Alaska Railroad Corporation

801 West Ship Creek, Anchorage AK

Consolidated Freightways/SBS Building

Groundwater Monitoring Report

ADEC File No. 2100.38.514 & 2100.26.602

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Qualified Environmental Professional

July 2018
Rev 0.0

SUMMARY

On behalf of the Alaska Railroad Corporation (ARRC), Restoration Science & Engineering, LLC (RSE) is providing the following groundwater monitoring report for 801 West First Avenue, Anchorage, AK 99501. The site is listed on the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Database as "ARRC Consolidated Freightways / SBS Building" (ADEC File Number 2100.38.514) and "ARRC Consolidated Freightways / SBS Building USTs 3 & 4 (ADEC File Number 2100.26.602). Groundwater monitoring was conducted on May 31, 2018. Groundwater shows decreased contaminant concentrations from September 2017, but continues to demonstrate exceedances of ADEC cleanup levels throughout the subject property.

Contents

Attachment A:

Figure 1 Vicinity Map
Figure 2 Monitoring Well Location Map
Figure 3 Groundwater Gradient Map

Attachment B:

Data Tables

Attachment C:

Select Site Photographs

Attachment D:

Copy of Field Notes

Attachment E:

ADEC Quality Review Checklist

Attachment F:

SGS Laboratory Report 1182537

SITE LOCATION

ARRC Consolidated Freightways / SBS Building is located at 801 West First Avenue approximately 750 feet south of the mouth of Ship Creek and 750 east of the tidal guts along the Knik Arm of Cook Inlet. Railroad tracks and other industrial properties separate the subject property from both Ship Creek and Cook Inlet.

SITE BACKGROUND

In 2010, Clarus Environmental Services (Clarus) was contracted by ARRC to remove a 5,000-gallon heating oil underground storage tank (UST). Regarding this work plan, the 5,000-gallon UST is referred to as the "North UST". In 2015, Fairbanks Environmental Services (FES) was contracted by ARRC to remove two (2) 2,000-gallon USTs which were discovered during the demolition of the building (referred to here as the "South UST"). In 2016, additional excavations at both UST locations showed diesel impacts in excavation bottoms and sidewalls remaining in-place.

In 2017, RSE mobilized to the site to install seven (7) permanent monitoring wells on the subject property via drill rig and concurrent subsurface soil investigation. The field endeavor showed residual soil impacts in the vicinity of the South UST, as well as more significant groundwater impacts at both North and South locations. Contaminants exceeding ADEC cleanup standards in groundwater were reported across the project area, with the exception of RSE-3 on the west side of the former South UST area, indicating the limits of contamination may have been reached for this excavation, and RSE-7 on the upgradient portion of the property (installed as an upgradient background well), yielding exceedances for bromochloromethane and chloroform which were not reported at additional sample locations. At the samples collected to east of the former North UST area (RSE-1 and RSE-2), DRO ranged up to 3.94 mg/L compared to a cleanup standard of 1.5 mg/L, and RRO up to 3.22 mg/L compared to a cleanup standard of 1.1 mg/L. At the former South UST area, DRO ranged up to 4.32 mg/L, RRO to 1.24 mg/L and, and GRO to 3.84 mg/L, with additional exceedances including benzene up to 31.8 ug/L compared to a cleanup standard of 4.6 ug/L, and general exceedances for ethylbenzene, xylenes, 1,2,4-trimethylbenzene, and naphthalene compounds for VOCs and PAHs.

Notably, the borings installed in the North UST area were outside of the former excavation area and are not considered strictly representative of conditions at the former North UST.

OBJECTIVES

The objective of the work described in this report was to collect additional groundwater data at the seven (7) existing monitoring wells to determine how concentrations of hydrocarbons in

groundwater may be changing over time. RSE additionally performed a groundwater elevation survey for the subject area. Groundwater samples were collected from each monitoring well location for the contaminants of potential concern (COPCs) shown in Table 1.

Table 1: Contaminants of Potential Concern and ADEC Action Levels - Groundwater

COPC	Matrix	COPC Abbreviation	ADEC-Approved Lab Method	ADEC Table C Groundwater Cleanup Level[1]
Gasoline Range Organics	H_2O	GRO	AK 101	2.2 mg/L
Diesel Range Organics	H_2O	DRO	AK 102	1.5 mg/L
Residual Range Organics	H_2O	RRO	AK 103	1.1 mg/L
Volatile Organic Compounds	H_2O	VOCs	EPA 8260	Varies
Polycyclic Aromatic Hydrocarbons SIMS	H_2O	PAHs	EPA 8270	Varies

[1]18 AAC 75 ADEC Table C groundwater cleanup levels (July 1, 2017)

The above cleanup levels are considered protective of human health and the environment, and are the most stringent cleanup levels for the site.

Groundwater Quality Monitoring

RSE mobilized to the project site on May 31, 2018. Russell Grandel of ARRC was present onsite for portions of the day to oversee sampling of the monitoring wells. The groundwater elevation survey was conducted prior to well purging and sampling. RSE sampled the groundwater monitoring wells in approximate order of known-impacts so as to reduce potential cross contamination of field equipment. Based on results of the 2017 monitoring, wells were sampled in the following order: RSE-7, RSE-3, RSE-2, RSE-1, RSE-5, RSE-6, and RSE-4.

Groundwater quality samples (e.g. water quality parameters) were collected for every purged well volume during well development, with three (3) well volumes purged from each well except where the well went dry (RSE-1). RSE field personnel recorded the temperature, conductivity, specific conductance, salinity, dissolved oxygen (DO), and pH using a YSI 65; water quality monitoring results are provided in Table 1 of Attachment B. Wells were either purged dry or purged to within stable monitoring parameters prior to sampling.

Groundwater Sampling Methodology

RSE collected one (1) groundwater sample for laboratory analyses of GRO/BTEX, DRO/RRO, VOCs and PAHs at each monitoring well location. Groundwater samples were collected using a clean submersible pump with dedicated tubing and placed into method-specific containers provided by the contract laboratory. The groundwater sample containers were placed into a cooler packed with gel-ice and delivered to the laboratory at a temperature of 5.4°C. All groundwater samples were transported under chain of custody (COC) to SGS North America Inc. in Anchorage, Alaska for analyses. Each groundwater sample was preserved and analyzed for COPCs in accordance with Table 2.

Table 2: Sampling Requirements - Groundwater

COPC	Matrix	Lab Method	Sample Container	Preservation	Holding Time
GRO	H_2O	AK 101	3 x 40 ml amber vials with Teflon lined cap and septum	0 – 6° C, HCl	14 days
DRO	H_2O	AK 102	2 x 1 liter amber jar with Teflon lined cap	0 – 6° C, HCl	7 days to extract, <40 days to analysis
RRO	H_2O	AK 103	2 x 1 liter amber jar with Teflon lined cap	0 – 6° C, HCl	14 days to extract, <40 days to analysis
VOCs	H_2O	EPA 8260	3 x 40 ml amber vials with Teflon lined cap and septum	0 – 6° C, HCl	14 days
PAHs	H_2O	EPA 8270	2 x 1 liter amber jar with Teflon lined cap	0 – 6° C	7 days to extract, <40 days to analysis

INVESTIGATIVE DERIVED WASTE

Consumables such as tubing, gloves and un-submitted sampling jars were placed into a trash receptacle for disposal. The submersible pump was decontaminated between well locations using deionized water and an Alconox scrub. Decontamination water was stored with purge water on the south side of the project area in sealed and labeled 5-gallon buckets.

A sheen was observed on the purge water for RSE-4, with a fuel odor detected at RSE-5. The purge water from these wells was labeled and stored separately from the other five (5) wells. Based on the laboratory data, RSE believes this water is eligible for treatment through a 5-gallon Granular Activated Carbon (GAC) filter. The additional buckets of purge water are currently stored onsite awaiting this treatment as outlined in the work plan. If approved, processed GAC water will be discharged onsite in a manner which does not create runoff or erosion, and is greater than 100 feet

20 Gallons of IDW transported to NRC on 10-22-2018.

from surface water or drinking water wells.

QUALITY ASSURANCE AND CONTROL

RSE collected each sample in general accordance with applicable ADEC regulation and guidance documents. Blind duplicate samples were collected at a frequency of 10%, with one (1) blind duplicate sample collected (RSE-X for RSE-4). Relative percent differences (RPDs) for the duplicate samples did not meet criteria for several analytes; however, where values differ, RSE has compared the most conservative of the two to ADEC standards.

RSE has completed the ADEC Laboratory Review checklist for the laboratory report received, and it is included as Attachment E. No issues with the laboratory report were identified such that would affect the quality or usability of the data. RSE did not document any deviations to the work plan or Field Sampling Guidance such that would affect the outcome, quality, or usability of the data. Table 3 shows applicable quality assurance and data quality parameters for this project.

Table 3: Quality Assurance and Data Quality Objectives for Petroleum Hydrocarbons - Groundwater

COPC	Matrix	Lab Method	Limit of Quantitation (LOQ)	Precision (% RPD)	Accuracy (% Recovery)
GRO	H_2O	AK 101	100 mg/L	± 20	60 – 120
DRO	H_2O	AK 102	0.6 mg/L	± 20	75 – 125
RRO	H_2O	AK 103	0.5 mg/L	± 20	60 – 120
VOCs	H_2O	EPA 8260	Varies[1]	± 20	Varies[1]
PAHs SIMS	H_2O	EPA 8270	Varies[1]	± 20	Varies[1]

[1]QC Limits provided in SGS Laboratory Report, Attachment F.

RESULTS

Full tabulated data is included in Attachment B. The SGS laboratory report is included in Attachment F. A narrative summary of the data is provided below.

The South UST area shows persistent, significant hydrocarbon impacts at RSE-4, installed near the center of the former UST. RSE-5 and RSE-6 well locations showed declining contaminant concentrations but with persistent exceedances for DRO (up to 4.77 mg/L), benzene (up to 80.2 ug/L), ethylbenzene (up to 413 ug/L), and xylenes (up to 1,220 ug/L). VOC exceedances in the south UST area include 1,2,4-trimethylbenzene and naphthalene at RSE-4, RSE-5, and RSE-6. PAH exceedances were reported for methylnaphthalenes in RSE-4 and RSE-5. RSE-3, located downgradient of the former south UST area, met regulatory standards for all analytes.

RSE-1 and RSE-2 are situated outside of the former North UST area, but were below ADEC target levels for VOCs and PAHs. RSE-1 exceeds ADEC standards for DRO and RRO, and RSE-2 for RRO, with marked decreases since 2017.

RSE-7, positioned as an upgradient monitoring well, yielded no exceedances of ADEC action levels. Chloroform and bromochloromethane, which exceeded ADEC standards in 2017, were non-detect during this sample event. Most analytes were reported as non-detect, with the exception of J-flags for DRO, and a result of 0.487 mg/L RRO.

ELEVATION SURVEY

Groundwater depths were collected prior to purging and sampling of the wells. Well caps were removed, and depths were allowed to stabilize for approximately 20 minutes prior to measuring depths. RSE made a tic mark at the top of the well casing to indicate the position from which the well was measured. Typically this mark was on the north side of the well, unless the well was cut unevenly, in which case the mark was on the high point of the PVC pipe. The survey was conducted using a Leica Rugby 620 rotating laser level. The groundwater elevation map is included as Figure 3 of Attachment A to this report.

An analysis of the ARRC 801 Ship Creek groundwater gradient using Surfer Pro 15 shows that there are two (2) trends among the seven wells. The primary trend indicates that the groundwater flows northeast, towards Cook Inlet. However, a secondary trend points toward doming groundwater underneath RSE-4, RSE-5, and RSE-6, with RSE-5 being the high point. These three (3) wells are co-located with the former South UST excavation site. This area was backfilled atop dense native silty soil, which may account for this effect. Doming indicates a pressure equilibration which can cause fluctuations in the otherwise northeast trend of the groundwater. This doming appears to cause groundwater from RSE-7 to flow around RSE-4, RSE-5, and RSE-6, resulting in a due-east trend for this well. The groundwater from RSE-7 most likely flows in a northeast direction after bypassing the disruptance created by the doming, although the perimeters for the current model does not show this.

CONCLUSIONS

Contaminants showed generally lower concentrations compared to the September 2017 monitoring event. A comparison of primary hydrocarbon COPCs in May 2018 data with that of September 2017 is included in Table 1, Attachment B. Exceptions include well location RSE-4 with an increase of DRO and benzene, and RSE-5 with an increase of RRO, benzene, ethylbenzene and xylenes. DRO and RRO concentrations at RSE-1 and RSE-2 showed the most significant declines in contaminant concentrations.

RSE recommends conducting targeted corrective actions in the vicinity of RSE-4 through RSE-6,

as groundwater concentrations show that impacted soil continues to affect groundwater conditions. RSE-3 appears to show that the downgradient extent of the plume has been delineated; however, to move toward long-term closure and/or land-use changes for the subject property, additional corrective actions are recommended.

Additionally, RSE recommends installing two (2) additional borings completed as monitoring wells in the former North UST excavation area to better capture subsurface conditions in this area.

Please contact Arran Forbes at (907) 278-1023 ext. 109, if you have any questions or comments. This report was prepared by an ADEC-qualified person in accordance with 18 AAC 75.

Arran Forbes

Arran Forbes, QEP

CC: Russell Grandel, ARRC

Attachment A:

Figure 1 Vicinity Map
Figure 2 Monitoring Well Location Map
Figure 3 Groundwater Gradient Map

Attachment B:

Data Tables

Attachment C:

Select Site Photographs

Attachment D:

Copy of Field Notes

Attachment E:

ADEC Quality Review Checklist

Attachment F:

SGS Laboratory Report 1182537

References:

Clarus Environmental Services (Clarus), 2010. UST Removal Report, CF/SBS Building, Anchorage, Alaska. Dated July 9, 2010

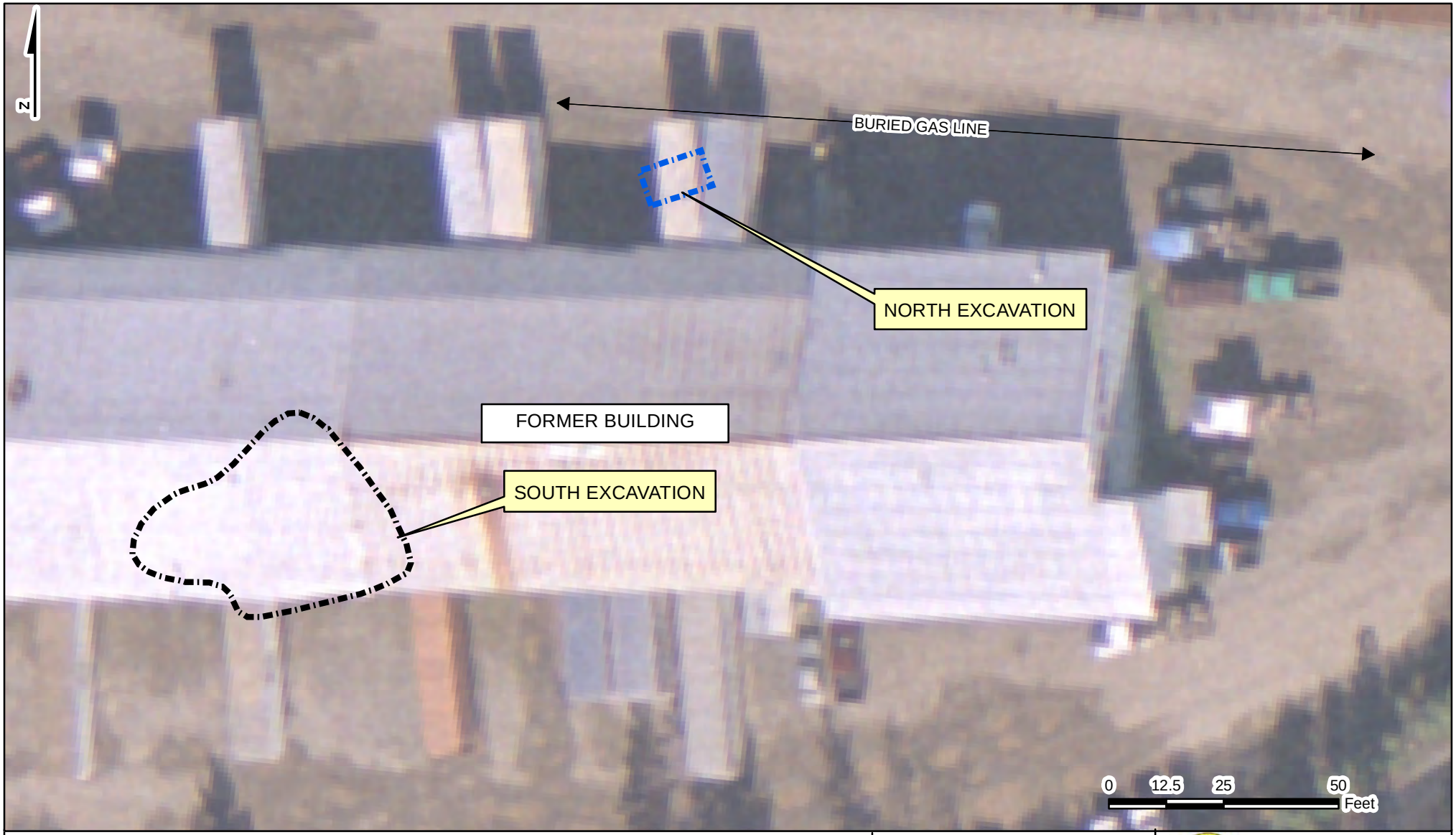
Fairbanks Environmental Services (FES), 2015. Post UST Removal Soil Sampling Report. 801 West 1st Avenue, Anchorage, Alaska. ADEC Hazard ID – 25488 / File IDs – 2100.38.514 and 2100.26.602. Dated December 22, 2015

Fairbanks Environmental Services (FES), 2017. 2016 Soil Removal Report, Rev 1. 801 West 1st Avenue, Anchorage, Alaska. ADEC Hazard ID – 25488 / File IDs – 2100.38.514 and 2100.26.602. Dated January 23, 2017.

Restoration Science & Engineering (RSE), 2017. Site Characterization Report for ADEC File No. 2100.38.514 & 2100.26.602. Dated March 14, 2018.

Attachment A: Figures

RESTORATION
Science & Engineering, LLC



LEGEND:

- Buried Gas Line
- North Excavation
- South Excavation

NOTE:

1. Aerial Imagery: A WMS-compliant map server provided by the Alaska Mapped program (http://www.alaskamapped.org) and UAF-GINA (http://www.gina.alaska.edu).

Fairbanks Environmental Services
3538 International Street
Fairbanks, Alaska 99701

ALASKA RAILROAD CORPORATION

Site Map
2016 Soil Removal Report
801 W. 1st Avenue
Anchorage, Alaska

CONTRACT:	FIGURE:	DATE:
85304	2	1/17

LEGEND

FORMER BUILDING

RSE-6 SAMPLE LOCATION

EXCAVATION LIMITS

20 0 40

GRAPHIC SCALE
1"=40'

ARRC CONSOLIDATED FREIGHTWAYS & SBS BUILDING SITE CHARACTERIZATION

801 WEST SHIPCREEK AVENUE

MONITORING WELL LOCATION MAP

ANCHORAGE, ALASKA

JOB NO: 17-1699	DRAWN: MSB
DATE: 1.23.2018	CHECKED: AF

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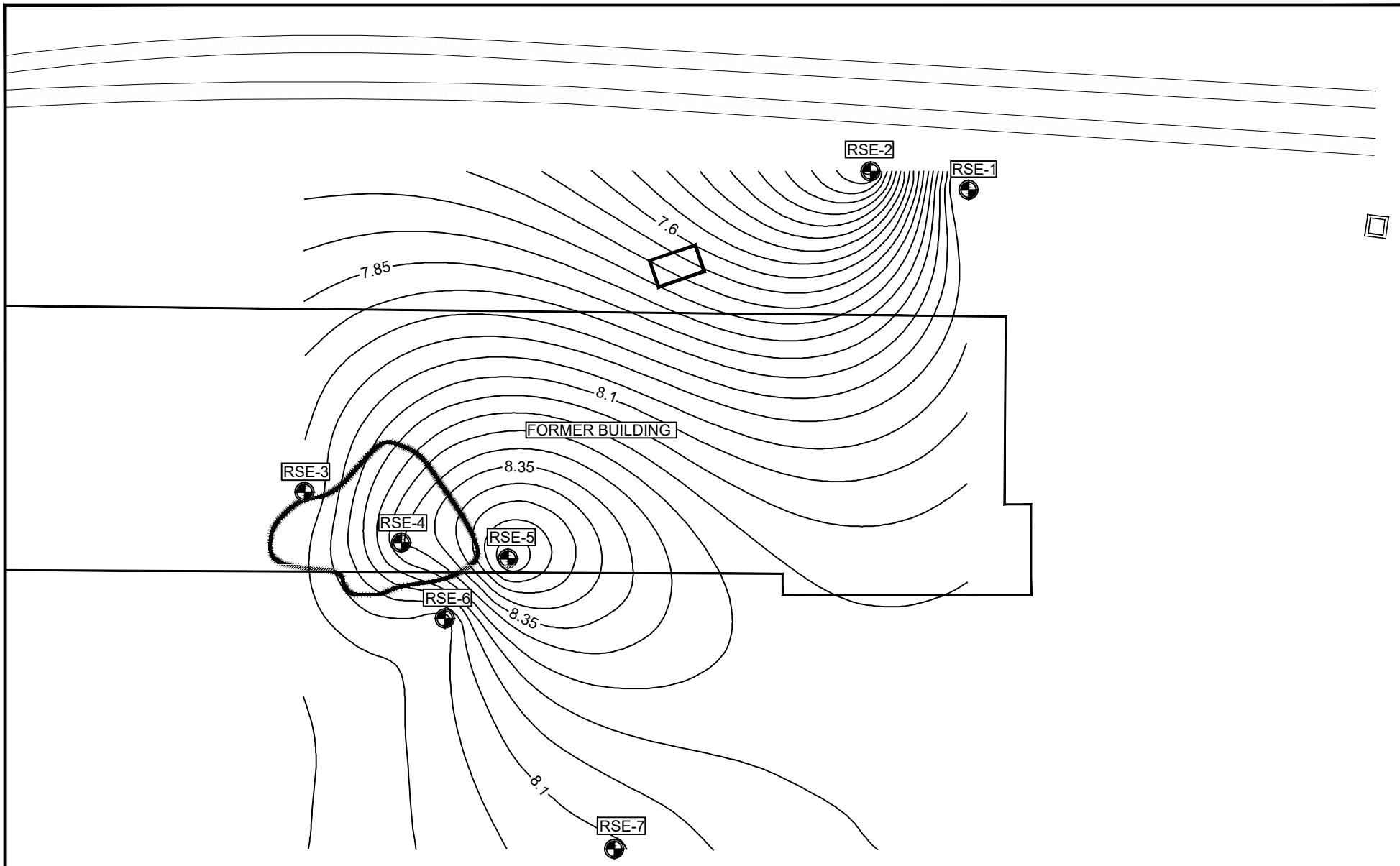
FIGURE 3



