)				
1166939007	17826-TMW1	XMS9766	Benzo[k]fluoranthene	RP
1366326	LCS for HBN 1749468 [XXX/36722	XMS9766	Benzo[k]fluoranthene	BLC
1366327	LCSD for HBN 1749468 [XXX/3672	XMS9766	Benzo[k]fluoranthene	BLC
1366717	CCV for HBN 1749721 [XMS/9766]	XMS9766	Benzo[k]fluoranthene	BLC
SW8021B				
1366583	CCV2 for HBN 1749533 (VFC/1348	VFC13480	Benzene	BLC

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 12/07/2016 4:47:13PM

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). 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
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
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
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

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

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
17826-B1S5	1166939001	11/22/2016	11/23/2016	Soil/Solid (dry weight)
17826-B1S15	1166939002	11/22/2016	11/23/2016	Soil/Solid (dry weight)
17826-B2S6	1166939003	11/22/2016	11/23/2016	Soil/Solid (dry weight)
17826-B3S6	1166939004	11/22/2016	11/23/2016	Soil/Solid (dry weight)
17826-B4S7	1166939005	11/22/2016	11/23/2016	Soil/Solid (dry weight)
17826-STB	1166939006	11/22/2016	11/23/2016	Soil/Solid (dry weight)
17826-TMW1	1166939007	11/22/2016	11/23/2016	Water (Surface, Eff., Ground)
17826-TMW11	1166939008	11/22/2016	11/23/2016	Water (Surface, Eff., Ground)
17826-TMW2	1166939009	11/22/2016	11/23/2016	Water (Surface, Eff., Ground)
17826-TMW3	1166939010	11/22/2016	11/23/2016	Water (Surface, Eff., Ground)
17826-WTB	1166939011	11/22/2016	11/23/2016	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo.
SW8021B	AK101/8021 Combo.
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (S)
AK101	Gasoline Range Organics (W)
SM21 2540G	Percent Solids SM2540G
SW8260B	VOC 8260 (S) Field Extracted
SW8260B	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **17826-B1S5**
Lab Sample ID: 1166939001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	260	mg/Kg
	Residual Range Organics	13.6J	mg/Kg
Volatile Fuels	Gasoline Range Organics	3.67	mg/Kg
	o-Xylene	21.8J	ug/Kg

Client Sample ID: **17826-B1S15**
Lab Sample ID: 1166939002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	365	mg/Kg
	Residual Range Organics	18.1J	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.80J	mg/Kg
	o-Xylene	11.4J	ug/Kg

Client Sample ID: **17826-B2S6**
Lab Sample ID: 1166939003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	43.6J	ug/Kg
	2-Methylnaphthalene	65.8J	ug/Kg
	Acenaphthene	65.4J	ug/Kg
	Anthracene	88.0J	ug/Kg
	Fluorene	168	ug/Kg
	Phenanthrene	229	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	1940	mg/Kg
	Residual Range Organics	21.3J	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.93	mg/Kg
Volatile GC/MS	4-Isopropyltoluene	20.6J	ug/Kg
	Naphthalene	47.2J	ug/Kg

Client Sample ID: **17826-B3S6**
Lab Sample ID: 1166939004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	486	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.26J	mg/Kg
	o-Xylene	7.92J	ug/Kg

Client Sample ID: **17826-B4S7**
Lab Sample ID: 1166939005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	9.13J	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.751J	mg/Kg

Client Sample ID: **17826-STB**
Lab Sample ID: 1166939006

	Parameter	Result	Units
Volatile Fuels	Gasoline Range Organics	0.787J	mg/Kg

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Detectable Results Summary

Client Sample ID: **17826-TMW1**
Lab Sample ID: 1166939007

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	6.63	ug/L
	2-Methylnaphthalene	2.49	ug/L
	Acenaphthene	3.39	ug/L
	Anthracene	0.779	ug/L
	Benzo(a)Anthracene	0.957	ug/L
	Benzo[a]pyrene	1.25	ug/L
	Benzo[b]Fluoranthene	1.64	ug/L
	Benzo[g,h,i]perylene	0.659	ug/L
	Benzo[k]fluoranthene	0.657	ug/L
	Chrysene	1.14	ug/L
	Dibenzo[a,h]anthracene	0.197	ug/L
	Fluoranthene	3.27	ug/L
	Indeno[1,2,3-c,d] pyrene	0.605	ug/L
	Naphthalene	11.9	ug/L
	Phenanthrene	8.09	ug/L
	Pyrene	4.97	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	4.86	mg/L
Volatile Fuels	Gasoline Range Organics	0.108	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	3.30J	ug/L
	4-Isopropyltoluene	8.10J	ug/L
	sec-Butylbenzene	3.60J	ug/L

Client Sample ID: **17826-TMW11**
Lab Sample ID: 1166939008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	31.5	mg/L
	Residual Range Organics	0.320J	mg/L
Volatile Fuels	Gasoline Range Organics	0.175	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	3.50J	ug/L
	4-Isopropyltoluene	4.40J	ug/L
	sec-Butylbenzene	3.80J	ug/L

Client Sample ID: **17826-TMW2**
Lab Sample ID: 1166939009

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	26.1	mg/L
	Residual Range Organics	0.375J	mg/L
Volatile Fuels	Benzene	0.270J	ug/L
	Gasoline Range Organics	0.0768J	mg/L
	o-Xylene	0.660J	ug/L

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Detectable Results Summary

Client Sample ID: **17826-TMW3**
Lab Sample ID: 1166939010

Semivolatile Organic Fuels

Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	10.5	mg/L
Residual Range Organics	3.97	mg/L
Benzene	0.270J	ug/L
Gasoline Range Organics	0.0843J	mg/L
o-Xylene	0.530J	ug/L
P & M -Xylene	0.830J	ug/L

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Results of **17826-B1S5**

Client Sample ID: **17826-B1S5**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939001
Lab Project ID: 1166939

Collection Date: 11/22/16 10:20
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):94.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	260		21.1	6.55	mg/Kg	1		12/01/16 21:33
Surrogates								
5a Androstane (surr)	94.6		50-150		%	1		12/01/16 21:33

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/01/16 21:33
Container ID: 1166939001-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.105 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	13.6	J	21.1	6.55	mg/Kg	1		12/01/16 21:33
Surrogates								
n-Triacontane-d62 (surr)	90.7		50-150		%	1		12/01/16 21:33

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 21:33
Container ID: 1166939001-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.105 g
Prep Extract Vol: 1 mL

Print Date: 12/07/2016 4:47:17PM

J flagging is activated

Results of **17826-B1S5**

Client Sample ID: **17826-B1S5**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939001
Lab Project ID: 1166939

Collection Date: 11/22/16 10:20
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):94.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.67		2.28	0.683	mg/Kg	1		11/24/16 13:56
Surrogates								
4-Bromofluorobenzene (surr)	105		50-150		%	1		11/24/16 13:56

Batch Information

Analytical Batch: VFC13483
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/24/16 13:56
Container ID: 1166939001-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 10:20
Prep Initial Wt./Vol.: 67.285 g
Prep Extract Vol: 28.86 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	5.70 U		11.4	3.64	ug/Kg	1		11/24/16 13:56
Ethylbenzene	11.4 U		22.8	7.10	ug/Kg	1		11/24/16 13:56
o-Xylene	21.8 J		22.8	7.10	ug/Kg	1		11/24/16 13:56
P & M -Xylene	22.8 U		45.5	13.7	ug/Kg	1		11/24/16 13:56
Toluene	11.4 U		22.8	7.10	ug/Kg	1		11/24/16 13:56
Surrogates								
1,4-Difluorobenzene (surr)	104		72-119		%	1		11/24/16 13:56

Batch Information

Analytical Batch: VFC13483
Analytical Method: SW8021B
Analyst: NRO
Analytical Date/Time: 11/24/16 13:56
Container ID: 1166939001-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 10:20
Prep Initial Wt./Vol.: 67.285 g
Prep Extract Vol: 28.86 mL

Results of **17826-B1S15**

Client Sample ID: **17826-B1S15**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939002
Lab Project ID: 1166939

Collection Date: 11/22/16 10:40
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):92.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	365		21.5	6.67	mg/Kg	1		12/01/16 21:42
Surrogates								
5a Androstane (surr)	93.4		50-150		%	1		12/01/16 21:42

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/01/16 21:42
Container ID: 1166939002-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.248 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	18.1	J	21.5	6.67	mg/Kg	1		12/01/16 21:42
Surrogates								
n-Triacontane-d62 (surr)	88.1		50-150		%	1		12/01/16 21:42

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 21:42
Container ID: 1166939002-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.248 g
Prep Extract Vol: 1 mL

Print Date: 12/07/2016 4:47:17PM

J flagging is activated

Results of **17826-B1S15**

Client Sample ID: **17826-B1S15**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939002
Lab Project ID: 1166939

Collection Date: 11/22/16 10:40
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):92.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.80 J		2.92	0.875	mg/Kg	1		11/24/16 14:15
Surrogates								
4-Bromofluorobenzene (surr)	103		50-150		%	1		11/24/16 14:15

Batch Information

Analytical Batch: VFC13483
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/24/16 14:15
Container ID: 1166939002-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 10:40
Prep Initial Wt./Vol.: 54.505 g
Prep Extract Vol: 29.2915 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	7.30 U		14.6	4.67	ug/Kg	1		11/24/16 14:15
Ethylbenzene	14.6 U		29.2	9.10	ug/Kg	1		11/24/16 14:15
o-Xylene	11.4 J		29.2	9.10	ug/Kg	1		11/24/16 14:15
P & M -Xylene	29.1 U		58.3	17.5	ug/Kg	1		11/24/16 14:15
Toluene	14.6 U		29.2	9.10	ug/Kg	1		11/24/16 14:15
Surrogates								
1,4-Difluorobenzene (surr)	104		72-119		%	1		11/24/16 14:15

Batch Information

Analytical Batch: VFC13483
Analytical Method: SW8021B
Analyst: NRO
Analytical Date/Time: 11/24/16 14:15
Container ID: 1166939002-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 10:40
Prep Initial Wt./Vol.: 54.505 g
Prep Extract Vol: 29.2915 mL

Print Date: 12/07/2016 4:47:17PM

J flagging is activated

Results of **17826-B2S6**

Client Sample ID: **17826-B2S6**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939003
Lab Project ID: 1166939

Collection Date: 11/22/16 12:30
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	43.6	J	108	32.5	ug/Kg	20		12/05/16 17:10
2-Methylnaphthalene	65.8	J	108	32.5	ug/Kg	20		12/05/16 17:10
Acenaphthene	65.4	J	108	32.5	ug/Kg	20		12/05/16 17:10
Acenaphthylene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Anthracene	88.0	J	108	32.5	ug/Kg	20		12/05/16 17:10
Benzo(a)Anthracene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Benzo[a]pyrene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Benzo[b]Fluoranthene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Benzo[g,h,i]perylene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Benzo[k]fluoranthene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Chrysene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Dibenzo[a,h]anthracene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Fluoranthene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Fluorene	168		108	32.5	ug/Kg	20		12/05/16 17:10
Indeno[1,2,3-c,d] pyrene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Naphthalene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Phenanthrene	229		108	32.5	ug/Kg	20		12/05/16 17:10
Pyrene	54.0	U	108	32.5	ug/Kg	20		12/05/16 17:10
Surrogates								
2-Fluorobiphenyl (surr)	100		46-115		%	20		12/05/16 17:10
Terphenyl-d14 (surr)	102		58-133		%	20		12/05/16 17:10

Batch Information

Analytical Batch: XMS9773
Analytical Method: 8270D SIM (PAH)
Analyst: BRV
Analytical Date/Time: 12/05/16 17:10
Container ID: 1166939003-A

Prep Batch: XXX36734
Prep Method: SW3550C
Prep Date/Time: 11/30/16 08:45
Prep Initial Wt./Vol.: 22.723 g
Prep Extract Vol: 1 mL

Results of **17826-B2S6**

Client Sample ID: **17826-B2S6**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939003
Lab Project ID: 1166939

Collection Date: 11/22/16 12:30
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1940		108	33.6	mg/Kg	5		12/05/16 15:16
Surrogates								
5a Androstane (surr)	147		50-150		%	5		12/05/16 15:16

Batch Information

Analytical Batch: XFC13105
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/05/16 15:16
Container ID: 1166939003-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.238 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	21.3	J	21.7	6.72	mg/Kg	1		12/01/16 21:52
Surrogates								
n-Triacontane-d62 (surr)	85.8		50-150		%	1		12/01/16 21:52

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 21:52
Container ID: 1166939003-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.238 g
Prep Extract Vol: 1 mL

Print Date: 12/07/2016 4:47:17PM

J flagging is activated

Results of **17826-B2S6**

Client Sample ID: **17826-B2S6**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939003
Lab Project ID: 1166939

Collection Date: 11/22/16 12:30
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.93		2.34	0.703	mg/Kg	1		11/24/16 14:33
Surrogates								
4-Bromofluorobenzene (surr)	106		50-150		%	1		11/24/16 14:33

Batch Information

Analytical Batch: VFC13483
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/24/16 14:33
Container ID: 1166939003-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 12:30
Prep Initial Wt./Vol.: 72.847 g
Prep Extract Vol: 31.2142 mL

Results of **17826-B2S6**

Client Sample ID: **17826-B2S6**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939003
Lab Project ID: 1166939

