Alaska Railroad Corporation

801 West Ship Creek, Anchorage AK

Consolidated Freightways/SBS Building

Site Characterization Report

ADEC File No. 2100.38.514 & 2100.26.602

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March 2018
Rev 1.0

SUMMARY

On behalf of the Alaska Railroad Corporation (ARRC), Restoration Science & Engineering, LLC (RSE) is providing the following report regarding site characterization at 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). Work described in this report was conducted on August 29, 2017 and September 6, 2017. Soil and groundwater demonstrate exceedances of ADEC cleanup levels throughout the subject property.

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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). At that time, approximately 40 cubic yards (cy) of hydrocarbon impacted soil was removed from the excavation and transported to Alaska Soil Recycling (ASR) for thermal desorption (e.g. treatment). According to Clarus, diesel range organic (DRO) impacted soil was removed to concentrations in the soil below ADEC action levels along the building's footing wall and the north side of the UST excavation. However, DRO-impacted soil was left in place below the UST along the excavation bottom (Clarus 2010). This 5,000-gallon UST is referred to as the "North UST" or "North UST Excavation".

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. Similar to the 5,000-gallon UST, approximately 40 cy of hydrocarbon impacted soil was removed from the twin 2,000-gallon UST excavation, DRO-impacted soil was left in place among the excavation, and groundwater was observed at approximately 3.5 feet below ground surface (bgs) (FES 2015). The twin 2,000-gallon USTs are referred to as the "South USTs" or "South UST Excavation". Figure 2, attached, shows the horizontal and vertical extent of contamination at both UST excavation locations per the FES 2017 report. FES collected soil samples in 2016 from both the North UST Excavation and South UST Excavation to document remaining hydrocarbon impacts at the presumed former UST locations.

OBJECTIVES

The objective of the work conducted under this report was to characterize the groundwater at the North UST Excavation, and characterize the groundwater and vertical extent of impacted soil South Excavation release areas by installing seven (7) soil borings completed as groundwater monitoring wells, with an additional boring and monitoring well at an upgradient location as shown on Figure 3, attached. Contaminants of potential concern (COPCs) are shown in Table 1 (soil) and Table 2 (groundwater).

No groundwater elevation survey was conducted as part of the initial scope of work. A survey will be conducted in 2018 as ground cover and weather conditions allow.

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

COPC	Matrix	COPC Abbreviation	ADEC-Approved Lab Method	ADEC Method 2 Soil Cleanup Level[1]
Gasoline Range Organics	Soil	GRO	AK 101	300 mg/Kg
Diesel Range Organics	Soil	DRO	AK 102	250 mg/Kg
Residual Range Organics	Soil	RRO	AK 103	11,000 mg/Kg
Volatile Organic Compounds	Soil	VOCs	EPA 8260	Varies
Polycyclic Aromatic Hydrocarbons	Soil	PAHs	EPA 8270	Varies

[1]18 AAC 75 ADEC Method 2 soil cleanup level for migration to groundwater Tables B1 and B2 (July 1, 2017)

Table 2: 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	H2O	GRO	AK 101	2.2 mg/L
Diesel Range Organics	H2O	DRO	AK 102	1.5 mg/L
Residual Range Organics	H2O	RRO	AK 103	1.1 mg/L
Volatile Organic Compounds	H2O	VOCs	EPA 8260	Varies
Polycyclic Aromatic Hydrocarbons	H2O	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.

SOIL BORING AND MONITORING WELL INSTALLATION

RSE contracted with GeoTek Alaska, Inc (GeoTek) to install seven (7) soil borings up to 12 feet bgs completed as groundwater monitoring wells. Samples were continuously collected via *Direct Push* methods and *Geoprobe's Macrocore* soil sampling system. Following continuous soil sampling to the target depths, GeoTek installed 2-inch diameter Schedule 40 PVC with 5 feet of slotted (0.010 inch) screen. GeoTek placed 10/20 silica sand as the "sandpack" along the annulus

between the 2-inch PVC and soil boring to 2 feet above the slotted-screen. Concrete was used for surface completion starting immediately above the sandpack and continuing to grade. Each monitoring well was completed as a "flush mount" with an 8-inch steel manhole cover encased in concrete. All monitoring wells are protected with an environmental-grade locking well cap. Monitoring well construction diagrams and boring logs are provided in Attachment D.

Field Screening Methodology

Field screening samples were collected using a photo-ionization detector (PID) to determine the presence or absence of volatile organic compounds at each boring location. The PID was calibrated to 100 parts per million by volume (ppmv) isobutylene prior to mobilization to the field. Arran Forbes, a Qualified Environmental Professional (QEP), collected field screening samples every two feet starting at two feet bgs to the terminal depth of the boring at the soil-groundwater interface, which varied between 8 and 12 feet bgs.

RSE field personnel placed field-screening samples into a Ziploc™ quart-sized bag, warmed the bag to approximately 60° F, and measured the head space within the bag using a PID. Field-screening samples were collected using clean stainless steel spoons or dedicated nitrile gloves. RSE field personnel noted the sample ID, soil unified soil classification system (USCS) classification, location, the depth bgs, and the PID reading for each field screening location; tabulated field screening results are provided in Attachment B, boring logs are provided in Attachment D.

Soil Sampling Methodology

RSE collected two (2) soil samples for laboratory analyses for GRO/BTEX and DRO/RRO at each boring location: one (1) soil sample from the highest PID location, and one (1) soil sample from the soil/groundwater interface at each boring location. The depth interval yielding the highest field screening readings at each boring location was additionally submitted for VOC and PAH analysis.

RSE collected each soil sample using clean stainless steel spoons or dedicated nitrile gloves, and placed the soil into method-specific containers provided by the contract laboratory. The soil sample containers were placed into a cooler packed with gel-ice. The cooler was received at the contractor laboratory at a temperature of 1.7°C. All soil closure samples were transported under chain-of-custody (COC) to SGS North America Inc. in Anchorage, Alaska for analyses. Each soil sample was collected and analyzed for COPCs in accordance with Table 3, below.

Table 3: Sampling Requirements - Soil

COPC	Matrix	Lab Method	Sample Container	Preservation	Holding Time
GRO	Soil	AK 101	1 x 4 oz. amber jar with Teflon lined cap and septum	0 – 6° C, MeOH	MeOH preserved, <28 days to analysis
DRO	Soil	AK 102	1 x 4 oz. amber jar with Teflon lined cap	0 – 6° C	14 days to extract, <40 days to analysis
RRO	Soil	AK 103	1 x 4 oz. amber jar with Teflon lined cap	0 – 6° C	14 days to extract, <40 days to analysis
VOCs	Soil	EPA 8260	1 x 4 oz. amber jar with Teflon lined cap and septum	0 – 6° C, MeOH	MeOH preserved, <14 days to analysis
PAHs	Soil	EPA 8270	1 x 4 oz. amber jar with Teflon lined cap	0 – 6° C	14 days to extract, <40 days to analysis

Groundwater Quality Monitoring

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 or required additional purging to achieve stabilization of parameters. RSE field personnel recorded the temperature, conductivity, specific conductance, salinity, and pH using a YSI 65; water quality monitoring results are provided in Table 5 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 stainless-steel 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 3°C. All groundwater samples were transported under COC to SGS North America Inc. in Anchorage, Alaska for analyses. Each groundwater sample was analyzed for COPCs in accordance with Table 4 on the following page.

Table 4: Sampling Requirements - Groundwater

COPC	Matrix	Lab Method	Sample Container	Preservation	Holding Time
GRO	H2O	AK 101	3 x 40 ml amber vials with Teflon lined cap and septum	0 – 6° C, HCl	14 days
DRO	H2O	AK 102	2 x 1 liter amber jar with Teflon lined cap	0 – 6° C	7 days to extract, <40 days to analysis
RRO	H2O	AK 103	2 x 1 liter amber jar with Teflon lined cap	0 – 6° C	14 days to extract, <40 days to analysis
VOCs	H2O	EPA 8260	3 x 40 ml amber vials with Teflon lined cap and septum	0 – 6° C, HCl	14 days
PAHs	H2O	EPA 8270	2 x 1 liter amber jar with Teflon lined cap	0 – 6° C	14 days to extract, <40 days to analysis

FIELD CONDITIONS

RSE mobilized to the field on August 29, 2017 to provide environmental support for the drilling and well installation program as carried out by GeoTek. A representative from the ARRC, Russell Grandel, was onsite at the initiation of project activities to assist in directing sampling locations relative to the former UST locations.

Boring locations RSE-1 and RSE-2 were attempted to be positioned near the former North UST area. Boring locations were selected using the hand-held GPS coordinates submitted by FES as well as in consultation with the ARRC representative. Final mapping shows that the boring locations are situated to the east of the former North UST and likely do not capture the entirety of conditions at the former excavation. Recommendations for additional delineation in this area are included in the final section of this report. Boring locations RSE-3 through RSE-6 were positioned near the former South UST area. Boring RSE-7 was installed on the southeast side of the property in the presumed upgradient direction of the project area to provide background level data. Fill material was typically readily distinguishable from native material based on the presence of fines in native soils.

Groundwater was generally encountered between 8 feet and 12 feet bgs at each boring, with visibly impacted soil with a fuel odor present in the majority of boring locations near a fine sand/silty layer at 6 feet bgs, with PID readings up to 622 ppmv. Dense gray silt, presumably the upper portion of the Bootlegger Cove formation, present at greater than 10 feet bgs throughout the project area, appeared to confine impacts to the upper strata. No PID readings greater than 0.0 ppmv were

reported from the silty material.

RSE remobilized to the site on September 6, 2017 to conduct groundwater sampling of the wells. Groundwater was found to have considerably fluctuated since the soil boring installation program, with depths varying between 3 feet and less than 1 foot bgs. The groundwater sampling followed a period of extended precipitation in the area, which may have contributed to the rise in monitored levels. The wells were purged such that the water levels dropped to within the screened interval, and care was taken to collect the sample from the top of the water column within the screened interval.

A fuel odor was detected in all groundwater samples submitted from the former South UST area. No sheen was observed on the groundwater samples. Salinity was elevated in purge water from wells situated near the North UST area (up to 1.3 parts per thousand), suggesting tidal influences may be present in this area.

Select photographs of the field effort are provided in Attachment C. A copy of field notes is provided in Attachment D.

QUALITY ASSURANCE AND QUALITY CONTROL

RSE collected each soil sample in general accordance with applicable ADEC regulation and guidance documents. Blind duplicate samples were collected at a frequency nominally below 10%, with one (1) blind duplicate sample submitted for 14 soil samples, and one (1) blind duplicate sample submitted for seven (7) groundwater samples. Duplicates were submitted from the areas of greatest impacts where known; however, when conducting a drilling program this location is not usually known until all samples have been collected at the conclusion of the field day. As such, a single duplicate sample for soil was not submitted, bringing the duplicate frequency to 7% as compared to the 10% recommended in the ADEC Field Guidance. This discrepancy is not thought to impact the usability of the data at this known contaminated site. Where duplicate and primary sample results vary, the more conservative of the two values is used for comparison to ADEC cleanup standards.

Two groundwater samples, RSE-1 and RSE-4, were received at the laboratory with inadequate HCL preservation due to overfilling in the field. The samples were collected and properly preserved by the laboratory on the same day and maintained at appropriate temperatures throughout. The temporary lack of appropriate preservation does not affect data quality or usability; both sample locations exhibited exceedances of ADEC Table C levels and, in the low probability are biased low, reflect locations requiring further attention and monitoring.

The final boring locations for RSE-1 and RSE-2 deviate considerably from the work plan. Every

effort was made in the field to replicate the boring locations in relation to the former North UST area. An ARRC representative directed boring locations in the field at both UST locations. However, due the margin of error in the handheld GPS unit, as well as the lack of localizing features in the empty lot, the locations appear to be inconsistent with the former excavation area. Follow-on drilling is recommended, per the final section of this report.

RSE has completed the ADEC Laboratory Review checklist for each laboratory report received, included as Attachment F to this report. No quality control issues have been identified such that would affect the usability of the data. Tables 5 and 6 show the applicable quality assurance and data quality parameters for this project.

Table 5: Quality Assurance and Data Quality Objectives for Petroleum Hydrocarbons - Soil

COPC	Matrix	Lab Method	Limit of Quantitation (LOQ)	Precision (% RPD)	Accuracy (% Recovery)
GRO	Soil	AK 101	2.5 mg/Kg	± 20	60 – 120
DRO	Soil	AK 102	20 mg/Kg	± 20	75 – 125
RRO	Soil	AK 103	20 mg/Kg	± 20	60 -120
VOCs	Soil	EPA 8260	Varies	± 20	Varies
PAHs	Soil	EPA 8270	Varies	± 20	Varies

Table 6: Quality Assurance and Data Quality Objectives for Petroleum Hydrocarbons - Groundwater

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

INVESTIGATIVE DERIVED WASTE

Consumables such as plastic bags, plastic soil core tubes, gloves and used jars were placed into an onsite trash receptacle for disposal. Non-consumables such as spoons and other field equipment was decontaminated using a detergent and hot water at RSE's equipment room. The submersible pump was decontaminated between well locations using an alconox and warm water rinse in the field. The decontamination water was combined with the purge water for disposal.

Soil cuttings were containerized in a labeled 55-gallon open-top drum and stored onsite. RSE

received ADEC approval for transport to ASR on September 25, 2017. The purge and decontamination water was mixed with the soil cuttings prior to transport to Alaska Soil Recycling. There was sufficient volume of soil (2 yards) to absorb the IDW water for disposal. There is currently no IDW onsite.

RESULTS

Contaminants exceeding ADEC cleanup standards in soil were limited to TEX, benzene-based, and naphthalene-based constituents. DRO, RRO, and GRO, while detected in soil, did not exceeded applicable action levels. Benzene ranged from non-detect to 248 ug/Kg in the duplicate sample submitted from RSE-5 at the South UST area, compared to a cleanup standard of 22 ug/Kg. At this same location, ethylbenzene ranged up to 1,540 ug/Kg compared to a cleanup standard of 130 ug/Kg, and total xylenes ranged up to 4,940 ug/Kg compared to a cleanup standard of 1,500 ug/Kg. PAH and VOC analyses yielded multiple exceedances for trimethylbenzene, 1-methylnaphthalene, and naphthalene at the South UST area.

Exceedances in soil were limited to the South UST area. No exceedances in soil were reported from the northern borings, which are believed to be outside the North UST excavation area, or the upgradient background sample, RSE-7. Results for soil are reported in Tables 2 through 4 of Attachment B.

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, yielding nominal 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, 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 diffuse exceedances for ethylbenzene, xylenes, 1,2,4-trimethylbenzene, and naphthalene compounds for VOCs and PAHs. Results for groundwater are reported in Tables 6 through 8 of Attachment B.

CONCLUSIONS

Soil and groundwater demonstrate hydrocarbon impacts at the subject property, with impacted soil limited to the South UST area, and high-level groundwater impacts throughout both UST areas. Boring RSE-3 appears to define the western limits of contamination at the former South UST area, with borings RSE-5 on the eastern extent of the former excavation, and RSE-6 on the southern extent, demonstrating impacts indicating the limits have not been fully defined. An additional well

to the west-southwest of RSE-2 would better delineate soil groundwater impacts in the area closer to the former North UST, as well as to the south-southeast of RSE-5 and RSE-6.

Impacts appear to be vertically constrained by dense, fine silt present around 10 feet bgs. Groundwater levels appear highly responsive to climatic conditions, with tidal interferences possibly occurring on the north side as evidenced by relatively high salinity in purge water. Upgradient impacts were not detected in soil or groundwater, suggesting the impacts reported originate from the USTs targeted in former environmental investigations and remedial actions.

Soil exceedances were limited to volatile constituents, and appear to be less persistent than heavier constituents in the groundwater. RSE recommends conducting annual sampling of the groundwater monitoring wells to determine average concentrations and possible trends, and conducting a groundwater elevation survey, to assess whether contaminant concentrations change over time.