LEGEND

FORMER BUILDING

RSE-6 SAMPLE LOCATION

EXCAVATION LIMITS

20 0 40

GRAPHIC SCALE
1"=40'

ARRC CONSOLIDATED FREIGHTWAYS & SBS BUILDING SITE CHARACTERIZATION

801 WEST SHIPCREEK AVENUE

MONITORING WELL LOCATION MAP

ANCHORAGE, ALASKA

JOB NO: 18-1850	DRAWN: MSB
DATE: 6.4.2018	CHECKED: LK

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FIGURE 3

Attachment B: Data Tables

RESTORATION
Science & Engineering, LLC

TABLE 1
Groundwater Quality Field Parameters
801 Ship Creek 2018 Groundwater Monitoring

GROUNDWATER QUALITY FIELD PARAMETERS													
LOCATION	DATE	DEPTH TO WATER (feet)	DEPTH TO BOTTOM (feet)	DEPTH TO WATER POST-PURGING (feet)	VOLUME PURGED (gal)	TIME (hh:mm)	TOTAL WATER REMOVED (gal)	TEMPERATURE (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SPECIFIC CONDUCTANCE (mS/cm)	SALINITY (ppt)	DISSOLVED OXYGEN (%)
RSE-1													
RSE-1	5/31/2018	2.34	8.18	8.17	1.5	1335	1	5.15	6.95	1.529	980	0.79	39.0
						1341	1.5	5.40	6.84	1.487	1015	0.75	33.5
RSE-2													
RSE-2	5/31/2018	2.43	7.93	6.16	3	1247	0.9	5.93	6.94	1.608	994	0.81	38.1
						1249	2	6.24	6.74	1.463	922	0.82	37.1
						1251	3	6.48	6.83	1.707	1004	0.86	38.2
RSE-3													
RSE-3	5/31/2018	3.51	7.94	6.48	2.3	1158	0.75	8.48	6.81	0.748	511	0.37	104.6
						1159	1.5	8.59	6.84	0.748	513	0.37	105.5
						1201	2.3	9.00	6.83	0.782	520	0.38	101.3
RSE-4													
RSE-4	5/31/2018	1.51	8.30	4.75	3	1515	1	9.05	6.84	1.211	841	0.61	24.5
						1519	2	7.19	6.66	1.358	894	0.68	38.3
						1521	3	7.34	6.74	1.237	844	0.64	21.9
RSE-5													
RSE-5	5/31/2018	1.47	8.61	8.57	3.6	1431	1.2	6.92	6.49	1.26	835	0.63	38.5
						1432	2.4	6.85	6.59	1.113	849	0.56	42.6
						1438	3.6	6.82	6.66	1.119	837	0.60	43.1
RSE-6													
RSE-6	5/31/2018	1.51	8.02	3.57	3	1452	1	6.84	7.11	0.684	447	0.33	24.1
						1453	2	6.86	6.86	0.650	425	0.32	21.4
						1454	3	6.48	6.77	0.671	434	0.33	25.0
RSE-7													
RSE-7	5/31/2018	2.48	8.09	6.33	3	1050	1	3.73	6.4	0.614	365	0.30	86.2
						1053	2	3.75	6.65	0.639	380	0.31	92.8
						1055	3	4.05	6.75	0.633	392	0.31	93.1

NOTES:
1) Groundwater quality parameters collected with a YSI 63
2) Wells RSE-1 and RSE-2 were purged dry prior to the removal of three well volumes

TABLE 2
Hydrocarbons In Groundwater
801 Ship Creek 2018 Groundwater Monitoring

HYDROCARBONS IN GROUNDWATER															
SAMPLE ID	DIESEL RANGE ORGANICS (mg/L)		RESIDUAL RANGE ORGANICS (mg/L)		GASOLINE RANGE ORGANICS (mg/L)		BENZENE (ug/L)		TOLUENE (ug/L)		ETHYL-BENZENE (ug/L)		XYLENES (ug/L)		SGS PROJECT NO.
Date	9/6/2017	5/31/2018	9/6/2017	5/31/2018	9/6/2017	5/31/2018	9/6/2017	5/31/2018	9/6/2017	5/31/2018	9/6/2017	5/31/2018	9/6/2017	5/31/2018	
RSE-1	**3.94**	**1.68**	**3.05**	**1.62**	*0.05 U*	*0.0500 U*	**0.450**	0.140 J	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*1.50 U*	*1.50 U*	1182537
RSE-2	**3.05**	**0.774**	**3.22**	**1.24**	*0.05 U*	*0.0500 U*	0.200 U	*0.200 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*1.50 U*	*1.50 U*	
RSE-3	0.465 J	0.388 J	**0.83**	**0.638**	0.0327 J	*0.0500 U*	0.240 J	*0.200 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	1.61 J	*1.50 U*	
RSE-4	**3.53**	**4.77**	**1.09**	**0.941**	**3.32**	**1.82**	**37.6**	**54.6**	**61.3**	**13.7**	**213**	**122**	**837**	**474**	
RSE-5	**3.05**	**2.76**	**0.91**	**0.672**	**2.91**	**5.50**	**11.4**	**23.4**	**3.48**	**10.1**	**130**	**413**	**484**	**1220**	
RSE-6	**2.25**	**0.980**	**1.12**	**0.658**	**1.67**	**0.981**	**38.0**	**19.3**	**1.44**	**1.10**	**66.3**	**35.3**	**345**	**123**	
RSE-7	0.195 J	0.204 J	**0.713**	**0.487**	*0.05 U*	*0.0500 U*	*0.200 U*	*0.200 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*1.50 U*	*1.50 U*	
RSE-X	**4.32**	**2.54**	**1.24**	**0.762**	**3.84**	**2.23**	**31.8**	**80.2**	**50.8**	**41.4**	**193**	**246**	**811**	**559**	
ADEC GROUNDWATER CLEANUP LEVELS TABLE C (18 AAC 75)	**1.5**		**1.1**		**2.2**		**4.6**		**1100**		**15**		**190**		

NOTES:
1) Diesel Range Organics (DRO) samples analyzed by AK Method 102;
Gasoline Range Organics (GRO) samples analyzed by AK Method 101; BTEX samples analyzed by EPA SW8260C
2) "mg/L" means "milligrams per liter"; "ug/L" means "micrograms per liter"
3) **Bold** font indicates the analyte was detected above the Laboratory Limit of Detection (LOD)
4) *Italicized* font with a U-flag indicates the analyte was not detected at the Detection Limit; the value presented is the LOD
5) J flag indicates the result is an estimated value above the Limit of Quantitation, but below the Detection Limit
6) Yellow highlighting indicates the analyte was detected above the ADEC Table C Groundwater Cleanup Level
7) RSE-X is a blind duplicate of RSE-4

TABLE 3
Volatile Organic Compounds in Groundwater
801 Ship Creek 2018 Groundwater Monitoring

VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN GROUNDWATER									
SAMPLE ID	RSE-1	RSE-2	RSE-3	RSE-4	RSE-5	RSE-6	RSE-7	RSE-X	**ADEC Table C**
Date	5/31/2018	5/31/2018	5/31/2018	5/31/2018	5/31/2018	5/31/2018	5/31/2018	5/31/2018	**Groundwater**
SGS Work Order	1182537	1182537	1182537	1182537	1182537	1182537	1182537	1182537	**Cleanup Levels**
Units	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	**(µg/L)**
1,1,1,2-Tetrachloroethane	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	5.7
1,1,1-Trichloroethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	8,000
1,1,2,2-Tetrachloroethane	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	0.76
1,1,2-Trichloroethane	*0.200 U*	*0.200 U*	*0.200 U*	*0.200 U*	*0.200 U*	*0.200 U*	*0.200 U*	*0.200 U*	0.41
1,1-Dichloroethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	28
1,1-Dichloroethene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	280
1,1-Dichloropropene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	
1,2,3-Trichlorobenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	7
1,2,3-Trichloropropane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	0.0075
1,2,4-Trichlorobenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	4
1,2,4-Trimethylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	**150**	**927**	**242**	*0.500 U*	**336**	15
1,2-Dibromo-3-chloropropane	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	
1,2-Dibromoethane	*0.0375 U*	*0.0375 U*	*0.0375 U*	*0.0375 U*	*0.0375 U*	*0.0375 U*	*0.0375 U*	*0.0375 U*	0.075
1,2-Dichlorobenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	300
1,2-Dichloroethane	*0.250 U*	*0.250 U*	0.160 J	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	1.7
1,2-Dichloropropane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	4.4
1,3,5-Trimethylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	**61.4**	**253**	**56.2**	*0.500 U*	**132**	120
1,3-Dichlorobenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	300
1,3-Dichloropropane	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	4.7
1,4-Dichlorobenzene	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	4.8
2,2-Dichloropropane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	
2-Butanone (MEK)	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	5,600
2-Chlorotoluene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	
2-Hexanone	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	38
4-Chlorotoluene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	
4-Isopropyltoluene	*0.500 U*	*0.500 U*	*0.500 U*	**12.7**	**7.28**	**1.96**	*0.500 U*	**4.09**	
4-Methyl-2-pentanone (MIBK)	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	6,300
Benzene	*0.140 J*	*0.200 U*	*0.200 U*	**54.6**	**23.4**	**19.3**	*0.200 U*	**80.2**	4.6
Bromobenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	62
Bromochloromethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	
Bromodichloromethane	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	1.3
Bromoform	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	33
Bromomethane	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	7.5
Carbon disulfide	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	810
Carbon tetrachloride	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	4.6
Chlorobenzene	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	78
Chloroethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	
Chloroform	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	2.2
Chloromethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	190
Dibromochloromethane	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	8.7
Dibromomethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	8.3
Dichlorodifluoromethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	200
Ethylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	**122**	**413**	**35.3**	*0.500 U*	**246**	15
Freon-113	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	
Hexachlorobutadiene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	0.500 U	1.4
Isopropylbenzene (Cumene)	*0.500 U*	*0.500 U*	*0.500 U*	**41.1**	**73.2**	**16.6**	*0.500 U*	**62.9**	450
Methyl-t-butyl ether	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	140
Methylene chloride	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	110
Naphthalene	*0.500 U*	*0.500 U*	*0.500 U*	**38.1**	**125**	**33.8**	*0.500 U*	**87.6**	1.7
P & M -Xylene	*1.00 U*	*1.00 U*	*1.00 U*	**448**	**1190**	**122**	*1.00 U*	**486**	See Total Xylenes
Styrene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	1,200
Tetrachloroethene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	41
Toluene	*0.500 U*	*0.500 U*	*0.500 U*	**13.7**	**10.1**	**1.10**	*0.500 U*	**41.4**	1,100
Trichloroethene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	2.8
Trichlorofluoromethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	5,200
Vinyl acetate	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	410
Vinyl chloride	*0.0750 U*	*0.0750 U*	*0.0750 U*	*0.0750 U*	*0.0750 U*	*0.0750 U*	*0.0750 U*	*0.0750 U*	0.19
Xylenes (total)	*1.50 U*	*1.50 U*	*1.50 U*	**474**	**1220**	**123**	*1.50 U*	**559**	190
cis-1,2-Dichloroethene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	280
cis-1,3-Dichloropropene	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	4.7
n-Butylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	1,000
n-Propylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	**49.5**	**166**	**33.5**	*0.500 U*	**93.7**	660
o-Xylene	*0.500 U*	*0.500 U*	*0.500 U*	**26.3**	**26.4**	**1.45**	*0.500 U*	**72.6**	See Total Xylenes
sec-Butylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	**6.07**	**12.1**	**2.57**	*0.500 U*	**9.54**	2,000
tert-Butylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	**8.15**	**14.0**	**4.63**	*0.500 U*	**11.8**	690
trans-1,2-Dichloroethene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	360
trans-1,3-Dichloropropene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	4.7

NOTES:

1) Volatile organic compounds (VOC) analyses by Method EPA SW8260C
2) "ug/Kg" means "micrograms per kilogram"
3) **Bold** font indicates the analyte was detected above the Laboratory Limit of Detection (LOD)
4) *Italicized* font with a U-flag indicates the analyte was not detected at the Detection Limit; the value presented is the LOD
5) J flag indicates the result is an estimated value above the Limit of Quantitation, but below the Detection Limit
6) Light blue highlighting indicates the detection limit is higher than the ADEC Table C Cleanup Level
7) Yellow highlighting indicates the result exceeds ADEC Cleanup Standards.
8) RSE-X is a blind duplicate of RSE-4

TABLE 4
Polynuclear Aromatic Hydrocarbons in Groundwater
801 Ship Creek 2018 Groundwater Monitoring

POLYNUCLEAR AROMATIC HYDROCARBONS IN GROUNDWATER									
SAMPLE ID	RSE-1	RSE-2	RSE-3	RSE-4	RSE-5	RSE-6	RSE-7	RSE-X	**ADEC TABLE C GROUNDWATER CLEANUP LEVELS**
DATE	5/31/2018	5/31/2018	5/31/2018	5/31/2018	5/31/2018	5/31/2018	5/31/2018	5/31/2018	
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1-Methylnaphthalene	**1.09**	**0.182**	**0.0707**	**26.8**	**22.7**	**5.17**	0.0158 J	**5.71**	11
2-Methylnaphthalene	**0.359**	**0.146**	**0.0922**	**40.8**	**25.4**	**4.65**	0.0220 J	**7.03**	36
Acenaphthene	**0.221**	**0.0702**	0.0240 U	**0.469**	**0.283**	**0.112**	0.0240 U	**0.136**	530
Acenaphthylene	*0.0256 U*	*0.0240 U*	*0.0240 U*	*0.0240 U*	*0.0245 U*	*0.0236 U*	*0.0240 U*	*0.0245 U*	260
Anthracene	**0.0902**	**0.0542**	*0.0240 U*	*0.0240 U*	*0.0245 U*	0.0269 J	*0.0240 U*	*0.0245 U*	43
Benzo(a)Anthracene	*0.0256 U*	*0.0240 U*	*0.0240 U*	*0.0240 U*	*0.0245 U*	*0.0236 U*	*0.0240 U*	*0.0245 U*	0.12
Benzo[a]pyrene	*0.0103 U*	*0.00960 U*	*0.00960 U*	*0.00960 U*	*0.00980 U*	*0.00945 U*	*0.00960 U*	*0.00980 U*	0.34
Benzo[b]Fluoranthene	*0.0256 U*	*0.0240 U*	*0.0240 U*	*0.0240 U*	*0.0245 U*	*0.0236 U*	*0.0240 U*	*0.0245 U*	0.34
Benzo[g,h,i]perylene	*0.0256 U*	0.0442 J	*0.0240 U*	*0.0240 U*	*0.0245 U*	*0.0236 U*	*0.0240 U*	*0.0245 U*	0.26
Benzo[k]fluoranthene	*0.0256 U*	*0.0240 U*	*0.0240 U*	*0.0240 U*	*0.0245 U*	*0.0236 U*	*0.0240 U*	*0.0245 U*	0.8
Chrysene	*0.0256 U*	*0.0240 U*	*0.0240 U*	*0.0240 U*	*0.0245 U*	*0.0236 U*	*0.0240 U*	*0.0245 U*	2
Dibenzo[a,h]anthracene	*0.0103 U*	*0.00960 U*	*0.00960 U*	*0.00960 U*	*0.00980 U*	*0.00945 U*	*0.00960 U*	*0.00980 U*	0.034
Fluoranthene	**0.250**	**0.133**	**0.0503**	**0.0661**	0.0462 J	**0.0580**	0.0193 J	0.0334 J	260
Fluorene	**0.158**	**0.0669**	0.0175 J	**1.22**	**0.406**	**0.126**	*0.0240 U*	**0.338**	4.3
Indeno[1,2,3-c,d] pyrene	*0.0256 U*	*0.0240 U*	*0.0240 U*	*0.0240 U*	*0.0245 U*	*0.0236 U*	*0.0240 U*	*0.0245 U*	0.19
Naphthalene	**0.480**	**0.220**	**0.101**	**51.5**	**49.6**	**11.0**	0.0313 J	**13.9**	1.7
Phenanthrene	**0.424**	**0.193**	**0.0843**	**1.29**	**0.360**	**0.114**	0.0248 J	**0.308**	170
Pyrene	**0.237**	**0.133**	**0.0553**	**0.102**	**0.0550**	**0.0512**	0.0315 J	0.0473 J	120

NOTES:

1) PAH analyses by Method EPA 8270D
2) "ug/Kg" means "micrograms per kilogram"
3) **Bold** font indicates the analyte was detected above the Laboratory Limit of Detection (LOD)
4) *Italicized* font with a U-flag indicates the analyte was not detected at the Detection Limit; the value presented is the LOD
5) J flag indicates the result is an estimated value above the Limit of Quantitation, but below the Detection Limit
6) Light blue highlighting indicates the detection limit is higher than the ADEC Table C Cleanup Level
7) Yellow highlighting indicates the result exceeds ADEC Cleanup Standards
8) RSE-X is a blind duplicate of RSE-4

Attachment C: Select Site Photographs

Groundwater sampling at RSE-7.

Turbid purge water at RSE-7.

Purge water at RSE-3.

Groundwater sampling at RSE-6.

Train car north of sampling area. Groundwater sampling at RSE-2. Looking North.

Groundwater sampling at RSE-1. Looking East.

Groundwater sampling at RSE-5.

Groundwater sampling at RSE-6. Looking East.

Groundwater sampling at RSE-2.

Stored purge buckets. RSE-4 and RSE-5 purge water on right hand side. Looking South up against Coastal Trail retaining wall.

Attachment D: Copy of Field Notes

May 31, 2018

801 Ship Creek GW Monitoring

0930 R Grandel, L Gamble, A Forbes, L Koeneman

Initial elevation all wells opened to stabilize

mark elev. point on north side - or - highest point on PVC for stick.

RSE-7 : 2.48'

-3 : 3.29'

-2 : 2.36'

-1 : 2.32'

-5 : 1.43'

-6 : 1.44'

-4 : 1.50'

AF + LK collect GW elev.

LG collect survey

Second purge measurement subtracted from pump length to reduce time between purge volumes. Is estimate. Final considered accurate w/ WL1.

1140 Finish at RSE-7. Grandel demobs from site.

1355 Russ Grandel onsite, waterra extreme difficulty filling VOAs at RSE-1. Offsite 1705.

1515 RG back onsite. Watch entirety of sampling from RSE-4. Security onsite.

Fuel odors from RSE 5, 6, and 4. no sheen.

1535 sample management + COC preparation. Site clean-up.
total IDW - 4.5 buckets. Stored at wall adj to RSE-7

1600 demob.

RSE GROUNDWATER SAMPLING FORM **DATE:** 5/31/18 **WEATHER:** partly sunny ~55°F

PROJECT NAME: ARRC 801 Ship **SITE LOCATION:** 801 Ship Creek Ave **SAMPLER:** AF, LK
PROJECT NO.: 18-1850 **WELL NUMBER:** RSF-1 **COMPANY:** RSE
CONTACT #: 278 1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 8.18

B) DEPTH TO WATER FROM TOC (FT): 2.34

C) COLUMN OF WATER IN WELL (FT): 5.84
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

east of noah UST
see map

PURGE INFORMATION

1-in = XX GAL/FT
2-IN = 0.17 GAL/FT

PURGE METHOD: submersible
*e.g. peristaltic or bladder pump, Bailer

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17

E) COLUMN OF WATER IN WELL (FT): 5.84
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): 1
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 1.5 - dry

WATER OBSERVATIONS

dark brown/gray. high turbidity.

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 556
*e.g. YSI 63, YSI 556, other

00%

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	O_2 (mg/L)	REDOX (mV)
1335	2.34		1	5.15	6.95	1.529	950	.79		39.0	
1341	8.17		1.5	5.40	6.84	1.487	1015	.75		33.5	

Odor or Sheen Observed? none Dry after 1.5 volumes
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-1	5/31	1400	LK

SAMPLE ID: RSE-1
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO RRO GRO VOC PAH

COMMENTS:

Sampled recharge following dry well
1355 R Evandell onsite, watched extreme difficulty filling VOAs, then offsite

RSE GROUNDWATER SAMPLING FORM **DATE:** 5/31/18 **WEATHER:** partly sunny ~55°F

PROJECT NAME: ARRC 801 Ship **SITE LOCATION:** 801 Ship Creek Ave **SAMPLER:** AF, LK
PROJECT NO.: 18-1850 **WELL NUMBER:** RSE-2 **COMPANY:** RSE
CONTACT #: 278 1625

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 7.93
B) DEPTH TO WATER FROM TOC (FT): 2.43
C) COLUMN OF WATER IN WELL (FT): 5.50
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

east of north 1ST.
see map.