Collection Date: 11/22/16 12:30
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,1,1-Trichloroethane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,1,2,2-Tetrachloroethane	5.95	U	11.9	3.70	ug/Kg	1		12/01/16 22:05
1,1,2-Trichloroethane	4.74	U	9.48	2.94	ug/Kg	1		12/01/16 22:05
1,1-Dichloroethane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,1-Dichloroethene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,1-Dichloropropene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,2,3-Trichlorobenzene	23.7	U	47.4	14.2	ug/Kg	1		12/01/16 22:05
1,2,3-Trichloropropane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,2,4-Trichlorobenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,2,4-Trimethylbenzene	23.7	U	47.4	14.2	ug/Kg	1		12/01/16 22:05
1,2-Dibromo-3-chloropropane	47.4	U	94.8	29.4	ug/Kg	1		12/01/16 22:05
1,2-Dibromoethane	4.74	U	9.48	2.94	ug/Kg	1		12/01/16 22:05
1,2-Dichlorobenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,2-Dichloroethane	4.74	U	9.48	2.94	ug/Kg	1		12/01/16 22:05
1,2-Dichloropropane	4.74	U	9.48	2.94	ug/Kg	1		12/01/16 22:05
1,3,5-Trimethylbenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,3-Dichlorobenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
1,3-Dichloropropane	4.74	U	9.48	2.94	ug/Kg	1		12/01/16 22:05
1,4-Dichlorobenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
2,2-Dichloropropane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
2-Butanone (MEK)	119	U	237	74.0	ug/Kg	1		12/01/16 22:05
2-Chlorotoluene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
2-Hexanone	119	U	237	74.0	ug/Kg	1		12/01/16 22:05
4-Chlorotoluene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
4-Isopropyltoluene	20.6	J	23.7	7.40	ug/Kg	1		12/01/16 22:05
4-Methyl-2-pentanone (MIBK)	119	U	237	74.0	ug/Kg	1		12/01/16 22:05
Benzene	5.95	U	11.9	3.70	ug/Kg	1		12/01/16 22:05
Bromobenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Bromochloromethane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Bromodichloromethane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Bromoform	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Bromomethane	95.0	U	190	58.8	ug/Kg	1		12/01/16 22:05
Carbon disulfide	47.4	U	94.8	29.4	ug/Kg	1		12/01/16 22:05
Carbon tetrachloride	5.95	U	11.9	3.70	ug/Kg	1		12/01/16 22:05
Chlorobenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Chloroethane	95.0	U	190	58.8	ug/Kg	1		12/01/16 22:05

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J flagging is activated

Results of **17826-B2S6**

Client Sample ID: **17826-B2S6**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939003
Lab Project ID: 1166939

Collection Date: 11/22/16 12:30
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Chloromethane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
cis-1,2-Dichloroethene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
cis-1,3-Dichloropropene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Dibromochloromethane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Dibromomethane	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Dichlorodifluoromethane	23.7	U	47.4	14.2	ug/Kg	1		12/01/16 22:05
Ethylbenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Freon-113	47.4	U	94.8	29.4	ug/Kg	1		12/01/16 22:05
Hexachlorobutadiene	23.7	U	47.4	14.2	ug/Kg	1		12/01/16 22:05
Isopropylbenzene (Cumene)	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Methylene chloride	47.4	U	94.8	29.4	ug/Kg	1		12/01/16 22:05
Methyl-t-butyl ether	47.4	U	94.8	29.4	ug/Kg	1		12/01/16 22:05
Naphthalene	47.2	J	47.4	14.2	ug/Kg	1		12/01/16 22:05
n-Butylbenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
n-Propylbenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
o-Xylene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
P & M -Xylene	23.7	U	47.4	14.2	ug/Kg	1		12/01/16 22:05
sec-Butylbenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Styrene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
tert-Butylbenzene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Tetrachloroethene	5.95	U	11.9	3.70	ug/Kg	1		12/01/16 22:05
Toluene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
trans-1,2-Dichloroethene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
trans-1,3-Dichloropropene	11.9	U	23.7	7.40	ug/Kg	1		12/01/16 22:05
Trichloroethene	5.95	U	11.9	3.70	ug/Kg	1		12/01/16 22:05
Trichlorofluoromethane	23.7	U	47.4	14.2	ug/Kg	1		12/01/16 22:05
Vinyl acetate	47.4	U	94.8	29.4	ug/Kg	1		12/01/16 22:05
Vinyl chloride	4.74	U	9.48	2.94	ug/Kg	1		12/01/16 22:05
Xylenes (total)	35.5	U	71.1	21.6	ug/Kg	1		12/01/16 22:05
Surrogates								
1,2-Dichloroethane-D4 (surr)	116		71-136		%	1		12/01/16 22:05
4-Bromofluorobenzene (surr)	117		55-151		%	1		12/01/16 22:05
Toluene-d8 (surr)	98.2		85-116		%	1		12/01/16 22:05

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J flagging is activated

Results of **17826-B2S6**

Client Sample ID: **17826-B2S6**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939003
Lab Project ID: 1166939

Collection Date: 11/22/16 12:30
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16421
Analytical Method: SW8260B
Analyst: TJT
Analytical Date/Time: 12/01/16 22:05
Container ID: 1166939003-B

Prep Batch: VXX30025
Prep Method: SW5035A
Prep Date/Time: 11/22/16 12:30
Prep Initial Wt./Vol.: 71.754 g
Prep Extract Vol: 31.121 mL

Results of **17826-B3S6**

Client Sample ID: **17826-B3S6**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939004
Lab Project ID: 1166939

Collection Date: 11/22/16 13:50
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):91.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	486		21.7	6.73	mg/Kg	1		12/01/16 22:02
Surrogates								
5a Androstane (surr)	109		50-150		%	1		12/01/16 22:02

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/01/16 22:02
Container ID: 1166939004-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.092 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	10.9 U		21.7	6.73	mg/Kg	1		12/01/16 22:02
Surrogates								
n-Triacontane-d62 (surr)	87.5		50-150		%	1		12/01/16 22:02

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 22:02
Container ID: 1166939004-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.092 g
Prep Extract Vol: 1 mL

Results of **17826-B3S6**

Client Sample ID: **17826-B3S6**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939004
Lab Project ID: 1166939

Collection Date: 11/22/16 13:50
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):91.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.26 J		2.40	0.720	mg/Kg	1		11/24/16 15:10
Surrogates								
4-Bromofluorobenzene (surr)	106		50-150		%	1		11/24/16 15:10

Batch Information

Analytical Batch: VFC13483
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/24/16 15:10
Container ID: 1166939004-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 13:50
Prep Initial Wt./Vol.: 69.498 g
Prep Extract Vol: 30.653 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.00 U		12.0	3.84	ug/Kg	1		11/24/16 15:10
Ethylbenzene	12.0 U		24.0	7.49	ug/Kg	1		11/24/16 15:10
o-Xylene	7.92 J		24.0	7.49	ug/Kg	1		11/24/16 15:10
P & M -Xylene	24.0 U		48.0	14.4	ug/Kg	1		11/24/16 15:10
Toluene	12.0 U		24.0	7.49	ug/Kg	1		11/24/16 15:10
Surrogates								
1,4-Difluorobenzene (surr)	103		72-119		%	1		11/24/16 15:10

Batch Information

Analytical Batch: VFC13483
Analytical Method: SW8021B
Analyst: NRO
Analytical Date/Time: 11/24/16 15:10
Container ID: 1166939004-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 13:50
Prep Initial Wt./Vol.: 69.498 g
Prep Extract Vol: 30.653 mL

Results of **17826-B4S7**

Client Sample ID: **17826-B4S7**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939005
Lab Project ID: 1166939

Collection Date: 11/22/16 15:35
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):93.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	9.13	J	21.1	6.54	mg/Kg	1		12/01/16 22:31
Surrogates								
5a Androstane (surr)	88.7		50-150		%	1		12/01/16 22:31

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/01/16 22:31
Container ID: 1166939005-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.28 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	10.6	U	21.1	6.54	mg/Kg	1		12/01/16 22:31
Surrogates								
n-Triacontane-d62 (surr)	83.9		50-150		%	1		12/01/16 22:31

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 22:31
Container ID: 1166939005-A

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/16 13:18
Prep Initial Wt./Vol.: 30.28 g
Prep Extract Vol: 1 mL

Print Date: 12/07/2016 4:47:17PM

J flagging is activated

Results of **17826-B4S7**

Client Sample ID: **17826-B4S7**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939005
Lab Project ID: 1166939

Collection Date: 11/22/16 15:35
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):93.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.751	J	2.15	0.646	mg/Kg	1		11/24/16 15:29
Surrogates								
4-Bromofluorobenzene (surr)	98.7		50-150		%	1		11/24/16 15:29

Batch Information

Analytical Batch: VFC13483
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/24/16 15:29
Container ID: 1166939005-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 15:35
Prep Initial Wt./Vol.: 72.662 g
Prep Extract Vol: 29.3987 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	5.40	U	10.8	3.45	ug/Kg	1		11/24/16 15:29
Ethylbenzene	10.8	U	21.5	6.72	ug/Kg	1		11/24/16 15:29
o-Xylene	10.8	U	21.5	6.72	ug/Kg	1		11/24/16 15:29
P & M -Xylene	21.6	U	43.1	12.9	ug/Kg	1		11/24/16 15:29
Toluene	10.8	U	21.5	6.72	ug/Kg	1		11/24/16 15:29
Surrogates								
1,4-Difluorobenzene (surr)	103		72-119		%	1		11/24/16 15:29

Batch Information

Analytical Batch: VFC13483
Analytical Method: SW8021B
Analyst: NRO
Analytical Date/Time: 11/24/16 15:29
Container ID: 1166939005-B

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 15:35
Prep Initial Wt./Vol.: 72.662 g
Prep Extract Vol: 29.3987 mL

Results of **17826-STB**

Client Sample ID: **17826-STB**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939006
Lab Project ID: 1166939

Collection Date: 11/22/16 09:00
Received Date: 11/23/16 13:53
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.787	J	2.49	0.748	mg/Kg	1		11/24/16 09:38
Surrogates								
4-Bromofluorobenzene (surr)	100		50-150		%	1		11/24/16 09:38

Batch Information

Analytical Batch: VFC13483
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/24/16 09:38
Container ID: 1166939006-A

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 09:00
Prep Initial Wt./Vol.: 50.153 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.25	U	12.5	3.99	ug/Kg	1		11/24/16 09:38
Ethylbenzene	12.4	U	24.9	7.78	ug/Kg	1		11/24/16 09:38
o-Xylene	12.4	U	24.9	7.78	ug/Kg	1		11/24/16 09:38
P & M -Xylene	24.9	U	49.8	15.0	ug/Kg	1		11/24/16 09:38
Toluene	12.4	U	24.9	7.78	ug/Kg	1		11/24/16 09:38
Surrogates								
1,4-Difluorobenzene (surr)	104		72-119		%	1		11/24/16 09:38

Batch Information

Analytical Batch: VFC13483
Analytical Method: SW8021B
Analyst: NRO
Analytical Date/Time: 11/24/16 09:38
Container ID: 1166939006-A

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/22/16 09:00
Prep Initial Wt./Vol.: 50.153 g
Prep Extract Vol: 25 mL

Results of **17826-TMW1**

Client Sample ID: **17826-TMW1**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939007
Lab Project ID: 1166939

Collection Date: 11/22/16 12:50
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	6.63		0.185	0.0556	ug/L	4		11/29/16 19:52
2-Methylnaphthalene	2.49		0.185	0.0556	ug/L	4		11/29/16 19:52
Acenaphthene	3.39		0.185	0.0556	ug/L	4		11/29/16 19:52
Acenaphthylene	0.0925 U		0.185	0.0556	ug/L	4		11/29/16 19:52
Anthracene	0.779		0.185	0.0556	ug/L	4		11/29/16 19:52
Benzo(a)Anthracene	0.957		0.185	0.0556	ug/L	4		11/29/16 19:52
Benzo[a]pyrene	1.25		0.0741	0.0230	ug/L	4		11/29/16 19:52
Benzo[b]Fluoranthene	1.64		0.185	0.0556	ug/L	4		11/29/16 19:52
Benzo[g,h,i]perylene	0.659		0.185	0.0556	ug/L	4		11/29/16 19:52
Benzo[k]fluoranthene	0.657		0.185	0.0556	ug/L	4		11/29/16 19:52
Chrysene	1.14		0.185	0.0556	ug/L	4		11/29/16 19:52
Dibenzo[a,h]anthracene	0.197		0.0741	0.0230	ug/L	4		11/29/16 19:52
Fluoranthene	3.27		0.185	0.0556	ug/L	4		11/29/16 19:52
Fluorene	0.0925 U		0.185	0.0556	ug/L	4		11/29/16 19:52
Indeno[1,2,3-c,d] pyrene	0.605		0.185	0.0556	ug/L	4		11/29/16 19:52
Naphthalene	11.9		0.370	0.115	ug/L	4		11/29/16 19:52
Phenanthrene	8.09		0.185	0.0556	ug/L	4		11/29/16 19:52
Pyrene	4.97		0.185	0.0556	ug/L	4		11/29/16 19:52
Surrogates								
2-Fluorobiphenyl (surr)	28	*	53-106		%	4		11/29/16 19:52
Terphenyl-d14 (surr)	10.5	*	58-132		%	4		11/29/16 19:52

Batch Information

Analytical Batch: XMS9766
Analytical Method: 8270D SIM LV (PAH)
Analyst: BRV
Analytical Date/Time: 11/29/16 19:52
Container ID: 1166939007-H

Prep Batch: XXX36722
Prep Method: SW3520C
Prep Date/Time: 11/28/16 09:45
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 12/07/2016 4:47:17PM

J flagging is activated

Results of **17826-TMW1**

Client Sample ID: **17826-TMW1**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939007
Lab Project ID: 1166939

Collection Date: 11/22/16 12:50
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	4.86		0.773	0.232	mg/L	1		12/01/16 19:36
Surrogates								
5a Androstane (surr)	87.1		50-150		%	1		12/01/16 19:36

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/01/16 19:36
Container ID: 1166939007-F

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/01/16 09:56
Prep Initial Wt./Vol.: 194 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.322 U		0.644	0.193	mg/L	1		12/01/16 19:36
Surrogates								
n-Triacontane-d62 (surr)	83.5		50-150		%	1		12/01/16 19:36

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 19:36
Container ID: 1166939007-F

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/01/16 09:56
Prep Initial Wt./Vol.: 194 mL
Prep Extract Vol: 1 mL

Results of **17826-TMW1**

Client Sample ID: **17826-TMW1**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939007
Lab Project ID: 1166939