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

Arran Forbes, QEP

CC: Russell Grandel, ARRC

Attachment A:

Figure 1 Vicinity Map
Figure 2 FES Excavation Areas
Figure 3 Monitoring Well Location Map

Attachment B:

Data Tables

Attachment C:

Select Site Photographs

Attachment D:

Copy of Field Notes
ADEC Approval to Transport

Attachment E:

Boring Logs and Well Construction Diagrams

Attachment F:

ADEC Quality Review Checklist

Attachment G:

SGS Laboratory Report

References:

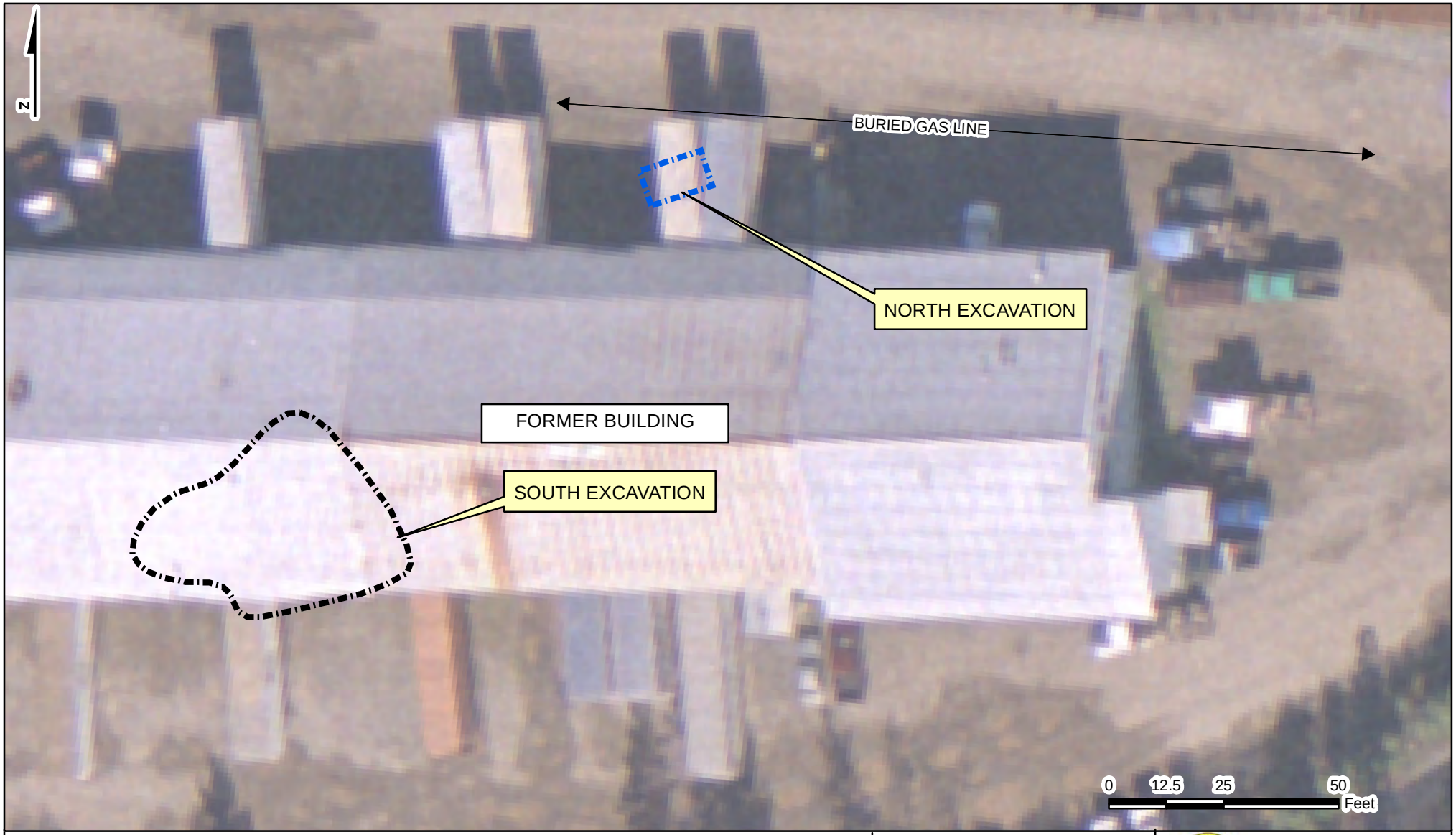
Clarus Environmental Services (Clarus), 2010. UST Removal Report, CF/SBS Building, Anchorage, Alaska. Dated July 9, 2010

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.

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

Attachment B: Data Tables

RESTORATION
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TABLE 1
Field Screening Results
801 Ship Creek Site Characterization

Field Screening Results				
SAMPLE ID	DATE	DEPTH (FEET)	PID (PPMV)	NOTES
PID Readings				
RSE-1-1	8/29/2017	0-2	0.1	Brown sandy gravel
RSE-1-2	**8/29/2017**	**2-4**	**0.9**	**Light gray sand, HC odor**
RSE-1-3	**8/29/2017**	**4-6**	**0.2**	**Light gray sand with cobbles, moist, HC odor**
RSE-1-4	8/29/2017	6-8	0.1	Light gray sand with cobbles, moist, HC odor
RSE-1-5	8/29/2017	8-10	0.0	Dense gray silt with organics
RSE-2-1	8/29/2017	0-2	0.0.	Brown sandy gravel
RSE-2-2	**8/29/2017**	**2-4**	**0.5**	**Light gray sand, HC odor**
RSE-2-3	**8/29/2017**	**4-6**	**0.2**	**Light gray sand, HC odor**
RSE-2-4	8/29/2017	6-8	0.0	Sand transitioning to silt
RSE-2-5	8/29/2017	8-10	0.0	Dense gray silt with organics
RSE-3-1	8/29/2017	0-2	0.0	Brown sandy gravel
RSE-3-2	8/29/2017	2-4	0.0	Brown sandy gravel
RSE-3-3	**8/29/2017**	**4-6**	**0.2**	**Light gray sand with cobbles, moist, HC odor**
RSE-3-4	**8/29/2017**	**6-8**	**1.3**	**Light gray sand with cobbles, moist, HC odor**
RSE-3-5	8/29/2017	8-10	0.0	Dense gray silt with organics
RSE-4-1	8/29/2017	0-2	0.0	Brown sandy gravel
RSE-4-2	8/29/2017	2-4	0.1	Brown sandy gravel
RSE-4-3	8/29/2017	4-6	0.9	Brown sandy gravel
RSE-4-4	**8/29/2017**	**6-8**	**0.5**	**Light gray sand, HC odor**
RSE-4-5	**8/29/2017**	**8-10**	**165.7**	**Light gray sand, HC odor**
RSE-4-6	8/29/2017	10-12	0.0	Dense gray silt with organics
RSE-5-1	8/29/2017	0-2	0.4	Brown sandy gravel
RSE-5-2	**8/29/2017**	**2-4**	**10.7**	**Brown sandy gravel**
RSE-5-3	8/29/2017	4-6	0.0	Brown sandy gravel
RSE-5-4	**8/29/2017**	**6-8**	**622.2**	**Light gray sand with cobbles, moist, HC odor**
RSE-5-5	8/29/2017	8-10	0.0	Dense gray silt with organics
RSE-6-1	8/29/2017	0-2	0.0	Brown sandy gravel
RSE-6-2	8/29/2017	2-4	0.0	Brown sandy gravel
RSE-6-3	**8/29/2017**	**4-6**	**12.0**	**Light gray sand with cobbles, moist**
RSE-6-4	**8/29/2017**	**6-8**	**23.2**	**Light gray sand with cobbles, moist, HC odor**
RSE-6-5	8/29/2017	8-10	0.0	Dense gray silt with organics
RSE-7-1	8/29/2017	0-2	0.0	Brown sandy gravel with organics
RSE-7-2	8/29/2017	2-4	0.1	Light gray shale, angular, with light brown sand
RSE-7-3	**8/29/2017**	**4-6**	**0.2**	**Light gray sand, moist**
RSE-7-4	**8/29/2017**	**6-8**	**0.1**	**Light gray sand, moist**
RSE-7-5	8/29/2017	8-10	0.0	Dense gray silt

NOTES:

1) Field-screening measurements collected using a RAE Systems MiniRAE Lite photo-ionization detector (PID) callibrated to 100 ppmv isobutylene

2) "PPMV" means "parts per million by volume"

3) Bold text indicates the sample was submitted for laboratory analyses

TABLE 2
Hydrocarbons in Soil
801 Ship Creek Site Characterization

HYDROCARBONS IN SOIL												
SAMPLE ID	DATE	DEPTH (FEET)	PID (PPMV)	TOTAL SOLIDS (%)	DIESEL RANGE ORGANICS (mg/Kg)	RESIDUAL RANGE ORGANICS (mg/Kg)	GASOLINE RANGE ORGANICS (mg/Kg)	BENZENE (µg/Kg)	TOLUENE (µg/Kg)	ETHYL-BENZENE (µg/Kg)	TOTAL XYLENES (µg/Kg)	SGS NORTH AMERICA WORK ORDER NO.
Soil Borings												
RSE-1-2	8/29/2017	2-4	0.9	92.3	7.5 J	20.2 J	1.03 J	*5.15 U*	*10.3 U*	*10.3 U*	*30.9 U*	1176161
RSE-1-3	8/29/2017	4-6	0.2	91.0	11.6 J	**82.2**	0.642 J	*5.25 U*	*10.4 U*	*10.4 U*	*30.5 U*	1176161
RSE-2-2	8/29/2017	2-4	0.5	93.2	*10.7 U*	12.4 J	0.691 J	*5.35 U*	*10.7 U*	*10.7 U*	*31.9 U*	1176161
RSE-2-3	8/29/2017	4-5	0.2	92.0	11.8 J	**83.4**	0.666 J	*5.5 U*	*11.0 U*	*11.0 U*	*33.0 U*	1176161
RSE-3-3	8/29/2017	4-6	0.2	91.7	*10.9 U*	19.7 J	**1.20 U**	4.80 J	*12.0 U*	*12.0 U*	*36.0 U*	1176161
RSE-3-4	8/29/2017	6-8	1.3	91.9	*10.8 U*	11.4 J	0.822 J	*6.35 U*	*12.8 U*	*12.8 U*	*38.3 U*	1176161
RSE-4-4	8/29/2017	6-8	11.5	89.4	*11.1 U*	**41.8**	*1.26 U*	*6.30 U*	9.36 J	*12.7 U*	*38.0 U*	1176161
RSE-4-5	8/29/2017	8-10	165.7	88.2	16.9 J	**25.9**	**10.7**	**13.8**	**37.7**	**220**	**819**	1176161
RSE-5-2	8/29/2017	2-4	10.7	89.7	*11.2 U*	**25.5**	1.31 J	**13.4**	12.6 J	**81.4**	**102.1**	1176161
RSE-5-4	8/29/2017	6-8	622.2	84.9	**105**	**57.6**	**42.0**	**26.8**	**37.6**	**702**	**2630**	1176161
RSE-6-3	8/29/2017	4-6	12.0	90.6	10.4 J	**42.4**	1.34 J	9.37 J	*12.0 U*	**30.3**	**74**	1176161
RSE-6-4	8/29/2017	6-8	23.2	85.0	13.8 J	**44.2**	**10.5**	**28.2**	*13.2 U*	**286**	**1280**	1176161
RSE-7-3	8/29/2017	4-6	0.2	92.4	*10.8 U*	13.1 J	0.629 J	*4.66 U*	*9.30 U*	*9.30 U*	*27.9 U*	1176161
RSE-7-4	8/29/2017	6-8	0.1	87.8	*11.3 U*	9.58 J	*1.10 U*	*5.50 U*	*10.9 U*	*10.9 U*	*32.8 U*	1176161
RSE-X	8/29/2017	--	--	84.2	**70.5**	**117.0**	**82.7**	**248**	**348**	**1540**	**4940**	1176161
ADEC METHOD TWO - TABLE B1 MIGRATION TO GROUNDWATER UNDER 40 INCH ZONE SOIL CLEANUP LEVELS (18 AAC 75)					**250**	**11,000**	**300**	**22**	**6,700**	**130**	**1,500**	
ADEC METHOD TWO - TABLE B2 UNDER 40 INCH ZONE INGESTION AND INHALATION (HUMAN HEALTH FOR BTEX) SOIL CLEANUP LEVELS (18 AAC 75)					**10,250-Ingestion 12,500-Inhalation**	**10,000-Ingestion 22,000-Inhalation**	**1,400**	**11,000**	**200,000**	**49,000**	**57,000**	

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 SW 8260C
2) "mg/Kg" means "milligrams per kilogram"; "ug/Kg" means "micrograms per kilogram"; "ppmv" means "parts per million by volume"
3) **Bold** font indicates the analyte was detected above the Laboratory Limit of Detection (LOD).
4) J flag indicates the result is an estimated value
5) *Italicized* font with a U-qualifier indicates the analyte was not detected above the method detection limit (DL); the value presented is the limit of detection (LOD)
6) Yellow highlighting indicates the analyte was detected above the ADEC Method 2 Soil Migration to Groundwater Cleanup Level
7) Sample RSE-X is a blind duplicate sample of RSE-5-4

TABLE 3
Volitile Organic Compounds (VOCs) in Soil
801 Ship Creek Site Characterization

VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL								
Soil Borings								
SAMPLE ID	**RSE-1-2**	**RSE2-2**	**RSE-3-4**	**RSE-4-5**	**RSE-5-4**	**RSE-6-4**	**RSE-7-3**	**ADEC Method 2 Soil Cleanup Level For Migration to Groundwater (µg/Kg)**
Date	8/29/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017	
Sample Depth (ft)	2-4	2-4	6-8	8-10	6-8	6-8	4-6	
SGS Work Order	1176161	1176161	1176161	1176161	1176161	1176161	1176161	
Percent Solids	92.3	93.2	91.1	88.2	84.9	85.0	92.4	
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	
1,1,1,2-Tetrachloroethane	*8.25 U*	*8.50 U*	*10.2 U*	*9.85 U*	*13.6 U*	*10.6 U*	*7.45 U*	22
1,1,1-Trichloroethane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	32,000
1,1,2,2-Tetrachloroethane	*5.15 U*	*5.35 U*	*6.35 U*	*6.15 U*	*8.45 U*	*6.60 U*	*4.66 U*	3
1,1,2-Trichloroethane	*4.12 U*	*4.26 U*	*5.10 U*	*4.92 U*	*6.80 U*	*5.25 U*	*3.73 U*	1.4
1,1-Dichloroethane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	92
1,1-Dichloroethene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	1,200
1,1-Dichloropropene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	--
1,2,3-Trichlorobenzene	*20.6 U*	*21.3 U*	*25.5 U*	*24.6 U*	*33.9 U*	*26.4 U*	*18.6 U*	150
1,2,3-Trichloropropane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	3.1×10^{-5}
1,2,4-Trichlorobenzene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	82
1,2,4-Trimethylbenzene	*20.6 U*	*21.3 U*	*25.5 U*	**1290**	**5320**	**3030**	19.9 J	160
1,2-Dibromo-3-chloropropane	*41.2 U*	*42.6 U*	*51.0 U*	*49.3 U*	*68.0 U*	*52.5 U*	*37.3 U*	--
1,2-Dibromoethane	*4.12 U*	*4.26 U*	*5.10 U*	*4.92 U*	*6.80 U*	*5.25 U*	*3.73 U*	0.24
1,2-Dichlorobenzene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	2,400
1,2-Dichloroethane	*4.12 U*	*4.26 U*	*5.10 U*	*4.92 U*	*6.80 U*	*5.25 U*	*3.73 U*	5.5
1,2-Dichloropropane	*4.12 U*	*4.26 U*	*5.10 U*	*4.92 U*	*6.80 U*	*5.25 U*	*3.73 U*	16
1,3,5-Trimethylbenzene	*10.3 U*	*10.7 U*	*12.8 U*	**399**	**1750**	**881**	6.15 J	1,300
1,3-Dichlorobenzene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	2,300
1,3-Dichloropropane	*4.12 U*	*4.26 U*	*5.10 U*	*4.92 U*	*6.80 U*	*5.25 U*	*3.73 U*	--
1,4-Dichlorobenzene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	37
2,2-Dichloropropane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	--
2-Butanone (MEK)	*103 U*	*107 U*	*128 U*	*123 U*	*170 U*	*132 U*	*93.0 U*	15,000
2-Chlorotoluene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	--
2-Hexanone	*41.2 U*	*42.6 U*	*51.0 U*	*49.3 U*	*68.0 U*	*52.5 U*	*37.3 U*	110
4-Chlorotoluene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	--
4-Isopropyltoluene	*6.79 J*	*10.7 U*	*12.8 U*	**84.2**	**468**	**137**	*9.30 U*	--
4-Methyl-2-pentanone (MIBK)	*103 U*	*107 U*	*128 U*	*123 U*	*170 U*	*132 U*	*93.0 U*	18,000
Benzene	*5.15 U*	*5.35 U*	*6.35 U*	**13.8**	**26.8**	**28.2**	*4.66 U*	22
Bromobenzene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	360
Bromochloromethane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	--
Bromodichloromethane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	4.3
Bromoform	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	100
Bromomethane	*82.5 U*	*85.0 U*	*102 U*	*98.5 U*	*136 U*	*106 U*	*74.5 U*	24
Carbon disulfide	*41.2 U*	*42.6 U*	*51.0 U*	*49.3 U*	*68.0 U*	*52.5 U*	*37.3 U*	2,900
Carbon tetrachloride	*5.15 U*	*5.35 U*	*6.35 U*	*6.15 U*	*8.45 U*	*6.60 U*	*4.66 U*	21
Chlorobenzene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	460
Chloroethane	*82.5 U*	*85.0 U*	*102 U*	*98.5 U*	*136 U*	*106 U*	*74.5 U*	72,000
Chloroform	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	7.1
Chloromethane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	610
Dibromochloromethane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	2.7
Dibromomethane	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	25
Dichlorodifluoromethane	*20.6 U*	*21.3 U*	*25.5 U*	*24.6 U*	*33.9 U*	*26.4 U*	*18.6 U*	3,900
Ethylbenzene	*10.3 U*	*10.7 U*	*12.8 U*	**220**	**702**	**286**	*9.30 U*	130
Freon-113	*41.2 U*	*42.6 U*	*51.0 U*	*49.3 U*	*68.0 U*	*52.5 U*	*37.3 U*	1.7×10^{6}
Hexachlorobutadiene	*8.25 U*	*8.50 U*	*10.2 U*	*9.85 U*	*13.6 U*	*10.6 U*	*7.45 U*	20
Isopropylbenzene (Cumene)	*10.3 U*	*10.7 U*	*12.8 U*	**82.3**	**304**	**161**	*9.30 U*	5,600
Methyl-t-butyl ether	*41.2 U*	*42.6 U*	*51.0 U*	*49.3 U*	*68.0 U*	*52.5 U*	*37.3 U*	400
Methylene chloride	*41.2 U*	*42.6 U*	*51.0 U*	*49.3 U*	*68.0 U*	*52.5 U*	*37.3 U*	330
Naphthalene	**21.4**	*10.7 U*	*12.8 U*	**172**	**458**	**589**	*9.30 U*	38
P & M -Xylene	*20.6 U*	*21.3 U*	*25.5 U*	**690**	**2590**	**1270**	*18.6 U*	See Total Xylenes
Styrene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	10,000
Tetrachloroethene	*5.15 U*	*5.35 U*	*6.35 U*	*6.15 U*	*8.45 U*	*6.60 U*	*4.66 U*	190
Toluene	*10.3 U*	*10.7 U*	*12.8 U*	**37.7**	**37.6**	*13.2 U*	*9.30 U*	6,700
Trichloroethene	*4.12 U*	*4.26 U*	*5.10 U*	*4.92 U*	*6.80 U*	*5.25 U*	*3.73 U*	11
Trichlorofluoromethane	*20.6 U*	*21.3 U*	*25.5 U*	*24.6 U*	*33.9 U*	*26.4 U*	*18.6 U*	41,000
Vinyl acetate	*41.2 U*	*42.6 U*	*51.0 U*	*49.3 U*	*68.0 U*	*52.5 U*	*37.3 U*	1,100
Vinyl chloride	*4.12 U*	*4.26 U*	*5.10 U*	*4.92 U*	*6.80 U*	*5.25 U*	*3.73 U*	0.8
Xylenes (total)	*30.9 U*	*31.9 U*	*38.3 U*	**819**	**2630**	**1280**	*27.9 U*	1,500
cis-1,2-Dichloroethene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	120
cis-1,3-Dichloropropene	*5.15 U*	*5.35 U*	*6.35 U*	*6.15 U*	*8.45 U*	*6.60 U*	*4.66 U*	18
n-Butylbenzene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	23,000
n-Propylbenzene	*10.3 U*	*10.7 U*	*12.8 U*	**248**	**1260**	**526**	*9.30 U*	9,100
o-Xylene	*10.3 U*	*10.7 U*	*12.8 U*	**129**	**47.8**	10.5 J	*9.30 U*	See Total Xylenes
sec-Butylbenzene	*10.3 U*	*10.7 U*	*12.8 U*	**36.0**	**194**	**52.2**	*9.30 U*	42,000
tert-Butylbenzene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	11,000
trans-1,2-Dichloroethene	*10.3 U*	*10.7 U*	*12.8 U*	*12.3 U*	*16.9 U*	*13.2 U*	*9.30 U*	1300
trans-1,3-Dichloropropene	*5.15 U*	*5.35 U*	*6.35 U*	*6.15 U*	*8.45 U*	*6.60 U*	*4.66 U*	18

NOTES:
1) Volatile organic compounds (VOC) analyses by Method EPA SW8260C.
2) "mg/Kg" means "milligrams per kilogram"; "ug/Kg" means "micrograms per kilogram"; "ppmv" means "parts per million by volume"
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 no detected at the LOD; the value presented is the LOD
5) J flag indicates the result is an estimated value
6) Light blue highlighting indicates the detection limit is higher than the ADEC Method 2 Migration to Groundwater Cleanup Level.
7) Yellow highlighting indicates the result exceeds ADEC Cleanup Standards.

TABLE 4
Polynuclear Aromatic Hydrocarbons (PAHs) in Soil
801 Ship Creek Site Characterization

POLYNUCLEAR AROMATIC HYDROCARBON CONCENTRATIONS IN SOIL								
SAMPLE ID	**RSE-1-2**	**RSE2-2**	**RSE-3-4**	**RSE-4-5**	**RSE-5-4**	**RSE-6-4**	**RSE-7-3**	**ADEC Method 2 Soil Cleanup Level For Migration to Groundwater (µg/Kg)**
Date	8/29/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017	8/29/2017	
Sample Depth (ft)	2-4	2-4	6-8	8-10	6-8	6-8	4-6	
SGS Work Order	1176161	1176161	1176161	1176161	1176161	1176161	1176161	
Percent Solids	92.3	93.2	91.1	88.2	84.9	85.0	92.4	
Soil Borings								
1-Methylnaphthalene	**84.2**	*13.3 U*	*13.6 U*	**69.9**	**530**	**324**	*13.4 U*	410
2-Methylnaphthalene	*13.4 U*	*13.3 U*	*13.6 U*	**103**	**878**	**444**	*13.4 U*	1,300
Acenaphthene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	37,000
Acenaphthylene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	18,000
Anthracene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	390,000
Benzo(a)Anthracene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	280
Benzo[a]pyrene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	270
Benzo[b]Fluoranthene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	2,700
Benzo[g,h,i]perylene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	15,000,000
Benzo[k]fluoranthene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	27,000
Chrysene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	82,000
Dibenzo[a,h]anthracene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	870
Fluoranthene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	590,000
Fluorene	*8.14 J*	*13.3 U*	*13.6 U*	*13.9 U*	*20.0 J*	*14.6 U*	*13.4 U*	36,000
Indeno[1,2,3-c,d] pyrene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	*14.8 U*	*14.6 U*	*13.4 U*	8,800
Naphthalene	9.74 J	*10.7 U*	*10.9 U*	**46.9**	**400**	**333**	*10.8 U*	38
Phenanthrene	*13.4 U*	*13.3 U*	*13.6 U*	17.1 J	**37.6**	*14.6 U*	*13.4 U*	39,000
Pyrene	*13.4 U*	*13.3 U*	*13.6 U*	*13.9 U*	14.1 J	*14.6 U*	*13.4 U*	87,000

NOTES:
1) Polycyclic Aromatic Hydrocarbons (PAH) samples are analyzed by EPA Method 8270D SIM.
2) **Bold** font indicates the analyte was detected above the Laboratory Limit of Detection (LOD).
3) *Italicized* font with a U-flag indicates the analyte was no detected at the LOD; the value presented is the LOD
4) J Flag indicates the result is an estimated value.
5) Light blue highlighting indicates the LOD is elevated above the ADEC Method 2 Migration to Groundwater Cleanup Level.
6) Yellow highlighting indicates the samples result exceeds ADEC Cleanup Standards.

TABLE 5
Groundwater Quality Field Parameters
801 Ship Creek Site Characterization

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)
RSE-1												
RSE-1	9/6/2017	2.46	8.11	8.10	1.5	1100	1	10.8	9.10	1999	2808	1.3
						1108	0.5	10.7	9.06	1993	2798	1.3
RSE-2	9/6/2017	0.9	7.88	7.86	1.8	1130	1	11.8	10.40	622	1345	1.3
						1133	0.8	11.8	10.44	625	1300	1.0
RSE-3	9/6/2017	2.60	7.67	5.22	2.5	1200	0.8	11.9	11.46	682	933	0.5
						1203	1.6	11.2	12.06	669	885	0.4
						1206	2.5	11.3	12.12	666	879	0.4
RSE-4	9/6/2017	1.31	8.61	7.43	3.6	1240	1.2	10.6	12.54	636	872	0.4
						1224	2.4	10.8	12.02	619	842	0.4
						1243	3.6	11	12.02	617	839	0.4
RSE-5	9/6/2017	1.96	8.01	3.21	3	1300	1	11.1	12.90	603	817	0.4
						1303	2	11.2	12.87	594	804	0.4
						1306	3	11.1	12.80	588	795	0.4
RSE-6	9/6/2017	0.5	8.32	3.8	3.9	1340	1.3	12.2	13.01	874	1151	0.9
						1343	2.6	12.2	12.98	991	1191	1.0
						1346	3.9	12.3	12.94	986	986	1.0
RSE-7	9/6/2017	2.01	7.59	2.77	4	1015	1	11.8	9.76	2478	2411	0.8
						1017	2	11.7	7.79	1813	2408	0.8
						1019	3	11.7	9.84	1810	2396	0.7
						1021	4	11.6	9.86	1761	2337	0.7

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 6
Hydrocarbons In Groundwater
801 Ship Creek Site Characterization

HYDROCARBONS IN GROUNDWATER									
SAMPLE ID	**DATE**	**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.**
RSE-1	9/6/2017	**3.94**	**3.05**	*0.05 U*	**0.450**	*0.500 U*	*0.500 U*	*1.50 U*	
RSE-2	9/6/2017	**3.05**	**3.22**	*0.05 U*	0.200 U	*0.500 U*	*0.500 U*	*1.50 U*	
RSE-3	9/6/2017	0.465 J	**0.83**	0.0327 J	0.240 J	*0.500 U*	*0.500 U*	1.61 J	
RSE-4	9/6/2017	**3.53**	**1.09**	**3.32**	**37.6**	**61.3**	**213**	**837**	1176354
RSE-5	9/6/2017	**3.05**	**0.91**	**2.91**	**11.4**	**3.48**	**130**	**484**	
RSE-6	9/6/2017	**2.25**	**1.12**	**1.67**	**38.0**	**1.44**	**66.3**	**345**	
RSE-7	9/6/2017	0.195 J	**0.713**	*0.05 U*	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	
RSE-X	9/6/2017	**4.32**	**1.24**	**3.84**	**31.8**	**50.8**	**193**	**811**	
ADEC GROUNDWATER CLEANUP LEVELS TABLE C		**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 LOD; the value presented is the LOD
5) J flag indicates the result is an estimated value
6) Yellow highlighting indicates the analyte was detected above the ADEC Table C Cleanup Level
7) RSE-X is a blind duplicate of RSE-4

TABLE 7
Volatile Organic Compounds in Groundwater
801 Ship Creek Site Characterization

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	9/6/2017	9/6/2017	9/6/2017	9/6/2017	9/6/2017	9/6/2017	9/6/2017	9/6/2017	**Groundwater**
SGS Work Order	117635	117635	117635	117635	117635	117635	117635	117635	**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*	**1.44**	**471**	**454**	**314**	*0.500 U*	**544**	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*	0.770 J	**149**	**147**	**82.3**	*0.500 U*	**138**	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)	**7.20 J**	*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*	**3.53**	**5.17**	**1.95**	*0.500 U*	**3.78**	
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	**0.450**	*0.200 U*	0.240 J	**37.6**	**11.4**	**38.0**	*0.200 U*	**31.8**	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*	**1.40**	*0.250 U*	1.3
Bromoform	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	0.440 J	*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*	**6.32**	*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*	**0.570**	*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*	**213**	**130**	**66.3**	*0.500 U*	**193**	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*	**49.1**	**32.4**	**26.8**	*0.500 U*	**43.4**	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	0.440 J	*0.500 U*	*0.500 U*	**77.6**	**49.1**	**48.5**	*0.500 U*	**77.4**	1.7
P & M -Xylene	*1.00 U*	*1.00 U*	1.04 J	**675**	**467**	**342**	*1.00 U*	**655**	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*	**61.3**	**3.48**	**1.44**	*0.500 U*	**50.8**	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*	1.61 J	**837**	**484**	**345**	*1.50 U*	**811**	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*	**86.6**	**79.2**	**47.3**	*0.500 U*	**78.2**	660
o-Xylene	*0.500 U*	*0.500 U*	0.570 J	**147**	**17.3**	**2.89**	*0.500 U*	**136**	See Total Xylenes
sec-Butylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	**9.32**	**9.22**	**3.38**	*0.500 U*	**8.70**	2,000
tert-Butylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	**10.7**	**9.61**	**5.70**	*0.500 U*	**9.63**	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 Quantitation (LOQ)
4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the limit of detection (LOD); the value presented is the LOD
5) J flag indicates the result is an estimated value above the Detection Limit (DL) but less than the LOQ
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 8
Polynuclear Aromatic Hydrocarbons in Groundwater
801 Ship Creek Site Characterization

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	9/6/2017	9/6/2017	9/6/2017	9/6/2017	9/6/2017	9/6/2017	9/6/2017	9/6/2017	
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1-Methylnaphthalene	**1.14**	**0.295**	**0.390**	**28.5**	**28.2**	**13.2**	0.230 J	**45.9**	11
2-Methylnaphthalene	**0.158**	**0.171**	**0.649**	**48.9**	**37.9**	**15.6**	**B**	**82.0**	36
Acenaphthene	*0.0236 U*	*0.0240 U*	*0.0236 U*	**0.368**	**0.326**	**0.126**	*0.236 U*	**0.553**	530
Acenaphthylene	*0.0236 U*	*0.0240 U*	*0.0236 U*	*0.0240 U*	*0.0240 U*	*0.0232 U*	*0.236 U*	*0.0250 U*	260
Anthracene	**0.0493**	***0.0875***	*0.0236 U*	*0.0240 U*	*0.0240 U*	*0.0232 U*	*0.236 U*	*0.0250 U*	43
Benzo(a)Anthracene	0.0234 J	0.0347 J	0.0373 J	*0.0240 U*	*0.0240 U*	*0.0232 U*	*0.236 U*	*0.0250 U*	0.12
Benzo[a]pyrene	*0.00945 U*	**0.0451**	**0.0496**	*0.00960 U*	*0.00960 U*	*0.00925 U*	*0.0945 U*	*0.0100 U*	0.34
Benzo[b]Fluoranthene	0.0232 J	**0.0632**	**0.0530**	0.0247 J	*0.0240 U*	*0.0232 U*	*0.236 U*	**0.0384 J**	0.34
Benzo[g,h,i]perylene	*0.0236 U*	**0.0511**	**0.0504**	*0.0240 U*	*0.0240 U*	*0.0232 U*	*0.236 U*	*0.0250 U*	0.26
Benzo[k]fluoranthene	*0.0236 U*	*0.0240 U*	*0.0236 U*	*0.0240 U*	*0.0240 U*	*0.0232 U*	*0.236 U*	*0.0250 U*	0.8
Chrysene	0.0245 J	0.0332 J	0.0398 J	*0.0240 U*	*0.0240 U*	*0.0232 U*	*0.236 U*	*0.0250 U*	2
Dibenzo[a,h]anthracene	*0.00945 U*	*0.00960 U*	*0.00945 U*	*0.00960 U*	*0.00960 U*	*0.00925 U*	*0.0945 U*	*0.0100 U*	0.034
Fluoranthene	**0.0938**	**0.125**	**0.107**	**0.0516**	**0.0672**	*0.0232 U*	*0.236 U*	**0.0794**	260
Fluorene	**0.0681**	**0.0807**	**0.0551**	**0.662**	**0.353**	**0.108**	*0.236 U*	**1.08**	4.3
Indeno[1,2,3-c,d] pyrene	*0.0236 U*	0.0289 J	0.0321 J	*0.0240 U*	*0.0240 U*	*0.0232 U*	*0.236 U*	*0.0250 U*	0.19
Naphthalene	**0.356**	**0.258**	**0.540**	**77.0**	**43.8**	**39.5**	*0.471 U*	**104**	1.7
Phenanthrene	**0.159**	**0.178**	**0.203**	**0.680**	**0.427**	**0.113**	*0.236 U*	**1.03**	170
Pyrene	**0.0808**	**0.116**	**0.116**	**0.0682**	**0.0757**	*0.0232 U*	*0.236 U*	**0.0984**	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 Quantitation (LOQ)
4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the limit of detection (LOD); the value presented is the LOD
5) J flag indicates the result is an estimated value above the Detection Limit (DL) but less than the LOQ
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

Rig mobilizing to North UST area. Yellow marks indicate natural gas line. Facing northeast.