PURGE INFORMATION

1-in = XX GAL/FT
2-IN = 0.17 GAL/FT

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17
E) COLUMN OF WATER IN WELL (FT): 5.5
*value from row "C" in previous section
F) VOLUME OF WATER IN WELL (GAL): 0.9
*row "D" value multiplied by row "E" value
TOTAL VOLUME REMOVED (GAL): 3

PURGE METHOD: submersible
*e.g. peristaltic or bladder pump, Bailer

WATER OBSERVATIONS

high silt content, light gray
not reduced with purging

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 556
*e.g. YSI 63, YSI 556, other

00%

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	ϕ_2 (mg/L)	REDOX (mV)
1247	2.43		.9	5.93	6.94	1.608	994	.81		38.1	
1249	5.80		2	6.24	6.74	1.463	922	.82		37.1	
1251	6.16		3	6.48	6.83	1.707	1004	.86		38.2	

Odor or Sheen Observed? none
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-2	5/31	1255	LK

SAMPLE ID: RSE-2
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO RRO GRO VOC PAH

COMMENTS:

RSE GROUNDWATER SAMPLING FORM **DATE:** 5/31/18 **WEATHER:** sunny ~55°F

PROJECT NAME: ATRRC 801 Ship **SITE LOCATION:** 801 Ship Creek Ave. **SAMPLER:** AF, LK
PROJECT NO.: 18-1850 **WELL NUMBER:** RSE-3 **COMPANY:** RSE
CONTACT #: 2781023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 7.94

B) DEPTH TO WATER FROM TOC (FT): 3.51

C) COLUMN OF WATER IN WELL (FT): 4.43
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY
NW side of South UST
see map

PURGE INFORMATION

1-in = XX GAL/FT
2-IN = 0.17 GAL/FT

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17

E) COLUMN OF WATER IN WELL (FT): 4.43
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): .75
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 2.3

PURGE METHOD: Submersible
*e.g. peristaltic or bladder pump, Bailer

WATER OBSERVATIONS
moderate turbidity, light brown
decreased to light gray with purging.

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 556
*e.g. YSI 63, YSI 556, other

DO %

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	~~O2~~ (mg/L)	REDOX (mV)
1158	3.51		.75	8.78	6.81	.748	511	.37		104.6	
1159	6.00		1.5	8.59	6.84	.748	513	.37		105.5	
1201	6.48		2.3	9.00	6.83	.782	530	.38		101.3	

Odor or Sheen Observed? none
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-3	5/31/18	1210	LK

SAMPLE ID: RSE-3
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:
DRO RRO FIRO VOC PAH

COMMENTS:
VOA vials appear to have SW standard threading - calcium on lip and generating air. Attempted to reduce headspace as much as possible.

RSE GROUNDWATER SAMPLING FORM **DATE:** 5/31/18 **WEATHER:** partly sunny 54°

PROJECT NAME: ARRC 801 Ship Creek **SITE LOCATION:** 801 Ship Creek Ave **SAMPLER:** LK AF
PROJECT NO.: 18-185D **WELL NUMBER:** 4 **COMPANY:** RSE
CONTACT #: 278-1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 8.30
B) DEPTH TO WATER FROM TOC (FT): 1.51
C) COLUMN OF WATER IN WELL (FT): 6.79
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

center of South UST
see map

PURGE INFORMATION

1-in = XX GAL/FT
2-IN = 0.17 GAL/FT

D) GALLONS PER FOOT OF 2-INCH SCREEN: 0.17
E) COLUMN OF WATER IN WELL (FT): 6.79
*value from row "C" in previous section
F) VOLUME OF WATER IN WELL (GAL): 1.15
*row "D" value multiplied by row "E" value
TOTAL VOLUME REMOVED (GAL): 3

PURGE METHOD: Submersible pump
*e.g. peristaltic or bladder pump, Bailer

WATER OBSERVATIONS

light gray/brown, silty, hydrocarbon odor when agitated, turbidity never decreased

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 556
*e.g. YSI 63, YSI 556, other

DO %

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	~~O_2~~ (mg/L)	REDOX (mV)
15:15	4.0		1	9.05	6.84	1.211	841	0.61		24.5	
1519	4.25		2	7.19	6.66	1.358	894	0.68		38.3	
1521	4.75		3	7.34	6.74	1.237	844	0.64		21.0	

Odor or Sheen Observed?
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE4	5/31	15:22	AF LK
RSE-X	5/31	15:27	AF LK

SAMPLE ID: RSE-4
FIELD DUPLICATE: RSE-X
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO RRO GRO VOC PAH

COMMENTS:

R Grandel onsite for sampling of the well

RSE GROUNDWATER SAMPLING FORM **DATE:** 5/31/18 **WEATHER:** partly sunny ~55°F

PROJECT NAME: ARRC 801 Ship **SITE LOCATION:** 801 Ship Creek Ave **SAMPLER:** AF, LK
PROJECT NO.: 18-1850 **WELL NUMBER:** RSE-5 **COMPANY:** RSE
CONTACT #: 278 1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 8.61
B) DEPTH TO WATER FROM TOC (FT): 1.47
C) COLUMN OF WATER IN WELL (FT): 7.14
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

S/E edge roam u/t. see map.

PURGE INFORMATION

1-in = XX GAL/FT
2-IN = 0.17 GAL/FT

PURGE METHOD: submersible
*e.g. peristaltic or bladder pump, Bailer

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17
E) COLUMN OF WATER IN WELL (FT): 7.14
*value from row "C" in previous section
F) VOLUME OF WATER IN WELL (GAL): 1.2
*row "D" value multiplied by row "E" value
TOTAL VOLUME REMOVED (GAL): 3.6 - well dry after 3rd purge

WATER OBSERVATIONS

light brown/gray. Turbid/opaque, cleared up as purging continued.

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 556
*e.g. YSI 63, YSI 556, other

DO%.

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	O_2 (mg/L)	REDOX (mV)
1431	1.47		1.2	6.92	6.49	1.263	835	.63		38.5	
1432	8.50		2.4	4.85	6.59	1.113	841	.56		42.6	
1438	8.57		3.60	6.82	6.666	1.119	837	.60		43.1	

Odor or Sheen Observed? no sheen - FUEL ODOR
Notes: well dry several times but very rapid recharge to full.

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-5	5/31	1445	LK

SAMPLE ID: RSE-5
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO RRO GRO VOC PAH

COMMENTS:

well sampled following recharge from dry (final) volume - well has very rapid recharge. Fuel odor intensifies as purging + sampling went on.

RSE GROUNDWATER SAMPLING FORM **DATE:** 5/31/18 **WEATHER:** partly sunny ~55°F

PROJECT NAME: ARRC 801 Ship **SITE LOCATION:** 801 Ship Creek Ave **SAMPLER:** AF, LK
PROJECT NO.: 18-1850 **WELL NUMBER:** RSE-6 **COMPANY:** RSE
CONTACT #: 278 1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 8.02

B) DEPTH TO WATER FROM TOC (FT): 1.51

C) COLUMN OF WATER IN WELL (FT): 5.51
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

south boundary south UST
see map

PURGE INFORMATION

1-in = XX GAL/FT
2-IN = 0.17 GAL/FT

PURGE METHOD: submersible
*e.g. peristaltic or bladder pump, Bailer

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17

E) COLUMN OF WATER IN WELL (FT): 5.51
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): .95
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 3

WATER OBSERVATIONS

light gray / brown, decreases with purging

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 556
*e.g. YSI 63, YSI 556, other

00%

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	O2 (mg/L)	REDOX (mV)
252	1.51		1	6.84	7.11	0.684	447	.33		27.1	
253	1.40		2	6.86	6.86	0.650	425	.32		21.4	
254	2.57		3	6.48	6.77	0.671	434	.33		25.0	

Odor or Sheen Observed? no sheen. very mild fuel odor, much less pronounced than RSE-5.
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-6	5/31	1500	LK

SAMPLE ID: RSE-6
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO RRO GRO VOC PAH

COMMENTS:

RSE GROUNDWATER SAMPLING FORM **DATE:** 5/31/18 **WEATHER:** sunny ~55°F

PROJECT NAME: ARRC 801 Ship **SITE LOCATION:** 801 Ship Creek **SAMPLER:** AF, LK
PROJECT NO.: 18-1850 **WELL NUMBER:** RSE-7 **COMPANY:** RSE
CONTACT #: 278 1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 8.09

B) DEPTH TO WATER FROM TOC (FT): 2.48

C) COLUMN OF WATER IN WELL (FT): 5.61
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

upgradient, against wall
see map

PURGE INFORMATION

1-in = XX GAL/FT
2-IN = 0.17 GAL/FT

PURGE METHOD: submersible
*e.g. peristaltic or bladder pump, Bailer

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17

E) COLUMN OF WATER IN WELL (FT): 5.61
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): .95
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 3

WATER OBSERVATIONS

high silt, high turbidity, dark brown
did not reduce with pursing

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 556
*e.g. YSI 63, YSI 556, other

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	O_2 ~~(mg/L)~~ 00%	REDOX (mV)
1050	2.48		1	3.73	6.43	.614	365	.3		86.2	
1053	6.30		2	3.75	6.45	.639	380	.31		92.8	
1055	6.33		3	4.05	6.75	.633	392	.31		93.1	

Odor or Sheen Observed? none
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-7	5/31	11:00	LK

SAMPLE ID: RSE-7
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO DRO GRO VOC PAH

COMMENTS:

difficulty filling VOAs with such high silt content. Made balance between rinsing HCl and headspace

Attachment E: ADEC Quality Review Checklist

RESTORATION
Science & Engineering, LLC

Laboratory Data Review Checklist

Completed by: Arran Forbes

Title: Environmental Scientist Date: 6/29/18

CS Report Name: 801 Ship Creek GW Monitoring Report Date: 6/15/18

Consultant Firm: Restoration Science & Engineering, LLC

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1182537

ADEC File Number: 2100.38.514, 2100.26.602 ADEC RecKey Number:

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

      SGS North America, Inc. located in Anchorage, Alaska.

   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 (Please explain.) Comments:

      No samples were transferred.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

      A copy of the signed COC is provided at the end of the end of the laboratory report, page 105.

   b. Correct analyses requested?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

      SGS completed the requested analyses requested on the COC.

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 sample cooler temperature blank was 5.4 on delivery to the laboratory. Samples were delivered same day as collection.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

☒**Yes** ☐ No ☐ NA (Please explain.) Comments:

Volatile soil samples were preserved in HCl. Upon receipt, the laboratory added additional HCl to samples RSE-2 and RSE-3. The samples were collected and properly preserved by the laboratory on the same day as collection and maintained at appropriate temperatures throughout.

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

☒Yes ☐ No ☐NA (Please explain.) Comments:

Samples condition documented as being received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

☒Yes ☐ No ☐NA (Please explain.) Comments:

See section 3.b.

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

Comments:

Data quality and usability was not affected. The samples were delivered to the laboratory on the same day as collection at appropriate temperatures and the lack of immediate preservation does not affect the data.

4. Case Narrative

a. Present and understandable?

☒Yes ☐ No ☐ NA (Please explain.) Comments:

The case narrative is present and understandable on page 2 of the lab report.

b. Discrepancies, errors or QC failures identified by the lab?

☒Yes ☐ No ☐NA (Please explain.) Comments:

Multiple surrogate recovery failures reported by the laboratory for 4-bromofluorobenzene in primary samples, with additional recovery failures reported in theLCSD.

c. Were all corrective actions documented?

☐ Yes ☐ No ☒NA (Please explain.) Comments:

Surrogate recoveries were on account of matrix interference and no corrective actions were taken.

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

Comments:

There is no effect on data quality and usability. Parent results associated with affected surrogate were well above applicable cleanup levels, and comparison to the standard is unaffected.

5. Samples Results
   a. Correct analyses performed/reported as requested on COC?
   b.

☒Yes ☐ No ☐NA (Please explain.) Comments:

Correct analyses were performed as requested.

   c. All applicable holding times met?

☒Yes ☐ No ☐ NA (Please explain.) Comments:

Holding times were met for all samples according to the lab method.

   d. All soils reported on a dry weight basis?

☐Yes ☒ No ☐NA (Please explain.) Comments:

Samples are groundwater.

   e. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

☐Yes ☒ No ☐ NA (Please explain.) Comments:

SGS refers to the PQL as the LOQ and reports data below the PQL but above the detection limit (DL) as estimated results with a "J". Constituents that were analyzed for but not detected are reported as a value equal to 2 times the DL and flagged with a "U". One constituents reported PQLs above cleanup standards: 1,2,3-trichloropropane for all samples.

   f. Data quality or usability affected?

Comments:

There is no effect on data quality or usability. This is a known contaminated site, and PQLs exceeding cleanup standards is common, particularly under new ADEC cleanup standards which are frequently lower than achievable laboratory detection limits. Clean closure is not currently an objective for this site.

6. QC Samples
   a. Method Blank
      i. One method blank reported per matrix, analysis and 20 samples?

☒Yes ☐ No ☐ NA (Please explain.) Comments:

There is one method blank for each requested analyses and matrix per 20 samples submitted.

      ii. All method blank results less than PQL?
   b.

All method blank results are less than the LOQ (PQL).

☒Yes ☐ No ☐ NA (Please explain.) Comments:

i. If above PQL, what samples are affected?

Comments:

No method blank samples were reported above the LOQ (PQL).

ii. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

☐Yes ☐ No ☒NA (Please explain.) Comments:

No method blank samples were reported above the LOQ (PQL).

iii. Data quality or usability affected? (Please explain.)

Data quality or usability was not affected.

d. 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:

One LCS and LCSDs were performed per analysis (fewer than 20 samples submitted).

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

☐ Yes ☒ No ☐NA (Please explain.) Comments:

No metals or inorganics submitted as part of the scope of work.

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:

Percent recoveries for the LCS/LCSD are within method limits.

iv. Precision – All relative percent differences (RPD) 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:

A single RPD failure for chloroethane in the LCSD was reported.

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

Comments:

LCSD.

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

☒ Yes ☐ No ☐NA (Please explain.) Comments:

Affected sample is flagged with an asterisks.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Chloroethane was not detected in associated samples despite the RPD failure in the LCSD. There is no effect on data quality and usability.

e. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

☒Yes ☐ No ☐NA (Please explain.) Comments:

Surrogate recoveries are reported for all organic analyses.

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:

Percent recoveries are reported outside of laboratory limits under methods AK 101 and EPA 8270 for surrogate 4-bromofluorobenzene.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☒ Yes ☐ No ☐NA (Please explain.) Comments:

Affected samples are flagged with an asterisks (*).

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

There is no effect on data quality and usability. Samples clearly delineate where impacts above a standard are present.

f. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): <u>Water and Soil</u>

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

☒Yes ☐ No ☐NA (Please explain.) Comments:

One trip blank included.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

☒Yes ☐ No ☐ NA (Please explain.) Comments:

The trip blank is clearly indicated on the COC.

iii. All results less than PQL?

☒Yes ☐ No ☐ NA (Please explain.) Comments:

No detections reported in the trip blank.

iv. If above PQL, what samples are affected?

Comments:

Not applicable.

v. Data quality or usability affected? (Please explain.)

Comments:

Data quality and usability not affected. No detections reported in the trip blank.

g. Field Duplicate

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

☒Yes ☐ No ☐ NA (Please explain.) Comments:

One blind duplicate was submitted from the samples.

ii. Submitted blind to lab?

☒Yes ☐ No ☐ NA (Please explain.) Comments:

RSE-X is a blind duplicate of RSE-4.

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

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

☐Yes ☒ No ☐NA (Please explain.) Comments:

RPDs calculated exceed DQOs. The more conservative value is used for comparison to ADEC cleanup standards.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Where results differ, the higher result will be used for regulatory purposes. Samples were collected by alternating the water flow between primary and duplicate sample jars. Data quality and usability are not affected.

h. Decontamination or Equipment Blank (If not used explain why).

☐Yes ☒ No ☐NA (Please explain.) Comments:

Wells were sampled from least-to-most suspected levels of contamination. Evidence of cross contamination from the pump is not evident in the results reported.

i. All results less than PQL?

☐Yes ☐ No ☒NA (Please explain.) Comments:

There are no decontamination or equipment blanks.

ii. If above PQL, what samples are affected?

Comments:

There are no decontamination equipment blanks.

iii. Data quality or usability affected? (Please explain.)

Data quality or usability was not affected.

Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?

☒Yes ☐ No ☐NA (Please explain.) Comments:

Data flags and qualifiers are defined appropriately. Page 3 of the lab report describes the qualifiers used.

Attachment F: SGS Laboratory Report

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Laboratory Report of Analysis

To: AK Railroad Corp (ARRC)
327 W. Ship Creek Ave
Anchorage, AK 99501
907265-2429

Report Number: **1182537**

Client Project: **801 Ship Creek**

Dear Russell Grandel,

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 Chuck 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.

_____

Chuck Homestead Date
Project Manager
Charles.Homestead@sgs.com

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

Case Narrative

SGS Client: **AK Railroad Corp (ARRC)**
SGS Project: **1182537**
Project Name/Site: **801 Ship Creek**
Project Contact: **Russell Grandel**

Refer to sample receipt form for information on sample condition.

RSE-1 (1182537001) PS

8270D SIM - PAH surrogate recovery for Fluoranthene-d10 (17.7%) does not meet QC criteria.
8270D SIM - The PAH Sample was re-extracted within hold time. Results were comparable and re-extract data will be posted.

RSE-4 (1182537004) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (246%) does not meet QC criteria due to matrix interference.

RSE-6 (1182537006) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (161%) does not meet QC criteria due to matrix interference.

RSE-X (1182537008) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (304%) does not meet QC criteria due to matrix interference.

LCSD for HBN 1780409 [VXX/3231 (1449981) LCSD

8260C - LCSD RPD for chloroethane (30.6) does not meet QC criteria. This analyte was not detected in associated samples.

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

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
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 LV (PAH)				
1182537003	RSE-3	XMS10803	Phenanthrene	BLC
1182537004	RSE-4	XMS10803	Acenaphthene	SP
1182537005	RSE-5	XMS10803	Acenaphthene	SP
1182537007	RSE-7	XMS10803	Phenanthrene	BLC
1182537008	RSE-X	XMS10803	Acenaphthene	SP
SW8260C				
1182537005	RSE-5	VMS17853	4-Isopropyltoluene	SP
1182537006	RSE-6	VMS17853	4-Isopropyltoluene	SP
1182537008	RSE-X	VMS17850	4-Isopropyltoluene	SP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 06/15/2018 4:29:24PM

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.

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
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
RSE-1	1182537001	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)
RSE-2	1182537002	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)
RSE-3	1182537003	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)
RSE-4	1182537004	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)
RSE-5	1182537005	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)
RSE-6	1182537006	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)
RSE-7	1182537007	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)
RSE-X	1182537008	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)
Trip Blank	1182537009	05/31/2018	05/31/2018	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (W)
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **RSE-1**
Lab Sample ID: 1182537001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	1.09	ug/L
	2-Methylnaphthalene	0.359	ug/L
	Acenaphthene	0.221	ug/L
	Anthracene	0.0902	ug/L
	Fluoranthene	0.250	ug/L
	Fluorene	0.158	ug/L
	Naphthalene	0.480	ug/L
	Phenanthrene	0.424	ug/L
	Pyrene	0.237	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	1.68	mg/L
	Residual Range Organics	1.62	mg/L
Volatile GC/MS	Benzene	0.140J	ug/L

Client Sample ID: **RSE-2**
Lab Sample ID: 1182537002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.182	ug/L
	2-Methylnaphthalene	0.146	ug/L
	Acenaphthene	0.0702	ug/L
	Anthracene	0.0542	ug/L
	Benzo[g,h,i]perylene	0.0442J	ug/L
	Fluoranthene	0.133	ug/L
	Fluorene	0.0669	ug/L
	Naphthalene	0.220	ug/L
	Phenanthrene	0.193	ug/L
	Pyrene	0.133	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.774	mg/L
	Residual Range Organics	1.24	mg/L

Client Sample ID: **RSE-3**
Lab Sample ID: 1182537003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.0707	ug/L
	2-Methylnaphthalene	0.0922	ug/L
	Fluoranthene	0.0503	ug/L
	Fluorene	0.0175J	ug/L
	Naphthalene	0.101	ug/L
	Phenanthrene	0.0843	ug/L
	Pyrene	0.0553	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.388J	mg/L
	Residual Range Organics	0.638	mg/L
Volatile GC/MS	1,2-Dichloroethane	0.160J	ug/L

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Detectable Results Summary

Client Sample ID: **RSE-4**
Lab Sample ID: 1182537004

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	26.8	ug/L
	2-Methylnaphthalene	40.8	ug/L
	Acenaphthene	0.469	ug/L
	Fluoranthene	0.0661	ug/L
	Fluorene	1.22	ug/L
	Naphthalene	51.5	ug/L
	Phenanthrene	1.29	ug/L
	Pyrene	0.102	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	4.77	mg/L
	Residual Range Organics	0.941	mg/L
Volatile Fuels	Gasoline Range Organics	1.82	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	150	ug/L
	1,3,5-Trimethylbenzene	61.4	ug/L
	4-Isopropyltoluene	12.7	ug/L
	Benzene	54.6	ug/L
	Ethylbenzene	122	ug/L
	Isopropylbenzene (Cumene)	41.1	ug/L
	Naphthalene	38.1	ug/L
	n-Propylbenzene	49.5	ug/L
	o-Xylene	26.3	ug/L
	P & M -Xylene	448	ug/L
	sec-Butylbenzene	6.07	ug/L
	tert-Butylbenzene	8.15	ug/L
	Toluene	13.7	ug/L
	Xylenes (total)	474	ug/L

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Detectable Results Summary

Client Sample ID: **RSE-5**
Lab Sample ID: 1182537005

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	22.7	ug/L
	2-Methylnaphthalene	25.4	ug/L
	Acenaphthene	0.283	ug/L
	Fluoranthene	0.0462J	ug/L
	Fluorene	0.406	ug/L
	Naphthalene	49.6	ug/L
	Phenanthrene	0.360	ug/L
	Pyrene	0.0550	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	2.76	mg/L
	Residual Range Organics	0.672	mg/L
Volatile Fuels	Gasoline Range Organics	5.50	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	927	ug/L
	1,3,5-Trimethylbenzene	253	ug/L
	4-Isopropyltoluene	7.28	ug/L
	Benzene	23.4	ug/L
	Ethylbenzene	413	ug/L
	Isopropylbenzene (Cumene)	73.2	ug/L
	Naphthalene	125	ug/L
	n-Propylbenzene	166	ug/L
	o-Xylene	26.4	ug/L
	P & M -Xylene	1190	ug/L
	sec-Butylbenzene	12.1	ug/L
	tert-Butylbenzene	14.0	ug/L
	Toluene	10.1	ug/L
	Xylenes (total)	1220	ug/L