Collection Date: 11/22/16 12:50
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.108		0.100	0.0310	mg/L	1		11/29/16 00:27
Surrogates								
4-Bromofluorobenzene (surr)	114		50-150		%	1		11/29/16 00:27

Batch Information

Analytical Batch: VFC13481
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/29/16 00:27
Container ID: 1166939007-A

Prep Batch: VXX30013
Prep Method: SW5030B
Prep Date/Time: 11/28/16 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
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Results of **17826-TMW1**

Client Sample ID: **17826-TMW1**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939007
Lab Project ID: 1166939

Collection Date: 11/22/16 12:50
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
1,1,1-Trichloroethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,1,2,2-Tetrachloroethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
1,1,2-Trichloroethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,1-Dichloroethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,1-Dichloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,1-Dichloropropene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,2,3-Trichlorobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,2,3-Trichloropropane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,2,4-Trichlorobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,2,4-Trimethylbenzene	3.30	J	10.0	3.10	ug/L	10		11/30/16 20:42
1,2-Dibromo-3-chloropropane	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
1,2-Dibromoethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,2-Dichlorobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,2-Dichloroethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
1,2-Dichloropropane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,3,5-Trimethylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,3-Dichlorobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
1,3-Dichloropropane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
1,4-Dichlorobenzene	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
2,2-Dichloropropane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
2-Butanone (MEK)	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
2-Chlorotoluene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
2-Hexanone	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
4-Chlorotoluene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
4-Isopropyltoluene	8.10	J	10.0	3.10	ug/L	10		11/30/16 20:42
4-Methyl-2-pentanone (MIBK)	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
Benzene	2.00	U	4.00	1.20	ug/L	10		11/30/16 20:42
Bromobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Bromochloromethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Bromodichloromethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
Bromoform	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Bromomethane	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
Carbon disulfide	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
Carbon tetrachloride	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Chlorobenzene	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
Chloroethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42

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J flagging is activated

Results of **17826-TMW1**

Client Sample ID: **17826-TMW1**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939007
Lab Project ID: 1166939

Collection Date: 11/22/16 12:50
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	5.00	U	10.0	3.00	ug/L	10		11/30/16 20:42
Chloromethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
cis-1,2-Dichloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
cis-1,3-Dichloropropene	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
Dibromochloromethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:42
Dibromomethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Dichlorodifluoromethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Ethylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Freon-113	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
Hexachlorobutadiene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Isopropylbenzene (Cumene)	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Methylene chloride	25.0	U	50.0	10.0	ug/L	10		11/30/16 20:42
Methyl-t-butyl ether	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
Naphthalene	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
n-Butylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
n-Propylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
o-Xylene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
P & M -Xylene	10.0	U	20.0	6.20	ug/L	10		11/30/16 20:42
sec-Butylbenzene	3.60	J	10.0	3.10	ug/L	10		11/30/16 20:42
Styrene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
tert-Butylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Tetrachloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Toluene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
trans-1,2-Dichloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
trans-1,3-Dichloropropene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Trichloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Trichlorofluoromethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Vinyl acetate	50.0	U	100	31.0	ug/L	10		11/30/16 20:42
Vinyl chloride	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:42
Xylenes (total)	15.0	U	30.0	10.0	ug/L	10		11/30/16 20:42
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.7		81-118		%	10		11/30/16 20:42
4-Bromofluorobenzene (surr)	96.5		85-114		%	10		11/30/16 20:42
Toluene-d8 (surr)	103		89-112		%	10		11/30/16 20:42

Print Date: 12/07/2016 4:47:17PM

J flagging is activated

Results of **17826-TMW1**

Client Sample ID: **17826-TMW1**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939007
Lab Project ID: 1166939

Collection Date: 11/22/16 12:50
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16417
Analytical Method: SW8260B
Analyst: TJT
Analytical Date/Time: 11/30/16 20:42
Container ID: 1166939007-C

Prep Batch: VXX30021
Prep Method: SW5030B
Prep Date/Time: 11/30/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **17826-TMW11**

Client Sample ID: **17826-TMW11**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939008
Lab Project ID: 1166939

Collection Date: 11/22/16 13:00
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	31.5		0.682	0.205	mg/L	1		12/01/16 19:46
Surrogates								
5a Androstane (surr)	98.9		50-150		%	1		12/01/16 19:46

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/01/16 19:46
Container ID: 1166939008-E

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/01/16 09:56
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.320	J	0.568	0.170	mg/L	1		12/01/16 19:46
Surrogates								
n-Triacontane-d62 (surr)	95.4		50-150		%	1		12/01/16 19:46

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 19:46
Container ID: 1166939008-E

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/01/16 09:56
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL

Results of **17826-TMW11**

Client Sample ID: **17826-TMW11**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939008
Lab Project ID: 1166939

Collection Date: 11/22/16 13:00
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.175		0.100	0.0310	mg/L	1		11/29/16 00:46
Surrogates								
4-Bromofluorobenzene (surr)	123		50-150		%	1		11/29/16 00:46

Batch Information

Analytical Batch: VFC13481
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/29/16 00:46
Container ID: 1166939008-A

Prep Batch: VXX30013
Prep Method: SW5030B
Prep Date/Time: 11/28/16 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 12/07/2016 4:47:17PM

J flagging is activated

Results of **17826-TMW11**

Client Sample ID: **17826-TMW11**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939008
Lab Project ID: 1166939

Collection Date: 11/22/16 13:00
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
1,1,1-Trichloroethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,1,2,2-Tetrachloroethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
1,1,2-Trichloroethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,1-Dichloroethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,1-Dichloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,1-Dichloropropene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,2,3-Trichlorobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,2,3-Trichloropropane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,2,4-Trichlorobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,2,4-Trimethylbenzene	3.50	J	10.0	3.10	ug/L	10		11/30/16 20:58
1,2-Dibromo-3-chloropropane	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
1,2-Dibromoethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,2-Dichlorobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,2-Dichloroethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
1,2-Dichloropropane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,3,5-Trimethylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,3-Dichlorobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
1,3-Dichloropropane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
1,4-Dichlorobenzene	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
2,2-Dichloropropane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
2-Butanone (MEK)	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
2-Chlorotoluene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
2-Hexanone	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
4-Chlorotoluene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
4-Isopropyltoluene	4.40	J	10.0	3.10	ug/L	10		11/30/16 20:58
4-Methyl-2-pentanone (MIBK)	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
Benzene	2.00	U	4.00	1.20	ug/L	10		11/30/16 20:58
Bromobenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Bromochloromethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Bromodichloromethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
Bromoform	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Bromomethane	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
Carbon disulfide	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
Carbon tetrachloride	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Chlorobenzene	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
Chloroethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58

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Results of **17826-TMW11**

Client Sample ID: **17826-TMW11**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939008
Lab Project ID: 1166939

Collection Date: 11/22/16 13:00
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	5.00	U	10.0	3.00	ug/L	10		11/30/16 20:58
Chloromethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
cis-1,2-Dichloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
cis-1,3-Dichloropropene	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
Dibromochloromethane	2.50	U	5.00	1.50	ug/L	10		11/30/16 20:58
Dibromomethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Dichlorodifluoromethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Ethylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Freon-113	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
Hexachlorobutadiene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Isopropylbenzene (Cumene)	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Methylene chloride	25.0	U	50.0	10.0	ug/L	10		11/30/16 20:58
Methyl-t-butyl ether	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
Naphthalene	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
n-Butylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
n-Propylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
o-Xylene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
P & M -Xylene	10.0	U	20.0	6.20	ug/L	10		11/30/16 20:58
sec-Butylbenzene	3.80	J	10.0	3.10	ug/L	10		11/30/16 20:58
Styrene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
tert-Butylbenzene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Tetrachloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Toluene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
trans-1,2-Dichloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
trans-1,3-Dichloropropene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Trichloroethene	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Trichlorofluoromethane	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Vinyl acetate	50.0	U	100	31.0	ug/L	10		11/30/16 20:58
Vinyl chloride	5.00	U	10.0	3.10	ug/L	10		11/30/16 20:58
Xylenes (total)	15.0	U	30.0	10.0	ug/L	10		11/30/16 20:58
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	10		11/30/16 20:58
4-Bromofluorobenzene (surr)	97.4		85-114		%	10		11/30/16 20:58
Toluene-d8 (surr)	105		89-112		%	10		11/30/16 20:58

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Results of **17826-TMW11**

Client Sample ID: **17826-TMW11**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939008
Lab Project ID: 1166939

Collection Date: 11/22/16 13:00
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS16417
Analytical Method: SW8260B
Analyst: TJT
Analytical Date/Time: 11/30/16 20:58
Container ID: 1166939008-C

Prep Batch: VXX30021
Prep Method: SW5030B
Prep Date/Time: 11/30/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **17826-TMW2**

Client Sample ID: **17826-TMW2**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939009
Lab Project ID: 1166939

Collection Date: 11/22/16 14:10
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	26.1		0.577	0.173	mg/L	1		12/01/16 19:56
Surrogates								
5a Androstane (surr)	83.5		50-150		%	1		12/01/16 19:56

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/01/16 19:56
Container ID: 1166939009-D

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/01/16 09:56
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.375	J	0.481	0.144	mg/L	1		12/01/16 19:56
Surrogates								
n-Triacontane-d62 (surr)	79.9		50-150		%	1		12/01/16 19:56

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 19:56
Container ID: 1166939009-D

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/01/16 09:56
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **17826-TMW2**

Client Sample ID: **17826-TMW2**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939009
Lab Project ID: 1166939

Collection Date: 11/22/16 14:10
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0768	J	0.100	0.0310	mg/L	1		11/29/16 00:12
Surrogates								
4-Bromofluorobenzene (surr)	112		50-150		%	1		11/29/16 00:12

Batch Information

Analytical Batch: VFC13480
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/29/16 00:12
Container ID: 1166939009-A

Prep Batch: VXX30014
Prep Method: SW5030B
Prep Date/Time: 11/28/16 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.270	J	0.500	0.150	ug/L	1		11/29/16 00:12
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		11/29/16 00:12
o-Xylene	0.660	J	1.00	0.310	ug/L	1		11/29/16 00:12
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		11/29/16 00:12
Toluene	0.500	U	1.00	0.310	ug/L	1		11/29/16 00:12
Surrogates								
1,4-Difluorobenzene (surr)	100		77-115		%	1		11/29/16 00:12

Batch Information

Analytical Batch: VFC13480
Analytical Method: SW8021B
Analyst: NRO
Analytical Date/Time: 11/29/16 00:12
Container ID: 1166939009-A

Prep Batch: VXX30014
Prep Method: SW5030B
Prep Date/Time: 11/28/16 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **17826-TMW3**

Client Sample ID: **17826-TMW3**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939010
Lab Project ID: 1166939

Collection Date: 11/22/16 16:40
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.5		0.682	0.205	mg/L	1		12/01/16 20:05
Surrogates								
5a Androstane (surr)	117		50-150		%	1		12/01/16 20:05

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 12/01/16 20:05
Container ID: 1166939010-D

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/01/16 09:56
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	3.97		0.568	0.170	mg/L	1		12/01/16 20:05
Surrogates								
n-Triacontane-d62 (surr)	87.9		50-150		%	1		12/01/16 20:05

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 12/01/16 20:05
Container ID: 1166939010-D

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/01/16 09:56
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL

Results of **17826-TMW3**

Client Sample ID: **17826-TMW3**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939010
Lab Project ID: 1166939

Collection Date: 11/22/16 16:40
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0843	J	0.100	0.0310	mg/L	1		11/29/16 00:31
Surrogates								
4-Bromofluorobenzene (surr)	113		50-150		%	1		11/29/16 00:31

Batch Information

Analytical Batch: VFC13480
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/29/16 00:31
Container ID: 1166939010-A

Prep Batch: VXX30014
Prep Method: SW5030B
Prep Date/Time: 11/28/16 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.270	J	0.500	0.150	ug/L	1		11/29/16 00:31
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		11/29/16 00:31
o-Xylene	0.530	J	1.00	0.310	ug/L	1		11/29/16 00:31
P & M -Xylene	0.830	J	2.00	0.620	ug/L	1		11/29/16 00:31
Toluene	0.500	U	1.00	0.310	ug/L	1		11/29/16 00:31
Surrogates								
1,4-Difluorobenzene (surr)	101		77-115		%	1		11/29/16 00:31

Batch Information

Analytical Batch: VFC13480
Analytical Method: SW8021B
Analyst: NRO
Analytical Date/Time: 11/29/16 00:31
Container ID: 1166939010-A

Prep Batch: VXX30014
Prep Method: SW5030B
Prep Date/Time: 11/28/16 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **17826-WTB**

Client Sample ID: **17826-WTB**
Client Project ID: **17826-001 Whittier**
Lab Sample ID: 1166939011
Lab Project ID: 1166939

Collection Date: 11/22/16 09:30
Received Date: 11/23/16 13:53
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		11/29/16 00:49
Surrogates								
4-Bromofluorobenzene (surr)	106		50-150		%	1		11/29/16 00:49

Batch Information

Analytical Batch: VFC13480
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 11/29/16 00:49
Container ID: 1166939011-A

Prep Batch: VXX30014
Prep Method: SW5030B
Prep Date/Time: 11/28/16 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250	U	0.500	0.150	ug/L	1		11/29/16 00:49
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		11/29/16 00:49
o-Xylene	0.500	U	1.00	0.310	ug/L	1		11/29/16 00:49
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		11/29/16 00:49
Toluene	0.500	U	1.00	0.310	ug/L	1		11/29/16 00:49
Surrogates								
1,4-Difluorobenzene (surr)	101		77-115		%	1		11/29/16 00:49

Batch Information

Analytical Batch: VFC13480
Analytical Method: SW8021B
Analyst: NRO
Analytical Date/Time: 11/29/16 00:49
Container ID: 1166939011-A