Dense silts at 10 feet bgs from RSE-1.

View RSE-2 facing west.

Core samples from RSE-4 showing transition to water bearing zone above silt layer.

Setting the well at RSE-1. Facing west.

Purge water at RSE-5.

RSE-7 upgradient against Coastal Trail retaining wall.

IDW temporarily stored onsite.

Attachment D: Copy of Field Notes

RESTORATION
Science & Engineering, LLC

August 29 2017
ARRC 801 Ship Creek Drilling
Arran Forbes
overcast, light rain, wind 5-10mph

0830 Forbes on site, mark drill locations based on FES coordinates and RSE work plan. Note FES is accurate within 20 feet (using Trimble App). Bldg has been demolished, no site features available for ties from FES report. Note gas line on north side – drill locations moved north from work plan to avoid. cones set on proposed boring locations + presumed areas of former excavations.

0900 Geotek (Ryan + Brad) onsite after getting lost. Review drill locations, objectives, locates, and site safety.

0915 start at RSE-1 (re-naming borings from work plan to be consistent geographically)

0930 Russ Grandel onsite. observing RSE-1 installation. Approves of sample locations, says align with memory of previous ~~investigation~~ excavations

0945 Russ Grandel does want to move south borings, says map does not properly show relationship between excavations. Direct sample locations west. Approves of final locations.

1000 D Nyman onsite. Discussion whether RSE-7 is being sampled. Call to Lucus Gamble.

1015 Russ G and David N off site. L Gamble confirms RSE-7 is being sampled.
Geotek waiting on rivers + GW equipment. completing borings in sequence, will return to each location once gear arrives for surface completion + well installation.

1200 Direct to location RSE-7, as close to map as possible within staged chassis and outdoor storage. Had to move to west about 10 feet from map.

1245 Geotek equipment on site. Begin well work. All wells set to 8 ft bgs with 5 ft screen
RSE conducting sample organization, data tabulation, and analytical sample management
Duplicate from highest PID RSE-5-4 = RSE-X

1320 Grandel onsite to observe. No issues reported.
~~Discovery~~ of Geotek mobilizing to RSE-2. Repeating issues with auger, plug, other equipment for slow turnaround between wells.

1410 Geotek to RSE-3. RSE doing swing ties to concrete wall + MCIP 7715 box and train tracks. Geotek in need of more water + drums.

1610 Geotek onsite with addtl material (third run today). Conversation with Scott Votja to complete wells in long day today rather than remob tomorrow

1830 well completion done. Initiate clean up, measure water levels on logs.

1930 RSE + Geotek off site.

RESTORATION
Science & Engineering

BOREHOLE ID: RSE-1

Site Name: 801 Ship Creek
Site Location:
Date Started: 8/29 Completed:
Drill Rig: 6620DT Drill Company: Cratex
Driller: Cratex Borehole Dia. (ft): 2"
Logged By: Farber
Company: RSE
Sample Method: Total Depth: 10

Client: ARRC
Job No: 17-1699

See map. Northeast corner study area. 8 ft north of gas line

Sketch Well Location:

Depth in Feet	Sample Interval	Blow Count	% Recovery	Sample ID	DESCRIPTION	PID (ppm)	WATER LEVEL	USCS	Estimated % Fines	Estimated % Sand	Estimated % Grave	REMARKS
2	0-2	-	50	1	dark gray sandy gravel	0.1			5	40	55	
4	2-4	-	100	2	thin layer upper ~1 inch light gray sand, moist, HC odor	0.9			5	90	5	sample PAH/VOC highest PID
6	4-6	-	80	3	wet gray sand with cobbles. HC odor.	0.2	5.84		5	85	10	sample interface
8	6-8		90	4	same	0.1			5	85	10	
10	8-10		100	5	dense light gray clay. some layers of organics. no odor.	0.0			90	10		

well set at 10 feet with 5 foot screen

Submit
RSE-1-2 1005 (PAH VOC)
RSE-1-3 1010

RESTORATION
Science & Engineering

BOREHOLE ID: RSE-2

Site Name: 801 W. 1st Ave
Site Location: Ship Creek
Date Started: 8/29 Completed:
Drill Rig: GeoZ05T Drill Company: Geotek
Driller: Ryan Borehole Dia. (ft): 2"
Logged By: Awan
Company: RSE
Sample Method: Total Depth: 10

Client: ARRC
Job No: 17-1649 (99)

Sketch Well Location: see map west of RSE-1, north of gas line

Depth in Feet	Sample Interval	Blow Count	% Recovery	Sample ID	DESCRIPTION	PID (ppm)	WATER LEVEL	USCS	Estimated % Fines	Estimated % Sand	Estimated % Gravel	REMARKS
2	0-2	-	50	1	brown gravelly sand	0.0			5	60	35	
4	2-4	-	80	2	light gray sand. HC odor, some gravel	6.5				90	10	sample PAH/VOC highest PID
6	4-6		80	3	light gray sand. wet.	0.2			5	85	10	sample interface
8	6-8		100	4	sand transitioning to silt	0.0	6.07		35	60	5	
10	8-10		100	5	dense gray silt. some layers of organics, tree debris.	0.0			100			

Submit:
RSE-2-2 1045 (PAH VOC)
RSE-2-3 1050

well at 10 ft, 5 foot screen

RESTORATION
Science & Engineering

BOREHOLE ID: RSE-3

Site Name: 801 W. 1st AVE
Site Location: Ship Creek
Date Started: 8/29 Completed:
Drill Rig: UG200T Drill Company: Ecotech
Driller: Ryan Borehole Dia. (ft): 2"
Logged By: Arwen
Company: RSE
Sample Method: Total Depth: 10

Client:
Job No:

See map
NW corner former excavation, second limits.

Sketch Well Location:

Depth in Feet	Sample Interval	Blow Count	% Recovery	Sample ID	DESCRIPTION	PID (ppm)	WATER LEVEL	USCS	Estimated % Fines	Estimated % Sand	Estimated % Grave	REMARKS
2	0-2	-	50	1	light brown sandy gravel, fill material. some cobbles.	0.0				80	20	
4	2-4	-	50	2	see above. continued fill over bldg foundation.	0.0				80	20	
6	4-6	-	90	3	light gray sand, compact with cobbles. HC odor	0.2			5	75	20	submit
8	6-8	-	100	4	see above, wet, increasing fines HC odor	1.3	7.11		20	60	10	submit VOC/PAH highest PID + water interface
10	8-10	-	100	5	dense light gray silt, interspersed organics	0.0						

Note: sample location elevated on fill mound in spot of former building.

submit:
- RSE-3-3 1105
- RSE-3-4 1110 (PAH VOC)

set well at 0ft, 5 foot screen

RESTORATION
Science & Engineering

BOREHOLE ID: RSE-4

Site Name: 801 W. 1st Ave
Site Location: Ship Creek
Date Started: 8/29 Completed:
Drill Rig: 460 DT Drill Company: Geotek
Driller: Ryan Borehole Dia. (ft): 2"
Logged By: Awan
Company: RSE
Sample Method: Total Depth: 12ft

Client:
Job No:

see map
center former south excavation, mounded

Sketch Well Location:

Depth in Feet	Sample Interval	Blow Count	% Recovery	Sample ID	DESCRIPTION	PID (ppm)	WATER LEVEL	USCS	Estimated % Fines	Estimated % Sand	Estimated % Grave	REMARKS
2	0-2	-	50	1	fill. light brown gravelly sand, some cobbles. No odor	0.0				80	20	
4	2-4	-	50	2	fill. see above	0.1				80	20	
6	4-6	-	50	3	fill. see above	0.9				80	20	
8	6-8	-	80	4	wet gravelly sand, HC odor	11.5 7.08				80	20	Sample 2nd highest PID
10	8-10	-	80	5	same. No fines noted. substantial	165.7				80	20	Sample PAH/VOC interface
12	10-12	-	100	6	encountered top depth to silt layer. dense light gray silts, interspersed organics beyond depth of previous excavation.	0.0			95	5		

Submit

RSE-4-4 1115

RSE-4-5 1120 (PAH VOC)

RESTORATION
Science & Engineering

BOREHOLE ID: RSE-5

Site Name: 801 West 1st
Site Location: Ship Creek
Date Started: 8/29 Completed:
Drill Rig: 6620DT Drill Company: Greater
Driller: Ryan Borehole Dia. (ft): 2"
Logged By: Avran
Company: RSE
Sample Method: Total Depth:

Client:
Job No:

see map
SE corner previous excavation on line of former bldg. foundation.

Sketch Well Location:

Depth in Feet	Sample Interval	Blow Count	% Recovery	Sample ID	DESCRIPTION	PID (ppm)	WATER LEVEL	USCS	Estimated % Fines	Estimated % Sand	Estimated % Grave	REMARKS
2	0-2	-	50	1	light gray gravelly sand, compact	0.4	(0-4)			80	20	
4	2-4	-	50	2	see above, Hc odor	(0-7)	(0-7)			80	20	submit
6	4-6	-	80	3	moist light brown gravelly sand no odor	0.0				90	10	
8	6-8	-	90	4	wet light gravelly sand with some fines. strong HC odor.	627.2	7.36		5	85	10	sample PAH/VOC interface
10	8-10	-	100	5	light brown/gray silt with organic layers (wood)	0.0			100			

Submit
RSE-5-2 1130
RSE-5-4 (PAH VOC) 1135
↳ Duplicate 1137
RSE-X = RSE-5-4

RESTORATION
Science & Engineering

BOREHOLE ID: RSE-6

Site Name: 801 west 15th
Site Location: Ship Creek
Date Started: 8/29 Completed:
Drill Rig: CGGD OT Drill Company: Geotek
Driller: Ryan Borehole Dia. (ft): 2"
Logged By: Avram
Company: RSE
Sample Method: Total Depth:

Client:
Job No:

See map.
South side former excavation, in roadway off bldg foundation.

Sketch Well Location:

Depth in Feet	Sample Interval	Blow Count	% Recovery	Sample ID	DESCRIPTION	PID (ppm)	WATER LEVEL	USCS	Estimated % Fines	Estimated % Sand	Estimated % Grave	REMARKS
2	0-2	-	80	1	dense gravelly sand, light brown no odor	0.0				80	20	
4	2-4	-	80	2	see above	0.0				80	20	
6	4-6	-	80	3	moist light gray sand, some cobbles	12.0				90	10	submit interface
8	6-8	-	80	4	see above, wet	23.2 7.42				90	10	submit PAH VOC w/highest PID
10	8-10	-	100	5	dense gray silt with organics	0.0			100			

Submit
RSE-6-3 1150
RSE-6-4 1155 (PAH VOC)

RESTORATION
Science & Engineering

BOREHOLE ID: RSE-7

Site Name: 801 West 1st
Site Location: Ship Creek
Date Started: 8/29 Completed:
Drill Rig: 6620 OT Drill Company: GeoTek
Driller: GeoTek/Scott Borehole Dia. (ft): 2"
Logged By: Arran
Company: RSE
Sample Method: Total Depth: 10'

See map
upgradient project area
south boundary, east

Sketch Well Location:

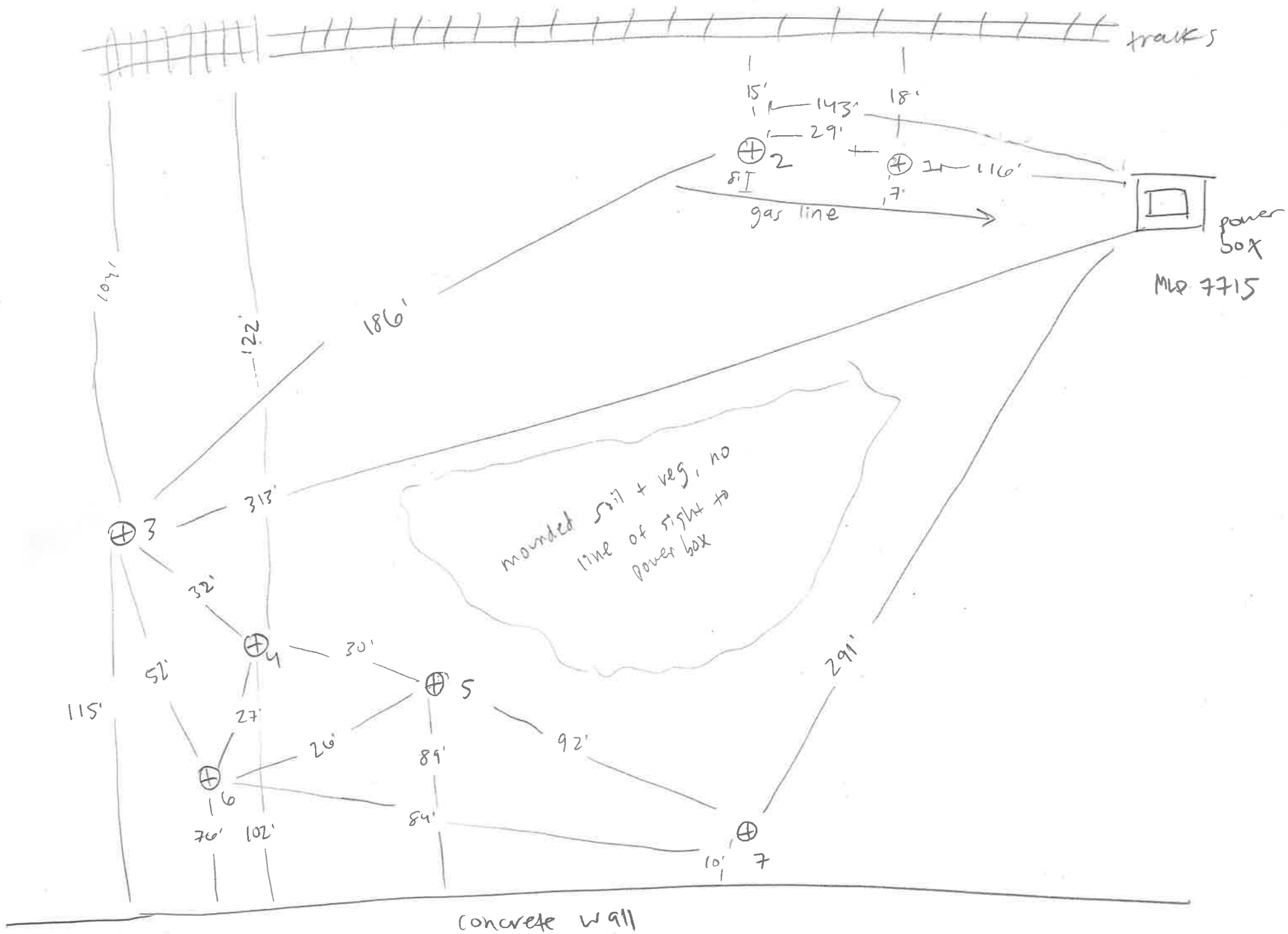
Client:
Job No:

Depth in Feet	Sample Interval	Blow Count	% Recovery	Sample ID	DESCRIPTION	PID (ppm)	WATER LEVEL	USCS	Estimated % Fines	Estimated % Sand	Estimated % Grave	REMARKS
2	0-2	-	100	1	light brown gravelly sand with organics.	0.0				60	40	
4	2-4	-	80	2	shale, light gray angular, dry with light brown sand	0.1				40	60	
6	4-6	-		3	moist gravelly sand light gray	0.2				80	20	Submit PAH VOC highest PID
8	6-8	-		4	wet gravelly sand light brown	0	7.3'			80	20	submit interface
10	8-10	-		5	dense silt no organics observed	0.0				100		

Submit

RSE-7-3 1210 PAH VOC

RSE-7-4 1215



8/29/17
NOT TO SCALE

801 W. 1st / SHIP CREEK.

Sept 1 2017
A Forbes

0830 mob site.
Development - surge / purge water.