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Detectable Results Summary

Client Sample ID: **RSE-6**
Lab Sample ID: 1182537006

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	5.17	ug/L
	2-Methylnaphthalene	4.65	ug/L
	Acenaphthene	0.112	ug/L
	Anthracene	0.0269J	ug/L
	Fluoranthene	0.0580	ug/L
	Fluorene	0.126	ug/L
	Naphthalene	11.0	ug/L
	Phenanthrene	0.114	ug/L
	Pyrene	0.0512	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.980	mg/L
	Residual Range Organics	0.658	mg/L
Volatile Fuels	Gasoline Range Organics	0.981	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	242	ug/L
	1,3,5-Trimethylbenzene	56.2	ug/L
	4-Isopropyltoluene	1.96	ug/L
	Benzene	19.3	ug/L
	Ethylbenzene	35.3	ug/L
	Isopropylbenzene (Cumene)	16.6	ug/L
	Naphthalene	33.8	ug/L
	n-Propylbenzene	33.5	ug/L
	o-Xylene	1.45	ug/L
	P & M -Xylene	122	ug/L
	sec-Butylbenzene	2.57	ug/L
	tert-Butylbenzene	4.63	ug/L
	Toluene	1.10	ug/L
	Xylenes (total)	123	ug/L

Client Sample ID: **RSE-7**
Lab Sample ID: 1182537007

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.0158J	ug/L
	2-Methylnaphthalene	0.0220J	ug/L
	Fluoranthene	0.0193J	ug/L
	Naphthalene	0.0313J	ug/L
	Phenanthrene	0.0248J	ug/L
	Pyrene	0.0315J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.204J	mg/L
	Residual Range Organics	0.487	mg/L

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Detectable Results Summary

Client Sample ID: **RSE-X**
Lab Sample ID: 1182537008

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	5.71	ug/L
	2-Methylnaphthalene	7.03	ug/L
	Acenaphthene	0.136	ug/L
	Fluoranthene	0.0334J	ug/L
	Fluorene	0.338	ug/L
	Naphthalene	13.9	ug/L
	Phenanthrene	0.308	ug/L
	Pyrene	0.0473J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	2.54	mg/L
	Residual Range Organics	0.762	mg/L
Volatile Fuels	Gasoline Range Organics	2.23	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	336	ug/L
	1,3,5-Trimethylbenzene	132	ug/L
	4-Isopropyltoluene	4.09	ug/L
	Benzene	80.2	ug/L
	Ethylbenzene	246	ug/L
	Isopropylbenzene (Cumene)	62.9	ug/L
	Naphthalene	87.6	ug/L
	n-Propylbenzene	93.7	ug/L
	o-Xylene	72.6	ug/L
	P & M -Xylene	486	ug/L
	sec-Butylbenzene	9.54	ug/L
	tert-Butylbenzene	11.8	ug/L
	Toluene	41.4	ug/L
	Xylenes (total)	559	ug/L

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Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537001
Lab Project ID: 1182537

Collection Date: 05/31/18 14:00
Received Date: 05/31/18 16:35
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	1.09		0.0512	0.0154	ug/L	1		06/08/18 21:01
2-Methylnaphthalene	0.359		0.0512	0.0154	ug/L	1		06/08/18 21:01
Acenaphthene	0.221		0.0512	0.0154	ug/L	1		06/08/18 21:01
Acenaphthylene	0.0256 U		0.0512	0.0154	ug/L	1		06/08/18 21:01
Anthracene	0.0902		0.0512	0.0154	ug/L	1		06/08/18 21:01
Benzo(a)Anthracene	0.0256 U		0.0512	0.0154	ug/L	1		06/08/18 21:01
Benzo[a]pyrene	0.0103 U		0.0205	0.00635	ug/L	1		06/08/18 21:01
Benzo[b]Fluoranthene	0.0256 U		0.0512	0.0154	ug/L	1		06/08/18 21:01
Benzo[g,h,i]perylene	0.0256 U		0.0512	0.0154	ug/L	1		06/08/18 21:01
Benzo[k]fluoranthene	0.0256 U		0.0512	0.0154	ug/L	1		06/08/18 21:01
Chrysene	0.0256 U		0.0512	0.0154	ug/L	1		06/08/18 21:01
Dibenzo[a,h]anthracene	0.0103 U		0.0205	0.00635	ug/L	1		06/08/18 21:01
Fluoranthene	0.250		0.0512	0.0154	ug/L	1		06/08/18 21:01
Fluorene	0.158		0.0512	0.0154	ug/L	1		06/08/18 21:01
Indeno[1,2,3-c,d] pyrene	0.0256 U		0.0512	0.0154	ug/L	1		06/08/18 21:01
Naphthalene	0.480		0.102	0.0318	ug/L	1		06/08/18 21:01
Phenanthrene	0.424		0.0512	0.0154	ug/L	1		06/08/18 21:01
Pyrene	0.237		0.0512	0.0154	ug/L	1		06/08/18 21:01
Surrogates								
2-Methylnaphthalene-d10 (surr)	69.4		47-106		%	1		06/08/18 21:01
Fluoranthene-d10 (surr)	30.9		24-116		%	1		06/08/18 21:01

Batch Information

Analytical Batch: XMS10811
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/08/18 21:01
Container ID: 1182537001-J

Prep Batch: XXX39643
Prep Method: SW3520C
Prep Date/Time: 06/07/18 08:17
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537001
Lab Project ID: 1182537

Collection Date: 05/31/18 14:00
Received Date: 05/31/18 16:35
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	1.68		0.600	0.180	mg/L	1		06/14/18 14:13
Surrogates								
5a Androstane (surr)	70.8		50-150		%	1		06/14/18 14:13

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 06/14/18 14:13
Container ID: 1182537001-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1.62		0.500	0.150	mg/L	1		06/14/18 14:13
Surrogates								
n-Triacontane-d62 (surr)	75		50-150		%	1		06/14/18 14:13

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 06/14/18 14:13
Container ID: 1182537001-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537001
Lab Project ID: 1182537

Collection Date: 05/31/18 14:00
Received Date: 05/31/18 16:35
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		06/04/18 13:53
Surrogates								
4-Bromofluorobenzene (surr)	76.4		50-150		%	1		06/04/18 13:53

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 06/04/18 13:53
Container ID: 1182537001-C

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 06/03/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

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Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537001
Lab Project ID: 1182537

Collection Date: 05/31/18 14:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:02
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:02
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/01/18 19:02
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:02
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/01/18 19:02
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:02
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:02
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:02
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:02
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:02
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:02
Benzene	0.140	J	0.400	0.120	ug/L	1		06/01/18 19:02
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:02
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/01/18 19:02
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:02
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:02
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:02

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

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Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537001
Lab Project ID: 1182537

Collection Date: 05/31/18 14:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Chloromethane	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		06/01/18 19:02
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		06/01/18 19:02
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Freon-113	5.00 U		10.0	3.10	ug/L	1		06/01/18 19:02
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		06/01/18 19:02
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		06/01/18 19:02
Naphthalene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
o-Xylene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		06/01/18 19:02
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Styrene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Toluene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		06/01/18 19:02
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		06/01/18 19:02
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		06/01/18 19:02
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		06/01/18 19:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		06/01/18 19:02
4-Bromofluorobenzene (surr)	96.2		85-114		%	1		06/01/18 19:02
Toluene-d8 (surr)	97.4		89-112		%	1		06/01/18 19:02

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537001
Lab Project ID: 1182537

Collection Date: 05/31/18 14:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17841
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/01/18 19:02
Container ID: 1182537001-F

Prep Batch: VXX32315
Prep Method: SW5030B
Prep Date/Time: 06/01/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537002
Lab Project ID: 1182537

Collection Date: 05/31/18 12:55
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.182		0.0481	0.0144	ug/L	1		06/05/18 14:22
2-Methylnaphthalene	0.146		0.0481	0.0144	ug/L	1		06/05/18 14:22
Acenaphthene	0.0702		0.0481	0.0144	ug/L	1		06/05/18 14:22
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:22
Anthracene	0.0542		0.0481	0.0144	ug/L	1		06/05/18 14:22
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:22
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		06/05/18 14:22
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:22
Benzo[g,h,i]perylene	0.0442	J	0.0481	0.0144	ug/L	1		06/05/18 14:22
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:22
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:22
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		06/05/18 14:22
Fluoranthene	0.133		0.0481	0.0144	ug/L	1		06/05/18 14:22
Fluorene	0.0669		0.0481	0.0144	ug/L	1		06/05/18 14:22
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:22
Naphthalene	0.220		0.0962	0.0298	ug/L	1		06/05/18 14:22
Phenanthrene	0.193		0.0481	0.0144	ug/L	1		06/05/18 14:22
Pyrene	0.133		0.0481	0.0144	ug/L	1		06/05/18 14:22
Surrogates								
2-Methylnaphthalene-d10 (surr)	64.3		47-106		%	1		06/05/18 14:22
Fluoranthene-d10 (surr)	33.7		24-116		%	1		06/05/18 14:22

Batch Information

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/05/18 14:22
Container ID: 1182537002-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537002
Lab Project ID: 1182537

Collection Date: 05/31/18 12:55
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.774		0.566	0.170	mg/L	1		06/14/18 14:23
Surrogates								
5a Androstane (surr)	77.7		50-150		%	1		06/14/18 14:23

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 06/14/18 14:23
Container ID: 1182537002-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1.24		0.472	0.142	mg/L	1		06/14/18 14:23
Surrogates								
n-Triacontane-d62 (surr)	81.4		50-150		%	1		06/14/18 14:23

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 06/14/18 14:23
Container ID: 1182537002-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537002
Lab Project ID: 1182537

Collection Date: 05/31/18 12:55
Received Date: 05/31/18 16:35
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		06/04/18 14:11
Surrogates								
4-Bromofluorobenzene (surr)	78.8		50-150		%	1		06/04/18 14:11

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 06/04/18 14:11
Container ID: 1182537002-C

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 06/03/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

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Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537002
Lab Project ID: 1182537

Collection Date: 05/31/18 12:55
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/01/18 19:20
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:20
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/01/18 19:20
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:20
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:20
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:20
Benzene	0.200	U	0.400	0.120	ug/L	1		06/01/18 19:20
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/01/18 19:20
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:20
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20

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J flagging is activated

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Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537002
Lab Project ID: 1182537

Collection Date: 05/31/18 12:55
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:20
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:20
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/01/18 19:20
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:20
Naphthalene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/01/18 19:20
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Styrene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Toluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:20
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:20
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/01/18 19:20
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		06/01/18 19:20
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		06/01/18 19:20
4-Bromofluorobenzene (surr)	96.7		85-114		%	1		06/01/18 19:20
Toluene-d8 (surr)	98.2		89-112		%	1		06/01/18 19:20

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537002
Lab Project ID: 1182537

Collection Date: 05/31/18 12:55
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17841
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/01/18 19:20
Container ID: 1182537002-F

Prep Batch: VXX32315
Prep Method: SW5030B
Prep Date/Time: 06/01/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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200 West Potter Drive Anchorage, AK 95518
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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537003
Lab Project ID: 1182537

Collection Date: 05/31/18 12:10
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0707		0.0481	0.0144	ug/L	1		06/05/18 14:43
2-Methylnaphthalene	0.0922		0.0481	0.0144	ug/L	1		06/05/18 14:43
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		06/05/18 14:43
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		06/05/18 14:43
Fluoranthene	0.0503		0.0481	0.0144	ug/L	1		06/05/18 14:43
Fluorene	0.0175	J	0.0481	0.0144	ug/L	1		06/05/18 14:43
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 14:43
Naphthalene	0.101		0.0962	0.0298	ug/L	1		06/05/18 14:43
Phenanthrene	0.0843		0.0481	0.0144	ug/L	1		06/05/18 14:43
Pyrene	0.0553		0.0481	0.0144	ug/L	1		06/05/18 14:43
Surrogates								
2-Methylnaphthalene-d10 (surr)	66.7		47-106		%	1		06/05/18 14:43
Fluoranthene-d10 (surr)	52.1		24-116		%	1		06/05/18 14:43

Batch Information

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/05/18 14:43
Container ID: 1182537003-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537003
Lab Project ID: 1182537

Collection Date: 05/31/18 12:10
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.388	J	0.588	0.176	mg/L	1		06/14/18 14:33
Surrogates								
5a Androstane (surr)	83.5		50-150		%	1		06/14/18 14:33

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 06/14/18 14:33
Container ID: 1182537003-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.638		0.490	0.147	mg/L	1		06/14/18 14:33
Surrogates								
n-Triacontane-d62 (surr)	87.1		50-150		%	1		06/14/18 14:33

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 06/14/18 14:33
Container ID: 1182537003-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537003
Lab Project ID: 1182537

Collection Date: 05/31/18 12:10
Received Date: 05/31/18 16:35
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		06/04/18 14:30
Surrogates								
4-Bromofluorobenzene (surr)	79.6		50-150		%	1		06/04/18 14:30

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 06/04/18 14:30
Container ID: 1182537003-C

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 06/03/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537003
Lab Project ID: 1182537

Collection Date: 05/31/18 12:10
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:37
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:37
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/01/18 19:37
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:37
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/01/18 19:37
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,2-Dichloroethane	0.160	J	0.500	0.150	ug/L	1		06/01/18 19:37
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:37
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:37
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:37
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:37
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:37
Benzene	0.200	U	0.400	0.120	ug/L	1		06/01/18 19:37
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:37
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/01/18 19:37
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:37
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:37
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37

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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537003
Lab Project ID: 1182537

Collection Date: 05/31/18 12:10
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:37
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:37
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:37
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/01/18 19:37
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:37
Naphthalene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/01/18 19:37
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Styrene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Toluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:37
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:37
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/01/18 19:37
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		06/01/18 19:37
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.9		81-118		%	1		06/01/18 19:37
4-Bromofluorobenzene (surr)	95.2		85-114		%	1		06/01/18 19:37
Toluene-d8 (surr)	97.2		89-112		%	1		06/01/18 19:37

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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537003
Lab Project ID: 1182537

Collection Date: 05/31/18 12:10
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17841
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/01/18 19:37
Container ID: 1182537003-F

Prep Batch: VXX32315
Prep Method: SW5030B
Prep Date/Time: 06/01/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537004
Lab Project ID: 1182537

Collection Date: 05/31/18 15:22
Received Date: 05/31/18 16:35
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	26.8		0.481	0.144	ug/L	10		06/06/18 13:38
2-Methylnaphthalene	40.8		0.481	0.144	ug/L	10		06/06/18 13:38
Acenaphthene	0.469		0.0481	0.0144	ug/L	1		06/05/18 15:03
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 15:03
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 15:03
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 15:03
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		06/05/18 15:03
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 15:03
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 15:03
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 15:03
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 15:03
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		06/05/18 15:03
Fluoranthene	0.0661		0.0481	0.0144	ug/L	1		06/05/18 15:03
Fluorene	1.22		0.0481	0.0144	ug/L	1		06/05/18 15:03
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 15:03
Naphthalene	51.5		0.962	0.298	ug/L	10		06/06/18 13:38
Phenanthrene	1.29		0.0481	0.0144	ug/L	1		06/05/18 15:03
Pyrene	0.102		0.0481	0.0144	ug/L	1		06/05/18 15:03
Surrogates								
2-Methylnaphthalene-d10 (surr)	61		47-106		%	1		06/05/18 15:03
Fluoranthene-d10 (surr)	27.5		24-116		%	1		06/05/18 15:03

Batch Information

Analytical Batch: XMS10806
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/06/18 13:38
Container ID: 1182537004-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/05/18 15:03
Container ID: 1182537004-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537004
Lab Project ID: 1182537

Collection Date: 05/31/18 15:22
Received Date: 05/31/18 16:35
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	4.77		0.577	0.173	mg/L	1		06/14/18 14:42
Surrogates								
5a Androstane (surr)	82.1		50-150		%	1		06/14/18 14:42

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 06/14/18 14:42
Container ID: 1182537004-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
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	0.941		0.481	0.144	mg/L	1		06/14/18 14:42
Surrogates								
n-Triacontane-d62 (surr)	85		50-150		%	1		06/14/18 14:42

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 06/14/18 14:42
Container ID: 1182537004-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537004
Lab Project ID: 1182537

Collection Date: 05/31/18 15:22
Received Date: 05/31/18 16:35
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	1.82		0.100	0.0310	mg/L	1		06/04/18 14:48
Surrogates								
4-Bromofluorobenzene (surr)	246	*	50-150		%	1		06/04/18 14:48

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 06/04/18 14:48
Container ID: 1182537004-C

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 06/03/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537004
Lab Project ID: 1182537

Collection Date: 05/31/18 15:22
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/01/18 19:55
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,2,4-Trimethylbenzene	150		1.00	0.310	ug/L	1		06/01/18 19:55
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:55
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/01/18 19:55
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,3,5-Trimethylbenzene	61.4		1.00	0.310	ug/L	1		06/01/18 19:55
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:55
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:55
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
4-Isopropyltoluene	12.7		1.00	0.310	ug/L	1		06/01/18 19:55
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:55
Benzene	54.6		0.400	0.120	ug/L	1		06/01/18 19:55
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/01/18 19:55
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:55
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537004
Lab Project ID: 1182537

Collection Date: 05/31/18 15:22
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/01/18 19:55
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Ethylbenzene	122		1.00	0.310	ug/L	1		06/01/18 19:55
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:55
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Isopropylbenzene (Cumene)	41.1		1.00	0.310	ug/L	1		06/01/18 19:55
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/01/18 19:55
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:55
Naphthalene	38.1		1.00	0.310	ug/L	1		06/01/18 19:55
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
n-Propylbenzene	49.5		1.00	0.310	ug/L	1		06/01/18 19:55
o-Xylene	26.3		1.00	0.310	ug/L	1		06/01/18 19:55
P & M -Xylene	448		10.0	3.10	ug/L	5		06/05/18 15:37
sec-Butylbenzene	6.07		1.00	0.310	ug/L	1		06/01/18 19:55
Styrene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
tert-Butylbenzene	8.15		1.00	0.310	ug/L	1		06/01/18 19:55
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Toluene	13.7		1.00	0.310	ug/L	1		06/01/18 19:55
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/01/18 19:55
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/01/18 19:55
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/01/18 19:55
Xylenes (total)	474		15.0	5.00	ug/L	5		06/05/18 15:37
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.9		81-118		%	1		06/01/18 19:55
4-Bromofluorobenzene (surr)	102		85-114		%	1		06/01/18 19:55
Toluene-d8 (surr)	94		89-112		%	1		06/01/18 19:55

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Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537004
Lab Project ID: 1182537

Collection Date: 05/31/18 15:22
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17850
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/05/18 15:37
Container ID:

Prep Batch: VXX32330
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17841
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/01/18 19:55
Container ID: 1182537004-F

Prep Batch: VXX32315
Prep Method: SW5030B
Prep Date/Time: 06/01/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537005
Lab Project ID: 1182537

Collection Date: 05/31/18 14:45
Received Date: 05/31/18 16:35
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	22.7		0.490	0.147	ug/L	10		06/06/18 13:59
2-Methylnaphthalene	25.4		0.490	0.147	ug/L	10		06/06/18 13:59
Acenaphthene	0.283		0.0490	0.0147	ug/L	1		06/05/18 15:24
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 15:24
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 15:24
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 15:24
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		06/05/18 15:24
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 15:24
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 15:24
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 15:24
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 15:24
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		06/05/18 15:24
Fluoranthene	0.0462	J	0.0490	0.0147	ug/L	1		06/05/18 15:24
Fluorene	0.406		0.0490	0.0147	ug/L	1		06/05/18 15:24
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 15:24
Naphthalene	49.6		0.980	0.304	ug/L	10		06/06/18 13:59
Phenanthrene	0.360		0.0490	0.0147	ug/L	1		06/05/18 15:24
Pyrene	0.0550		0.0490	0.0147	ug/L	1		06/05/18 15:24
Surrogates								
2-Methylnaphthalene-d10 (surr)	59.4		47-106		%	1		06/05/18 15:24
Fluoranthene-d10 (surr)	34.1		24-116		%	1		06/05/18 15:24

Batch Information

Analytical Batch: XMS10806
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/06/18 13:59
Container ID: 1182537005-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/05/18 15:24
Container ID: 1182537005-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537005
Lab Project ID: 1182537

Collection Date: 05/31/18 14:45
Received Date: 05/31/18 16:35
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	2.76		0.577	0.173	mg/L	1		06/14/18 14:52
Surrogates								
5a Androstane (surr)	82.3		50-150		%	1		06/14/18 14:52

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 06/14/18 14:52
Container ID: 1182537005-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
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	0.672		0.481	0.144	mg/L	1		06/14/18 14:52
Surrogates								
n-Triacontane-d62 (surr)	86.8		50-150		%	1		06/14/18 14:52

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 06/14/18 14:52
Container ID: 1182537005-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537005
Lab Project ID: 1182537

Collection Date: 05/31/18 14:45
Received Date: 05/31/18 16:35
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	5.50		0.500	0.155	mg/L	5		06/06/18 21:24
Surrogates								
4-Bromofluorobenzene (surr)	138		50-150		%	5		06/06/18 21:24

Batch Information

Analytical Batch: VFC14174
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/06/18 21:24
Container ID: 1182537005-H

Prep Batch: VXX32339
Prep Method: SW5030B
Prep Date/Time: 06/06/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537005
Lab Project ID: 1182537

Collection Date: 05/31/18 14:45
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/06/18 03:54
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/06/18 03:54
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/06/18 03:54
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,2,4-Trimethylbenzene	927		10.0	3.10	ug/L	10		06/06/18 03:20
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/06/18 03:54
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/06/18 03:54
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/06/18 03:54
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,3,5-Trimethylbenzene	253		10.0	3.10	ug/L	10		06/06/18 03:20
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/06/18 03:54
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/06/18 03:54
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/06/18 03:54
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/06/18 03:54
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
4-Isopropyltoluene	7.28		1.00	0.310	ug/L	1		06/06/18 03:54
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/06/18 03:54
Benzene	23.4		0.400	0.120	ug/L	1		06/06/18 03:54
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/06/18 03:54
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/06/18 03:54
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/06/18 03:54
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/06/18 03:54
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/06/18 03:54

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Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537005
Lab Project ID: 1182537