Prep Batch: VXX30014
Prep Method: SW5030B
Prep Date/Time: 11/28/16 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 12/07/2016 4:47:17PM

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Method Blank

Blank ID: MB for HBN 1749714 [SPT/10054]
Blank Lab ID: 1366700

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939001, 1166939002, 1166939003, 1166939004, 1166939005

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10054
Analytical Method: SM21 2540G
Instrument:
Analyst: DSD
Analytical Date/Time: 11/29/2016 4:44:00PM

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

Duplicate Sample Summary

Original Sample ID: 1166925005
Duplicate Sample ID: 1366701
Analysis Date: 11/29/2016 16:44
Matrix: Soil/Solid (dry weight)

QC for Samples:

1166939001, 1166939002, 1166939003, 1166939004, 1166939005

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	94.4	94.3	%	0.14	(< 15)

Batch Information

Analytical Batch: SPT10054
Analytical Method: SM21 2540G
Instrument:
Analyst: DSD

Print Date: 12/07/2016 4:47:22PM

Duplicate Sample Summary

Original Sample ID: 1166966001
Duplicate Sample ID: 1366702
Analysis Date: 11/29/2016 16:44
Matrix: Soil/Solid (dry weight)

QC for Samples:

1166939001, 1166939002, 1166939003, 1166939004, 1166939005

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	89.8	90.1	%	0.32	(< 15)

Batch Information

Analytical Batch: SPT10054
Analytical Method: SM21 2540G
Instrument:
Analyst: DSD

Print Date: 12/07/2016 4:47:22PM

Method Blank

Blank ID: MB for HBN 1749264 [VXX/30002]
Blank Lab ID: 1366290

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939001, 1166939002, 1166939003, 1166939004, 1166939005, 1166939006

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Gasoline Range Organics	0.970J	2.50	0.750	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	105	72-119		%
4-Bromofluorobenzene (surr)	104	50-150		%

Batch Information

Analytical Batch: VFC13483
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: NRO
Analytical Date/Time: 11/24/2016 7:48:00AM

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/23/2016 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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t 907.562.2343 f 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30002]
Blank Spike Lab ID: 1366291
Date Analyzed: 11/24/2016 08:06

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30002]
Spike Duplicate Lab ID: 1366292
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939001, 1166939002, 1166939003, 1166939004, 1166939005, 1166939006

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.25	1.23	99	1.25	1.27	102	(75-125)	3.00	(< 20)
Ethylbenzene	1.25	1.21	97	1.25	1.24	99	(75-125)	2.00	(< 20)
o-Xylene	1.25	1.23	99	1.25	1.26	101	(75-125)	2.20	(< 20)
P & M -Xylene	2.50	2.48	99	2.50	2.53	101	(80-125)	2.00	(< 20)
Toluene	1.25	1.18	94	1.25	1.19	96	(70-125)	1.60	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	110	110	1.25	109	109	(72-119)	1.00	

Batch Information

Analytical Batch: **VFC13483**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **NRO**

Prep Batch: **VXX30002**
Prep Method: **SW5035A**
Prep Date/Time: **11/23/2016 08:00**
Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30002]
Blank Spike Lab ID: 1366293
Date Analyzed: 11/24/2016 08:43

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30002]
Spike Duplicate Lab ID: 1366294
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939001, 1166939002, 1166939003, 1166939004, 1166939005, 1166939006

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	12.1	97	12.5	11.9	95	(60-120)	2.00	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	107	107	1.25	107	107	(50-150)	0.45	

Batch Information

Analytical Batch: **VFC13483**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **NRO**

Prep Batch: **VXX30002**
Prep Method: **SW5035A**
Prep Date/Time: **11/23/2016 08:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1166925009
MS Sample ID: 1366295 MS
MSD Sample ID: 1366296 MSD

Analysis Date: 11/24/2016 11:47
Analysis Date: 11/24/2016 12:06
Analysis Date: 11/24/2016 12:24
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939001, 1166939002, 1166939003, 1166939004, 1166939005, 1166939006

Results by **AK101**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	0.00447U	0.731	0.717	98	0.731	0.735	101	75-125	2.50	(< 20)
Ethylbenzene	0.118	0.731	0.781	91	0.731	0.805	94	75-125	3.10	(< 20)
Gasoline Range Organics	4.81	7.31	10.9	83	7.31	11.2	87	60-120	2.30	(< 20)
o-Xylene	0.173	0.731	0.801	86	0.731	0.833	90	75-125	3.80	(< 20)
P & M -Xylene	0.536	1.46	1.73	82	1.46	1.80	87	80-125	4.00	(< 20)
Toluene	0.517	0.731	1.09	78	0.731	1.11	81	70-125	1.90	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		0.731	0.787	108	0.731	0.790	108	72-119	0.50	
4-Bromofluorobenzene (surr)		0.731	0.756	103	0.731	0.763	104	50-150	0.89	

Batch Information

Analytical Batch: VFC13483
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: NRO
Analytical Date/Time: 11/24/2016 12:06:00PM

Prep Batch: VXX30002
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/23/2016 8:00:00AM
Prep Initial Wt./Vol.: 91.08g
Prep Extract Vol: 25.00mL

Print Date: 12/07/2016 4:47:27PM

Method Blank

Blank ID: MB for HBN 1749264 [VXX/30002]
Blank Lab ID: 1366290

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939001, 1166939002, 1166939003, 1166939004, 1166939005, 1166939006

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	105	72-119		%

Batch Information

Analytical Batch: VFC13483
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: NRO
Analytical Date/Time: 11/24/2016 7:48:00AM

Prep Batch: VXX30002
Prep Method: SW5035A
Prep Date/Time: 11/23/2016 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30002]
Blank Spike Lab ID: 1366291
Date Analyzed: 11/24/2016 08:06

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30002]
Spike Duplicate Lab ID: 1366292
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939001, 1166939002, 1166939003, 1166939004, 1166939005, 1166939006

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1230	99	1250	1270	102	(75-125)	3.00	(< 20)
Ethylbenzene	1250	1210	97	1250	1240	99	(75-125)	2.00	(< 20)
o-Xylene	1250	1230	99	1250	1260	101	(75-125)	2.20	(< 20)
P & M -Xylene	2500	2480	99	2500	2530	101	(80-125)	2.00	(< 20)
Toluene	1250	1180	94	1250	1190	96	(70-125)	1.60	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	110	110	1250	109	109	(72-119)	1.00	

Batch Information

Analytical Batch: **VFC13483**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **NRO**

Prep Batch: **VXX30002**
Prep Method: **SW5035A**
Prep Date/Time: **11/23/2016 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1166925009
MS Sample ID: 1366295 MS
MSD Sample ID: 1366296 MSD

Analysis Date: 11/24/2016 11:47
Analysis Date: 11/24/2016 12:06
Analysis Date: 11/24/2016 12:24
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939001, 1166939002, 1166939003, 1166939004, 1166939005, 1166939006

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	4.47U	731	717	98	731	735	101	75-125	2.50	(< 20)
Ethylbenzene	118	731	781	91	731	805	94	75-125	3.10	(< 20)
o-Xylene	173	731	801	86	731	833	90	75-125	3.80	(< 20)
P & M -Xylene	536	1459	1725	82	1459	1800	87	80-125	4.00	(< 20)
Toluene	517	731	1086	78	731	1108	81	70-125	1.90	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		731	787	108	731	790	108	72-119	0.50	

Batch Information

Analytical Batch: VFC13483
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: NRO
Analytical Date/Time: 11/24/2016 12:06:00PM

Prep Batch: VXX30002
Prep Method: AK101 Extraction (S)
Prep Date/Time: 11/23/2016 8:00:00AM
Prep Initial Wt./Vol.: 91.08g
Prep Extract Vol: 25.00mL

Print Date: 12/07/2016 4:47:31PM

Method Blank

Blank ID: MB for HBN 1749530 [VXX/30013]
Blank Lab ID: 1366556

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939007, 1166939008

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
1,4-Difluorobenzene (surr)	102	77-115		%
4-Bromofluorobenzene (surr)	99.9	50-150		%

Batch Information

Analytical Batch: VFC13481
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: NRO
Analytical Date/Time: 11/28/2016 10:16:00PM

Prep Batch: VXX30013
Prep Method: SW5030B
Prep Date/Time: 11/28/2016 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30013]
Blank Spike Lab ID: 1366557
Date Analyzed: 11/28/2016 15:41

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30013]
Spike Duplicate Lab ID: 1366559
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939007, 1166939008

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.922	92	1.00	0.953	95	(60-120)	3.30	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	102	102	0.0500	112	112	(50-150)	9.20	

Batch Information

Analytical Batch: **VFC13481**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **NRO**

Prep Batch: **VXX30013**
Prep Method: **SW5030B**
Prep Date/Time: **11/28/2016 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1749531 [VXX/30014]
Blank Lab ID: 1366561

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939009, 1166939010, 1166939011

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	107	50-150		%

Batch Information

Analytical Batch: VFC13480
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: NRO
Analytical Date/Time: 11/28/2016 8:30:00PM

Prep Batch: VXX30014
Prep Method: SW5030B
Prep Date/Time: 11/28/2016 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30014]
Blank Spike Lab ID: 1366563
Date Analyzed: 11/28/2016 15:54

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30014]
Spike Duplicate Lab ID: 1366565
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939009, 1166939010, 1166939011

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.891	89	1.00	0.903	90	(60-120)	1.40	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	110	110	0.0500	112	112	(50-150)	2.00	

Batch Information

Analytical Batch: **VFC13480**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **NRO**

Prep Batch: **VXX30014**
Prep Method: **SW5030B**
Prep Date/Time: **11/28/2016 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1749531 [VXX/30014]
Blank Lab ID: 1366561

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939009, 1166939010, 1166939011

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.250U	0.500	0.150	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,4-Difluorobenzene (surr)	99	77-115		%

Batch Information

Analytical Batch: VFC13480
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: NRO
Analytical Date/Time: 11/28/2016 8:30:00PM

Prep Batch: VXX30014
Prep Method: SW5030B
Prep Date/Time: 11/28/2016 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30014]
Blank Spike Lab ID: 1366562
Date Analyzed: 11/28/2016 15:36

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30014]
Spike Duplicate Lab ID: 1366564
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939009, 1166939010, 1166939011

Results by **SW8021B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	100	93.1	93	100	98.5	99	(80-120)	5.60	(< 20)
Ethylbenzene	100	93.6	94	100	98.7	99	(75-125)	5.30	(< 20)
o-Xylene	100	96.9	97	100	102	102	(80-120)	4.70	(< 20)
P & M -Xylene	200	191	96	200	202	101	(75-130)	5.30	(< 20)
Toluene	100	90.2	90	100	95.4	95	(75-120)	5.60	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	50	112	112	50	109	109	(77-115)	3.00	

Batch Information

Analytical Batch: **VFC13480**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **NRO**

Prep Batch: **VXX30014**
Prep Method: **SW5030B**
Prep Date/Time: **11/28/2016 08:00**
Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1749825 [VXX/30021]
Blank Lab ID: 1366878

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939007, 1166939008

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.500U	1.00	0.310	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	5.00U	10.0	3.10	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.300	ug/L

Method Blank

Blank ID: MB for HBN 1749825 [VXX/30021]
Blank Lab ID: 1366878

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939007, 1166939008

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	5.00U	10.0	3.10	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	97.1	81-118		%
4-Bromofluorobenzene (surr)	100	85-114		%
Toluene-d8 (surr)	105	89-112		%

Method Blank

Blank ID: MB for HBN 1749825 [VXX/30021]
Blank Lab ID: 1366878

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939007, 1166939008

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS16417
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: TJT
Analytical Date/Time: 11/30/2016 11:43:00AM

Prep Batch: VXX30021
Prep Method: SW5030B
Prep Date/Time: 11/30/2016 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Leaching Blank

Blank ID: LB for HBN 1749716 [TCLP/8653]
Blank Lab ID: 1366706

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939007, 1166939008

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1-Dichloroethene	25.0U	50.0	15.5	ug/L
1,2-Dichloroethane	12.5U	25.0	7.50	ug/L
1,4-Dichlorobenzene	12.5U	25.0	7.50	ug/L
2-Butanone (MEK)	250U	500	155	ug/L
Benzene	10.0U	20.0	6.00	ug/L
Carbon tetrachloride	25.0U	50.0	15.5	ug/L
Chlorobenzene	12.5U	25.0	7.50	ug/L
Chloroform	25.0U	50.0	15.0	ug/L
Hexachlorobutadiene	25.0U	50.0	15.5	ug/L
Tetrachloroethene	25.0U	50.0	15.5	ug/L
Trichloroethene	25.0U	50.0	15.5	ug/L
Vinyl chloride	25.0U	50.0	15.5	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	97.6	81-118		%
4-Bromofluorobenzene (surr)	100	85-114		%
Toluene-d8 (surr)	101	89-112		%

Batch Information

Analytical Batch: VMS16417
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: TJT
Analytical Date/Time: 11/30/2016 6:32:00PM

Prep Batch: VXX30021
Prep Method: SW5030B
Prep Date/Time: 11/30/2016 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30021]
Blank Spike Lab ID: 1366879
Date Analyzed: 11/30/2016 12:42

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30021]
Spike Duplicate Lab ID: 1366880
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939007, 1166939008