RSE-1 Grayish mud. Not much water. Dry, after <2min. no sheen.
RSE-2 similar RSE-1
RSE-3 Brown, turbid. some odor? no sheen
RSE-4 distinct odor. Brown - tones. no sheen.
RSE-5 same. Maybe less odor than 4? no sheen. (sheen)
RSE-6 Dark brown, odor. no sheen
RSE-7 - light brown. no sheen or odor detected.
↳ sticky movement / cap. diff to remove

purge water on SW corner. sealed. will return after holiday wkend.
shoot sample 7, 1, 2, 3 first based on ds.

RSE GROUNDWATER SAMPLING FORM **DATE:** 7/6/17 **WEATHER:** overcast, high winds

PROJECT NAME: 801 Ship Creek **SITE LOCATION:** 801 Ship Creek **SAMPLER:** ACF
PROJECT NO.: 17-1699 **WELL NUMBER:** RSE-1 **COMPANY:** RSE
CONTACT #: 278-1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 8.11

B) DEPTH TO WATER FROM TOC (FT): 2.46

C) COLUMN OF WATER IN WELL (FT): 5.65
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

See map
NE corner, former building

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): 5.65
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): .96
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 1.5

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

WATER OBSERVATIONS

gray, highly turbid.
Dry after 1 volume purged.
~10 minutes to recharge.

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 63
*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)	REDOX (mV)
1100	8.10		1	10.8	9.1	1999	2808	1.3			
	8.10		.5	10.7	9.06	1993	2798	1.3			

Odor or Sheen Observed? none
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-1	9/6/17	1110	ACF

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

LAB ANALYSIS REQUESTED:
DRO RRO VOC PAH

COMMENTS:
well dry after 1 purge volume. Sample from recharge.

RSE GROUNDWATER SAMPLING FORM **DATE:** 9/6/17 **WEATHER:** Overcast, high winds

PROJECT NAME: 801 Ship Creek **SITE LOCATION:** 801 Ship Creek **SAMPLER:** ACF
PROJECT NO.: 17-Lie 99 **WELL NUMBER:** RSE-2 **COMPANY:** RSE
CONTACT #: 2781623

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 7.88

B) DEPTH TO WATER FROM TOC (FT): 0.9

C) COLUMN OF WATER IN WELL (FT): 6.98
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

North excavation, west side. 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): 6.98
*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): 1.8

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

WATER OBSERVATIONS

dark gray, highly turbid
well dry after 1.5 purgings, appx 10 minutes to recharge.

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 63
*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)	REDOX (mV)
1130			1.0	11.8	10.40	622	1345	1.3			
1133	7.86		0.8	11.8	10.44	675	1300	1.0			

Odor or Sheen Observed? none
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-2	9/6/17	1150	ACF

SAMPLE ID: RSE-2
FIELD DUPLICATE: none
EQUIPMENT BLANK: none
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:
DRO RRO VOC PAH

COMMENTS:
water trapped under monument. May need new seal. See photo
well dry after 1.5 purging volumes.

RSE GROUNDWATER SAMPLING FORM **DATE:** 9/6/17 **WEATHER:** Overcast, high winds

PROJECT NAME: 801 Ship Creek **SITE LOCATION:** 801 Ship Creek **SAMPLER:** ACF
PROJECT NO.: 17-1499 **WELL NUMBER:** RSE-3 **COMPANY:** RSE
CONTACT #: 278-1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 7.67

B) DEPTH TO WATER FROM TOC (FT): 2.60

C) COLUMN OF WATER IN WELL (FT): 5.07
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

see map
NW corner of south excavation

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): 5.07
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): .86
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 2.5

WATER OBSERVATIONS

brown, turbid throughout well purgings. Water more shallow due to mounded fill over excavation.

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 63
*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)	REDOX (mV)
1200			.8	11.9	11.96	6682	933	0.5			
1203			1.6	11.2	12.06	6669	885	0.4			
1206	5.22		2.5	11.3	12.12	6666	879	0.4			

Odor or Sheen Observed? Slight HC odor, no sheen observed when agitated
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-3	9/6/17	1220	ACF

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

LAB ANALYSIS REQUESTED:

DRO RRO VOC PAH

COMMENTS:

RSE GROUNDWATER SAMPLING FORM **DATE:** 9/6/17 **WEATHER:** overcast windy, light rain

PROJECT NAME: 801 Ship Creek **SITE LOCATION:** 807 Ship Creek **SAMPLER:** ACF
PROJECT NO.: 17-1699 **WELL NUMBER:** RSE-4 **COMPANY:** RSE
CONTACT #: 278-1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 8.32

B) DEPTH TO WATER FROM TOC (FT): .5

C) COLUMN OF WATER IN WELL (FT): 7.82
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

center of former south excavation. 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): 7.82
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): 1.3
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 3.9

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

WATER OBSERVATIONS

water level rose after removing the cap. ~1 foot. measured after rise, pressure-equilibrate.

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 63
*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)	REDOX (mV)
1340			1.3	12.2	13.01	874	1151	0.9			
1343			2.6	12.2	12.98	991	1191	1.0			
1346	3.8		3.9	12.3	12.94	986	1125	1.0			

Odor or Sheen Observed? HC odor
Notes: no sheen observed

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-4	9/6/17	1355	ACF

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

LAB ANALYSIS REQUESTED:

DRO RRO VOC PAH, salinity (primary only)

COMMENTS:

R. Grande II observing on site.
Add a salinity analysis per Norman call

IDW stored on SW side of lot against retaining wall with soil cuttings from 8/29/17

RSE GROUNDWATER SAMPLING FORM DATE: 9/6/17 WEATHER: Overcast, high wind, light rain

PROJECT NAME: 801 Ship Creek SITE LOCATION: 801 Shipcreek SAMPLER: ACF
PROJECT NO.: 17-1699 WELL NUMBER: RSE-5 COMPANY: RSE
CONTACT #: 278 1025

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 8.61
B) DEPTH TO WATER FROM TOC (FT): 1.31
C) COLUMN OF WATER IN WELL (FT): 7.30
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

SE. corner of soyn excavation 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): 7.30
*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

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

WATER OBSERVATIONS

brown, turbid slight HC odor

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 63
*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)	REDOX (mV)
1240			1.2	10.0	12.54	6036	872	0.4			
1242			2.4	10.8	12.02	6019	842	0.4			
1243	7.43		3.6	11.0	12.01	6017	839	0.4			

Odor or Sheen Observed? slight HC odor when ajusted (poured into low bucket)
Notes: no sheen observed

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-5	9/6/17	1255	ACF

SAMPLE ID: RSE-5
FIELD DUPLICATE: NO
EQUIPMENT BLANK: NO
TRIP BLANK: YES

LAB ANALYSIS REQUESTED:

DRO RRO PAH VOC

COMMENTS:

Skipped 4 in sequence for last well d/t elevated soil readings

RSE GROUNDWATER SAMPLING FORM **DATE:** 9/6/17 **WEATHER:** overcast windy light rain

PROJECT NAME: 801 Ship Creek **SITE LOCATION:** 801 Ship Creek **SAMPLER:** ACE
PROJECT NO.: 17-1099 **WELL NUMBER:** RSE-G **COMPANY:** RSE
CONTACT #: 278 1025

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT):	8.07
B) DEPTH TO WATER FROM TOC (FT):	1.96
C) COLUMN OF WATER IN WELL (FT): *row "A" value minus row "B" value	6.15

WELL LOCATION MAP AND SURVEY

South center of former South excavation. See map.

PURGE INFORMATION 1-in = XX GAL/FT; 2-IN = 0.17 GAL/FT **PURGE METHOD:** submersible

D) GALLONS PER FOOT OF 2-INCH SCREEN:	.17
E) COLUMN OF WATER IN WELL (FT): *value from row "C" in previous section	6.15
F) VOLUME OF WATER IN WELL (GAL): *row "D" value multiplied by row "E" value	1
TOTAL VOLUME REMOVED (GAL):	3

*e.g. peristaltic or bladder pump, Bailer

WATER OBSERVATIONS

dark brown, turbid

WATER LEVEL AND FIELD PARAMETERS
INSTRUMENT: YSI 63
*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)	REDOX (mV)
1300			1	11.1	12.90	603	817	0.4			
1303			2	11.2	12.87	594	804	0.4			
1306	3.21		3	11.1	12.80	588	795	0.4			

Odor or Sheen Observed? HC odor
Notes: no sheen observed.

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-G	9/6/17	1320	ACE

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

LAB ANALYSIS REQUESTED:
DRO RRO PAH VOC

COMMENTS:
well monument submerged in rainwater, see photo. pump off with submersible.
Well is excellent producer no delay between volume recharge.

RSE GROUNDWATER SAMPLING FORM DATE: 9/6/17 WEATHER: Overcast, high winds

PROJECT NAME: 801 Ship Creek SITE LOCATION: Ship Creek SAMPLER: ACF
PROJECT NO.: 17-1699 WELL NUMBER: RSE-7 COMPANY: RSE
CONTACT #: 278 1025

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT):	7.59
B) DEPTH TO WATER FROM TOC (FT):	2.01
C) COLUMN OF WATER IN WELL (FT): *row "A" value minus row "B" value	5.58

WELL LOCATION MAP AND SURVEY

upgradient well against retaining wall on south side

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): *value from row "C" in previous section	5.58
F) VOLUME OF WATER IN WELL (GAL): *row "D" value multiplied by row "E" value	.95
TOTAL VOLUME REMOVED (GAL):	4

WATER OBSERVATIONS

light brown, turbid some sand

WATER LEVEL AND FIELD PARAMETERS

INSTRUMENT: YSI 63

*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)	REDOX (mV)
1015			1	11.8	9.76	2478	2411	0.8			
1017			2	11.7	9.79	1813	2408	0.8			
1019			3	11.7	9.84	1810	2396	0.7			
1021		2.77	4	11.6	9.86	17.61	2357	0.7			

Odor or Sheen Observed? None
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
RSE-7	9/6/17	1030	ACF

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

LAB ANALYSIS REQUESTED:

DRO RRO VOC PAH

COMMENTS:

well manument extremely difficult to remove, compacted and cemented.

Attempting to sample wells least to most potentially impacted based on soil boring screenings.

RSE-7, 1, 2, 3, 5, 6, 4 →

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites and Prevention and Emergency Response Programs

Transport, Treatment, & Disposal Approval Form for Contaminated Media

25488 ; 26578

DEC HAZARD/SPILL ID #	NAME OF SPILL OR CONTAMINATED SITE
2100.38.514 and 2100.26.602	~~801 Ship Creek~~ ARRC Consolid. Freightways / SBS Bldg.

SITE OR SPILL LOCATION
801 Ship Creek (West 1st Ave) Anchorage AK 99501

CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA	SOURCE OF THE CONTAMINATION
Soil, in three 55-gallon sealed drums on site	LUST

COMPOUNDS OF CONCERN	ESTIMATED VOLUME	DATE(S) GENERATED
DRO, GRO, VOC, PAH	<2 yards	8/29/17

POST TREATMENT ANALYSIS REQUIRED *(such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)*
VOC 3 PAHs

COMMENTS
See laboratory report for results of drilling investigation from which cuttings originated.

Facility Accepting the Contaminated Media

NAME OF THE FACILITY	PHYSICAL ADDRESS/PHONE NUMBER
Alaska Soil Recycling	2301 Spar Avenue Anchorage AK 907-348-6700

Responsible Party and Contractor Information

BUSINESS/NAME	ADDRESS/PHONE NUMBER
AKRR, Russell Grandel	327 Ship Creek Avenue, Anchorage AK 907-265-2429
RSE, Arran Forbes	911 West 8th Avenue, Anchorage AK 907-278-1023

Arran Forbes
Name of the Person Requesting Approval (printed)

QEP, RSE
Title/Association

Signature

9/25/17
Date

907-278-1023
Phone Number

----------**DEC USE ONLY**----------

Based on the information provided, ADEC approves transport of the above-described media for treatment in accordance with the approved facility operations plan. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight/volume receipts of the loads transported to the facility and a post treatment analytical report. If the media is contaminated soil, it shall be transported as a covered load in compliance with 18 AAC 60.015.

Grant Lidren
DEC Project Manager Name (printed)

EPS IV
Project Manager Title

Grant Lidren
Signature

9-25-17
Date

269-8685
Phone Number

Rev. 12/2014

Attachment E: Boring Logs

RESTORATION
Science & Engineering, LLC

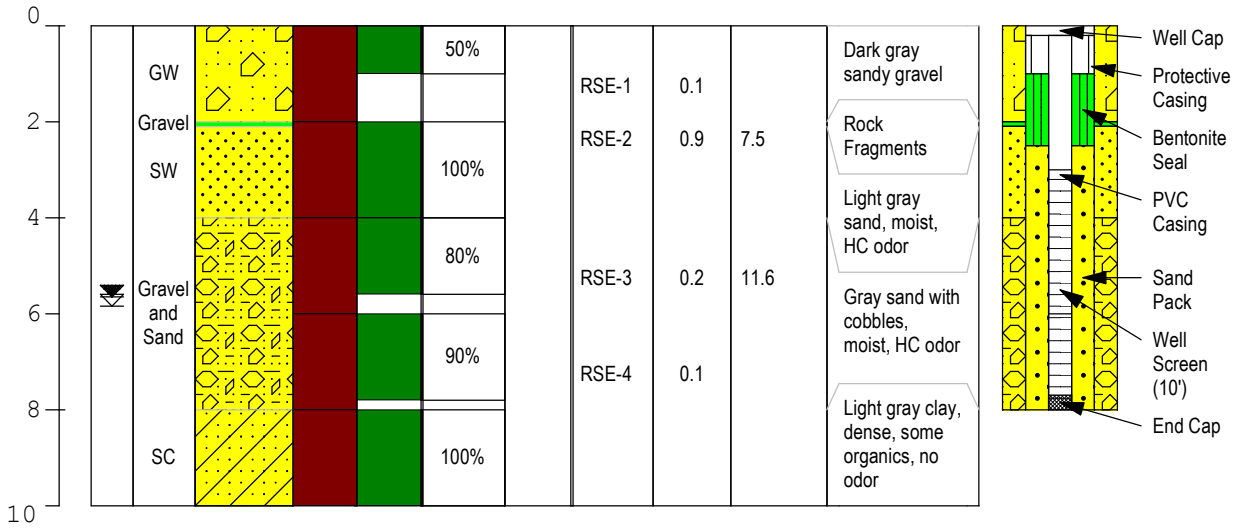
RESTORATION
Science & Engineering, LLC
911 W 8TH AVE, SUITE 100
ANCHORAGE, ALASKA 99501
PH. (907) 278-1023
FAX. (907) 277-5718

GEOENVIRONMENTAL MONITORING WELL LOG

Soil Boring ID: RSE-1
Weather: Clear
Total Depth: 10'

Project:	801 West Ship Creek	**Drilling Company:**	GEOTECH
Site Location:	Anchorage	**Drill Operator:**	GEOTECH
Job Number:	17-1699	**Drill Rig Type:**	66200T Macro Core
Project Manager:	RSE	**Method of Drilling:**	3-1/4" O.D. HSA
Logged By:	A.FORBES	**Sampling Method:**	2" DIA.
Dates Drilled:	8-29-2017	**Hammer Weight / Drop:**	N/A

Legend
- Water level during drilling
- Static Water Level



NOTES:

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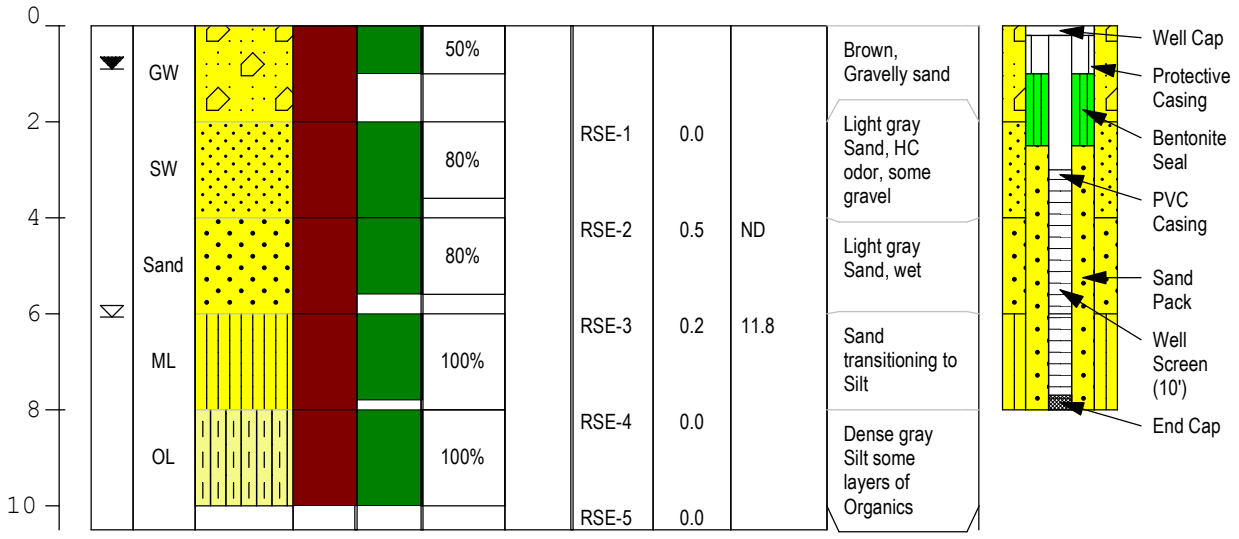
FAX. (907) 277-5718

GEOENVIRONMENTAL MONITORING WELL LOG

Soil Boring ID: RSE-2
Weather: Clear
Total Depth: 10'

Project:	801 West Ship Creek	**Drilling Company:**	GEOTECH
Site Location:	Anchorage	**Drill Operator:**	GEOTECH
Job Number:	17-1699	**Drill Rig Type:**	66200T Macro Core
Project Manager:	RSE	**Method of Drilling:**	3-1/4" O.D. HSA
Logged By:	A.FORBES	**Sampling Method:**	2" DIA.
Dates Drilled:	8-29-2017	**Hammer Weight / Drop:**	N/A

Legend
- Water level during drilling
- Static water level



NOTES: xxx

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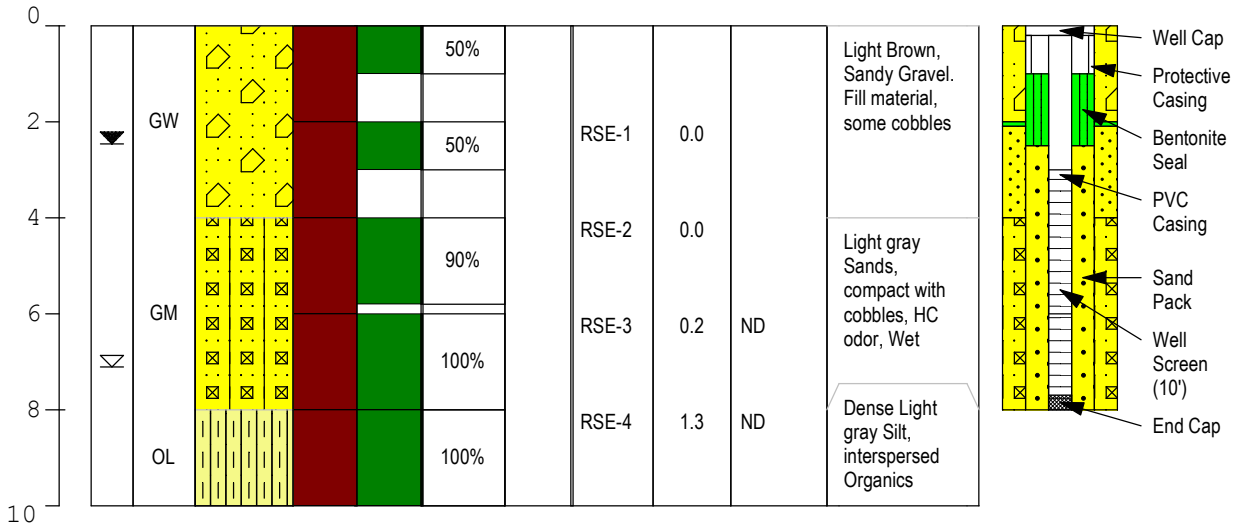
FAX. (907) 277-5718

GEOENVIRONMENTAL MONITORING WELL LOG

Soil Boring ID: RSE-3
Weather: CLEAR
Total Depth: 10'

Project:	801 West Ship Creek	**Drilling Company:**	GEOTECH
Site Location:	Anchorage	**Drill Operator:**	GEOTECH
Job Number:	17-1699	**Drill Rig Type:**	66200T Macro Core
Project Manager:	RSE	**Method of Drilling:**	3-1/4" O.D. HSA
Logged By:	A.FORBES	**Sampling Method:**	2" DIA.
Dates Drilled:	8-29-2017	**Hammer Weight / Drop:**	N/A

Legend
- Water level during drilling
- Static water level



NOTES: Hc odor detected at drive interval 3, but no associated detections in field screening or analytical data. Odor may have been derived from groundwater at target interval.

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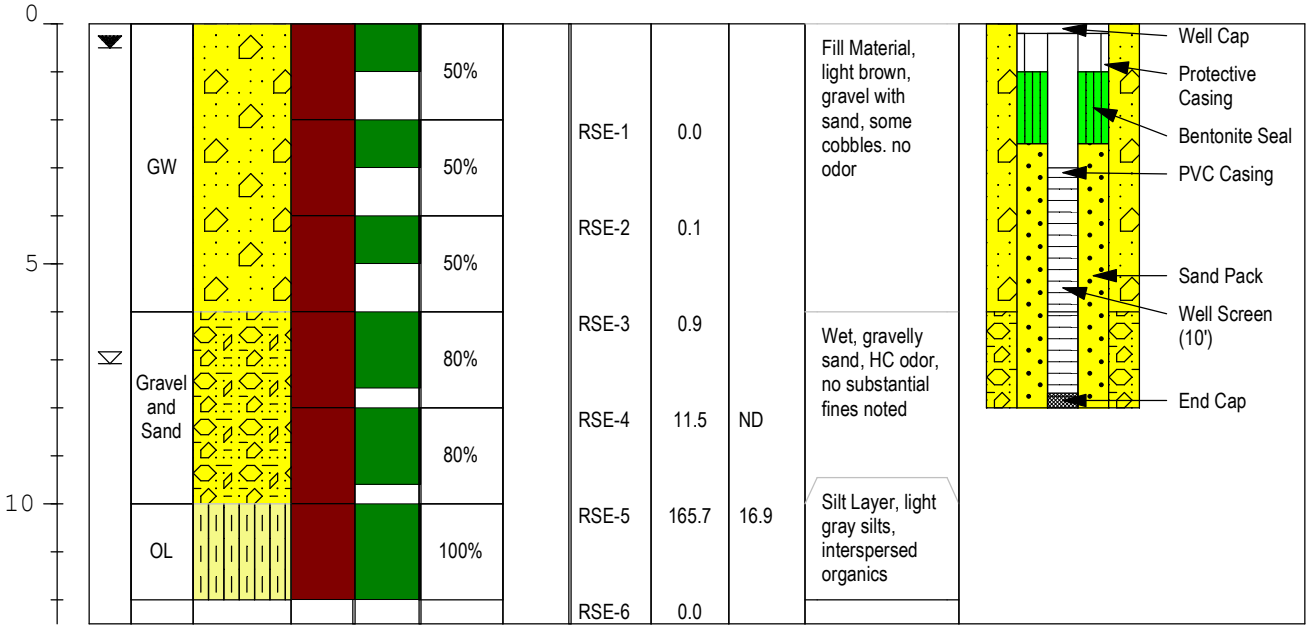
GEOENVIRONMENTAL BOREHOLE LOG

Soil Boring ID: RSE-4
Weather: CLEAR
Total Depth: 12

Project:	801 W 1st Ave	**Drilling Company:**	GEOTEK
Site Location:	Anchorage	**Drill Operator:**	GEOTEK
Job Number:	17-1699	**Drill Rig Type:**	66200T Macro Core
Project Manager:	RSE	**Method of Drilling:**	3-1/4" O.D. HSA
Logged By:	A.FORBES	**Sampling Method:**	2" DIA
Dates Drilled:	8.29.2017	**Hammer Weight / Drop:**	N/A

Legend
- Water level during drilling
- Static water level



NOTES:

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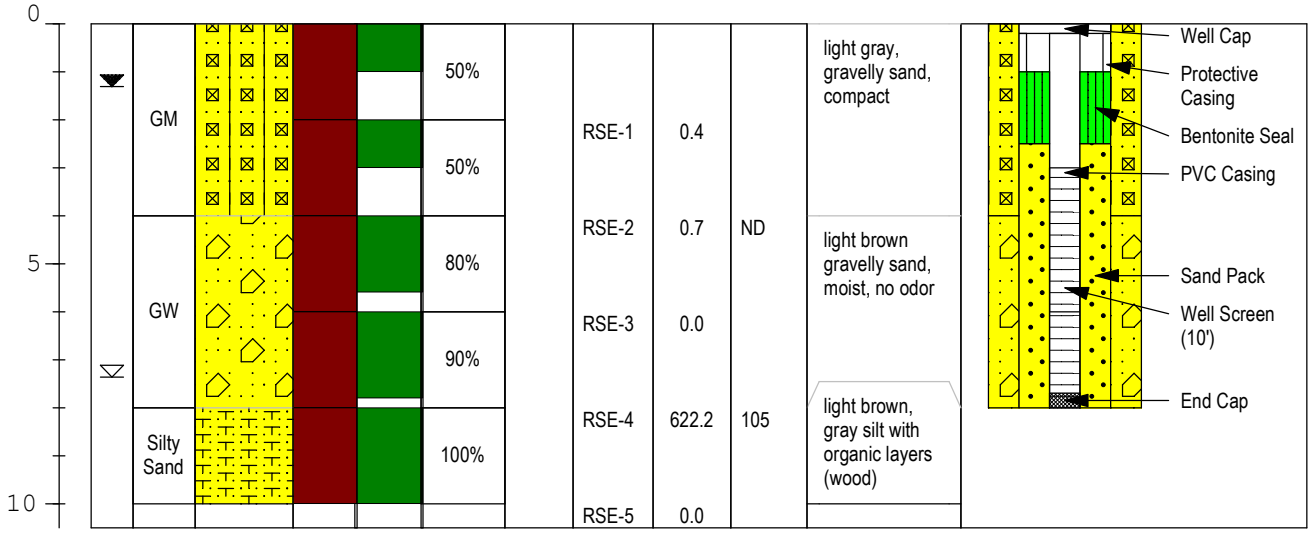
GEOENVIRONMENTAL BOREHOLE LOG

Soil Boring ID: RSE-5
Weather: CLEAR
Total Depth: 10

Project:	801 W 1st Ave	**Drilling Company:**	GEOTEK
Site Location:	Anchorage	**Drill Operator:**	GEOTEK
Job Number:	17-1699	**Drill Rig Type:**	66200T Macro Core
Project Manager:	RSE	**Method of Drilling:**	3-1/4" O.D. HSA
Logged By:	A.FORBES	**Sampling Method:**	2" DIA
Dates Drilled:	8.29.2017	**Hammer Weight / Drop:**	N/A

Legend
- Water level during drilling
- Static water level



NOTES:

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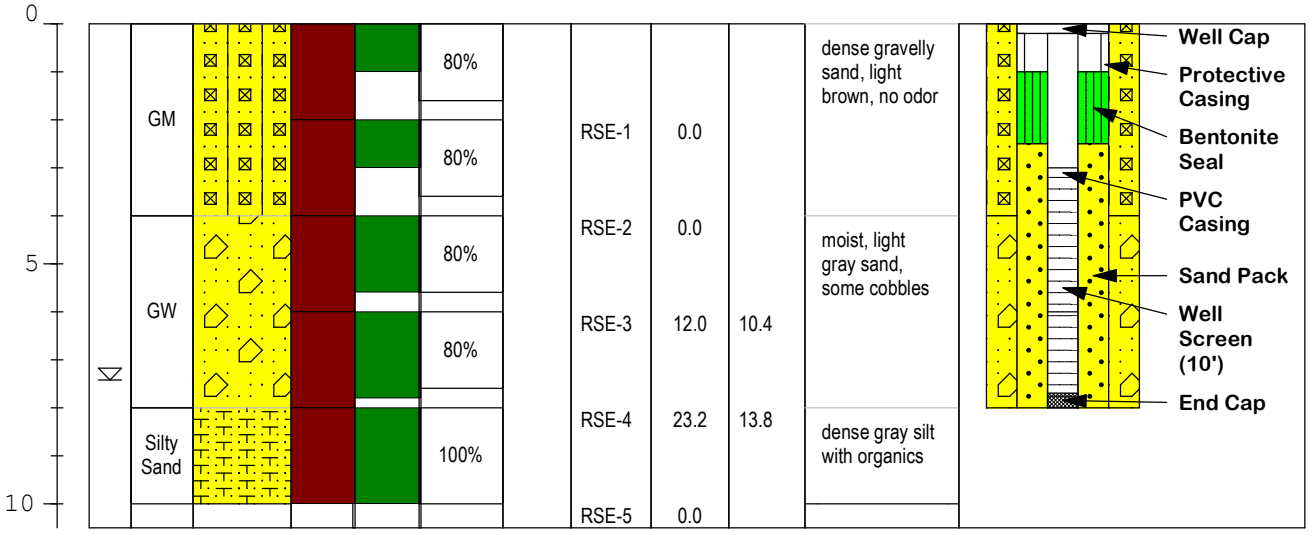
GEOENVIRONMENTAL BOREHOLE LOG

Soil Boring ID: RSE-6
Weather: CLEAR
Total Depth: 10'

Project:	801 W 1st Ave	**Drilling Company:**	GEOTEK
Site Location:	Anchorage	**Drill Operator:**	GEOTEK
Job Number:	17-1699	**Drill Rig Type:**	66200T Macro Core
Project Manager:	RSE	**Method of Drilling:**	3-1/4" O.D. HSA
Logged By:	A.FORBES	**Sampling Method:**	2" DIA
Dates Drilled:	8.29.2017	**Hammer Weight / Drop:**	N/A

Legend
- Water level during drilling
- Static water level



NOTES:

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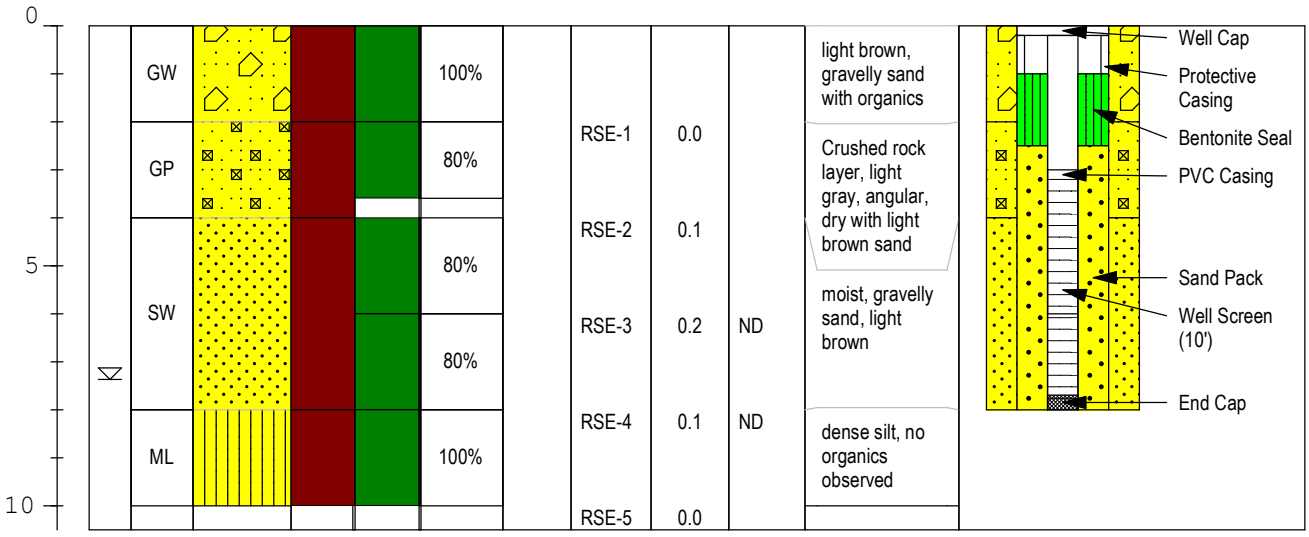
GEOENVIRONMENTAL BOREHOLE LOG

Soil Boring ID: RSE-7
Weather: CLEAR
Total Depth: 10'

Project:	801 W 1st Ave	**Drilling Company:**	GEOTEK
Site Location:	Anchorage	**Drill Operator:**	GEOTEK
Job Number:	17-1699	**Drill Rig Type:**	66200t Macro Core
Project Manager:	RSE	**Method of Drilling:**	3-1/4" O.D. HSA
Logged By:	A.FORBES	**Sampling Method:**	2" DIA
Dates Drilled:	8.29.2017	**Hammer Weight / Drop:**	N/A

Legend
- Water level during drilling
- Static water level



NOTES: No hydrocarbon odor at drive intervals.