Collection Date: 05/31/18 14:45
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
Chloromethane	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		06/06/18 03:54
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		06/06/18 03:54
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
Ethylbenzene	413		10.0	3.10	ug/L	10		06/06/18 03:20
Freon-113	5.00 U		10.0	3.10	ug/L	1		06/06/18 03:54
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
Isopropylbenzene (Cumene)	73.2		1.00	0.310	ug/L	1		06/06/18 03:54
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		06/06/18 03:54
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		06/06/18 03:54
Naphthalene	125		1.00	0.310	ug/L	1		06/06/18 03:54
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
n-Propylbenzene	166		1.00	0.310	ug/L	1		06/06/18 03:54
o-Xylene	26.4		1.00	0.310	ug/L	1		06/06/18 03:54
P & M -Xylene	1190		20.0	6.20	ug/L	10		06/06/18 03:20
sec-Butylbenzene	12.1		1.00	0.310	ug/L	1		06/06/18 03:54
Styrene	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
tert-Butylbenzene	14.0		1.00	0.310	ug/L	1		06/06/18 03:54
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
Toluene	10.1		1.00	0.310	ug/L	1		06/06/18 03:54
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		06/06/18 03:54
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		06/06/18 03:54
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		06/06/18 03:54
Xylenes (total)	1220		30.0	10.0	ug/L	10		06/06/18 03:20
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.1		81-118		%	1		06/06/18 03:54
4-Bromofluorobenzene (surr)	96.5		85-114		%	1		06/06/18 03:54
Toluene-d8 (surr)	98.6		89-112		%	1		06/06/18 03:54

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Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537005
Lab Project ID: 1182537

Collection Date: 05/31/18 14:45
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17853
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/06/18 03:20
Container ID: 1182537005-F

Prep Batch: VXX32332
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17853
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/06/18 03:54
Container ID: 1182537005-F

Prep Batch: VXX32332
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537006
Lab Project ID: 1182537

Collection Date: 05/31/18 15:00
Received Date: 05/31/18 16:35
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	5.17		0.0472	0.0142	ug/L	1		06/05/18 15:44
2-Methylnaphthalene	4.65		0.0472	0.0142	ug/L	1		06/05/18 15:44
Acenaphthene	0.112		0.0472	0.0142	ug/L	1		06/05/18 15:44
Acenaphthylene	0.0236	U	0.0472	0.0142	ug/L	1		06/05/18 15:44
Anthracene	0.0269	J	0.0472	0.0142	ug/L	1		06/05/18 15:44
Benzo(a)Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		06/05/18 15:44
Benzo[a]pyrene	0.00945	U	0.0189	0.00585	ug/L	1		06/05/18 15:44
Benzo[b]Fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		06/05/18 15:44
Benzo[g,h,i]perylene	0.0236	U	0.0472	0.0142	ug/L	1		06/05/18 15:44
Benzo[k]fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		06/05/18 15:44
Chrysene	0.0236	U	0.0472	0.0142	ug/L	1		06/05/18 15:44
Dibenzo[a,h]anthracene	0.00945	U	0.0189	0.00585	ug/L	1		06/05/18 15:44
Fluoranthene	0.0580		0.0472	0.0142	ug/L	1		06/05/18 15:44
Fluorene	0.126		0.0472	0.0142	ug/L	1		06/05/18 15:44
Indeno[1,2,3-c,d] pyrene	0.0236	U	0.0472	0.0142	ug/L	1		06/05/18 15:44
Naphthalene	11.0		0.189	0.0585	ug/L	2		06/06/18 14:19
Phenanthrene	0.114		0.0472	0.0142	ug/L	1		06/05/18 15:44
Pyrene	0.0512		0.0472	0.0142	ug/L	1		06/05/18 15:44
Surrogates								
2-Methylnaphthalene-d10 (surr)	57.7		47-106		%	1		06/05/18 15:44
Fluoranthene-d10 (surr)	34.1		24-116		%	1		06/05/18 15:44

Batch Information

Analytical Batch: XMS10806
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/06/18 14:19
Container ID: 1182537006-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/05/18 15:44
Container ID: 1182537006-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537006
Lab Project ID: 1182537

Collection Date: 05/31/18 15:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.980		0.556	0.167	mg/L	1		06/14/18 15:02
Surrogates								
5a Androstane (surr)	80.1		50-150		%	1		06/14/18 15:02

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 06/14/18 15:02
Container ID: 1182537006-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.658		0.463	0.139	mg/L	1		06/14/18 15:02
Surrogates								
n-Triacontane-d62 (surr)	82.1		50-150		%	1		06/14/18 15:02

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 06/14/18 15:02
Container ID: 1182537006-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537006
Lab Project ID: 1182537

Collection Date: 05/31/18 15:00
Received Date: 05/31/18 16:35
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	0.981		0.100	0.0310	mg/L	1		06/04/18 15:24
Surrogates								
4-Bromofluorobenzene (surr)	161	*	50-150		%	1		06/04/18 15:24

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 06/04/18 15:24
Container ID: 1182537006-C

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 06/03/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537006
Lab Project ID: 1182537

Collection Date: 05/31/18 15:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/06/18 04:11
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/06/18 04:11
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/06/18 04:11
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,2,4-Trimethylbenzene	242		10.0	3.10	ug/L	10		06/06/18 03:37
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/06/18 04:11
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/06/18 04:11
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/06/18 04:11
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,3,5-Trimethylbenzene	56.2		1.00	0.310	ug/L	1		06/06/18 04:11
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/06/18 04:11
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/06/18 04:11
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/06/18 04:11
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/06/18 04:11
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
4-Isopropyltoluene	1.96		1.00	0.310	ug/L	1		06/06/18 04:11
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/06/18 04:11
Benzene	19.3		0.400	0.120	ug/L	1		06/06/18 04:11
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/06/18 04:11
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/06/18 04:11
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/06/18 04:11
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/06/18 04:11
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/06/18 04:11

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Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537006
Lab Project ID: 1182537

Collection Date: 05/31/18 15:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
Chloromethane	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		06/06/18 04:11
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		06/06/18 04:11
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
Ethylbenzene	35.3		1.00	0.310	ug/L	1		06/06/18 04:11
Freon-113	5.00 U		10.0	3.10	ug/L	1		06/06/18 04:11
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
Isopropylbenzene (Cumene)	16.6		1.00	0.310	ug/L	1		06/06/18 04:11
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		06/06/18 04:11
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		06/06/18 04:11
Naphthalene	33.8		1.00	0.310	ug/L	1		06/06/18 04:11
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
n-Propylbenzene	33.5		1.00	0.310	ug/L	1		06/06/18 04:11
o-Xylene	1.45		1.00	0.310	ug/L	1		06/06/18 04:11
P & M -Xylene	122		2.00	0.620	ug/L	1		06/06/18 04:11
sec-Butylbenzene	2.57		1.00	0.310	ug/L	1		06/06/18 04:11
Styrene	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
tert-Butylbenzene	4.63		1.00	0.310	ug/L	1		06/06/18 04:11
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
Toluene	1.10		1.00	0.310	ug/L	1		06/06/18 04:11
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		06/06/18 04:11
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		06/06/18 04:11
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		06/06/18 04:11
Xylenes (total)	123		3.00	1.00	ug/L	1		06/06/18 04:11
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.1		81-118		%	1		06/06/18 04:11
4-Bromofluorobenzene (surr)	100		85-114		%	1		06/06/18 04:11
Toluene-d8 (surr)	101		89-112		%	1		06/06/18 04:11

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Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537006
Lab Project ID: 1182537

Collection Date: 05/31/18 15:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17853
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/06/18 03:37
Container ID: 1182537006-F

Prep Batch: VXX32332
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17853
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/06/18 04:11
Container ID: 1182537006-F

Prep Batch: VXX32332
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537007
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0158	J	0.0481	0.0144	ug/L	1		06/05/18 16:05
2-Methylnaphthalene	0.0220	J	0.0481	0.0144	ug/L	1		06/05/18 16:05
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		06/05/18 16:05
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		06/05/18 16:05
Fluoranthene	0.0193	J	0.0481	0.0144	ug/L	1		06/05/18 16:05
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		06/05/18 16:05
Naphthalene	0.0313	J	0.0962	0.0298	ug/L	1		06/05/18 16:05
Phenanthrene	0.0248	J	0.0481	0.0144	ug/L	1		06/05/18 16:05
Pyrene	0.0315	J	0.0481	0.0144	ug/L	1		06/05/18 16:05
Surrogates								
2-Methylnaphthalene-d10 (surr)	59.9		47-106		%	1		06/05/18 16:05
Fluoranthene-d10 (surr)	24.3		24-116		%	1		06/05/18 16:05

Batch Information

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/05/18 16:05
Container ID: 1182537007-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537007
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.204	J	0.556	0.167	mg/L	1		06/14/18 15:11
Surrogates								
5a Androstane (surr)	77.7		50-150		%	1		06/14/18 15:11

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 06/14/18 15:11
Container ID: 1182537007-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.487		0.463	0.139	mg/L	1		06/14/18 15:11
Surrogates								
n-Triacontane-d62 (surr)	81.6		50-150		%	1		06/14/18 15:11

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 06/14/18 15:11
Container ID: 1182537007-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537007
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
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		06/04/18 15:42
Surrogates								
4-Bromofluorobenzene (surr)	82.6		50-150		%	1		06/04/18 15:42

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 06/04/18 15:42
Container ID: 1182537007-C

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 06/03/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537007
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:03
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:03
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/05/18 15:03
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:03
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/05/18 15:03
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:03
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:03
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:03
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:03
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:03
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:03
Benzene	0.200	U	0.400	0.120	ug/L	1		06/05/18 15:03
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:03
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/05/18 15:03
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:03
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:03
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:03

Print Date: 06/15/2018 4:29:28PM

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Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537007
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Chloromethane	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		06/05/18 15:03
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		06/05/18 15:03
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Freon-113	5.00 U		10.0	3.10	ug/L	1		06/05/18 15:03
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		06/05/18 15:03
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		06/05/18 15:03
Naphthalene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
o-Xylene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		06/05/18 15:03
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Styrene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Toluene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		06/05/18 15:03
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		06/05/18 15:03
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		06/05/18 15:03
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		06/05/18 15:03
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		06/05/18 15:03
4-Bromofluorobenzene (surr)	102		85-114		%	1		06/05/18 15:03
Toluene-d8 (surr)	102		89-112		%	1		06/05/18 15:03

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Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537007
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17850
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/05/18 15:03
Container ID: 1182537007-F

Prep Batch: VXX32330
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537008
Lab Project ID: 1182537

Collection Date: 05/31/18 15:27
Received Date: 05/31/18 16:35
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	5.71		0.0490	0.0147	ug/L	1		06/05/18 16:25
2-Methylnaphthalene	7.03		0.0490	0.0147	ug/L	1		06/05/18 16:25
Acenaphthene	0.136		0.0490	0.0147	ug/L	1		06/05/18 16:25
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 16:25
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 16:25
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 16:25
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		06/05/18 16:25
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 16:25
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 16:25
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 16:25
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 16:25
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		06/05/18 16:25
Fluoranthene	0.0334	J	0.0490	0.0147	ug/L	1		06/05/18 16:25
Fluorene	0.338		0.0490	0.0147	ug/L	1		06/05/18 16:25
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		06/05/18 16:25
Naphthalene	13.9		0.196	0.0608	ug/L	2		06/06/18 14:40
Phenanthrene	0.308		0.0490	0.0147	ug/L	1		06/05/18 16:25
Pyrene	0.0473	J	0.0490	0.0147	ug/L	1		06/05/18 16:25
Surrogates								
2-Methylnaphthalene-d10 (surr)	49.8		47-106		%	1		06/05/18 16:25
Fluoranthene-d10 (surr)	37.4		24-116		%	1		06/05/18 16:25

Batch Information

Analytical Batch: XMS10806
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/06/18 14:40
Container ID: 1182537008-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 06/05/18 16:25
Container ID: 1182537008-I

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 06/04/18 08:18
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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J flagging is activated

Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537008
Lab Project ID: 1182537

Collection Date: 05/31/18 15:27
Received Date: 05/31/18 16:35
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	2.54		0.588	0.176	mg/L	1		06/14/18 15:21
Surrogates								
5a Androstane (surr)	76.3		50-150		%	1		06/14/18 15:21

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 06/14/18 15:21
Container ID: 1182537008-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.762		0.490	0.147	mg/L	1		06/14/18 15:21
Surrogates								
n-Triacontane-d62 (surr)	82.6		50-150		%	1		06/14/18 15:21

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 06/14/18 15:21
Container ID: 1182537008-A

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 06/13/18 08:31
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537008
Lab Project ID: 1182537

Collection Date: 05/31/18 15:27
Received Date: 05/31/18 16:35
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	2.23		0.100	0.0310	mg/L	1		06/04/18 16:00
Surrogates								
4-Bromofluorobenzene (surr)	304	*	50-150		%	1		06/04/18 16:00

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 06/04/18 16:00
Container ID: 1182537008-C

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 06/03/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537008
Lab Project ID: 1182537

Collection Date: 05/31/18 15:27
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/05/18 15:20
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,2,4-Trimethylbenzene	336		10.0	3.10	ug/L	10		06/05/18 14:46
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:20
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/05/18 15:20
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,3,5-Trimethylbenzene	132		1.00	0.310	ug/L	1		06/05/18 15:20
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:20
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:20
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
4-Isopropyltoluene	4.09		1.00	0.310	ug/L	1		06/05/18 15:20
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:20
Benzene	80.2		0.400	0.120	ug/L	1		06/05/18 15:20
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/05/18 15:20
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:20
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20

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Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537008
Lab Project ID: 1182537

Collection Date: 05/31/18 15:27
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 15:20
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Ethylbenzene	246		10.0	3.10	ug/L	10		06/05/18 14:46
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:20
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Isopropylbenzene (Cumene)	62.9		1.00	0.310	ug/L	1		06/05/18 15:20
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/05/18 15:20
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:20
Naphthalene	87.6		1.00	0.310	ug/L	1		06/05/18 15:20
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
n-Propylbenzene	93.7		1.00	0.310	ug/L	1		06/05/18 15:20
o-Xylene	72.6		1.00	0.310	ug/L	1		06/05/18 15:20
P & M -Xylene	486		20.0	6.20	ug/L	10		06/05/18 14:46
sec-Butylbenzene	9.54		1.00	0.310	ug/L	1		06/05/18 15:20
Styrene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
tert-Butylbenzene	11.8		1.00	0.310	ug/L	1		06/05/18 15:20
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Toluene	41.4		1.00	0.310	ug/L	1		06/05/18 15:20
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 15:20
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/05/18 15:20
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/05/18 15:20
Xylenes (total)	559		30.0	10.0	ug/L	10		06/05/18 14:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	95.5		81-118		%	1		06/05/18 15:20
4-Bromofluorobenzene (surr)	99.9		85-114		%	1		06/05/18 15:20
Toluene-d8 (surr)	98.3		89-112		%	1		06/05/18 15:20

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J flagging is activated

Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537008
Lab Project ID: 1182537

Collection Date: 05/31/18 15:27
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17850
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/05/18 14:46
Container ID: 1182537008-F

Prep Batch: VXX32330
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17850
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/05/18 15:20
Container ID: 1182537008-F

Prep Batch: VXX32330
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537009
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
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		06/04/18 10:52
Surrogates								
4-Bromofluorobenzene (surr)	83.6		50-150		%	1		06/04/18 10:52

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Analyst: NRO
Analytical Date/Time: 06/04/18 10:52
Container ID: 1182537009-A

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 06/03/18 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537009
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 13:55
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 13:55
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/05/18 13:55
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/05/18 13:55
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/05/18 13:55
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 13:55
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/05/18 13:55
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/05/18 13:55
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/05/18 13:55
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/05/18 13:55
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/05/18 13:55
Benzene	0.200	U	0.400	0.120	ug/L	1		06/05/18 13:55
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/05/18 13:55
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/05/18 13:55
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/05/18 13:55
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/05/18 13:55
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/05/18 13:55

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537009
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Chloromethane	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		06/05/18 13:55
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		06/05/18 13:55
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Freon-113	5.00 U		10.0	3.10	ug/L	1		06/05/18 13:55
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		06/05/18 13:55
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		06/05/18 13:55
Naphthalene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
o-Xylene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		06/05/18 13:55
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Styrene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Toluene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		06/05/18 13:55
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		06/05/18 13:55
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		06/05/18 13:55
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		06/05/18 13:55
Surrogates								
1,2-Dichloroethane-D4 (surr)	108		81-118		%	1		06/05/18 13:55
4-Bromofluorobenzene (surr)	103		85-114		%	1		06/05/18 13:55
Toluene-d8 (surr)	101		89-112		%	1		06/05/18 13:55

Print Date: 06/15/2018 4:29:28PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **801 Ship Creek**
Lab Sample ID: 1182537009
Lab Project ID: 1182537

Collection Date: 05/31/18 11:00
Received Date: 05/31/18 16:35
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17850
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/05/18 13:55
Container ID: 1182537009-D

Prep Batch: VXX32330
Prep Method: SW5030B
Prep Date/Time: 06/05/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1780409 [VXX/32315]
Blank Lab ID: 1449979

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

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Method Blank

Blank ID: MB for HBN 1780409 [VXX/32315]
Blank Lab ID: 1449979

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

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	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	81-118		%
4-Bromofluorobenzene (surr)	95.4	85-114		%
Toluene-d8 (surr)	96.8	89-112		%

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Method Blank

Blank ID: MB for HBN 1780409 [VXX/32315]
Blank Lab ID: 1449979

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17841
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 6/1/2018 9:35:00AM

Prep Batch: VXX32315
Prep Method: SW5030B
Prep Date/Time: 6/1/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32315]
Blank Spike Lab ID: 1449980
Date Analyzed: 06/01/2018 09:52

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32315]
Spike Duplicate Lab ID: 1449981
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

	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	30.7	102	30	28.9	96	(78-124)	5.90	(< 20)
1,1,1-Trichloroethane	30	31.1	104	30	32.2	107	(74-131)	3.40	(< 20)
1,1,2,2-Tetrachloroethane	30	28.0	93	30	27.4	92	(71-121)	2.10	(< 20)
1,1,2-Trichloroethane	30	29.3	98	30	27.5	92	(80-119)	6.30	(< 20)
1,1-Dichloroethane	30	29.2	97	30	30.0	100	(77-125)	2.60	(< 20)
1,1-Dichloroethene	30	31.3	104	30	33.2	111	(71-131)	5.80	(< 20)
1,1-Dichloropropene	30	30.4	101	30	31.2	104	(79-125)	2.40	(< 20)
1,2,3-Trichlorobenzene	30	31.5	105	30	29.2	97	(69-129)	7.70	(< 20)
1,2,3-Trichloropropane	30	28.3	94	30	27.8	93	(73-122)	1.80	(< 20)
1,2,4-Trichlorobenzene	30	31.6	105	30	30.7	102	(69-130)	3.10	(< 20)
1,2,4-Trimethylbenzene	30	30.2	101	30	29.9	100	(79-124)	1.10	(< 20)
1,2-Dibromo-3-chloropropane	30	28.7	96	30	27.4	91	(62-128)	4.70	(< 20)
1,2-Dibromoethane	30	30.4	101	30	28.3	94	(77-121)	7.00	(< 20)
1,2-Dichlorobenzene	30	30.2	101	30	29.7	99	(80-119)	1.70	(< 20)
1,2-Dichloroethane	30	27.8	93	30	28.7	96	(73-128)	3.20	(< 20)
1,2-Dichloropropane	30	29.7	99	30	30.2	101	(78-122)	1.70	(< 20)
1,3,5-Trimethylbenzene	30	30.1	100	30	29.4	98	(75-124)	2.30	(< 20)
1,3-Dichlorobenzene	30	29.9	100	30	29.3	98	(80-119)	2.10	(< 20)
1,3-Dichloropropane	30	28.9	96	30	27.2	91	(80-119)	6.00	(< 20)
1,4-Dichlorobenzene	30	30.0	100	30	29.3	98	(79-118)	2.30	(< 20)
2,2-Dichloropropane	30	30.8	103	30	31.1	104	(60-139)	1.00	(< 20)
2-Butanone (MEK)	90	82.4	92	90	82.1	91	(56-143)	0.35	(< 20)
2-Chlorotoluene	30	29.8	99	30	28.6	95	(79-122)	4.00	(< 20)
2-Hexanone	90	81.3	90	90	77.7	86	(57-139)	4.50	(< 20)
4-Chlorotoluene	30	29.4	98	30	29.2	97	(78-122)	0.58	(< 20)
4-Isopropyltoluene	30	30.8	103	30	31.3	104	(77-127)	1.70	(< 20)
4-Methyl-2-pentanone (MIBK)	90	92.1	102	90	93.9	104	(67-130)	1.90	(< 20)
Benzene	30	30.1	100	30	30.3	101	(79-120)	0.83	(< 20)
Bromobenzene	30	29.5	98	30	29.2	97	(80-120)	1.10	(< 20)
Bromochloromethane	30	32.1	107	30	33.2	111	(78-123)	3.30	(< 20)
Bromodichloromethane	30	31.5	105	30	32.7	109	(79-125)	3.80	(< 20)
Bromoform	30	33.1	110	30	31.0	103	(66-130)	6.80	(< 20)
Bromomethane	30	33.4	111	30	35.8	119	(53-141)	6.70	(< 20)
Carbon disulfide	45	44.5	99	45	47.1	105	(64-133)	5.70	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32315]
Blank Spike Lab ID: 1449980
Date Analyzed: 06/01/2018 09:52