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	34.9	116	30	29.5	98	(78-124)	16.70	(< 20)
1,1,1-Trichloroethane	30	33.3	111	30	35.9	120	(74-131)	7.40	(< 20)
1,1,2,2-Tetrachloroethane	30	34.2	114	30	31.3	104	(71-121)	8.80	(< 20)
1,1,2-Trichloroethane	30	33.2	111	30	30.7	102	(80-119)	7.80	(< 20)
1,1-Dichloroethane	30	31.7	106	30	34.4	115	(77-125)	8.10	(< 20)
1,1-Dichloroethene	30	34.5	115	30	38.2	127	(71-131)	10.30	(< 20)
1,1-Dichloropropene	30	35.0	117	30	36.2	121	(79-125)	3.30	(< 20)
1,2,3-Trichlorobenzene	30	31.1	104	30	28.4	95	(69-129)	9.00	(< 20)
1,2,3-Trichloropropane	30	33.9	113	30	31.1	104	(73-122)	8.90	(< 20)
1,2,4-Trichlorobenzene	30	32.2	107	30	31.6	105	(69-130)	1.90	(< 20)
1,2,4-Trimethylbenzene	30	32.0	107	30	30.4	101	(79-124)	5.20	(< 20)
1,2-Dibromo-3-chloropropane	30	35.9	120	30	32.4	108	(62-128)	10.30	(< 20)
1,2-Dibromoethane	30	35.5	118	30	33.4	111	(77-121)	6.10	(< 20)
1,2-Dichlorobenzene	30	33.0	110	30	32.5	108	(80-119)	1.60	(< 20)
1,2-Dichloroethane	30	29.0	97	30	31.1	104	(73-128)	6.90	(< 20)
1,2-Dichloropropane	30	35.8	119	30	35.9	120	(78-122)	0.11	(< 20)
1,3,5-Trimethylbenzene	30	34.3	114	30	32.7	109	(75-124)	4.80	(< 20)
1,3-Dichlorobenzene	30	33.7	112	30	32.5	108	(80-119)	3.50	(< 20)
1,3-Dichloropropane	30	33.0	110	30	31.1	104	(80-119)	5.80	(< 20)
1,4-Dichlorobenzene	30	34.2	114	30	33.1	110	(79-118)	3.30	(< 20)
2,2-Dichloropropane	30	34.7	116	30	37.9	126	(60-139)	8.80	(< 20)
2-Butanone (MEK)	90	107	118	90	91.3	101	(56-143)	15.40	(< 20)
2-Chlorotoluene	30	35.4	118	30	33.3	111	(79-122)	6.00	(< 20)
2-Hexanone	90	106	117	90	92.8	103	(57-139)	13.00	(< 20)
4-Chlorotoluene	30	35.2	117	30	33.7	112	(78-122)	4.40	(< 20)
4-Isopropyltoluene	30	31.5	105	30	30.5	102	(77-127)	3.10	(< 20)
4-Methyl-2-pentanone (MIBK)	90	102	114	90	93.8	104	(67-130)	8.70	(< 20)
Benzene	30	34.8	116	30	35.2	117	(79-120)	1.30	(< 20)
Bromobenzene	30	33.2	111	30	32.6	109	(80-120)	1.70	(< 20)
Bromochloromethane	30	30.5	102	30	33.6	112	(78-123)	9.90	(< 20)
Bromodichloromethane	30	32.4	108	30	34.1	114	(79-125)	5.40	(< 20)
Bromoform	30	36.2	121	30	33.4	111	(66-130)	8.10	(< 20)
Bromomethane	30	28.8	96	30	36.4	121	(53-141)	23.50	* (< 20)
Carbon disulfide	45	54.1	120	45	60.5	134	* (64-133)	11.10	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30021]
Blank Spike Lab ID: 1366879
Date Analyzed: 11/30/2016 12:42

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30021]
Spike Duplicate Lab ID: 1366880
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939007, 1166939008

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	33.6	112	30	36.3	121	(72-136)	7.70	(< 20)
Chlorobenzene	30	33.9	113	30	32.1	107	(82-118)	5.40	(< 20)
Chloroethane	30	33.8	113	30	38.9	130	(60-138)	14.10	(< 20)
Chloroform	30	30.8	103	30	33.4	111	(79-124)	8.10	(< 20)
Chloromethane	30	25.3	84	30	28.4	95	(50-139)	11.70	(< 20)
cis-1,2-Dichloroethene	30	31.5	105	30	33.8	113	(78-123)	7.00	(< 20)
cis-1,3-Dichloropropene	30	32.7	109	30	32.8	109	(75-124)	0.55	(< 20)
Dibromochloromethane	30	32.4	108	30	30.7	102	(74-126)	5.40	(< 20)
Dibromomethane	30	29.9	100	30	32.7	109	(79-123)	8.80	(< 20)
Dichlorodifluoromethane	30	27.3	91	30	32.3	108	(32-152)	16.70	(< 20)
Ethylbenzene	30	35.2	117	30	34.9	116	(79-121)	0.97	(< 20)
Freon-113	45	53.8	120	45	59.4	132	(70-136)	9.80	(< 20)
Hexachlorobutadiene	30	29.5	99	30	31.3	104	(66-134)	5.70	(< 20)
Isopropylbenzene (Cumene)	30	31.8	106	30	31.2	104	(72-131)	1.90	(< 20)
Methylene chloride	30	30.9	103	30	33.9	113	(74-124)	9.50	(< 20)
Methyl-t-butyl ether	45	52.9	118	45	53.4	119	(71-124)	0.92	(< 20)
Naphthalene	30	32.2	107	30	27.4	92	(61-128)	15.90	(< 20)
n-Butylbenzene	30	31.0	103	30	30.6	102	(75-128)	1.30	(< 20)
n-Propylbenzene	30	34.7	116	30	33.1	110	(76-126)	4.70	(< 20)
o-Xylene	30	35.3	118	30	34.0	113	(78-122)	3.70	(< 20)
P & M -Xylene	60	68.9	115	60	67.4	112	(80-121)	2.10	(< 20)
sec-Butylbenzene	30	31.2	104	30	30.5	102	(77-126)	2.30	(< 20)
Styrene	30	32.1	107	30	31.4	105	(78-123)	2.20	(< 20)
tert-Butylbenzene	30	31.2	104	30	30.5	102	(78-124)	2.20	(< 20)
Tetrachloroethene	30	34.8	116	30	31.0	103	(74-129)	11.40	(< 20)
Toluene	30	33.7	112	30	31.3	104	(80-121)	7.40	(< 20)
trans-1,2-Dichloroethene	30	32.0	107	30	34.9	116	(75-124)	8.70	(< 20)
trans-1,3-Dichloropropene	30	33.2	111	30	31.4	105	(73-127)	5.80	(< 20)
Trichloroethene	30	34.6	115	30	35.1	117	(79-123)	1.50	(< 20)
Trichlorofluoromethane	30	31.1	104	30	35.1	117	(65-141)	11.90	(< 20)
Vinyl acetate	30	35.6	119	30	35.7	119	(54-146)	0.39	(< 20)
Vinyl chloride	30	33.7	112	30	39.3	131	(58-137)	15.20	(< 20)
Xylenes (total)	90	104	116	90	101	113	(79-121)	2.60	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30021]
Blank Spike Lab ID: 1366879
Date Analyzed: 11/30/2016 12:42

Spike Duplicate ID: LCSD for HBN 1166939 [VXX30021]
Spike Duplicate Lab ID: 1366880
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939007, 1166939008

Results by **SW8260B**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	88.3	88	30	96	96	(81-118)	8.40	
4-Bromofluorobenzene (surr)	30	102	102	30	100	100	(85-114)	1.50	
Toluene-d8 (surr)	30	98.8	99	30	93.4	93	(89-112)	5.60	

Batch Information

Analytical Batch: **VMS16417**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **TJT**

Prep Batch: **VXX30021**
Prep Method: **SW5030B**
Prep Date/Time: **11/30/2016 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1749922 [VXX/30025]
Blank Lab ID: 1367046

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939003

Results by **SW8260B**

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

Method Blank

Blank ID: MB for HBN 1749922 [VXX/30025]
Blank Lab ID: 1367046

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939003

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	25.0U	50.0	15.0	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	25.0U	50.0	15.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	106	71-136		%
4-Bromofluorobenzene (surr)	102	55-151		%
Toluene-d8 (surr)	92.8	85-116		%

Method Blank

Blank ID: MB for HBN 1749922 [VXX/30025]
Blank Lab ID: 1367046

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939003

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS16421
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: TJT
Analytical Date/Time: 12/1/2016 4:14:00PM

Prep Batch: VXX30025
Prep Method: SW5035A
Prep Date/Time: 12/1/2016 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30025]
Blank Spike Lab ID: 1367047
Date Analyzed: 12/01/2016 16:52

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939003

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	803	107	(78-125)
1,1,1-Trichloroethane	750	801	107	(73-130)
1,1,2,2-Tetrachloroethane	750	805	107	(70-124)
1,1,2-Trichloroethane	750	812	108	(78-121)
1,1-Dichloroethane	750	739	99	(76-125)
1,1-Dichloroethene	750	797	106	(70-131)
1,1-Dichloropropene	750	837	112	(76-125)
1,2,3-Trichlorobenzene	750	627	84	(66-130)
1,2,3-Trichloropropane	750	768	102	(73-125)
1,2,4-Trichlorobenzene	750	672	90	(67-129)
1,2,4-Trimethylbenzene	750	797	106	(75-123)
1,2-Dibromo-3-chloropropane	750	748	100	(61-132)
1,2-Dibromoethane	750	806	107	(78-122)
1,2-Dichlorobenzene	750	764	102	(78-121)
1,2-Dichloroethane	750	754	101	(73-128)
1,2-Dichloropropane	750	819	109	(76-123)
1,3,5-Trimethylbenzene	750	826	110	(73-124)
1,3-Dichlorobenzene	750	775	103	(77-121)
1,3-Dichloropropane	750	806	107	(77-121)
1,4-Dichlorobenzene	750	773	103	(75-120)
2,2-Dichloropropane	750	745	99	(67-133)
2-Butanone (MEK)	2250	2210	98	(51-148)
2-Chlorotoluene	750	799	107	(75-122)
2-Hexanone	2250	2020	90	(53-145)
4-Chlorotoluene	750	792	106	(72-124)
4-Isopropyltoluene	750	826	110	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2020	90	(65-135)
Benzene	750	813	108	(77-121)
Bromobenzene	750	793	106	(78-121)
Bromochloromethane	750	770	103	(78-125)
Bromodichloromethane	750	798	106	(75-127)
Bromoform	750	816	109	(67-132)
Bromomethane	750	760	101	(53-143)
Carbon disulfide	1130	1160	103	(63-132)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30025]
Blank Spike Lab ID: 1367047
Date Analyzed: 12/01/2016 16:52

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939003

Results by **SW8260B**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	820	109	(70-135)
Chlorobenzene	750	774	103	(79-120)
Chloroethane	750	779	104	(59-139)
Chloroform	750	775	103	(78-123)
Chloromethane	750	702	94	(50-136)
cis-1,2-Dichloroethene	750	775	103	(77-123)
cis-1,3-Dichloropropene	750	819	109	(74-126)
Dibromochloromethane	750	808	108	(74-126)
Dibromomethane	750	696	93	(78-125)
Dichlorodifluoromethane	750	747	100	(29-149)
Ethylbenzene	750	796	106	(76-122)
Freon-113	1130	1240	110	(66-136)
Hexachlorobutadiene	750	759	101	(61-135)
Isopropylbenzene (Cumene)	750	820	109	(68-134)
Methylene chloride	750	750	100	(70-128)
Methyl-t-butyl ether	1130	1210	107	(73-125)
Naphthalene	750	613	82	(62-129)
n-Butylbenzene	750	810	108	(70-128)
n-Propylbenzene	750	839	112	(73-125)
o-Xylene	750	781	104	(77-123)
P & M -Xylene	1500	1570	105	(77-124)
sec-Butylbenzene	750	844	113	(73-126)
Styrene	750	763	102	(76-124)
tert-Butylbenzene	750	828	110	(73-125)
Tetrachloroethene	750	820	109	(73-128)
Toluene	750	772	103	(77-121)
trans-1,2-Dichloroethene	750	777	104	(74-125)
trans-1,3-Dichloropropene	750	814	108	(71-130)
Trichloroethene	750	805	107	(77-123)
Trichlorofluoromethane	750	834	111	(62-140)
Vinyl acetate	750	1030	137	(50-151)
Vinyl chloride	750	740	99	(56-135)
Xylenes (total)	2250	2350	105	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [VXX30025]
Blank Spike Lab ID: 1367047
Date Analyzed: 12/01/2016 16:52

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939003

Results by **SW8260B**

		Blank Spike (%)		
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	96.8	97	(71-136)
4-Bromofluorobenzene (surr)	750	105	105	(55-151)
Toluene-d8 (surr)	750	96.1	96	(85-116)

Batch Information

Analytical Batch: **VMS16421**
Analytical Method: **SW8260B**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **TJT**

Prep Batch: **VXX30025**
Prep Method: **SW5035A**
Prep Date/Time: **12/01/2016 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1166910001
MS Sample ID: 1367048 MS
MSD Sample ID: 1367049 MSD

Analysis Date: 12/01/2016 20:58
Analysis Date: 12/01/2016 18:59
Analysis Date: 12/01/2016 19:16
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939003