Attachment F: QA QC Checklist

RESTORATION
Science & Engineering, LLC

Laboratory Data Review Checklist

Completed by: Arran Forbes

Title: Environmental Scientist Date: 3/1/18

CS Report Name: ARRC CF/SBS Site Characterization Report Date: 9/11/17

Consultant Firm: Restoration Science & Engineering, LLC

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1176161

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, pages 110-111.

   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 -1.7 on delivery to the laboratory. The cooler was delivered within one day of collection; samples were not exposed to cooler temperatures on a prolonged basis. Volatile loss is typically not associated with cold temperatures. The temperature blank was liquid on delivery to the laboratory.

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 methanol.

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

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

Review of the sample receipt form indicated the samples were 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:

The laboratory noted the temperature blank was recorded at below 0 degrees.

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

Comments:

Data quality and usability was not affected, see Section 3.a.

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:

Two surrogate recovery failures reported by the laboratory for 4-bromofluorobenzene.

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. The failures identified were due to matrix interference for a single surrogate, 4-bromoflurorobenzene. Parent results associated with this surrogate were typically orders of magnitude below applicable cleanup levels, and comparison to the standards 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:

Sample weights are reported on a dry weight basis on each page of the report describing the target sample.

   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". Multiple constituents have reported LOQs above the cleanup standards for VOCs.

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

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

      iii. If above PQL, what samples are affected?

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

Comments:

iv. 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).

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

Data quality or usability was not affected.

c. 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 (less 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:

The RPDs for the LCS/LCSD are within method limits.

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

No affected samples.

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

No affected samples.

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

There is no effect on data quality and usability.

d. Surrogates – Organics Only

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

Surrogate recoveries are reported for all organic analyses.

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

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)
☐Yes ☒ No ☐ NA (Please explain.) Comments:

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. Parent results associated with this surrogate were typically orders of magnitude below applicable cleanup levels, and comparison to the standards is unaffected.

e. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

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 blanks are clearly indicated on the COC.

iii. All results less than PQL?
☒Yes ☐ No ☐ NA (Please explain.) Comments:

All trip blank results were non-detect at the method limit.

iv. If above PQL, what samples are affected?

No affected samples.

Comments:

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

Comments:

Data quality and usability not affected.

f. 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 soil samples of 14 samples, for a total of 7% duplicate frequency compared to the recommended 10% due to the progression of the field day. However, this is not believed to impact the usability of the data as duplicates provide information on the heterogeneity of the sample as well as analytical precision; the heterogeneity of the soil media is well-established at this location, and analytical precision has been well-defined through the quality control measures exercised by the laboratory as documented in this checklist.

ii. Submitted blind to lab?

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

RSE-X is a blind duplicate of RSE-5-4.

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, possibly due to the presence of heterogenous organics mixed with fines. 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. Data quality and usability will not be affected. See section 6.f for additional information.

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

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

All equipment used in sampling was dedicated toward the specific sample. No decontamination procedures were employed.

i. All results less than PQL?

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

There are no decontamination or equipment blanks. Sampling equipment was dedicated to each discrete location.

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.

Laboratory Data Review Checklist

Completed by: Arran Forbes

Title: Environmental Scientist Date: 3/1/18

CS Report Name: ARRC CF/SBS Site Characterization Report Date: 9/25/17

Consultant Firm: Restoration Science & Engineering, LLC

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1176354

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 86.

   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 3.0 on delivery to the laboratory.

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, with the exception of RSE-1 and RSE-4 which were received at the laboratory below pH targets. The samples were collected and properly preserved by the laboratory on the same day and maintained at appropriate temperatures throughout. The temporary lack of appropriate preservation does not affect data quality or usability; both sample locations exhibited exceedances of ADEC Table C levels and, in the low probability are biased low, reflect locations requiring further attention and monitoring.

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

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

Review of the sample receipt form indicated two samples had inadequate HCl concentrations. HCl was added and the pH was verified.

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:

Review of the sample receipt form indicated two samples had inadequate HCl concentrations. HCl was added and the pH was verified. See section 3.b for additional discussion.

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 the LCS/LCSD.

c. Were all corrective actions documented?

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

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

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 standards 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". Three constituents reported PQLs above cleanup standards: 1,2,3-trichloropropane for all samples, and dibenzo(a,h)fluoranthene and indeno(1,2,3-c,d)pyrene for sample RSE-7.

   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?

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

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

iii. If above PQL, what samples are affected?

Comments:

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

iv. 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).

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

Data quality or usability was not affected.

c. 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 (less 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. Note, the case narrative in the laboratory report notes two LCS/LCSD failures with no follow-on data in the report. A call to the laboratory project manager indicated the failures were mis-reported on the case narrative.

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:

The RPDs for the LCS/LCSD are within method limits.

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

Comments:

No affected samples.

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

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

No affected samples.

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

Comments:

There is no effect on data quality and usability.

d. 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.

e. 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 blanks are clearly indicated on the COC.

iii. All results less than PQL?

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

The trip blank reported one detection for chloromethane.

iv. If above PQL, what samples are affected?

Comments:

The trip blank is affected. No effects were detected in primary samples.

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

Comments:

Data quality and usability not affected. Samples may be biased high for chloromethane; however, no exceedances were reported.

f. 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. Data quality and usability will not be affected.

g. 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 G: SGS Data Packages

RESTORATION
Science & Engineering, LLC

Laboratory Report of Analysis

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

Report Number: **1176354**

Client Project: **AKRR Ship Creek Groundwater**

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

Corrected Report: Case narrative corrected.

Print Date: 09/25/2017 11:12:42AM

Case Narrative

SGS Client: **AK Railroad Corp (ARRC)**
SGS Project: **1176354**
Project Name/Site: **AKRR Ship Creek Groundwater**
Project Contact: **Russell Grandel**

Refer to sample receipt form for information on sample condition.

RSE-5 (1176354005) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (289 %) does not meet QC criteria due to matrix interference.

RSE-6 (1176354006) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (240%) does not meet QC criteria due to matrix interference.

RSE-X (1176354008) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (363%) does not meet QC criteria due to matrix interference.
8270D SIM - PAH surrogate recovery for Fluoranthene-d10 (21.3%) does not meet QC criteria.

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

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8260C				
1176354004	RSE-4	VMS17191	4-Isopropyltoluene	SP
1176354005	RSE-5	VMS17191	4-Isopropyltoluene	SP
1176354006	RSE-6	VMS17191	4-Isopropyltoluene	SP
1176354008	RSE-X	VMS17191	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: 09/25/2017 11:12:43AM

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) for which SGS North America Inc. is Provisionally Certified as of 9/21/2017 & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	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	1176354001	09/06/2017	09/06/2017	Water (Surface, Eff., Ground)
RSE-2	1176354002	09/06/2017	09/06/2017	Water (Surface, Eff., Ground)
RSE-3	1176354003	09/06/2017	09/06/2017	Water (Surface, Eff., Ground)
RSE-4	1176354004	09/06/2017	09/06/2017	Water (Surface, Eff., Ground)
RSE-5	1176354005	09/06/2017	09/06/2017	Water (Surface, Eff., Ground)
RSE-6	1176354006	09/06/2017	09/06/2017	Water (Surface, Eff., Ground)
RSE-7	1176354007	09/06/2017	09/06/2017	Water (Surface, Eff., Ground)
RSE-X	1176354008	09/06/2017	09/06/2017	Water (Surface, Eff., Ground)
Trip Blank	1176354009	09/06/2017	09/06/2017	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: 1176354001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	1.14	ug/L
	2-Methylnaphthalene	0.158	ug/L
	Anthracene	0.0493	ug/L
	Benzo(a)Anthracene	0.0234J	ug/L
	Benzo[b]Fluoranthene	0.0232J	ug/L
	Chrysene	0.0245J	ug/L
	Fluoranthene	0.0938	ug/L
	Fluorene	0.0681	ug/L
	Naphthalene	0.356	ug/L
	Phenanthrene	0.159	ug/L
	Pyrene	0.0808	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	3.94	mg/L
	Residual Range Organics	3.05	mg/L
Volatile GC/MS	2-Butanone (MEK)	7.20J	ug/L
	Benzene	0.450	ug/L
	Naphthalene	0.440J	ug/L

Client Sample ID: **RSE-2**
Lab Sample ID: 1176354002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.295	ug/L
	2-Methylnaphthalene	0.171	ug/L
	Anthracene	0.0875	ug/L
	Benzo(a)Anthracene	0.0347J	ug/L
	Benzo[a]pyrene	0.0451	ug/L
	Benzo[b]Fluoranthene	0.0632	ug/L
	Benzo[g,h,i]perylene	0.0511	ug/L
	Chrysene	0.0332J	ug/L
	Fluoranthene	0.125	ug/L
	Fluorene	0.0807	ug/L
	Indeno[1,2,3-c,d] pyrene	0.0289J	ug/L
	Naphthalene	0.258	ug/L
	Phenanthrene	0.178	ug/L
	Pyrene	0.116	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	3.05	mg/L
	Residual Range Organics	3.22	mg/L

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Detectable Results Summary

Client Sample ID: **RSE-3**
Lab Sample ID: 1176354003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.390	ug/L
	2-Methylnaphthalene	0.649	ug/L
	Benzo(a)Anthracene	0.0373J	ug/L
	Benzo[a]pyrene	0.0496	ug/L
	Benzo[b]Fluoranthene	0.0530	ug/L
	Benzo[g,h,i]perylene	0.0504	ug/L
	Chrysene	0.0398J	ug/L
	Fluoranthene	0.107	ug/L
	Fluorene	0.0551	ug/L
	Indeno[1,2,3-c,d] pyrene	0.0321J	ug/L
	Naphthalene	0.540	ug/L
	Phenanthrene	0.203	ug/L
	Pyrene	0.116	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.465J	mg/L
	Residual Range Organics	0.833	mg/L
Volatile Fuels	Gasoline Range Organics	0.0327J	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	1.44	ug/L
	1,2-Dichloroethane	0.160J	ug/L
	1,3,5-Trimethylbenzene	0.770J	ug/L
	Benzene	0.240J	ug/L
	o-Xylene	0.570J	ug/L
	P & M -Xylene	1.04J	ug/L
	Xylenes (total)	1.61J	ug/L

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Detectable Results Summary

Client Sample ID: **RSE-4**
Lab Sample ID: 1176354004

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	28.5	ug/L
	2-Methylnaphthalene	48.9	ug/L
	Acenaphthene	0.368	ug/L
	Benzo[b]Fluoranthene	0.0247J	ug/L
	Fluoranthene	0.0516	ug/L
	Fluorene	0.662	ug/L
	Naphthalene	77.0	ug/L
	Phenanthrene	0.680	ug/L
	Pyrene	0.0682	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	3.53	mg/L
	Residual Range Organics	1.09	mg/L
Volatile Fuels	Gasoline Range Organics	3.32	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	471	ug/L
	1,3,5-Trimethylbenzene	149	ug/L
	4-Isopropyltoluene	3.53	ug/L
	Benzene	37.6	ug/L
	Ethylbenzene	213	ug/L
	Isopropylbenzene (Cumene)	49.1	ug/L
	Naphthalene	77.6	ug/L
	n-Propylbenzene	86.6	ug/L
	o-Xylene	147	ug/L
	P & M -Xylene	675	ug/L
	sec-Butylbenzene	9.32	ug/L
	tert-Butylbenzene	10.7	ug/L
	Toluene	61.3	ug/L
	Xylenes (total)	837	ug/L

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Detectable Results Summary

Client Sample ID: **RSE-5**
Lab Sample ID: 1176354005

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	28.2	ug/L
	2-Methylnaphthalene	37.9	ug/L
	Acenaphthene	0.326	ug/L
	Fluoranthene	0.0672	ug/L
	Fluorene	0.353	ug/L
	Naphthalene	43.8	ug/L
	Phenanthrene	0.427	ug/L
	Pyrene	0.0757	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	3.05	mg/L
	Residual Range Organics	0.910	mg/L
Volatile Fuels	Gasoline Range Organics	2.91	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	454	ug/L
	1,3,5-Trimethylbenzene	147	ug/L
	4-Isopropyltoluene	5.17	ug/L
	Benzene	11.4	ug/L
	Ethylbenzene	130	ug/L
	Isopropylbenzene (Cumene)	32.4	ug/L
	Naphthalene	49.1	ug/L
	n-Propylbenzene	79.2	ug/L
	o-Xylene	17.3	ug/L
	P & M -Xylene	467	ug/L
	sec-Butylbenzene	9.22	ug/L
	tert-Butylbenzene	9.61	ug/L
	Toluene	3.48	ug/L
	Xylenes (total)	484	ug/L

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Detectable Results Summary

Client Sample ID: **RSE-6**
Lab Sample ID: 1176354006

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	13.2	ug/L
	2-Methylnaphthalene	15.6	ug/L
	Acenaphthene	0.126	ug/L
	Fluorene	0.108	ug/L
	Naphthalene	39.5	ug/L
	Phenanthrene	0.113	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	2.25	mg/L
	Residual Range Organics	1.12	mg/L
Volatile Fuels	Gasoline Range Organics	1.67	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	314	ug/L
	1,3,5-Trimethylbenzene	82.3	ug/L
	4-Isopropyltoluene	1.95	ug/L
	Benzene	38.0	ug/L
	Ethylbenzene	66.3	ug/L
	Isopropylbenzene (Cumene)	26.8	ug/L
	Naphthalene	48.5	ug/L
	n-Propylbenzene	47.3	ug/L
	o-Xylene	2.89	ug/L
	P & M -Xylene	342	ug/L
	sec-Butylbenzene	3.38	ug/L
	tert-Butylbenzene	5.70	ug/L
	Toluene	1.44	ug/L
	Xylenes (total)	345	ug/L

Client Sample ID: **RSE-7**
Lab Sample ID: 1176354007

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.230J	ug/L
	2-Methylnaphthalene	0.286J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.195J	mg/L
	Residual Range Organics	0.713	mg/L
Volatile GC/MS	Bromodichloromethane	1.40	ug/L
	Bromoform	0.440J	ug/L
	Chloroform	6.32	ug/L
	Dibromochloromethane	0.570	ug/L

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Detectable Results Summary

Client Sample ID: **RSE-X**
Lab Sample ID: 1176354008

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	45.9	ug/L
	2-Methylnaphthalene	82.0	ug/L
	Acenaphthene	0.553	ug/L
	Benzo[b]Fluoranthene	0.0384J	ug/L
	Fluoranthene	0.0794	ug/L
	Fluorene	1.08	ug/L
	Naphthalene	104	ug/L
	Phenanthrene	1.03	ug/L
	Pyrene	0.0984	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	4.32	mg/L
	Residual Range Organics	1.24	mg/L
Volatile Fuels	Gasoline Range Organics	3.84	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	544	ug/L
	1,3,5-Trimethylbenzene	138	ug/L
	4-Isopropyltoluene	3.78	ug/L
	Benzene	31.8	ug/L
	Ethylbenzene	193	ug/L
	Isopropylbenzene (Cumene)	43.4	ug/L
	Naphthalene	77.4	ug/L
	n-Propylbenzene	78.2	ug/L
	o-Xylene	136	ug/L
	P & M -Xylene	655	ug/L
	sec-Butylbenzene	8.70	ug/L
	tert-Butylbenzene	9.63	ug/L
	Toluene	50.8	ug/L
	Xylenes (total)	811	ug/L