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32315]
Spike Duplicate Lab ID: 1449981
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	32.4	108	30	33.6	112	(72-136)	3.70	(< 20)
Chlorobenzene	30	29.2	97	30	28.5	95	(82-118)	2.70	(< 20)
Chloroethane	30	25.9	86	30	35.2	117	(60-138)	30.60	* (< 20)
Chloroform	30	30.3	101	30	31.2	104	(79-124)	2.80	(< 20)
Chloromethane	30	25.0	84	30	27.5	92	(50-139)	9.50	(< 20)
cis-1,2-Dichloroethene	30	30.7	102	30	31.4	105	(78-123)	2.30	(< 20)
cis-1,3-Dichloropropene	30	31.6	105	30	32.2	107	(75-124)	1.90	(< 20)
Dibromochloromethane	30	31.3	104	30	29.9	100	(74-126)	4.50	(< 20)
Dibromomethane	30	30.7	102	30	31.9	106	(79-123)	3.60	(< 20)
Dichlorodifluoromethane	30	31.5	105	30	32.3	108	(32-152)	2.40	(< 20)
Ethylbenzene	30	29.5	98	30	28.5	95	(79-121)	3.30	(< 20)
Freon-113	45	49.2	109	45	51.5	115	(70-136)	4.70	(< 20)
Hexachlorobutadiene	30	34.1	114	30	37.6	125	(66-134)	9.80	(< 20)
Isopropylbenzene (Cumene)	30	31.6	105	30	31.2	104	(72-131)	1.40	(< 20)
Methylene chloride	30	31.4	105	30	31.9	106	(74-124)	1.60	(< 20)
Methyl-t-butyl ether	45	45.0	100	45	46.0	102	(71-124)	2.10	(< 20)
Naphthalene	30	31.8	106	30	28.3	94	(61-128)	11.60	(< 20)
n-Butylbenzene	30	30.6	102	30	31.1	104	(75-128)	1.70	(< 20)
n-Propylbenzene	30	28.7	96	30	28.6	95	(76-126)	0.28	(< 20)
o-Xylene	30	29.7	99	30	28.7	96	(78-122)	3.30	(< 20)
P & M -Xylene	60	58.5	98	60	56.7	95	(80-121)	3.10	(< 20)
sec-Butylbenzene	30	30.3	101	30	30.8	103	(77-126)	1.70	(< 20)
Styrene	30	31.0	103	30	30.1	100	(78-123)	3.20	(< 20)
tert-Butylbenzene	30	29.9	100	30	29.7	99	(78-124)	0.57	(< 20)
Tetrachloroethene	30	31.3	104	30	29.7	99	(74-129)	5.40	(< 20)
Toluene	30	27.8	93	30	27.1	90	(80-121)	2.70	(< 20)
trans-1,2-Dichloroethene	30	30.6	102	30	31.6	105	(75-124)	3.30	(< 20)
trans-1,3-Dichloropropene	30	29.6	99	30	28.3	94	(73-127)	4.70	(< 20)
Trichloroethene	30	31.2	104	30	32.0	107	(79-123)	2.30	(< 20)
Trichlorofluoromethane	30	32.7	109	30	34.4	115	(65-141)	5.20	(< 20)
Vinyl acetate	30	27.4	92	30	28.0	93	(54-146)	1.90	(< 20)
Vinyl chloride	30	30.0	100	30	31.3	104	(58-137)	4.00	(< 20)
Xylenes (total)	90	88.2	98	90	85.5	95	(79-121)	3.20	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32315]
Blank Spike Lab ID: 1449980
Date Analyzed: 06/01/2018 09:52

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32315]
Spike Duplicate Lab ID: 1449981
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	95	95	30	99.7	100	(81-118)	4.80	
4-Bromofluorobenzene (surr)	30	96.1	96	30	96.5	97	(85-114)	0.42	
Toluene-d8 (surr)	30	96.4	96	30	95.8	96	(89-112)	0.66	

Batch Information

Analytical Batch: **VMS17841**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX32315**
Prep Method: **SW5030B**
Prep Date/Time: **06/01/2018 00:00**
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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Matrix Spike Summary

Original Sample ID: 1449991
MS Sample ID: 1449992 MS
MSD Sample ID: 1449993 MSD

Analysis Date: 06/01/2018 17:17
Analysis Date: 06/01/2018 20:12
Analysis Date: 06/01/2018 20:30
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	2.50U	300	317	106	300	304	101	78-124	4.20	(< 20)
1,1,1-Trichloroethane	5.00U	300	315	105	300	309	103	74-131	2.10	(< 20)
1,1,2,2-Tetrachloroethane	2.50U	300	292	97	300	280	93	71-121	4.40	(< 20)
1,1,2-Trichloroethane	2.00U	300	299	100	300	293	98	80-119	1.90	(< 20)
1,1-Dichloroethane	5.00U	300	294	98	300	291	97	77-125	1.20	(< 20)
1,1-Dichloroethene	5.00U	300	320	107	300	313	104	71-131	2.10	(< 20)
1,1-Dichloropropene	5.00U	300	307	102	300	303	101	79-125	1.30	(< 20)
1,2,3-Trichlorobenzene	5.00U	300	312	104	300	326	109	69-129	4.40	(< 20)
1,2,3-Trichloropropane	5.00U	300	289	96	300	281	94	73-122	2.90	(< 20)
1,2,4-Trichlorobenzene	5.00U	300	317	106	300	317	106	69-130	0.06	(< 20)
1,2,4-Trimethylbenzene	389	300	697	103	300	673	94	79-124	3.60	(< 20)
1,2-Dibromo-3-chloropropane	50.0U	300	300	100	300	306	102	62-128	1.90	(< 20)
1,2-Dibromoethane	0.375U	300	307	102	300	303	101	77-121	1.30	(< 20)
1,2-Dichlorobenzene	5.00U	300	305	102	300	299	100	80-119	2.20	(< 20)
1,2-Dichloroethane	2.50U	300	284	95	300	283	95	73-128	0.21	(< 20)
1,2-Dichloropropane	5.00U	300	298	100	300	295	98	78-122	1.30	(< 20)
1,3,5-Trimethylbenzene	105	300	405	100	300	398	98	75-124	1.80	(< 20)
1,3-Dichlorobenzene	5.00U	300	306	102	300	296	99	80-119	3.20	(< 20)
1,3-Dichloropropane	2.50U	300	291	97	300	286	95	80-119	1.80	(< 20)
1,4-Dichlorobenzene	2.50U	300	302	101	300	297	99	79-118	1.70	(< 20)
2,2-Dichloropropane	5.00U	300	279	93	300	277	92	60-139	0.47	(< 20)
2-Butanone (MEK)	50.0U	900	789	88	900	814	90	56-143	3.20	(< 20)
2-Chlorotoluene	5.00U	300	326	109	300	322	107	79-122	1.30	(< 20)
2-Hexanone	50.0U	900	782	87	900	781	87	57-139	0.12	(< 20)
4-Chlorotoluene	5.00U	300	295	98	300	293	98	78-122	0.68	(< 20)
4-Isopropyltoluene	13.6	300	323	103	300	314	100	77-127	2.90	(< 20)
4-Methyl-2-pentanone (MIBK)	50.0U	900	922	102	900	907	101	67-130	1.60	(< 20)
Benzene	2.00U	300	304	101	300	299	100	79-120	1.50	(< 20)
Bromobenzene	5.00U	300	309	103	300	302	101	80-120	2.10	(< 20)
Bromochloromethane	5.00U	300	324	108	300	323	108	78-123	0.37	(< 20)
Bromodichloromethane	2.50U	300	319	106	300	319	106	79-125	0.13	(< 20)
Bromoform	5.00U	300	337	112	300	329	110	66-130	2.50	(< 20)
Bromomethane	25.0U	300	285	95	300	290	97	53-141	1.90	(< 20)
Carbon disulfide	50.0U	450	451	100	450	443	98	64-133	1.80	(< 20)
Carbon tetrachloride	5.00U	300	327	109	300	324	108	72-136	1.00	(< 20)
Chlorobenzene	2.50U	300	294	98	300	293	98	82-118	0.27	(< 20)
Chloroethane	5.00U	300	371	124	300	339	113	60-138	9.10	(< 20)

Print Date: 06/15/2018 4:29:35PM

Matrix Spike Summary

Original Sample ID: 1449991
MS Sample ID: 1449992 MS
MSD Sample ID: 1449993 MSD

Analysis Date: 06/01/2018 17:17
Analysis Date: 06/01/2018 20:12
Analysis Date: 06/01/2018 20:30
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	5.00U	300	308	103	300	305	102	79-124	1.20	(< 20)
Chloromethane	5.00U	300	208	69	300	231	77	50-139	10.40	(< 20)
cis-1,2-Dichloroethene	5.00U	300	314	105	300	310	103	78-123	1.10	(< 20)
cis-1,3-Dichloropropene	2.50U	300	314	105	300	314	105	75-124	0.10	(< 20)
Dibromochloromethane	2.50U	300	315	105	300	313	104	74-126	0.80	(< 20)
Dibromomethane	5.00U	300	312	104	300	313	104	79-123	0.19	(< 20)
Dichlorodifluoromethane	5.00U	300	274	91	300	271	90	32-152	1.10	(< 20)
Ethylbenzene	21.3	300	316	98	300	309	96	79-121	2.20	(< 20)
Freon-113	50.0U	450	501	111	450	493	110	70-136	1.60	(< 20)
Hexachlorobutadiene	5.00U	300	327	109	300	320	107	66-134	2.40	(< 20)
Isopropylbenzene (Cumene)	7.90J	300	322	105	300	321	104	72-131	0.37	(< 20)
Methylene chloride	25.0U	300	319	106	300	317	106	74-124	0.63	(< 20)
Methyl-t-butyl ether	50.0U	450	454	101	450	457	102	71-124	0.68	(< 20)
Naphthalene	112	300	438	109	300	462	117	61-128	5.30	(< 20)
n-Butylbenzene	5.00U	300	314	105	300	294	98	75-128	6.60	(< 20)
n-Propylbenzene	5.00U	300	304	101	300	297	99	76-126	2.20	(< 20)
o-Xylene	3.30J	300	300	99	300	301	99	78-122	0.20	(< 20)
P & M -Xylene	108	600	688	97	600	689	97	80-121	0.16	(< 20)
sec-Butylbenzene	5.00U	300	309	103	300	299	100	77-126	3.10	(< 20)
Styrene	5.00U	300	306	102	300	307	102	78-123	0.52	(< 20)
tert-Butylbenzene	5.00J	300	308	101	300	305	100	78-124	1.10	(< 20)
Tetrachloroethene	5.00U	300	318	106	300	303	101	74-129	4.80	(< 20)
Toluene	5.00U	300	285	95	300	274	91	80-121	4.00	(< 20)
trans-1,2-Dichloroethene	5.00U	300	309	103	300	304	101	75-124	1.50	(< 20)
trans-1,3-Dichloropropene	5.00U	300	295	98	300	290	97	73-127	1.60	(< 20)
Trichloroethene	5.00U	300	318	106	300	311	104	79-123	2.20	(< 20)
Trichlorofluoromethane	5.00U	300	331	110	300	324	108	65-141	2.10	(< 20)
Vinyl acetate	50.0U	300	266	89	300	266	89	54-146	0.11	(< 20)
Vinyl chloride	0.750U	300	288	96	300	284	95	58-137	1.40	(< 20)
Xylenes (total)	111	900	988	97	900	990	98	79-121	0.17	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		300	284	95	300	288	96	81-118	1.30	
4-Bromofluorobenzene (surr)		300	291	97	300	290	97	85-114	0.31	
Toluene-d8 (surr)		300	291	97	300	285	95	89-112	2.30	

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Matrix Spike Summary

Original Sample ID: 1449991
MS Sample ID: 1449992 MS
MSD Sample ID: 1449993 MSD

Analysis Date:
Analysis Date: 06/01/2018 20:12
Analysis Date: 06/01/2018 20:30
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS17841
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 6/1/2018 8:12:00PM

Prep Batch: VXX32315
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 6/1/2018 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 06/15/2018 4:29:35PM

Method Blank

Blank ID: MB for HBN 1780435 [VXX/32319]
Blank Lab ID: 1450088

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537001, 1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008, 1182537009

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	80.5	50-150		%

Batch Information

Analytical Batch: VFC14165
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: NRO
Analytical Date/Time: 6/4/2018 10:16:00AM

Prep Batch: VXX32319
Prep Method: SW5030B
Prep Date/Time: 6/3/2018 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 1182537 [VXX32319]
Blank Spike Lab ID: 1450089
Date Analyzed: 06/04/2018 09:58

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32319]
Spike Duplicate Lab ID: 1450090
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008, 1182537009

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	0.936	94	1.00	0.959	96	(60-120)	2.50	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	84.5	85	0.0500	84.6	85	(50-150)	0.12	

Batch Information

Analytical Batch: **VFC14165**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **NRO**

Prep Batch: **VXX32319**
Prep Method: **SW5030B**
Prep Date/Time: **06/03/2018 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1780550 [VXX/32330]
Blank Lab ID: 1450576

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

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Method Blank

Blank ID: MB for HBN 1780550 [VXX/32330]
Blank Lab ID: 1450576

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

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	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	103	81-118		%
4-Bromofluorobenzene (surr)	104	85-114		%
Toluene-d8 (surr)	100	89-112		%

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Method Blank

Blank ID: MB for HBN 1780550 [VXX/32330]
Blank Lab ID: 1450576

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17850
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/5/2018 7:41:00AM

Prep Batch: VXX32330
Prep Method: SW5030B
Prep Date/Time: 6/5/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Leaching Blank

Blank ID: LB for HBN 1780449 [TCLP/9413]
Blank Lab ID: 1450156

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

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	15.5	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	3.75U	7.50	2.50	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	105	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	100	89-112		%

Batch Information

Analytical Batch: VMS17850
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/5/2018 2:12:00PM

Prep Batch: VXX32330
Prep Method: SW5030B
Prep Date/Time: 6/5/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32330]
Blank Spike Lab ID: 1450577
Date Analyzed: 06/05/2018 07:58

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32330]
Spike Duplicate Lab ID: 1450578
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

	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	30.6	102	30	29.5	98	(78-124)	3.60	(< 20)
1,1,1-Trichloroethane	30	29.1	97	30	29.7	99	(74-131)	2.00	(< 20)
1,1,2,2-Tetrachloroethane	30	29.8	99	30	29.7	99	(71-121)	0.17	(< 20)
1,1,2-Trichloroethane	30	30.5	102	30	30.3	101	(80-119)	0.53	(< 20)
1,1-Dichloroethane	30	28.8	96	30	29.8	99	(77-125)	3.20	(< 20)
1,1-Dichloroethene	30	28.5	95	30	30.2	101	(71-131)	5.60	(< 20)
1,1-Dichloropropene	30	29.7	99	30	30.0	100	(79-125)	1.10	(< 20)
1,2,3-Trichlorobenzene	30	33.5	112	30	33.4	111	(69-129)	0.18	(< 20)
1,2,3-Trichloropropane	30	29.5	98	30	29.1	97	(73-122)	1.50	(< 20)
1,2,4-Trichlorobenzene	30	33.0	110	30	33.7	112	(69-130)	2.10	(< 20)
1,2,4-Trimethylbenzene	30	32.6	109	30	32.5	108	(79-124)	0.25	(< 20)
1,2-Dibromo-3-chloropropane	30	29.6	99	30	28.8	96	(62-128)	2.70	(< 20)
1,2-Dibromoethane	30	30.5	102	30	30.6	102	(77-121)	0.16	(< 20)
1,2-Dichlorobenzene	30	30.5	102	30	30.6	102	(80-119)	0.49	(< 20)
1,2-Dichloroethane	30	28.7	96	30	28.9	96	(73-128)	0.83	(< 20)
1,2-Dichloropropane	30	30.2	101	30	30.3	101	(78-122)	0.26	(< 20)
1,3,5-Trimethylbenzene	30	32.3	108	30	32.2	107	(75-124)	0.31	(< 20)
1,3-Dichlorobenzene	30	31.2	104	30	31.4	105	(80-119)	0.54	(< 20)
1,3-Dichloropropane	30	30.3	101	30	30.3	101	(80-119)	0.10	(< 20)
1,4-Dichlorobenzene	30	31.1	104	30	31.4	105	(79-118)	1.10	(< 20)
2,2-Dichloropropane	30	30.5	102	30	30.5	102	(60-139)	0.13	(< 20)
2-Butanone (MEK)	90	83.9	93	90	77.3	86	(56-143)	8.20	(< 20)
2-Chlorotoluene	30	32.0	107	30	30.6	102	(79-122)	4.40	(< 20)
2-Hexanone	90	91.0	101	90	85.9	95	(57-139)	5.80	(< 20)
4-Chlorotoluene	30	31.6	105	30	31.8	106	(78-122)	0.38	(< 20)
4-Isopropyltoluene	30	33.1	110	30	33.0	110	(77-127)	0.48	(< 20)
4-Methyl-2-pentanone (MIBK)	90	90.4	100	90	85.3	95	(67-130)	5.80	(< 20)
Benzene	30	29.3	98	30	29.6	99	(79-120)	0.95	(< 20)
Bromobenzene	30	31.3	104	30	31.1	104	(80-120)	0.61	(< 20)
Bromochloromethane	30	29.6	99	30	31.7	106	(78-123)	6.60	(< 20)
Bromodichloromethane	30	29.7	99	30	29.8	99	(79-125)	0.50	(< 20)
Bromoform	30	30.6	102	30	30.3	101	(66-130)	1.00	(< 20)
Bromomethane	30	35.5	118	30	39.2	131	(53-141)	10.10	(< 20)
Carbon disulfide	45	41.4	92	45	45.3	101	(64-133)	9.00	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32330]
Blank Spike Lab ID: 1450577
Date Analyzed: 06/05/2018 07:58

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32330]
Spike Duplicate Lab ID: 1450578
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.0	100	30	30.6	102	(72-136)	1.80	(< 20)
Chlorobenzene	30	28.5	95	30	28.4	95	(82-118)	0.49	(< 20)
Chloroethane	30	27.0	90	30	27.9	93	(60-138)	3.40	(< 20)
Chloroform	30	28.7	96	30	28.9	96	(79-124)	0.87	(< 20)
Chloromethane	30	31.0	103	30	35.5	118	(50-139)	13.40	(< 20)
cis-1,2-Dichloroethene	30	28.5	95	30	29.1	97	(78-123)	2.10	(< 20)
cis-1,3-Dichloropropene	30	30.2	101	30	30.8	103	(75-124)	1.80	(< 20)
Dibromochloromethane	30	30.6	102	30	30.7	102	(74-126)	0.33	(< 20)
Dibromomethane	30	29.0	97	30	29.4	98	(79-123)	1.50	(< 20)
Dichlorodifluoromethane	30	26.7	89	30	29.3	98	(32-152)	9.50	(< 20)
Ethylbenzene	30	31.4	105	30	31.3	104	(79-121)	0.38	(< 20)
Freon-113	45	44.4	99	45	46.2	103	(70-136)	4.00	(< 20)
Hexachlorobutadiene	30	34.5	115	30	35.0	117	(66-134)	1.20	(< 20)
Isopropylbenzene (Cumene)	30	31.8	106	30	31.5	105	(72-131)	0.82	(< 20)
Methylene chloride	30	28.1	94	30	29.0	97	(74-124)	3.20	(< 20)
Methyl-t-butyl ether	45	43.1	96	45	45.2	100	(71-124)	4.80	(< 20)
Naphthalene	30	30.5	102	30	30.8	103	(61-128)	0.75	(< 20)
n-Butylbenzene	30	33.8	113	30	33.7	112	(75-128)	0.21	(< 20)
n-Propylbenzene	30	32.2	107	30	32.1	107	(76-126)	0.28	(< 20)
o-Xylene	30	31.2	104	30	31.1	104	(78-122)	0.19	(< 20)
P & M -Xylene	60	63.2	105	60	62.2	104	(80-121)	1.70	(< 20)
sec-Butylbenzene	30	33.2	111	30	32.8	109	(77-126)	1.20	(< 20)
Styrene	30	32.1	107	30	31.8	106	(78-123)	0.88	(< 20)
tert-Butylbenzene	30	32.1	107	30	32.0	107	(78-124)	0.25	(< 20)
Tetrachloroethene	30	31.1	104	30	30.0	100	(74-129)	3.80	(< 20)
Toluene	30	28.9	96	30	28.4	95	(80-121)	1.60	(< 20)
trans-1,2-Dichloroethene	30	28.1	94	30	29.4	98	(75-124)	4.50	(< 20)
trans-1,3-Dichloropropene	30	32.0	107	30	32.0	107	(73-127)	0.19	(< 20)
Trichloroethene	30	29.0	97	30	29.1	97	(79-123)	0.17	(< 20)
Trichlorofluoromethane	30	28.7	96	30	30.4	101	(65-141)	6.00	(< 20)
Vinyl acetate	30	30.0	100	30	31.0	103	(54-146)	3.20	(< 20)
Vinyl chloride	30	28.9	96	30	31.9	106	(58-137)	9.90	(< 20)
Xylenes (total)	90	94.4	105	90	93.3	104	(79-121)	1.20	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32330]
Blank Spike Lab ID: 1450577
Date Analyzed: 06/05/2018 07:58

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32330]
Spike Duplicate Lab ID: 1450578
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	96.9	97	30	97.8	98	(81-118)	0.92	
4-Bromofluorobenzene (surr)	30	100	100	30	101	101	(85-114)	0.40	
Toluene-d8 (surr)	30	101	101	30	99.4	99	(89-112)	1.30	

Batch Information

Analytical Batch: **VMS17850**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **FDR**

Prep Batch: **VXX32330**
Prep Method: **SW5030B**
Prep Date/Time: **06/05/2018 00:00**
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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Matrix Spike Summary