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	12.7U	626	709	113	626	718	115	78-125	1.30	(< 20)
1,1,1-Trichloroethane	12.7U	626	698	112	626	701	112	73-130	0.42	(< 20)
1,1,2,2-Tetrachloroethane	6.35U	626	731	117	626	727	116	70-124	0.37	(< 20)
1,1,2-Trichloroethane	5.10U	626	719	115	626	733	117	78-121	1.90	(< 20)
1,1-Dichloroethane	12.7U	626	647	103	626	656	105	76-125	1.60	(< 20)
1,1-Dichloroethene	12.7U	626	696	111	626	699	112	70-131	0.54	(< 20)
1,1-Dichloropropene	12.7U	626	724	116	626	723	115	76-125	0.12	(< 20)
1,2,3-Trichlorobenzene	25.4U	626	598	95	626	660	105	66-130	9.90	(< 20)
1,2,3-Trichloropropane	12.7U	626	689	110	626	708	113	73-125	2.60	(< 20)
1,2,4-Trichlorobenzene	12.7U	626	588	94	626	606	97	67-129	3.00	(< 20)
1,2,4-Trimethylbenzene	25.4U	626	654	104	626	635	101	75-123	3.00	(< 20)
1,2-Dibromo-3-chloropropane	51.0U	626	661	105	626	704	113	61-132	6.50	(< 20)
1,2-Dibromoethane	5.10U	626	715	114	626	727	116	78-122	1.60	(< 20)
1,2-Dichlorobenzene	12.7U	626	640	102	626	624	100	78-121	2.70	(< 20)
1,2-Dichloroethane	5.10U	626	671	107	626	686	109	73-128	2.10	(< 20)
1,2-Dichloropropane	5.10U	626	719	115	626	730	116	76-123	1.50	(< 20)
1,3,5-Trimethylbenzene	12.7U	626	662	106	626	635	101	73-124	4.20	(< 20)
1,3-Dichlorobenzene	12.7U	626	632	101	626	610	97	77-121	3.70	(< 20)
1,3-Dichloropropane	5.10U	626	706	113	626	725	116	77-121	2.70	(< 20)
1,4-Dichlorobenzene	12.7U	626	642	103	626	626	100	75-120	2.60	(< 20)
2,2-Dichloropropane	12.7U	626	651	104	626	641	102	67-133	1.40	(< 20)
2-Butanone (MEK)	127U	1876	1952	104	1876	2094	112	51-148	7.40	(< 20)
2-Chlorotoluene	12.7U	626	650	104	626	636	102	75-122	2.20	(< 20)
2-Hexanone	127U	1876	1810	97	1876	2028	108	53-145	11.10	(< 20)
4-Chlorotoluene	12.7U	626	663	106	626	639	102	72-124	3.70	(< 20)
4-Isopropyltoluene	12.7U	626	652	104	626	614	98	73-127	6.00	(< 20)
4-Methyl-2-pentanone (MIBK)	127U	1876	1799	96	1876	1952	104	65-135	8.30	(< 20)
Benzene	6.35U	626	704	112	626	710	113	77-121	0.77	(< 20)
Bromobenzene	12.7U	626	679	108	626	675	108	78-121	0.59	(< 20)
Bromochloromethane	12.7U	626	684	109	626	697	111	78-125	1.80	(< 20)
Bromodichloromethane	12.7U	626	703	112	626	710	113	75-127	0.89	(< 20)
Bromoform	12.7U	626	712	114	626	730	116	67-132	2.40	(< 20)
Bromomethane	102U	626	665	106	626	652	104	53-143	2.00	(< 20)
Carbon disulfide	51.0U	939	1024	109	939	1021	109	63-132	0.33	(< 20)
Carbon tetrachloride	6.35U	626	708	113	626	704	113	70-135	0.47	(< 20)
Chlorobenzene	12.7U	626	674	108	626	676	108	79-120	0.28	(< 20)
Chloroethane	102U	626	640	102	626	646	103	59-139	0.91	(< 20)

Print Date: 12/07/2016 4:47:50PM

Matrix Spike Summary

Original Sample ID: 1166910001
MS Sample ID: 1367048 MS
MSD Sample ID: 1367049 MSD

Analysis Date: 12/01/2016 20:58
Analysis Date: 12/01/2016 18:59
Analysis Date: 12/01/2016 19:16
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939003

Results by **SW8260B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	12.7U	626	674	108	626	688	110	78-123	2.10	(< 20)
Chloromethane	12.7U	626	617	99	626	637	102	50-136	3.20	(< 20)
cis-1,2-Dichloroethene	12.7U	626	682	109	626	694	111	77-123	1.70	(< 20)
cis-1,3-Dichloropropene	12.7U	626	727	116	626	723	115	74-126	0.63	(< 20)
Dibromochloromethane	12.7U	626	719	115	626	726	116	74-126	1.10	(< 20)
Dibromomethane	12.7U	626	622	99	626	632	101	78-125	1.80	(< 20)
Dichlorodifluoromethane	25.4U	626	655	105	626	658	105	29-149	0.29	(< 20)
Ethylbenzene	12.7U	626	661	105	626	664	106	76-122	0.50	(< 20)
Freon-113	51.0U	939	1063	113	939	1059	113	66-136	0.43	(< 20)
Hexachlorobutadiene	25.4U	626	678	108	626	617	99	61-135	9.40	(< 20)
Isopropylbenzene (Cumene)	12.7U	626	653	104	626	643	103	68-134	1.50	(< 20)
Methylene chloride	51.0U	626	672	107	626	686	110	70-128	2.20	(< 20)
Methyl-t-butyl ether	51.0U	939	1071	114	939	1086	116	73-125	1.50	(< 20)
Naphthalene	25.4U	626	539	86	626	613	98	62-129	12.90	(< 20)
n-Butylbenzene	12.7U	626	651	104	626	588	94	70-128	10.20	(< 20)
n-Propylbenzene	12.7U	626	667	107	626	647	103	73-125	3.20	(< 20)
o-Xylene	12.7U	626	650	104	626	656	105	77-123	1.20	(< 20)
P & M -Xylene	25.4U	1254	1298	104	1254	1298	103	77-124	0.21	(< 20)
sec-Butylbenzene	12.7U	626	671	107	626	624	100	73-126	7.20	(< 20)
Styrene	12.7U	626	632	101	626	639	102	76-124	0.98	(< 20)
tert-Butylbenzene	12.7U	626	673	108	626	654	104	73-125	2.90	(< 20)
Tetrachloroethene	6.35U	626	702	112	626	708	113	73-128	0.77	(< 20)
Toluene	12.7U	626	677	108	626	680	109	77-121	0.52	(< 20)
trans-1,2-Dichloroethene	12.7U	626	677	108	626	680	109	74-125	0.46	(< 20)
trans-1,3-Dichloropropene	12.7U	626	733	117	626	725	116	71-130	1.10	(< 20)
Trichloroethene	6.35U	626	701	112	626	706	113	77-123	0.65	(< 20)
Trichlorofluoromethane	25.4U	626	708	113	626	688	110	62-140	2.80	(< 20)
Vinyl acetate	51.0U	626	912	146	626	724	116	50-151	23.00	* (< 20)
Vinyl chloride	5.10U	626	656	105	626	662	106	56-135	0.95	(< 20)
Xylenes (total)	38.1U	1876	1941	104	1876	1952	104	78-124	0.25	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		626	659	105	626	673	108	71-136	2.20	
4-Bromofluorobenzene (surr)		1668	1483	89	1668	1461	88	55-151	1.20	
Toluene-d8 (surr)		626	636	101	626	643	103	85-116	1.20	

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Matrix Spike Summary

Original Sample ID: 1166910001
MS Sample ID: 1367048 MS
MSD Sample ID: 1367049 MSD

QC for Samples: 1166939003

Analysis Date:
Analysis Date: 12/01/2016 18:59
Analysis Date: 12/01/2016 19:16
Matrix: Soil/Solid (dry weight)

Results by **SW8260B**

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

Batch Information

Analytical Batch: VMS16421
Analytical Method: SW8260B
Instrument: VQA 7890/5975 GC/MS
Analyst: TJT
Analytical Date/Time: 12/1/2016 6:59:00PM

Prep Batch: VXX30025
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 12/1/2016 6:00:00AM
Prep Initial Wt./Vol.: 65.30g
Prep Extract Vol: 25.00mL

Print Date: 12/07/2016 4:47:50PM

Method Blank

Blank ID: MB for HBN 1749468 [XXX/36722]
Blank Lab ID: 1366325

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939007

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0150J	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Fluorobiphenyl (surr)	75	53-106		%
Terphenyl-d14 (surr)	82.9	58-132		%

Batch Information

Analytical Batch: XMS9766
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BRV
Analytical Date/Time: 11/29/2016 12:44:00PM

Prep Batch: XXX36722
Prep Method: SW3520C
Prep Date/Time: 11/28/2016 9:45:57AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 12/07/2016 4:47:52PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [XXX36722]
Blank Spike Lab ID: 1366326
Date Analyzed: 11/29/2016 13:04

Spike Duplicate ID: LCSD for HBN 1166939 [XXX36722]
Spike Duplicate Lab ID: 1366327
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939007

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

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.48	74	2	1.44	72	(41-115)	2.60	(< 20)
2-Methylnaphthalene	2	1.42	71	2	1.37	68	(39-114)	4.10	(< 20)
Acenaphthene	2	1.82	91	2	1.72	86	(48-114)	5.30	(< 20)
Acenaphthylene	2	1.52	76	2	1.40	70	(35-121)	8.30	(< 20)
Anthracene	2	1.55	77	2	1.41	71	(53-119)	9.10	(< 20)
Benzo(a)Anthracene	2	1.65	83	2	1.54	77	(59-120)	6.70	(< 20)
Benzo[a]pyrene	2	1.40	70	2	1.22	61	(53-120)	14.20	(< 20)
Benzo[b]Fluoranthene	2	1.61	81	2	1.53	77	(53-126)	5.20	(< 20)
Benzo[g,h,i]perylene	2	1.63	81	2	1.47	73	(44-128)	10.30	(< 20)
Benzo[k]fluoranthene	2	1.60	80	2	1.47	73	(54-125)	8.70	(< 20)
Chrysene	2	1.77	89	2	1.67	83	(57-120)	6.10	(< 20)
Dibenzo[a,h]anthracene	2	1.56	78	2	1.37	69	(44-131)	13.00	(< 20)
Fluoranthene	2	1.71	85	2	1.60	80	(58-120)	6.40	(< 20)
Fluorene	2	1.61	80	2	1.52	76	(50-118)	5.90	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.57	78	2	1.42	71	(48-130)	9.70	(< 20)
Naphthalene	2	1.40	70	2	1.37	68	(43-114)	2.30	(< 20)
Phenanthrene	2	1.60	80	2	1.49	74	(53-115)	7.30	(< 20)
Pyrene	2	1.80	90	2	1.70	85	(53-121)	5.90	(< 20)
Surrogates									
2-Fluorobiphenyl (surr)	2	78.5	79	2	76.5	77	(53-106)	2.50	
Terphenyl-d14 (surr)	2	88.4	88	2	80.8	81	(58-132)	9.00	

Batch Information

Analytical Batch: **XMS9766**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BRV**

Prep Batch: **XXX36722**
Prep Method: **SW3520C**
Prep Date/Time: **11/28/2016 09:45**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 12/07/2016 4:47:54PM

Matrix Spike Summary

Original Sample ID: 1168868001
MS Sample ID: 1366328 MS
MSD Sample ID: 1366329 MSD

QC for Samples: 1166939007

Analysis Date: 11/29/2016 16:08
Analysis Date: 11/29/2016 16:28
Analysis Date: 11/29/2016 16:49
Matrix: Water (Surface, Eff., Ground)

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

		Matrix Spike (ug/L)				Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.0240U	1.96	1	51		1.96	1.09	56	41-115	8.50	(< 20)
2-Methylnaphthalene	0.0240U	1.96	.957	49		1.96	1.05	54	39-114	9.30	(< 20)
Acenaphthene	0.0240U	1.96	1.25	64		1.96	1.34	68	48-114	7.10	(< 20)
Acenaphthylene	0.0240U	1.96	1.06	54		1.96	1.12	57	35-121	6.10	(< 20)
Anthracene	0.0240U	1.96	1.28	65		1.96	1.20	61	53-119	6.80	(< 20)
Benzo(a)Anthracene	0.0240U	1.96	1.47	75		1.96	1.26	64	59-120	15.90	(< 20)
Benzo[a]pyrene	0.00960U	1.96	1.36	70		1.96	1.13	58	53-120	18.60	(< 20)
Benzo[b]Fluoranthene	0.0240U	1.96	1.43	73		1.96	1.16	59	53-126	20.10	* (< 20)
Benzo[g,h,i]perylene	0.0240U	1.96	1.42	72		1.96	1.06	54	44-128	29.10	* (< 20)
Benzo[k]fluoranthene	0.0240U	1.96	1.42	72		1.96	1.12	57	54-125	23.40	* (< 20)
Chrysene	0.0240U	1.96	1.59	81		1.96	1.35	69	57-120	16.10	(< 20)
Dibenzo[a,h]anthracene	0.00960U	1.96	1.33	68		1.96	0.935	48	44-131	34.70	* (< 20)
Fluoranthene	0.0240U	1.96	1.46	74		1.96	1.32	67	58-120	10.00	(< 20)
Fluorene	0.0240U	1.96	1.16	59		1.96	1.19	61	50-118	2.90	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0240U	1.96	1.34	69		1.96	0.981	50	48-130	31.20	* (< 20)
Naphthalene	0.0481U	1.96	.965	49		1.96	1.08	55	43-114	10.90	(< 20)
Phenanthrene	0.0240U	1.96	1.29	66		1.96	1.21	62	53-115	6.50	(< 20)
Pyrene	0.0240U	1.96	1.55	79		1.96	1.41	72	53-121	9.30	(< 20)
Surrogates											
2-Fluorobiphenyl (surr)		1.96	1.03	52	*	1.96	1.12	57	53-106	8.40	
Terphenyl-d14 (surr)		1.96	1.52	78		1.96	1.31	67	58-132	15.10	

Batch Information

Analytical Batch: XMS9766
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BRV
Analytical Date/Time: 11/29/2016 4:28:00PM

Prep Batch: XXX36722
Prep Method: 3520 Liq/Liq Ext for 8270 PAH SIM LV
Prep Date/Time: 11/28/2016 9:45:57AM
Prep Initial Wt./Vol.: 255.00mL
Prep Extract Vol: 1.00mL

Print Date: 12/07/2016 4:47:55PM

Method Blank

Blank ID: MB for HBN 1749715 [XXX/36734]
Blank Lab ID: 1366704

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939003

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
2-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
Acenaphthene	2.50U	5.00	1.50	ug/Kg
Acenaphthylene	2.50U	5.00	1.50	ug/Kg
Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo[a]pyrene	2.50U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	2.50U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	2.50U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	2.50U	5.00	1.50	ug/Kg
Chrysene	2.50U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	2.50U	5.00	1.50	ug/Kg
Fluoranthene	2.50U	5.00	1.50	ug/Kg
Fluorene	2.50U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	2.50U	5.00	1.50	ug/Kg
Naphthalene	2.50U	5.00	1.50	ug/Kg
Phenanthrene	2.50U	5.00	1.50	ug/Kg
Pyrene	2.50U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl (surr)	91	46-115		%
Terphenyl-d14 (surr)	95.4	58-133		%

Batch Information

Analytical Batch: XMS9773
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BRV
Analytical Date/Time: 12/5/2016 12:45:00PM

Prep Batch: XXX36734
Prep Method: SW3550C
Prep Date/Time: 11/30/2016 8:45:28AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

Print Date: 12/07/2016 4:47:56PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [XXX36734]
Blank Spike Lab ID: 1366705
Date Analyzed: 12/05/2016 13:05

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939003

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	22.2	18.9	85	(43-111)
2-Methylnaphthalene	22.2	18.4	83	(39-114)
Acenaphthene	22.2	22.3	100	(44-111)
Acenaphthylene	22.2	15.5	70	(39-116)
Anthracene	22.2	16.2	73	(50-114)
Benzo(a)Anthracene	22.2	19.0	85	(54-122)
Benzo[a]pyrene	22.2	14.7	66	(50-125)
Benzo[b]Fluoranthene	22.2	18.7	84	(53-128)
Benzo[g,h,i]perylene	22.2	18.4	83	(49-127)
Benzo[k]fluoranthene	22.2	18.2	82	(56-123)
Chrysene	22.2	20.6	93	(57-118)
Dibenzo[a,h]anthracene	22.2	18.7	84	(50-129)
Fluoranthene	22.2	19.8	89	(55-119)
Fluorene	22.2	19.4	87	(47-114)
Indeno[1,2,3-c,d] pyrene	22.2	18.5	83	(49-130)
Naphthalene	22.2	18.2	82	(38-111)
Phenanthrene	22.2	18.7	84	(49-113)
Pyrene	22.2	20.9	94	(55-117)
Surrogates				
2-Fluorobiphenyl (surr)	22.2	90.8	91	(46-115)
Terphenyl-d14 (surr)	22.2	93.2	93	(58-133)

Batch Information

Analytical Batch: **XMS9773**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BRV**

Prep Batch: **XXX36734**
Prep Method: **SW3550C**
Prep Date/Time: **11/30/2016 08:45**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 12/07/2016 4:47:58PM

Matrix Spike Summary

Original Sample ID: 1168868005
MS Sample ID: 1367584 MS
MSD Sample ID: 1367585 MSD

Analysis Date: 12/06/2016 20:03
Analysis Date: 12/06/2016 20:23
Analysis Date: 12/06/2016 20:44
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939003

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

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	75.0U	33.2	57.1J	172	*	33.4	59.4J	178	*	43-111	4.00	(< 20)
2-Methylnaphthalene	75.0U	33.2	65.0J	195	*	33.4	63.6J	191	*	39-114	2.00	(< 20)
Acenaphthene	75.0U	33.2	75.0U	0	*	33.4	75.0U	0	*	44-111	0.00	(< 20)
Acenaphthylene	75.0U	33.2	75.0U	0	*	33.4	75.0U	0	*	39-116	0.00	(< 20)
Anthracene	75.0U	33.2	75.0U	0	*	33.4	75.0U	0	*	50-114	0.00	(< 20)
Benzo(a)Anthracene	75.0U	33.2	75.0U	0	*	33.4	75.0U	0	*	54-122	0.00	(< 20)
Benzo[a]pyrene	75.0U	33.2	75.0U	0	*	33.4	75.0U	0	*	50-125	0.00	(< 20)
Benzo[b]Fluoranthene	47.8J	33.2	68.4J	62		33.4	67.4J	59		53-128	1.50	(< 20)
Benzo[g,h,i]perylene	75.0U	33.2	54.0J	162	*	33.4	75.0U	0	*	49-127	0.00	(< 20)
Benzo[k]fluoranthene	75.0U	33.2	75.0U	0	*	33.4	75.0U	0	*	56-123	0.00	(< 20)
Chrysene	75.0U	33.2	75.0U	0	*	33.4	48.4J	145	*	57-118	0.00	(< 20)
Dibenzo[a,h]anthracene	75.0U	33.2	75.0U	0	*	33.4	75.0U	0	*	50-129	0.00	(< 20)
Fluoranthene	75.0U	33.2	54.0J	163	*	33.4	60.2J	180	*	55-119	10.70	(< 20)
Fluorene	75.0U	33.2	49.0J	147	*	33.4	56.5J	169	*	47-114	14.20	(< 20)
Indeno[1,2,3-c,d] pyrene	75.0U	33.2	75.0U	0	*	33.4	75.0U	0	*	49-130	0.00	(< 20)
Naphthalene	76.3J	33.2	75.0U	0	*	33.4	75.0U	0	*	38-111	0.00	(< 20)
Phenanthrene	75.0U	33.2	54.4J	164	*	33.4	63.5J	190	*	49-113	15.20	(< 20)
Pyrene	52.1J	33.2	76.2J	73		33.4	85.0J	98		55-117	10.80	(< 20)
Surrogates												
2-Fluorobiphenyl (surr)		33.2	28.0	84		33.4	26.3	79		46-115	6.50	
Terphenyl-d14 (surr)		33.2	31.1	94		33.4	29.3	88		58-133	6.20	

Batch Information

Analytical Batch: XMS9778
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: S.G
Analytical Date/Time: 12/6/2016 8:23:00PM

Prep Batch: XXX36734
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 11/30/2016 8:45:28AM
Prep Initial Wt./Vol.: 22.63g
Prep Extract Vol: 5.00mL

Print Date: 12/07/2016 4:47:59PM

Method Blank

Blank ID: MB for HBN 1749726 [XXX/36736]
Blank Lab ID: 1366732

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939001, 1166939002, 1166939003, 1166939004, 1166939005

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	83.8	60-120		%

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: CRA
Analytical Date/Time: 12/1/2016 6:38:00PM

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/2016 1:18:58PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [XXX36736]
Blank Spike Lab ID: 1366733
Date Analyzed: 12/01/2016 18:48

Spike Duplicate ID: LCSD for HBN 1166939 [XXX36736]
Spike Duplicate Lab ID: 1366734
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939001, 1166939002, 1166939003, 1166939004, 1166939005

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	160	96	167	163	98	(75-125)	2.00	(< 20)
Surrogates									
5a Androstane (surr)	3.33	108	108	3.33	109	109	(60-120)	1.00	

Batch Information

Analytical Batch: **XFC13102**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **CRA**

Prep Batch: **XXX36736**
Prep Method: **SW3550C**
Prep Date/Time: **11/30/2016 13:18**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1749726 [XXX/36736]
Blank Lab ID: 1366732

Matrix: Soil/Solid (dry weight)

QC for Samples:
1166939001, 1166939002, 1166939003, 1166939004, 1166939005

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	77.1	60-120		%

Batch Information

Analytical Batch: XFC13102
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: CRA
Analytical Date/Time: 12/1/2016 6:38:00PM

Prep Batch: XXX36736
Prep Method: SW3550C
Prep Date/Time: 11/30/2016 1:18:58PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [XXX36736]
Blank Spike Lab ID: 1366733
Date Analyzed: 12/01/2016 18:48

Spike Duplicate ID: LCSD for HBN 1166939 [XXX36736]
Spike Duplicate Lab ID: 1366734
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166939001, 1166939002, 1166939003, 1166939004, 1166939005

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	174	105	167	175	105	(60-120)	0.23	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	94.7	95	3.33	99.8	100	(60-120)	5.20	

Batch Information

Analytical Batch: **XFC13102**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **CRA**

Prep Batch: **XXX36736**
Prep Method: **SW3550C**
Prep Date/Time: **11/30/2016 13:18**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1749812 [XXX/36739]
Blank Lab ID: 1366814

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939007, 1166939008, 1166939009, 1166939010

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	91	60-120		%

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: CRA
Analytical Date/Time: 12/1/2016 6:48:00PM

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/1/2016 9:56:31AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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

Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [XXX36739]
Blank Spike Lab ID: 1366815
Date Analyzed: 12/01/2016 18:58

Spike Duplicate ID: LCSD for HBN 1166939 [XXX36739]
Spike Duplicate Lab ID: 1366816
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939007, 1166939008, 1166939009, 1166939010

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	22.0	110	20	20.5	102	(75-125)	7.20	(< 20)
Surrogates									
5a Androstane (surr)	0.4	116	116	0.4	107	107	(60-120)	7.90	

Batch Information

Analytical Batch: **XFC13101**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CRA**

Prep Batch: **XXX36739**
Prep Method: **SW3520C**
Prep Date/Time: **12/01/2016 09:56**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1749812 [XXX/36739]
Blank Lab ID: 1366814

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1166939007, 1166939008, 1166939009, 1166939010

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	83.7	60-120		%

Batch Information

Analytical Batch: XFC13101
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: CRA
Analytical Date/Time: 12/1/2016 6:48:00PM

Prep Batch: XXX36739
Prep Method: SW3520C
Prep Date/Time: 12/1/2016 9:56:31AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1166939 [XXX36739]
Blank Spike Lab ID: 1366815
Date Analyzed: 12/01/2016 18:58

Spike Duplicate ID: LCSD for HBN 1166939 [XXX36739]
Spike Duplicate Lab ID: 1366816
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1166939007, 1166939008, 1166939009, 1166939010

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	22.7	114	20	20.9	104	(60-120)	8.50	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	101	101	0.4	98.6	99	(60-120)	2.80	

Batch Information

Analytical Batch: **XFC13101**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **CRA**

Prep Batch: **XXX36739**
Prep Method: **SW3520C**
Prep Date/Time: **12/01/2016 09:56**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 12/07/2016 4:48:11PM

1166939

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

400 N. 34th Street, Suite 100
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2355 Hill Road
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Laboratory SGS Page 1 of ____
Attn: Tom

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRO AK-101	BTEX EPA 8021B	VOC EPA 8260B	DRO / RRO AK102 / 103	PAH		Total Number of Containers	Remarks/Matrix
17826-B15S	(1) A-B	1020	11/22/16			X	X		X			2	Soil
B15I5	(2) A-B	1040				X	X		X			2	
B256	(3) A-B	1230				X		X	X	X		2	
B356	(4) A-B	1350				X	X		X			2	
B457	(5) A-B	1535				X	X		X			2	
STB	(6) A	900				X	X					1	Soil Trip Blank

Project Information	Sample Receipt	
Project Number: 17826-001	Total Number of Containers	
Project Name: WHITTIER	COC Seals/Intact? Y/N/(NA)	
Contact: JCT	Received Good Cond./Cold	4.4
Ongoing Project? Yes ☒ No ☐	Delivery Method: Hand Delivered (attach shipping bill, if any)	#200
Sampler: JCT		

Instructions
Requested Turnaround Time: Standard
Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Jake Tracy Time: 11/23/16	Signature: Time:	Signature: Time:
Printed Name: Jake Tracy Date: 1353	Printed Name: Date:	Printed Name: Date:
Company: SAW	Company:	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time:	Signature: Time:	Signature: Time: 13:53
Printed Name: Date:	Printed Name: Date:	Printed Name: Nicholas Wells Date: 11/23/16
Company:	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

No. 30901

1166939

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

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CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Laboratory SGS
Attn: Tori

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRO	AK-101	BTEX EPA 8021B	VOC EPA 8260B	DRO / RRO AK-102 / 103	PAH	Total Number of Containers	Remarks/Matrix
17826-TMW1	(7) A-G (2nd vial) I	1250	11/22/16			X		X	X	X		9	Groundwater / MISSING 1 VOA
TMW11	(8) A-F	1300	↓			X		X	X			6	MISSING 2 VOAS
TMW2	(9) A-E	1410				X	X		X			5	
TMW3	(10) A-E	1640				X	X		X			5	↓
WTB	(11) A-F	930	↓			X	X					1	water Trip Blank

Project Information	
Project Number: 17826-001	
Project Name: WHITTIER	
Contact: JCT	
Ongoing Project? Yes ☒ No ☐	
Sampler: JCT	

Sample Receipt	
Total Number of Containers	
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	4.4
Delivery Method: (attach shipping bill, if any)	#200 Hand Delivered

Instructions
Requested Turnaround Time: Standard
Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Jake Tracy Time: 1353	Signature: Time:	Signature: Time:
Printed Name: Jake Tracy Date: 11/23/16	Printed Name: Date:	Printed Name: Date:
Company: SGW	Company:	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time:	Signature: Time:	Signature: Time: 13:53
Printed Name: Date:	Printed Name: Date:	Printed Name: Nicholas Wells Date: 11/23/16
Company:	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

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No. 30889

SGS

e-SAMPLE RECEIPT FORM

1166939

Review Criteria	Y/N (yes/no)	Exceptions Noted below
	Y	exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location		ABSENT
COC accompanied samples?	Y	
		**exemption permitted if chilled & collected <8hrs ago or chlling not required (i.e., waste, oil)
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Y	Cooler ID: 1 @ 4.4 °C Therm ID: 200
		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?		
If <0°C, were sample containers ice free?		
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
		Note: Refer to form F-083 "Sample Guide" for hold times.
Were samples received within hold time?	Y	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Y	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous?	Y	
		***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	N	There is a lot of sediment in the water containers.
IF APPLICABLE		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Y	
Were all VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Y	
Were all soil VOAs field extracted with MeOH+BFB?	Y	

Note to Client: Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Limited volume was received for Sample 7 GRO and Sample 8 GRO and VOCs.

Samples 7F, 7G, 8E, 8F, 9E, 10D, and 10E were received underpreserved. 2 mL of HCl was added to each. LOT: LW09-0463-12-15. Preservation was met for all samples.

High sediment content in water samples.