Original Sample ID: 1450579
MS Sample ID: 1450580 MS
MSD Sample ID: 1450581 MSD

Analysis Date: 06/05/2018 16:45
Analysis Date: 06/05/2018 19:01
Analysis Date: 06/05/2018 19:18
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.250U	30.0	33.8	113	30.0	33.6	112	78-124	0.45	(< 20)
1,1,1-Trichloroethane	0.500U	30.0	32	107	30.0	31.4	105	74-131	2.00	(< 20)
1,1,2,2-Tetrachloroethane	0.250U	30.0	33	110	30.0	32.8	109	71-121	0.58	(< 20)
1,1,2-Trichloroethane	0.200U	30.0	33.2	111	30.0	32.7	109	80-119	1.60	(< 20)
1,1-Dichloroethane	0.500U	30.0	31.6	105	30.0	31.0	103	77-125	1.90	(< 20)
1,1-Dichloroethene	0.500U	30.0	32	107	30.0	31.3	104	71-131	2.30	(< 20)
1,1-Dichloropropene	0.500U	30.0	32.4	108	30.0	32.0	107	79-125	1.10	(< 20)
1,2,3-Trichlorobenzene	0.500U	30.0	38.3	128	30.0	38.3	128	69-129	0.03	(< 20)
1,2,3-Trichloropropane	0.500U	30.0	32.5	108	30.0	32.2	107	73-122	0.74	(< 20)
1,2,4-Trichlorobenzene	0.500U	30.0	37.5	125	30.0	37.4	125	69-130	0.13	(< 20)
1,2,4-Trimethylbenzene	0.500U	30.0	35.9	120	30.0	35.4	118	79-124	1.50	(< 20)
1,2-Dibromo-3-chloropropane	5.00U	30.0	32.1	107	30.0	32.6	109	62-128	1.60	(< 20)
1,2-Dibromoethane	0.0375U	30.0	33.4	111	30.0	33.1	110	77-121	0.96	(< 20)
1,2-Dichlorobenzene	0.500U	30.0	33.9	113	30.0	33.4	111	80-119	1.50	(< 20)
1,2-Dichloroethane	0.250U	30.0	31.3	104	30.0	31.0	103	73-128	1.00	(< 20)
1,2-Dichloropropane	0.500U	30.0	32.9	110	30.0	32.1	107	78-122	2.30	(< 20)
1,3,5-Trimethylbenzene	0.500U	30.0	35.7	119	30.0	34.5	115	75-124	3.40	(< 20)
1,3-Dichlorobenzene	0.500U	30.0	34.4	115	30.0	34.2	114	80-119	0.55	(< 20)
1,3-Dichloropropane	0.250U	30.0	33.1	110	30.0	32.8	109	80-119	1.00	(< 20)
1,4-Dichlorobenzene	0.250U	30.0	34.1	114	30.0	33.9	113	79-118	0.82	(< 20)
2,2-Dichloropropane	0.500U	30.0	29	97	30.0	28.5	95	60-139	1.60	(< 20)
2-Butanone (MEK)	5.00U	90.0	86.6	96	90.0	92.6	103	56-143	6.70	(< 20)
2-Chlorotoluene	0.500U	30.0	33.8	113	30.0	33.1	110	79-122	2.00	(< 20)
2-Hexanone	5.00U	90.0	96.8	108	90.0	98.9	110	57-139	2.10	(< 20)
4-Chlorotoluene	0.500U	30.0	34.9	116	30.0	34.3	114	78-122	1.80	(< 20)
4-Isopropyltoluene	0.500U	30.0	36.5	122	30.0	35.7	119	77-127	2.20	(< 20)
4-Methyl-2-pentanone (MIBK)	5.00U	90.0	99.1	110	90.0	101	112	67-130	1.90	(< 20)
Benzene	0.200U	30.0	32.5	108	30.0	31.8	106	79-120	2.10	(< 20)
Bromobenzene	0.500U	30.0	34.8	116	30.0	34.1	114	80-120	2.00	(< 20)
Bromochloromethane	0.500U	30.0	33	110	30.0	31.6	105	78-123	4.30	(< 20)
Bromodichloromethane	0.250U	30.0	32.8	109	30.0	32.3	108	79-125	1.60	(< 20)
Bromoform	0.500U	30.0	33.5	112	30.0	33.5	112	66-130	0.06	(< 20)
Bromomethane	2.50U	30.0	33.8	113	30.0	36.6	122	53-141	7.90	(< 20)
Carbon disulfide	5.00U	45.0	46.4	103	45.0	44.8	100	64-133	3.60	(< 20)
Carbon tetrachloride	0.500U	30.0	32.8	109	30.0	32.4	108	72-136	1.40	(< 20)
Chlorobenzene	0.250U	30.0	31.9	106	30.0	31.5	105	82-118	1.00	(< 20)
Chloroethane	0.500U	30.0	30.7	102	30.0	29.2	98	60-138	4.80	(< 20)

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Matrix Spike Summary

Original Sample ID: 1450579
MS Sample ID: 1450580 MS
MSD Sample ID: 1450581 MSD

Analysis Date: 06/05/2018 16:45
Analysis Date: 06/05/2018 19:01
Analysis Date: 06/05/2018 19:18
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	0.500U	30.0	31.7	106	30.0	31.2	104	79-124	1.60	(< 20)
Chloromethane	0.500U	30.0	34.1	114	30.0	30.0	100	50-139	12.60	(< 20)
cis-1,2-Dichloroethene	0.500U	30.0	31.6	105	30.0	31.2	104	78-123	1.40	(< 20)
cis-1,3-Dichloropropene	0.250U	30.0	32.6	109	30.0	32.3	108	75-124	1.00	(< 20)
Dibromochloromethane	0.250U	30.0	33.4	111	30.0	33.0	110	74-126	1.10	(< 20)
Dibromomethane	0.500U	30.0	32	107	30.0	31.7	106	79-123	1.00	(< 20)
Dichlorodifluoromethane	0.500U	30.0	28.1	94	30.0	27.0	90	32-152	4.10	(< 20)
Ethylbenzene	0.500U	30.0	34.2	114	30.0	33.7	112	79-121	1.30	(< 20)
Freon-113	5.00U	45.0	49.5	110	45.0	48.2	107	70-136	2.60	(< 20)
Hexachlorobutadiene	0.500U	30.0	37.9	126	30.0	37.2	124	66-134	2.10	(< 20)
Isopropylbenzene (Cumene)	0.500U	30.0	35	117	30.0	34.0	113	72-131	2.80	(< 20)
Methylene chloride	2.50U	30.0	30.8	103	30.0	30.4	101	74-124	1.60	(< 20)
Methyl-t-butyl ether	5.00U	45.0	46.5	103	45.0	46.5	103	71-124	0.04	(< 20)
Naphthalene	0.500U	30.0	34.5	115	30.0	36.2	121	61-128	4.70	(< 20)
n-Butylbenzene	0.500U	30.0	36.9	123	30.0	36.1	120	75-128	2.20	(< 20)
n-Propylbenzene	0.500U	30.0	35.4	118	30.0	34.6	115	76-126	2.30	(< 20)
o-Xylene	0.500U	30.0	34.2	114	30.0	33.9	113	78-122	1.00	(< 20)
P & M -Xylene	1.00U	60.0	68.8	115	60.0	68.2	114	80-121	0.82	(< 20)
sec-Butylbenzene	0.500U	30.0	36.6	122	30.0	35.5	118	77-126	3.00	(< 20)
Styrene	0.500U	30.0	34.8	116	30.0	34.5	115	78-123	0.95	(< 20)
tert-Butylbenzene	0.500U	30.0	35.7	119	30.0	34.6	115	78-124	3.10	(< 20)
Tetrachloroethene	0.500U	30.0	34.2	114	30.0	33.8	113	74-129	1.20	(< 20)
Toluene	0.500U	30.0	32.1	107	30.0	31.7	106	80-121	1.10	(< 20)
trans-1,2-Dichloroethene	0.500U	30.0	31	103	30.0	30.7	102	75-124	1.20	(< 20)
trans-1,3-Dichloropropene	0.500U	30.0	33.8	113	30.0	33.4	111	73-127	1.20	(< 20)
Trichloroethene	0.500U	30.0	31.9	106	30.0	31.3	104	79-123	1.80	(< 20)
Trichlorofluoromethane	0.500U	30.0	32.2	107	30.0	31.0	103	65-141	4.00	(< 20)
Vinyl acetate	5.00U	30.0	26.8	90	30.0	26.5	88	54-146	1.20	(< 20)
Vinyl chloride	0.0750U	30.0	31.7	106	30.0	30.6	102	58-137	3.50	(< 20)
Xylenes (total)	1.50U	90.0	103	114	90.0	102	113	79-121	0.89	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	29	97	30.0	29.1	97	81-118	0.21	
4-Bromofluorobenzene (surr)		30.0	29.7	99	30.0	30.0	100	85-114	0.84	
Toluene-d8 (surr)		30.0	30.6	102	30.0	30.6	102	89-112	0.07	

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Matrix Spike Summary

Original Sample ID: 1450579
MS Sample ID: 1450580 MS
MSD Sample ID: 1450581 MSD

Analysis Date:
Analysis Date: 06/05/2018 19:01
Analysis Date: 06/05/2018 19:18
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537004, 1182537007, 1182537008, 1182537009

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS17850
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/5/2018 7:01:00PM

Prep Batch: VXX32330
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 6/5/2018 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

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Method Blank

Blank ID: MB for HBN 1780560 [VXX/32332]
Blank Lab ID: 1450618

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537005, 1182537006

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

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Method Blank

Blank ID: MB for HBN 1780560 [VXX/32332]
Blank Lab ID: 1450618

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537005, 1182537006

Results by **SW8260C**

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	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	103	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	101	89-112		%

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Method Blank

Blank ID: MB for HBN 1780560 [VXX/32332]
Blank Lab ID: 1450618

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537005, 1182537006

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17853
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/5/2018 8:26:00PM

Prep Batch: VXX32332
Prep Method: SW5030B
Prep Date/Time: 6/5/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32332]
Blank Spike Lab ID: 1450619
Date Analyzed: 06/05/2018 20:43

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32332]
Spike Duplicate Lab ID: 1450620
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537005, 1182537006

Results by **SW8260C**

	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	31.8	106	30	32.1	107	(78-124)	1.00	(< 20)
1,1,1-Trichloroethane	30	30.2	101	30	30.5	102	(74-131)	0.72	(< 20)
1,1,2,2-Tetrachloroethane	30	30.5	102	30	31.4	105	(71-121)	2.70	(< 20)
1,1,2-Trichloroethane	30	31.2	104	30	32.0	107	(80-119)	2.70	(< 20)
1,1-Dichloroethane	30	29.9	100	30	30.0	100	(77-125)	0.37	(< 20)
1,1-Dichloroethene	30	30.1	100	30	31.0	103	(71-131)	2.90	(< 20)
1,1-Dichloropropene	30	30.8	103	30	30.8	103	(79-125)	0.03	(< 20)
1,2,3-Trichlorobenzene	30	34.3	114	30	34.8	116	(69-129)	1.40	(< 20)
1,2,3-Trichloropropane	30	30.1	100	30	31.1	104	(73-122)	3.00	(< 20)
1,2,4-Trichlorobenzene	30	34.4	115	30	35.7	119	(69-130)	3.70	(< 20)
1,2,4-Trimethylbenzene	30	33.3	111	30	33.9	113	(79-124)	1.50	(< 20)
1,2-Dibromo-3-chloropropane	30	29.5	99	30	30.2	101	(62-128)	2.20	(< 20)
1,2-Dibromoethane	30	31.4	105	30	32.4	108	(77-121)	3.40	(< 20)
1,2-Dichlorobenzene	30	31.2	104	30	32.1	107	(80-119)	2.90	(< 20)
1,2-Dichloroethane	30	29.5	99	30	30.0	100	(73-128)	1.50	(< 20)
1,2-Dichloropropane	30	31.1	104	30	30.9	103	(78-122)	0.84	(< 20)
1,3,5-Trimethylbenzene	30	32.8	109	30	33.4	111	(75-124)	1.70	(< 20)
1,3-Dichlorobenzene	30	32.0	107	30	32.8	109	(80-119)	2.40	(< 20)
1,3-Dichloropropane	30	31.2	104	30	32.1	107	(80-119)	2.60	(< 20)
1,4-Dichlorobenzene	30	31.7	106	30	32.7	109	(79-118)	3.10	(< 20)
2,2-Dichloropropane	30	30.2	101	30	29.5	98	(60-139)	2.20	(< 20)
2-Butanone (MEK)	90	85.0	94	90	82.8	92	(56-143)	2.60	(< 20)
2-Chlorotoluene	30	32.7	109	30	34.7	116	(79-122)	5.90	(< 20)
2-Hexanone	90	91.6	102	90	90.5	101	(57-139)	1.30	(< 20)
4-Chlorotoluene	30	32.4	108	30	32.8	109	(78-122)	1.30	(< 20)
4-Isopropyltoluene	30	33.7	112	30	33.7	112	(77-127)	0.03	(< 20)
4-Methyl-2-pentanone (MIBK)	90	95.4	106	90	92.7	103	(67-130)	2.80	(< 20)
Benzene	30	30.7	102	30	30.3	101	(79-120)	1.20	(< 20)
Bromobenzene	30	32.1	107	30	32.8	109	(80-120)	2.10	(< 20)
Bromochloromethane	30	31.4	105	30	32.8	109	(78-123)	4.20	(< 20)
Bromodichloromethane	30	31.0	103	30	30.9	103	(79-125)	0.29	(< 20)
Bromoform	30	31.7	106	30	32.5	108	(66-130)	2.80	(< 20)
Bromomethane	30	37.8	126	30	40.9	136	(53-141)	7.90	(< 20)
Carbon disulfide	45	44.0	98	45	45.5	101	(64-133)	3.50	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32332]
Blank Spike Lab ID: 1450619
Date Analyzed: 06/05/2018 20:43

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32332]
Spike Duplicate Lab ID: 1450620
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537005, 1182537006

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	31.3	104	30	31.3	104	(72-136)	0.19	(< 20)
Chlorobenzene	30	30.2	101	30	29.8	99	(82-118)	1.30	(< 20)
Chloroethane	30	28.8	96	30	28.2	94	(60-138)	2.00	(< 20)
Chloroform	30	30.1	100	30	29.8	99	(79-124)	0.97	(< 20)
Chloromethane	30	31.5	105	30	33.6	112	(50-139)	6.50	(< 20)
cis-1,2-Dichloroethene	30	30.0	100	30	29.8	99	(78-123)	0.57	(< 20)
cis-1,3-Dichloropropene	30	31.1	104	30	31.2	104	(75-124)	0.45	(< 20)
Dibromochloromethane	30	31.5	105	30	32.1	107	(74-126)	2.00	(< 20)
Dibromomethane	30	30.2	101	30	30.7	102	(79-123)	1.50	(< 20)
Dichlorodifluoromethane	30	26.1	87	30	27.0	90	(32-152)	3.40	(< 20)
Ethylbenzene	30	32.6	109	30	31.9	106	(79-121)	2.10	(< 20)
Freon-113	45	46.6	104	45	47.3	105	(70-136)	1.40	(< 20)
Hexachlorobutadiene	30	35.4	118	30	36.0	120	(66-134)	1.70	(< 20)
Isopropylbenzene (Cumene)	30	32.7	109	30	32.5	108	(72-131)	0.77	(< 20)
Methylene chloride	30	29.2	97	30	29.2	98	(74-124)	0.17	(< 20)
Methyl-t-butyl ether	45	44.2	98	45	45.1	100	(71-124)	2.10	(< 20)
Naphthalene	30	32.0	107	30	32.8	109	(61-128)	2.40	(< 20)
n-Butylbenzene	30	34.7	116	30	34.2	114	(75-128)	1.50	(< 20)
n-Propylbenzene	30	32.8	109	30	32.7	109	(76-126)	0.49	(< 20)
o-Xylene	30	32.0	107	30	32.0	107	(78-122)	0.03	(< 20)
P & M -Xylene	60	65.4	109	60	64.0	107	(80-121)	2.10	(< 20)
sec-Butylbenzene	30	33.9	113	30	33.8	113	(77-126)	0.44	(< 20)
Styrene	30	33.3	111	30	33.2	111	(78-123)	0.33	(< 20)
tert-Butylbenzene	30	33.0	110	30	33.0	110	(78-124)	0.27	(< 20)
Tetrachloroethene	30	32.6	109	30	32.4	108	(74-129)	0.59	(< 20)
Toluene	30	30.5	102	30	30.5	102	(80-121)	0.07	(< 20)
trans-1,2-Dichloroethene	30	29.6	99	30	29.8	99	(75-124)	0.84	(< 20)
trans-1,3-Dichloropropene	30	32.1	107	30	33.0	110	(73-127)	2.90	(< 20)
Trichloroethene	30	30.3	101	30	30.2	101	(79-123)	0.50	(< 20)
Trichlorofluoromethane	30	30.2	101	30	31.1	104	(65-141)	3.10	(< 20)
Vinyl acetate	30	30.2	101	30	30.9	103	(54-146)	2.40	(< 20)
Vinyl chloride	30	29.4	98	30	31.0	103	(58-137)	5.20	(< 20)
Xylenes (total)	90	97.4	108	90	96.0	107	(79-121)	1.40	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32332]
Blank Spike Lab ID: 1450619
Date Analyzed: 06/05/2018 20:43

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32332]
Spike Duplicate Lab ID: 1450620
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537005, 1182537006

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	96.8	97	30	97.4	97	(81-118)	0.69	
4-Bromofluorobenzene (surr)	30	98.9	99	30	100	100	(85-114)	1.10	
Toluene-d8 (surr)	30	102	102	30	102	102	(89-112)	0.10	

Batch Information

Analytical Batch: **VMS17853**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **FDR**

Prep Batch: **VXX32332**
Prep Method: **SW5030B**
Prep Date/Time: **06/05/2018 00:00**
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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Matrix Spike Summary

Original Sample ID: 1450621
MS Sample ID: 1450622 MS
MSD Sample ID: 1450623 MSD

Analysis Date: 06/06/2018 0:31
Analysis Date: 06/06/2018 4:28
Analysis Date: 06/06/2018 4:45
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537005, 1182537006

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.250U	30.0	32.2	107	30.0	31.9	106	78-124	1.00	(< 20)
1,1,1-Trichloroethane	0.500U	30.0	31.1	104	30.0	30.1	100	74-131	3.30	(< 20)
1,1,2,2-Tetrachloroethane	0.250U	30.0	31.4	105	30.0	31.1	104	71-121	0.80	(< 20)
1,1,2-Trichloroethane	0.200U	30.0	31.4	105	30.0	31.1	104	80-119	1.20	(< 20)
1,1-Dichloroethane	0.500U	30.0	30.4	101	30.0	29.7	99	77-125	2.40	(< 20)
1,1-Dichloroethene	0.500U	30.0	29.9	100	30.0	29.0	97	71-131	3.20	(< 20)
1,1-Dichloropropene	0.500U	30.0	31.4	105	30.0	30.7	102	79-125	2.20	(< 20)
1,2,3-Trichlorobenzene	0.500U	30.0	36.1	120	30.0	35.7	119	69-129	1.10	(< 20)
1,2,3-Trichloropropane	0.500U	30.0	31.2	104	30.0	30.7	102	73-122	1.60	(< 20)
1,2,4-Trichlorobenzene	0.500U	30.0	36.1	120	30.0	35.0	117	69-130	3.00	(< 20)
1,2,4-Trimethylbenzene	0.500U	30.0	35.2	117	30.0	34.2	114	79-124	2.80	(< 20)
1,2-Dibromo-3-chloropropane	5.00U	30.0	30.3	101	30.0	30.1	100	62-128	0.73	(< 20)
1,2-Dibromoethane	0.0375U	30.0	31.8	106	30.0	31.5	105	77-121	0.98	(< 20)
1,2-Dichlorobenzene	0.500U	30.0	32	107	30.0	31.9	106	80-119	0.31	(< 20)
1,2-Dichloroethane	0.250U	30.0	30.3	101	30.0	30.1	100	73-128	0.76	(< 20)
1,2-Dichloropropane	0.500U	30.0	31.6	105	30.0	31.3	104	78-122	1.10	(< 20)
1,3,5-Trimethylbenzene	0.500U	30.0	34.4	115	30.0	33.5	112	75-124	2.80	(< 20)
1,3-Dichlorobenzene	0.500U	30.0	32.6	109	30.0	32.5	108	80-119	0.09	(< 20)
1,3-Dichloropropane	0.250U	30.0	31.4	105	30.0	31.4	105	80-119	0.03	(< 20)
1,4-Dichlorobenzene	0.250U	30.0	32.9	110	30.0	32.2	107	79-118	1.90	(< 20)
2,2-Dichloropropane	0.500U	30.0	28.2	94	30.0	27.6	92	60-139	2.10	(< 20)
2-Butanone (MEK)	5.00U	90.0	84.3	94	90.0	84.1	94	56-143	0.17	(< 20)
2-Chlorotoluene	0.500U	30.0	32.6	109	30.0	33.2	111	79-122	1.90	(< 20)
2-Hexanone	5.00U	90.0	91.6	102	90.0	90.2	100	57-139	1.50	(< 20)
4-Chlorotoluene	0.500U	30.0	33	110	30.0	32.8	109	78-122	0.46	(< 20)
4-Isopropyltoluene	0.500U	30.0	34.5	115	30.0	33.4	111	77-127	3.20	(< 20)
4-Methyl-2-pentanone (MIBK)	5.00U	90.0	96.4	107	90.0	94.2	105	67-130	2.40	(< 20)
Benzene	0.200U	30.0	31.2	104	30.0	30.6	102	79-120	2.00	(< 20)
Bromobenzene	0.500U	30.0	33.4	111	30.0	33.0	110	80-120	1.10	(< 20)
Bromochloromethane	0.500U	30.0	32.3	108	30.0	32.0	107	78-123	1.10	(< 20)
Bromodichloromethane	0.250U	30.0	31.4	105	30.0	31.0	103	79-125	1.20	(< 20)
Bromoform	0.500U	30.0	31.4	105	30.0	31.4	105	66-130	0.03	(< 20)
Bromomethane	2.50U	30.0	30.7	102	30.0	32.8	109	53-141	6.60	(< 20)
Carbon disulfide	5.00U	45.0	42.3	94	45.0	41.4	92	64-133	2.30	(< 20)
Carbon tetrachloride	0.500U	30.0	31.7	106	30.0	31.0	103	72-136	2.30	(< 20)
Chlorobenzene	0.250U	30.0	30.6	102	30.0	29.8	99	82-118	2.80	(< 20)
Chloroethane	0.500U	30.0	28.3	94	30.0	27.7	93	60-138	2.10	(< 20)

Print Date: 06/15/2018 4:29:44PM

Matrix Spike Summary

Original Sample ID: 1450621
MS Sample ID: 1450622 MS
MSD Sample ID: 1450623 MSD

Analysis Date: 06/06/2018 0:31
Analysis Date: 06/06/2018 4:28
Analysis Date: 06/06/2018 4:45
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537005, 1182537006