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1166939001-A	No Preservative Required	OK			
1166939001-B	Methanol field pres. 4 C	OK			
1166939002-A	No Preservative Required	OK			
1166939002-B	Methanol field pres. 4 C	OK			
1166939003-A	No Preservative Required	OK			
1166939003-B	Methanol field pres. 4 C	OK			
1166939004-A	No Preservative Required	OK			
1166939004-B	Methanol field pres. 4 C	OK			
1166939005-A	No Preservative Required	OK			
1166939005-B	Methanol field pres. 4 C	OK			
1166939006-A	Methanol field pres. 4 C	OK			
1166939007-A	HCL to pH < 2	OK			
1166939007-B	HCL to pH < 2	OK			
1166939007-C	HCL to pH < 2	OK			
1166939007-D	HCL to pH < 2	OK			
1166939007-E	HCL to pH < 2	OK			
1166939007-F	HCL to pH < 2	OK			
1166939007-G	HCL to pH < 2	OK			
1166939007-H	No Preservative Required	OK			
1166939007-I	No Preservative Required	OK			
1166939008-A	HCL to pH < 2	OK			
1166939008-B	HCL to pH < 2	OK			
1166939008-C	HCL to pH < 2	OK			
1166939008-D	HCL to pH < 2	OK			
1166939008-E	HCL to pH < 2	OK			
1166939008-F	HCL to pH < 2	OK			
1166939009-A	HCL to pH < 2	OK			
1166939009-B	HCL to pH < 2	OK			
1166939009-C	HCL to pH < 2	OK			
1166939009-D	HCL to pH < 2	OK			
1166939009-E	HCL to pH < 2	OK			
1166939010-A	HCL to pH < 2	OK			
1166939010-B	HCL to pH < 2	OK			
1166939010-C	HCL to pH < 2	OK			
1166939010-D	HCL to pH < 2	OK			
1166939010-E	HCL to pH < 2	OK			
1166939011-A	HCL to pH < 2	OK			
1166939011-B	HCL to pH < 2	OK			
1166939011-C	HCL to pH < 2	OK			
1166939011-D	HCL to pH < 2	OK			
1166939011-E	HCL to pH < 2	OK			
1166939011-F	HCL to pH < 2	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
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.

LABORATORY DATA REVIEW CHECKLIST

CS Report Name: Release Investigation, 100 Kenai Street, Whittier, Alaska

Date: January 2017

Laboratory Report Date: December 12, 2016

Consultant Firm: Shannon & Wilson, Inc.

Completed by: Jessa Tibbetts
Title: Environmental Scientist
Laboratory Name: SGS North America Inc.
Work Order Number: 1166936
ADEC File Number:

(**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 (Please explain.)**
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 (Please explain.)
Comments**:**

b. Correct analyses requested? **Yes / No / *NA* (Please explain.)**
Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
Yes / No / NA (Please explain.)
Comments: *The cooler temperature was 4.4° C.*

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

c. Sample condition documented - broken, leaking (soil MeOH), zero headspace (VOC vials)? **Yes / No / NA (Please explain.)**
Comments: *The sample receipt form notes high sediment content was present in each of the water samples. Due to sediment content, limited volume for GRO was received for groundwater sample TMW1 and limited volume for GRO and BTEX for groundwater samples TMW1 and TMW11. It was also noted that all groundwater analytical samples were received underpreserved.*

d. If there were any discrepancies, were they documented (e.g., incorrect sample containers/preservation, sample temperatures outside range, insufficient sample size, missing samples)? **Yes / No / NA (Please explain.)**
Comments: *2 milliliters of HCL was added to each underpreserved groundwater sample.*

e. Data quality or usability affected? **(Please Explain.)**
Comments*: Due to high sediment content in the groundwater samples, multiple containers from all groundwater samples were received underpreserved and Sample TMW1 had limited volume for GRO analysis and Sample TMW11 had limited volume for GRO and BTEX analyses. The sample receipt form noted that following the addition of the HCL, preservation was met for all samples. Although volume was limited in Samples TMW1 and TMW11, enough volume was available to run GRO and BTEX analyses. Analytical results from all groundwater samples with high sediment content are potentially biased high; however, they are considered screening level results; therefore the data are acceptable for the purposes of this report.*

4. Case Narrative

a. Present and understandable? **Yes / No / NA (Please explain.)**
Comments:

b. Discrepancies, errors or QC failures noted by the lab? **Yes / No / NA (Please explain.)**
Comments:

- *Groundwater samples TMW1, TMW11, TMW2, and TMW3 contained significant amounts of sediment.*
- *Groundwater samples TMW1 and TMW11 have elevated LOQs for VOCs due to matrix interference.*
- *The surrogate (2-fluorobiphenyl and terphenyl-d14) recoveries associated with the PAH analysis are outside of QC criteria (biased low) due to sample dilution for Sample TMW1.*
- *The surrogate (2-fluorobiphenyl) recovery associated with the PAH analysis is outside of QC criteria (biased low) due to matrix interference for one water MS sample; however surrogate recoveries in the parent sample and the MSD meet criteria; therefore the sample was not reextracted.*

- *The LCS/LCSD RPD for bromomethane does not meet QC criteria. It is noted that analytes were not detected above the LOQ in the samples associated with the LCS/LCSD RPD failures.*
- *The LCSD recovery for carbon disulfide does not meet QC criteria. It is noted that analytes were not detected above the LOQ in the samples associated with the LCS/LCSD RPD failures.*
- *MS/MSD recoveries for multiple PAH analytes are outside of QC criteria due to sample dilution. Refer to the LCS for accuracy requirements.*
- *MS/MSD RPDs for multiple PAH analytes associated with Samples TMW1 and TMW11 are outside of QC criteria. Results for these analytes may be considered estimated in the parent sample only.*
- *MS/MSD recover for vinyl acetate is outside of QC criteria. This analyte was not detected above the LOQ in the parent sample.*
- *Soil MS/MSD RPDs for multiple PAH analytes and surrogates are outside of QC criteria.*

c. Were corrective actions documented? **Yes / (No) / NA (Please explain.)**
Comments: *Corrective actions were not noted.*

d. What is the effect on data quality/usability, according to the case narrative?
Comments: *The case narrative does not comment on the data quality/usability.*

5. Sample Results

a. Correct analyses performed/reported as requested on COC? **(Yes) / No / NA (Please explain.)**
Comments:

b. All applicable holding times met? **(Yes) / No / NA (Please explain.)**
Comments:

c. All soils reported on a dry-weight basis? **(Yes) / No / NA (Please explain.)**
Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes / (No) / NA (Please explain.)**
Comments: *Results for various soil samples have LOQs for 1,2-dichloropropane, 1,2-dichloroethane, methylene chloride, 1,1,2-trichloroethane, 1,2,3-trichloropropane, and vinyl chloride greater than these their respective ADEC Method 2 soil cleanup levels.*

The LOQs for 1,2,3-trichloropropane,1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,1-dichloropropene, 1,2,3-trichlorobenzene. 1,2,3-trichloropropane, 1,2-dibromoethane, 1,2-dichloroethane, 1,2-dichloropropane, 1,3-dichloropropane, 1,4-dichlorobenzene, bromodichloromethane, bromomethane, carbon tetrachloride, chloroform, cis-1,3-dichloropropene, hexachlorobutadiene, naphthalene, and vinyl chloride are greater than their respective Table C ADEC groundwater cleanup levels.

e. Data quality or usability affected? **(Please explain.)**

Comments: *The soil data cannot be used to determine whether or not concentrations of methylene chloride, 1,2,3-trichloropropane, and vinyl chloride are present are present at concentrations greater than their respective ADEC Method Two soil cleanup levels. However, estimated (J-flagged) concentrations were not detected in the project samples for these analytes.*

The groundwater data cannot be used to determine whether or not concentrations of 1,2,3-trichloropropane, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,1-dichloropropene, 1,2,3-trichlorobenzene, 1,2,3-trichloropropane, 1,2-dibromoethane, 1,2-dichloroethane, 1,2-dichloropropane, 1,3-dichloropropane, 1,4-dichlorobenzene, bromodichloromethane, bromomethane, carbon tetrachloride, chloroform, cis-1,3-dichloropropene, hexachlorobutadiene, naphthalene, and vinyl chloride are present at concentrations greater than their respective ADEC Table C cleanup levels. However, estimated (J-flagged) concentrations were not detected in the project samples for these analytes.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis, and 20 samples?
Yes / No / NA (Please explain.)
Comments:

ii. All method blank results less than LOQ? **Yes / No / NA (Please explain.)**
Comments: *However, although less than the LOQ, an estimated concentration of GRO (0.970 mg/kg) was detected in the method blank associated with the soil samples.*

iii. If above LOQ, what samples are affected? ***NA***
Comments: *Samples B1S5, B1S15, B2S6, B3S6, B4S7, and STB are potentially affected.*

iv. Do the affected sample(s) have data flags? **Yes / No / NA**
Comments: *The affected samples are "B" flagged on Table 2.*

If so, are the data flags clearly defined? **Yes / No / NA**
Comments: *GRO was detected in Samples B1S5, B1S15, B2S6, B3S6, B4S7, and STB at estimated concentrations. The affected samples are "B" flagged. If both the sample and method blank concentrations are reported at levels less than the LOQ, the sample concentration is reported as non-detect at the LOQ. If the reported sample concentration is greater than the LOQ and less than 5x the method blank concentration, the sample concentration is reported as non-detect at the detected sample concentration.*

v. Data quality or usability affected? **(Please explain.)**
Comments: *The affected results are at least two orders of magnitude less than ADEC cleanup levels; therefore the data are considered usable for the purposes of this report.*

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* (Please explain.)**
Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes / No / NA (Please explain.)**
Comments: *Samples were not tested for metals/inorganics.*

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) **Yes / No / NA (Please explain.)**
Comments: *The LCSD recovery for carbon disulfide (134%) does not meet QC criteria. This analyte was not detected in the associated samples.*

iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes / No / NA (Please explain.)**
Comments: *The LCS/LCSD RPD for bromomethane (23.5 %) does not meet QC criteria. This analyte was not detected in the associated samples.*

v. If %R or RPD is outside of acceptable limits, what samples are affected? ***NA***
Comments: *The affected analytes were not detected in the associated samples; therefore the samples are considered unaffected.*

vi. Do the affected samples(s) have data flags? **Yes / No / NA**
Comments: *See above.*

If so, are the data flags clearly defined? **Yes / No / NA**
Comments: *See above.*

vii. Data quality or usability affected? Explain. ***NA***
Comments: *Data quality/usability is unaffected; see above.*

c. Surrogates - Organics Only

i. Are surrogate recoveries reported for organic analyses, field, QC, and laboratory samples? **Yes / No / NA (Please explain.)**
Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes / No / NA (Please explain.)**
Comments: *Surrogate recoveries for PAH (2-fluorobiphenyl and terphenyl-d14) in Sample TMW1 are outside QC criteria and considered biased low. Surrogate 2-fluorobiphenyl recovery was also outside QC criteria for PAHs for the MS sample associated with Sample TMW1.*

iii. Do the sample results with failed surrogate recoveries have data flags? **Yes / No / NA (Please explain.)**
Comments:

If so, are the data flags clearly defined? **Yes / No / NA**
Comments: *Analytes associated with surrogate failure due to sample dilution are not considered biased low; results; therefore the data are acceptable for the purposes of this report.*

iv. Data quality or usability affected? Explain.
Comments: *Shannon & Wilson-applied data flags are presented on Table 3.*

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

i. One trip blank reported per matrix, analysis and cooler? **Yes / No / NA (Please explain.)**
Comments: *One soil trip blank (STB) and one groundwater (WTB) were submitted to the lab with the project samples.*

ii. Is the cooler used to transport the trip blank and volatile samples clearly indicated on the COC? **Yes / No / NA (Please explain if NA or no.)**
Comments: *One cooler was used to transport the analytical samples.*

iii. All results less than LOQ? **Yes / No / NA (Please explain.)**
Comments: *However, although less than the LOQ, an estimated concentration of GRO was detected in the trip blank; however an estimated GRO concentration was also detected in the method blank; therefore the trip blank concentration is reported as non-detect at the LOQ and "B-flagged" on Table 2 of the attached Shannon and Wilson report.*

iv. If above LOQ, what samples are affected? **NA**
Comments**:**

v. Data quality or usability affected? Explain. **NA**
Comments:

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
Yes / No / NA (Please explain.)
Comments: *One duplicate soil sample set (Sample B1S5/B1S15) and one duplicate groundwater sample sets (TMW1/TMW11) were submitted to the lab.*

ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA (Please explain.)**
Comments:

iii. Precision – All relative percent differences (RPDs) less than specified DQOs?
(Recommended: 30% for water, 50% for soil) **Yes / No / NA (Please explain.)**
Comments: *In the groundwater duplicate pair TMW1/TMW11, the RPDs for GRO (47%), DRO (147%), and 4-isoproypltoluene (59%) are greater than the specified DQO (30%). In the soil sample set B1S5/B1S15, the RPD for xylene (63%) is greater than the specified DQO (50%). The GRO, DRO, 4-isoproypltoluene results for the duplicate pair TMW1/TMW11 and the xylene result for the duplicate pair B1S5/B1S15 are flagged "E" to indicate estimated results.*

iv. Data quality or usability affected? Explain. **NA**
Comments: *Although the RPDs for GRO, 4-isoproypltoluene, and xylenes were outside QC criteria, the results are less than the applicable ADEC cleanup levels therefore; the data are acceptable for the purposes of this report.*

Although the RPD for DRO was at least two times greater than the QC criteria, the results of both the primary and duplicate sample are greater than the applicable ADEC cleanup levels therefore; the data are acceptable for the purposes of this report.

f. Decontamination or Equipment Blank (if not applicable, a comment stating why must be entered below)
Yes / No / NA (Please explain.) *An equipment blank was not part of the scope of this project.*

i. All results less than LOQ? **Yes / No / NA (Please explain.)**
Comments:

ii. If results are above LOQ, what samples are affected? ***NA***
Comments:

iii. Data quality or usability affected? Explain. ***NA***
Comments:

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

a. Are they defined and appropriate? **Yes / No / NA**
Comments: *Laboratory-specific flags are defined on Page 4 of the laboratory report.*

ATTACHMENT 4

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Attachment to and part of Report 32-1-17826-001

Date: January 2017
To: Begich Towers, Inc.
100 Kenai Street, Whittier, Alaska

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