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	0.500U	30.0	30.6	102	30.0	30.1	100	79-124	1.80	(< 20)
Chloromethane	0.500U	30.0	28.9	96	30.0	27.9	93	50-139	3.40	(< 20)
cis-1,2-Dichloroethene	0.500U	30.0	30.7	102	30.0	30.0	100	78-123	2.40	(< 20)
cis-1,3-Dichloropropene	0.250U	30.0	31.7	106	30.0	31.2	104	75-124	1.40	(< 20)
Dibromochloromethane	0.250U	30.0	31.5	105	30.0	31.5	105	74-126	0.06	(< 20)
Dibromomethane	0.500U	30.0	30.8	103	30.0	30.2	101	79-123	1.70	(< 20)
Dichlorodifluoromethane	0.500U	30.0	22	73	30.0	21.0	70	32-152	4.80	(< 20)
Ethylbenzene	0.500U	30.0	32.9	110	30.0	32.2	107	79-121	2.10	(< 20)
Freon-113	5.00U	45.0	45.3	101	45.0	44.0	98	70-136	2.90	(< 20)
Hexachlorobutadiene	0.500U	30.0	35	117	30.0	33.9	113	66-134	3.20	(< 20)
Isopropylbenzene (Cumene)	0.500U	30.0	33.2	111	30.0	32.3	108	72-131	2.80	(< 20)
Methylene chloride	2.50U	30.0	29.5	98	30.0	29.0	97	74-124	1.80	(< 20)
Methyl-t-butyl ether	5.00U	45.0	46.1	102	45.0	45.5	101	71-124	1.30	(< 20)
Naphthalene	0.500U	30.0	35.1	117	30.0	33.8	113	61-128	3.80	(< 20)
n-Butylbenzene	0.500U	30.0	35.1	117	30.0	33.8	113	75-128	3.70	(< 20)
n-Propylbenzene	0.500U	30.0	33.4	111	30.0	33.2	111	76-126	0.42	(< 20)
o-Xylene	0.500U	30.0	32.7	109	30.0	32.2	107	78-122	1.70	(< 20)
P & M -Xylene	1.00U	60.0	66	110	60.0	65.0	108	80-121	1.50	(< 20)
sec-Butylbenzene	0.500U	30.0	34.8	116	30.0	33.7	112	77-126	3.10	(< 20)
Styrene	0.500U	30.0	33.3	111	30.0	32.9	110	78-123	1.20	(< 20)
tert-Butylbenzene	0.500U	30.0	34.3	114	30.0	33.4	111	78-124	2.60	(< 20)
Tetrachloroethene	0.500U	30.0	32.9	110	30.0	32.0	107	74-129	2.80	(< 20)
Toluene	0.500U	30.0	30.9	103	30.0	30.2	101	80-121	2.30	(< 20)
trans-1,2-Dichloroethene	0.500U	30.0	30.2	101	30.0	29.5	98	75-124	2.50	(< 20)
trans-1,3-Dichloropropene	0.500U	30.0	32	107	30.0	31.8	106	73-127	0.50	(< 20)
Trichloroethene	0.500U	30.0	30.9	103	30.0	30.2	101	79-123	2.10	(< 20)
Trichlorofluoromethane	0.500U	30.0	30.5	102	30.0	29.3	98	65-141	4.00	(< 20)
Vinyl acetate	5.00U	30.0	26.3	88	30.0	25.2	84	54-146	4.10	(< 20)
Vinyl chloride	0.0750U	30.0	29.3	98	30.0	27.9	93	58-137	5.00	(< 20)
Xylenes (total)	1.50U	90.0	98.7	110	90.0	97.1	108	79-121	1.60	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	29	97	30.0	29.0	97	81-118	0.10	
4-Bromofluorobenzene (surr)		30.0	30.4	101	30.0	30.4	101	85-114	0.20	
Toluene-d8 (surr)		30.0	30.1	100	30.0	30.1	100	89-112	0.03	

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Matrix Spike Summary

Original Sample ID: 1450621
MS Sample ID: 1450622 MS
MSD Sample ID: 1450623 MSD

QC for Samples: 1182537005, 1182537006

Analysis Date:
Analysis Date: 06/06/2018 4:28
Analysis Date: 06/06/2018 4:45
Matrix: Water (Surface, Eff., Ground)

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS17853
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/6/2018 4:28:00AM

Prep Batch: VXX32332
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 6/5/2018 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

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Method Blank

Blank ID: MB for HBN 1780621 [VXX/32339]
Blank Lab ID: 1450892

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537005

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	78.2	50-150		%

Batch Information

Analytical Batch: VFC14174
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 6/6/2018 10:37:00AM

Prep Batch: VXX32339
Prep Method: SW5030B
Prep Date/Time: 6/6/2018 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 06/15/2018 4:29:45PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [VXX32339]
Blank Spike Lab ID: 1450893
Date Analyzed: 06/06/2018 18:41

Spike Duplicate ID: LCSD for HBN 1182537 [VXX32339]
Spike Duplicate Lab ID: 1450894
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537005

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	1.03	103	1.00	1.03	103	(60-120)	0.29	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	76.8	77	0.0500	80.2	80	(50-150)	4.30	

Batch Information

Analytical Batch: **VFC14174**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX32339**
Prep Method: **SW5030B**
Prep Date/Time: **06/06/2018 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 1780367 [XXX/39607]
Blank Lab ID: 1449805

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0250U	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	68	47-106		%
Fluoranthene-d10 (surr)	69.9	24-116		%

Batch Information

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 6/5/2018 1:21:00PM

Prep Batch: XXX39607
Prep Method: SW3520C
Prep Date/Time: 6/4/2018 8:18:11AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:49PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [XXX39607]
Blank Spike Lab ID: 1449806
Date Analyzed: 06/05/2018 13:41

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008

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

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	2	1.69	85	(41-115)
2-Methylnaphthalene	2	1.57	78	(39-114)
Acenaphthene	2	1.89	94	(48-114)
Acenaphthylene	2	1.71	86	(35-121)
Anthracene	2	1.78	89	(53-119)
Benzo(a)Anthracene	2	1.77	89	(59-120)
Benzo[a]pyrene	2	1.70	85	(53-120)
Benzo[b]Fluoranthene	2	1.83	92	(53-126)
Benzo[g,h,i]perylene	2	1.74	87	(44-128)
Benzo[k]fluoranthene	2	1.86	93	(54-125)
Chrysene	2	1.90	95	(57-120)
Dibenzo[a,h]anthracene	2	1.63	82	(44-131)
Fluoranthene	2	1.76	88	(58-120)
Fluorene	2	1.75	87	(50-118)
Indeno[1,2,3-c,d] pyrene	2	1.74	87	(48-130)
Naphthalene	2	1.61	81	(43-114)
Phenanthrene	2	1.74	87	(53-115)
Pyrene	2	1.82	91	(53-121)
Surrogates				
2-Methylnaphthalene-d10 (surr)	2	80.1	80	(47-106)
Fluoranthene-d10 (surr)	2	83.6	84	(24-116)

Batch Information

Analytical Batch: **XMS10803**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BMZ**

Prep Batch: **XXX39607**
Prep Method: **SW3520C**
Prep Date/Time: **06/04/2018 08:18**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1182548016
MS Sample ID: 1450050 MS
MSD Sample ID: 1450051 MSD

Analysis Date: 06/05/2018 18:08
Analysis Date: 06/05/2018 18:28
Analysis Date: 06/05/2018 18:49
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008

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	0.0265U	2.08	1.5	72	2.03	1.62	80	41-115	7.70	(< 20)
2-Methylnaphthalene	0.0265U	2.08	1.41	68	2.03	1.50	74	39-114	6.00	(< 20)
Acenaphthene	0.0265U	2.08	1.65	79	2.03	1.80	88	48-114	8.50	(< 20)
Acenaphthylene	0.0265U	2.08	1.5	72	2.03	1.63	80	35-121	7.80	(< 20)
Anthracene	0.0265U	2.08	1.56	75	2.03	1.70	84	53-119	8.90	(< 20)
Benzo(a)Anthracene	0.0265U	2.08	1.46	70	2.03	1.59	79	59-120	8.80	(< 20)
Benzo[a]pyrene	0.0106U	2.08	1.35	65	2.03	1.45	72	53-120	7.60	(< 20)
Benzo[b]Fluoranthene	0.0265U	2.08	1.48	71	2.03	1.62	80	53-126	9.20	(< 20)
Benzo[g,h,i]perylene	0.0265U	2.08	1.27	61	2.03	1.39	69	44-128	8.90	(< 20)
Benzo[k]fluoranthene	0.0265U	2.08	1.49	71	2.03	1.60	79	54-125	7.10	(< 20)
Chrysene	0.0265U	2.08	1.57	76	2.03	1.72	85	57-120	8.70	(< 20)
Dibenzo[a,h]anthracene	0.0106U	2.08	1.09	52	2.03	1.22	60	44-131	11.60	(< 20)
Fluoranthene	0.0265U	2.08	1.51	72	2.03	1.65	81	58-120	9.40	(< 20)
Fluorene	0.0265U	2.08	1.53	74	2.03	1.66	82	50-118	7.80	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0265U	2.08	1.26	60	2.03	1.36	67	48-130	7.80	(< 20)
Naphthalene	0.0530U	2.08	1.44	69	2.03	1.57	77	43-114	8.10	(< 20)
Phenanthrene	0.0265U	2.08	1.53	73	2.03	1.64	81	53-115	6.90	(< 20)
Pyrene	0.0265U	2.08	1.57	75	2.03	1.69	83	53-121	7.40	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		2.08	1.39	67	2.03	1.51	74	47-106	8.00	
Fluoranthene-d10 (surr)		2.08	1.41	68	2.03	1.56	77	24-116	9.90	

Batch Information

Analytical Batch: XMS10803
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 6/5/2018 6:28:00PM

Prep Batch: XXX39607
Prep Method: 3520 Liq/Liq Ext for 8270 PAH SIM LV
Prep Date/Time: 6/4/2018 8:18:11AM
Prep Initial Wt./Vol.: 240.00mL
Prep Extract Vol: 1.00mL

Print Date: 06/15/2018 4:29:52PM

Method Blank

Blank ID: MB for HBN 1780576 [XXX/39643]
Blank Lab ID: 1450681

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537001

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0250U	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	77.7	47-106		%
Fluoranthene-d10 (surr)	81.1	24-116		%

Batch Information

Analytical Batch: XMS10811
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 6/8/2018 1:09:00PM

Prep Batch: XXX39643
Prep Method: SW3520C
Prep Date/Time: 6/7/2018 8:17:16AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [XXX39643]
Blank Spike Lab ID: 1450682
Date Analyzed: 06/08/2018 13:30

Spike Duplicate ID: LCSD for HBN 1182537 [XXX39643]
Spike Duplicate Lab ID: 1450683
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001

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	1.62	81	2	1.74	87	(41-115)	7.00	(< 20)
2-Methylnaphthalene	2	1.51	75	2	1.61	80	(39-114)	6.40	(< 20)
Acenaphthene	2	1.76	88	2	1.89	94	(48-114)	7.10	(< 20)
Acenaphthylene	2	1.61	81	2	1.73	86	(35-121)	6.80	(< 20)
Anthracene	2	1.65	82	2	1.75	88	(53-119)	6.30	(< 20)
Benzo(a)Anthracene	2	1.64	82	2	1.74	87	(59-120)	5.50	(< 20)
Benzo[a]pyrene	2	1.49	74	2	1.59	79	(53-120)	6.50	(< 20)
Benzo[b]Fluoranthene	2	1.66	83	2	1.79	89	(53-126)	7.10	(< 20)
Benzo[g,h,i]perylene	2	1.56	78	2	1.65	83	(44-128)	5.50	(< 20)
Benzo[k]fluoranthene	2	1.69	85	2	1.78	89	(54-125)	4.90	(< 20)
Chrysene	2	1.74	87	2	1.84	92	(57-120)	5.60	(< 20)
Dibenzo[a,h]anthracene	2	1.41	71	2	1.51	76	(44-131)	6.70	(< 20)
Fluoranthene	2	1.71	86	2	1.68	84	(58-120)	1.80	(< 20)
Fluorene	2	1.63	81	2	1.73	87	(50-118)	6.00	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.62	81	2	1.69	84	(48-130)	4.10	(< 20)
Naphthalene	2	1.55	78	2	1.66	83	(43-114)	6.60	(< 20)
Phenanthrene	2	1.61	80	2	1.72	86	(53-115)	6.50	(< 20)
Pyrene	2	1.76	88	2	1.71	86	(53-121)	3.00	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2	75.5	76	2	82	82	(47-106)	8.30	
Fluoranthene-d10 (surr)	2	79.3	79	2	79.1	79	(24-116)	0.20	

Batch Information

Analytical Batch: **XMS10811**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BMZ**

Prep Batch: **XXX39643**
Prep Method: **SW3520C**
Prep Date/Time: **06/07/2018 08:17**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 06/15/2018 4:29:54PM

Method Blank

Blank ID: MB for HBN 1780861 [XXX/39681]
Blank Lab ID: 1452041

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537001, 1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	81.8	60-120		%

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 6/14/2018 11:48:00AM

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 6/13/2018 8:31:03AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [XXX39681]
Blank Spike Lab ID: 1452042
Date Analyzed: 06/14/2018 11:58

Spike Duplicate ID: LCSD for HBN 1182537 [XXX39681]
Spike Duplicate Lab ID: 1452043
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	18.2	91	20	18.9	95	(75-125)	3.70	(< 20)
Surrogates									
5a Androstane (surr)	0.4	95.1	95	0.4	96.3	96	(60-120)	1.30	

Batch Information

Analytical Batch: **XFC14298**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX39681**
Prep Method: **SW3520C**
Prep Date/Time: **06/13/2018 08:31**
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 1780861 [XXX/39681]
Blank Lab ID: 1452041

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1182537001, 1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008

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)	87.9	60-120		%

Batch Information

Analytical Batch: XFC14298
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 6/14/2018 11:48:00AM

Prep Batch: XXX39681
Prep Method: SW3520C
Prep Date/Time: 6/13/2018 8:31:03AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1182537 [XXX39681]
Blank Spike Lab ID: 1452042
Date Analyzed: 06/14/2018 11:58

Spike Duplicate ID: LCSD for HBN 1182537 [XXX39681]
Spike Duplicate Lab ID: 1452043
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1182537001, 1182537002, 1182537003, 1182537004, 1182537005, 1182537006, 1182537007, 1182537008

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	16.8	84	20	17.3	87	(60-120)	3.20	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	91.5	92	0.4	87.1	87	(60-120)	5.00	

Batch Information

Analytical Batch: **XFC14298**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX39681**
Prep Method: **SW3520C**
Prep Date/Time: **06/13/2018 08:31**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L 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

Homestead, Charles (Anchorage)

From: Homestead, Charles (Anchorage)
Sent: Thursday, June 14, 2018 9:40 AM
To: Env.Alaska.RcvgLogin
Subject: 1182537_CO Change to AKRR

Please see request below.

Charles Homestead
Environment, Health and Safety
General Manager, Alaska Division

SGS North America Inc.
200 West Potter Drive
Anchorage, Alaska 99518

Phone: (907) 562-2343
Direct: (907) 550-3206
Fax: (907) 562-0119
E-mail : charles.homestead@sgs.com Data Deliverables At: Engage - Home

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From: Lucus Gamble [mailto:lgamble@restorsci.com]
Sent: Thursday, June 14, 2018 9:34 AM
To: Nelson, Justin (Anchorage) <Justin.Nelson@sgs.com>; Homestead, Charles (Anchorage) <Charles.Homestead@sgs.com>
Subject: Work Order 1182537

Gents –
Work Order 1182537 are samples collected by RSE for the Alaska Railroad. RSE did not indicate this on the COC so the lab report shows up under RSE's client profile on Engage rather than the "AK Railroad Corp" client profile. I am assuming that this means RSE will also be billed for this work order rather than direct bill to ARRC. Are you able to change this?

Thank you!
Lucus

Lucus E. Gamble
Environmental Sciences Manager
(o) 907-278-1023 ext. 106
(c) 907-317-4348

RESTORATION
Science & Engineering, LLC
911 West 8th Ave., Suite 100
Anchorage, Alaska 99501

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1182537

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page 1 of 1

Section 1

CLIENT: Restoration Science

CONTACT: Lisa Koeneman — PHONE #: 278-1023

PROJECT NAME: 801 Ship Creek — PROJECT/ PWSID/ PERMIT#:

REPORTS TO: Restoration Science lkoeneman@restorsci.com — E-MAIL:

INVOICE TO: Restoration Science — QUOTE #: — P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Pres: Type: Comp Grab MI (Multi-incremental)	AK102/103 - DRO/RRO (HCl)	AK101 - GRO (HCl)	8260C - VOC (HCl)	8270D SIM - PAH (None)	REMARKS/LOC ID
1	A-J	RSE-1	5/31/18	14:00	H_2O	10	Grab	X	X	X	X	
2	A-J	RSE-2	5/31/18	12:55	H_2O	10	Grab	X	X	X	X	
3	A-J	RSE-3	5/31/18	12:10	H_2O	10	Grab	X	X	X	X	
4	A-J	RSE-4	5/31/18	15:22	H_2O	10	Grab	X	X	X	X	
5	A-J	RSE-5	5/31/18	14:45	H_2O	10	Grab	X	X	X	X	
6	A-J	RSE-6	5/31/18	15:00	H_2O	10	Grab	X	X	X	X	
7	A-J	RSE-7	5/31/18	11:00	H_2O	10	Grab	X	X	X	X	
8	A-J	RSE-X	5/31/18	15:27	H_2O	10	Grab	X	X	X	X	
9	A-F	trip blank										

Section 3

Preservative

Section 4

DOD Project? Yes No

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Standard — made every effort to not lose head space and preserve acidity

Temp Blank °C: 5.4 D25 or Ambient [ ]

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Delivery Method: Hand Delivery [X] Commerical Delivery [ ]

Section 5

Relinquished By:	Date	Time	Received By:
(1)	5/31/18	1035	
(2)			
(3)			
(4)	5/31/18	16:35	Received For Laboratory By: Nic Cooper

e-Sample Receipt Form

SGS Workorder #: **1182537**

1 1 8 2 5 3 7

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	
COC accompanied samples?	Yes	
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 5.4 °C Therm. ID: D25
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
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.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	Yes	
		N/A ***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	**2 mL HCl, Lot #LW09-0463-12-022 was added to containers 1182537002-A/B and 1182537003-A/B.**
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1182537001-A	HCL to pH < 2	OK	1182537005-C	HCL to pH < 2	OK
1182537001-B	HCL to pH < 2	OK	1182537005-D	HCL to pH < 2	OK
1182537001-C	HCL to pH < 2	OK	1182537005-E	HCL to pH < 2	OK
1182537001-D	HCL to pH < 2	OK	1182537005-F	HCL to pH < 2	OK
1182537001-E	HCL to pH < 2	OK	1182537005-G	HCL to pH < 2	OK
1182537001-F	HCL to pH < 2	OK	1182537005-H	HCL to pH < 2	OK
1182537001-G	HCL to pH < 2	OK	1182537005-I	No Preservative Required	OK
1182537001-H	HCL to pH < 2	OK	1182537005-J	No Preservative Required	OK
1182537001-I	No Preservative Required	OK	1182537006-A	HCL to pH < 2	OK
1182537001-J	No Preservative Required	OK	1182537006-B	HCL to pH < 2	OK
1182537002-A	HCL to pH < 2	PA	1182537006-C	HCL to pH < 2	OK
1182537002-B	HCL to pH < 2	PA	1182537006-D	HCL to pH < 2	OK
1182537002-C	HCL to pH < 2	OK	1182537006-E	HCL to pH < 2	OK
1182537002-D	HCL to pH < 2	OK	1182537006-F	HCL to pH < 2	OK
1182537002-E	HCL to pH < 2	OK	1182537006-G	HCL to pH < 2	OK
1182537002-F	HCL to pH < 2	OK	1182537006-H	HCL to pH < 2	OK
1182537002-G	HCL to pH < 2	OK	1182537006-I	No Preservative Required	OK
1182537002-H	HCL to pH < 2	OK	1182537006-J	No Preservative Required	OK
1182537002-I	No Preservative Required	OK	1182537007-A	HCL to pH < 2	OK
1182537002-J	No Preservative Required	OK	1182537007-B	HCL to pH < 2	OK
1182537003-A	HCL to pH < 2	PA	1182537007-C	HCL to pH < 2	OK
1182537003-B	HCL to pH < 2	PA	1182537007-D	HCL to pH < 2	OK
1182537003-C	HCL to pH < 2	OK	1182537007-E	HCL to pH < 2	OK
1182537003-D	HCL to pH < 2	OK	1182537007-F	HCL to pH < 2	OK
1182537003-E	HCL to pH < 2	OK	1182537007-G	HCL to pH < 2	OK
1182537003-F	HCL to pH < 2	OK	1182537007-H	HCL to pH < 2	OK
1182537003-G	HCL to pH < 2	OK	1182537007-I	No Preservative Required	OK
1182537003-H	HCL to pH < 2	OK	1182537007-J	No Preservative Required	OK
1182537003-I	No Preservative Required	OK	1182537008-A	HCL to pH < 2	OK
1182537003-J	No Preservative Required	OK	1182537008-B	HCL to pH < 2	OK
1182537004-A	HCL to pH < 2	OK	1182537008-C	HCL to pH < 2	OK
1182537004-B	HCL to pH < 2	OK	1182537008-D	HCL to pH < 2	OK
1182537004-C	HCL to pH < 2	OK	1182537008-E	HCL to pH < 2	OK
1182537004-D	HCL to pH < 2	OK	1182537008-F	HCL to pH < 2	OK
1182537004-E	HCL to pH < 2	OK	1182537008-G	HCL to pH < 2	OK
1182537004-F	HCL to pH < 2	OK	1182537008-H	HCL to pH < 2	OK
1182537004-G	HCL to pH < 2	OK	1182537008-I	No Preservative Required	OK
1182537004-H	HCL to pH < 2	OK	1182537008-J	No Preservative Required	OK
1182537004-I	No Preservative Required	OK	1182537009-A	HCL to pH < 2	OK
1182537004-J	No Preservative Required	OK	1182537009-B	HCL to pH < 2	OK
1182537005-A	HCL to pH < 2	OK	1182537009-C	HCL to pH < 2	OK
1182537005-B	HCL to pH < 2	OK	1182537009-D	HCL to pH < 2	OK

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1182537009-E	HCL to pH < 2	OK			
1182537009-F	HCL to pH < 2	OK			

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
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.