Client Sample ID: **Trip Blank**
Lab Sample ID: 1176354009

	Parameter	Result	Units
Volatile GC/MS	Chloromethane	0.360J	ug/L

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Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354001
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
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	1.14		0.0472	0.0142	ug/L	1		09/16/17 18:40
2-Methylnaphthalene	0.158		0.0472	0.0142	ug/L	1		09/16/17 18:40
Acenaphthene	0.0236 U		0.0472	0.0142	ug/L	1		09/16/17 18:40
Acenaphthylene	0.0236 U		0.0472	0.0142	ug/L	1		09/16/17 18:40
Anthracene	0.0493		0.0472	0.0142	ug/L	1		09/16/17 18:40
Benzo(a)Anthracene	0.0234 J		0.0472	0.0142	ug/L	1		09/16/17 18:40
Benzo[a]pyrene	0.00945 U		0.0189	0.00585	ug/L	1		09/16/17 18:40
Benzo[b]Fluoranthene	0.0232 J		0.0472	0.0142	ug/L	1		09/16/17 18:40
Benzo[g,h,i]perylene	0.0236 U		0.0472	0.0142	ug/L	1		09/16/17 18:40
Benzo[k]fluoranthene	0.0236 U		0.0472	0.0142	ug/L	1		09/16/17 18:40
Chrysene	0.0245 J		0.0472	0.0142	ug/L	1		09/16/17 18:40
Dibenzo[a,h]anthracene	0.00945 U		0.0189	0.00585	ug/L	1		09/16/17 18:40
Fluoranthene	0.0938		0.0472	0.0142	ug/L	1		09/16/17 18:40
Fluorene	0.0681		0.0472	0.0142	ug/L	1		09/16/17 18:40
Indeno[1,2,3-c,d] pyrene	0.0236 U		0.0472	0.0142	ug/L	1		09/16/17 18:40
Naphthalene	0.356		0.0943	0.0292	ug/L	1		09/16/17 18:40
Phenanthrene	0.159		0.0472	0.0142	ug/L	1		09/16/17 18:40
Pyrene	0.0808		0.0472	0.0142	ug/L	1		09/16/17 18:40
Surrogates								
2-Methylnaphthalene-d10 (surr)	69		47-106		%	1		09/16/17 18:40
Fluoranthene-d10 (surr)	39.7		24-116		%	1		09/16/17 18:40

Batch Information

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/16/17 18:40
Container ID: 1176354001-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 09/25/2017 11:12:47AM

J flagging is activated

Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354001
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
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	3.94		0.566	0.170	mg/L	1		09/13/17 17:28
Surrogates								
5a Androstane (surr)	62.4		50-150		%	1		09/13/17 17:28

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 17:28
Container ID: 1176354001-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
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	3.05		0.472	0.142	mg/L	1		09/13/17 17:28
Surrogates								
n-Triacontane-d62 (surr)	65.3		50-150		%	1		09/13/17 17:28

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 09/13/17 17:28
Container ID: 1176354001-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

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Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354001
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
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		09/08/17 17:20
Surrogates								
4-Bromofluorobenzene (surr)	89.9		50-150		%	1		09/08/17 17:20

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/08/17 17:20
Container ID: 1176354001-B

Prep Batch: VXX31249
Prep Method: SW5030B
Prep Date/Time: 09/08/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354001
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
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		09/15/17 18:23
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:23
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/15/17 18:23
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:23
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/15/17 18:23
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:23
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:23
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:23
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
2-Butanone (MEK)	7.20	J	10.0	3.10	ug/L	1		09/15/17 18:23
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:23
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:23
Benzene	0.450		0.400	0.120	ug/L	1		09/15/17 18:23
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:23
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/15/17 18:23
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:23
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:23
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:23

Print Date: 09/25/2017 11:12:47AM

J flagging is activated

Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354001
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
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		09/15/17 18:23
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 18:23
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 18:23
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:23
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 18:23
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:23
Naphthalene	0.440 J		1.00	0.310	ug/L	1		09/15/17 18:23
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/15/17 18:23
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Toluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:23
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:23
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 18:23
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/15/17 18:23
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		09/15/17 18:23
4-Bromofluorobenzene (surr)	99.4		85-114		%	1		09/15/17 18:23
Toluene-d8 (surr)	99.6		89-112		%	1		09/15/17 18:23

Print Date: 09/25/2017 11:12:47AM

J flagging is activated

Results of **RSE-1**

Client Sample ID: **RSE-1**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354001
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 18:23
Container ID: 1176354001-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

J flagging is activated

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Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354002
Lab Project ID: 1176354

Collection Date: 09/06/17 11:00
Received Date: 09/06/17 16:06
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	0.295		0.0481	0.0144	ug/L	1		09/16/17 19:00
2-Methylnaphthalene	0.171		0.0481	0.0144	ug/L	1		09/16/17 19:00
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 19:00
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 19:00
Anthracene	0.0875		0.0481	0.0144	ug/L	1		09/16/17 19:00
Benzo(a)Anthracene	0.0347	J	0.0481	0.0144	ug/L	1		09/16/17 19:00
Benzo[a]pyrene	0.0451		0.0192	0.00596	ug/L	1		09/16/17 19:00
Benzo[b]Fluoranthene	0.0632		0.0481	0.0144	ug/L	1		09/16/17 19:00
Benzo[g,h,i]perylene	0.0511		0.0481	0.0144	ug/L	1		09/16/17 19:00
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 19:00
Chrysene	0.0332	J	0.0481	0.0144	ug/L	1		09/16/17 19:00
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		09/16/17 19:00
Fluoranthene	0.125		0.0481	0.0144	ug/L	1		09/16/17 19:00
Fluorene	0.0807		0.0481	0.0144	ug/L	1		09/16/17 19:00
Indeno[1,2,3-c,d] pyrene	0.0289	J	0.0481	0.0144	ug/L	1		09/16/17 19:00
Naphthalene	0.258		0.0962	0.0298	ug/L	1		09/16/17 19:00
Phenanthrene	0.178		0.0481	0.0144	ug/L	1		09/16/17 19:00
Pyrene	0.116		0.0481	0.0144	ug/L	1		09/16/17 19:00
Surrogates								
2-Methylnaphthalene-d10 (surr)	70.7		47-106		%	1		09/16/17 19:00
Fluoranthene-d10 (surr)	37.8		24-116		%	1		09/16/17 19:00

Batch Information

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/16/17 19:00
Container ID: 1176354002-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 09/25/2017 11:12:47AM

J flagging is activated

Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354002
Lab Project ID: 1176354

Collection Date: 09/06/17 11:00
Received Date: 09/06/17 16:06
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	3.05		0.577	0.173	mg/L	1		09/13/17 17:48
Surrogates								
5a Androstane (surr)	78.1		50-150		%	1		09/13/17 17:48

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 17:48
Container ID: 1176354002-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
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	3.22		0.481	0.144	mg/L	1		09/13/17 17:48
Surrogates								
n-Triacontane-d62 (surr)	81.9		50-150		%	1		09/13/17 17:48

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 09/13/17 17:48
Container ID: 1176354002-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

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Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354002
Lab Project ID: 1176354

Collection Date: 09/06/17 11:00
Received Date: 09/06/17 16:06
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		09/08/17 17:39
Surrogates								
4-Bromofluorobenzene (surr)	91.4		50-150		%	1		09/08/17 17:39

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/08/17 17:39
Container ID: 1176354002-B

Prep Batch: VXX31249
Prep Method: SW5030B
Prep Date/Time: 09/08/17 08:00
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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354002
Lab Project ID: 1176354

Collection Date: 09/06/17 11:00
Received Date: 09/06/17 16:06
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		09/15/17 18:41
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:41
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/15/17 18:41
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:41
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/15/17 18:41
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:41
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:41
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:41
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:41
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:41
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:41
Benzene	0.200	U	0.400	0.120	ug/L	1		09/15/17 18:41
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:41
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/15/17 18:41
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:41
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:41
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:41

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Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354002
Lab Project ID: 1176354

Collection Date: 09/06/17 11:00
Received Date: 09/06/17 16:06
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		09/15/17 18:41
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 18:41
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 18:41
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:41
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 18:41
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:41
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/15/17 18:41
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Toluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:41
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:41
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 18:41
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/15/17 18:41
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/15/17 18:41
4-Bromofluorobenzene (surr)	101		85-114		%	1		09/15/17 18:41
Toluene-d8 (surr)	98.2		89-112		%	1		09/15/17 18:41

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Results of **RSE-2**

Client Sample ID: **RSE-2**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354002
Lab Project ID: 1176354

Collection Date: 09/06/17 11:00
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 18:41
Container ID: 1176354002-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354003
Lab Project ID: 1176354

Collection Date: 09/06/17 11:30
Received Date: 09/06/17 16:06
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	0.390		0.0472	0.0142	ug/L	1		09/16/17 19:21
2-Methylnaphthalene	0.649		0.0472	0.0142	ug/L	1		09/16/17 19:21
Acenaphthene	0.0236	U	0.0472	0.0142	ug/L	1		09/16/17 19:21
Acenaphthylene	0.0236	U	0.0472	0.0142	ug/L	1		09/16/17 19:21
Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		09/16/17 19:21
Benzo(a)Anthracene	0.0373	J	0.0472	0.0142	ug/L	1		09/16/17 19:21
Benzo[a]pyrene	0.0496		0.0189	0.00585	ug/L	1		09/16/17 19:21
Benzo[b]Fluoranthene	0.0530		0.0472	0.0142	ug/L	1		09/16/17 19:21
Benzo[g,h,i]perylene	0.0504		0.0472	0.0142	ug/L	1		09/16/17 19:21
Benzo[k]fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		09/16/17 19:21
Chrysene	0.0398	J	0.0472	0.0142	ug/L	1		09/16/17 19:21
Dibenzo[a,h]anthracene	0.00945	U	0.0189	0.00585	ug/L	1		09/16/17 19:21
Fluoranthene	0.107		0.0472	0.0142	ug/L	1		09/16/17 19:21
Fluorene	0.0551		0.0472	0.0142	ug/L	1		09/16/17 19:21
Indeno[1,2,3-c,d] pyrene	0.0321	J	0.0472	0.0142	ug/L	1		09/16/17 19:21
Naphthalene	0.540		0.0943	0.0292	ug/L	1		09/16/17 19:21
Phenanthrene	0.203		0.0472	0.0142	ug/L	1		09/16/17 19:21
Pyrene	0.116		0.0472	0.0142	ug/L	1		09/16/17 19:21
Surrogates								
2-Methylnaphthalene-d10 (surr)	78.7		47-106		%	1		09/16/17 19:21
Fluoranthene-d10 (surr)	27.2		24-116		%	1		09/16/17 19:21

Batch Information

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/16/17 19:21
Container ID: 1176354003-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354003
Lab Project ID: 1176354

Collection Date: 09/06/17 11:30
Received Date: 09/06/17 16:06
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	0.465	J	0.600	0.180	mg/L	1		09/13/17 18:09
Surrogates								
5a Androstane (surr)	74.9		50-150		%	1		09/13/17 18:09

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 18:09
Container ID: 1176354003-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
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	0.833		0.500	0.150	mg/L	1		09/13/17 18:09
Surrogates								
n-Triacontane-d62 (surr)	80		50-150		%	1		09/13/17 18:09

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 09/13/17 18:09
Container ID: 1176354003-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354003
Lab Project ID: 1176354

Collection Date: 09/06/17 11:30
Received Date: 09/06/17 16:06
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	0.0327	J	0.100	0.0310	mg/L	1		09/08/17 18:56
Surrogates								
4-Bromofluorobenzene (surr)	94.1		50-150		%	1		09/08/17 18:56

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/08/17 18:56
Container ID: 1176354003-B

Prep Batch: VXX31250
Prep Method: SW5030B
Prep Date/Time: 09/08/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354003
Lab Project ID: 1176354

Collection Date: 09/06/17 11:30
Received Date: 09/06/17 16:06
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		09/15/17 18:58
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:58
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/15/17 18:58
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,2,4-Trimethylbenzene	1.44		1.00	0.310	ug/L	1		09/15/17 18:58
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:58
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/15/17 18:58
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,2-Dichloroethane	0.160	J	0.500	0.150	ug/L	1		09/15/17 18:58
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,3,5-Trimethylbenzene	0.770	J	1.00	0.310	ug/L	1		09/15/17 18:58
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:58
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:58
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:58
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:58
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:58
Benzene	0.240	J	0.400	0.120	ug/L	1		09/15/17 18:58
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:58
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/15/17 18:58
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/15/17 18:58
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 18:58
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 18:58

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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354003
Lab Project ID: 1176354

Collection Date: 09/06/17 11:30
Received Date: 09/06/17 16:06
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		09/15/17 18:58
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 18:58
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 18:58
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:58
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 18:58
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:58
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
o-Xylene	0.570 J		1.00	0.310	ug/L	1		09/15/17 18:58
P & M -Xylene	1.04 J		2.00	0.620	ug/L	1		09/15/17 18:58
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Toluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 18:58
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 18:58
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 18:58
Xylenes (total)	1.61 J		3.00	1.00	ug/L	1		09/15/17 18:58
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		09/15/17 18:58
4-Bromofluorobenzene (surr)	100		85-114		%	1		09/15/17 18:58
Toluene-d8 (surr)	98.2		89-112		%	1		09/15/17 18:58

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Results of **RSE-3**

Client Sample ID: **RSE-3**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354003
Lab Project ID: 1176354

Collection Date: 09/06/17 11:30
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 18:58
Container ID: 1176354003-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354004
Lab Project ID: 1176354

Collection Date: 09/06/17 12:00
Received Date: 09/06/17 16:06
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	28.5		0.481	0.144	ug/L	10		09/18/17 02:24
2-Methylnaphthalene	48.9		0.481	0.144	ug/L	10		09/18/17 02:24
Acenaphthene	0.368		0.0481	0.0144	ug/L	1		09/16/17 21:45
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 21:45
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 21:45
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 21:45
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		09/16/17 21:45
Benzo[b]Fluoranthene	0.0247	J	0.0481	0.0144	ug/L	1		09/16/17 21:45
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 21:45
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 21:45
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 21:45
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		09/16/17 21:45
Fluoranthene	0.0516		0.0481	0.0144	ug/L	1		09/16/17 21:45
Fluorene	0.662		0.0481	0.0144	ug/L	1		09/16/17 21:45
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 21:45
Naphthalene	77.0		0.962	0.298	ug/L	10		09/18/17 02:24
Phenanthrene	0.680		0.0481	0.0144	ug/L	1		09/16/17 21:45
Pyrene	0.0682		0.0481	0.0144	ug/L	1		09/16/17 21:45
Surrogates								
2-Methylnaphthalene-d10 (surr)	65.7		47-106		%	1		09/16/17 21:45
Fluoranthene-d10 (surr)	37.5		24-116		%	1		09/16/17 21:45

Batch Information

Analytical Batch: XMS10409
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/18/17 02:24
Container ID: 1176354004-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/16/17 21:45
Container ID: 1176354004-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 09/25/2017 11:12:47AM

J flagging is activated

Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354004
Lab Project ID: 1176354

Collection Date: 09/06/17 12:00
Received Date: 09/06/17 16:06
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	3.53		0.588	0.176	mg/L	1		09/13/17 18:30
Surrogates								
5a Androstane (surr)	73.3		50-150		%	1		09/13/17 18:30

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 18:30
Container ID: 1176354004-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
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	1.09		0.490	0.147	mg/L	1		09/13/17 18:30
Surrogates								
n-Triacontane-d62 (surr)	78.7		50-150		%	1		09/13/17 18:30

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 09/13/17 18:30
Container ID: 1176354004-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354004
Lab Project ID: 1176354

Collection Date: 09/06/17 12:00
Received Date: 09/06/17 16:06
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	3.32		0.500	0.155	mg/L	5		09/19/17 01:21
Surrogates								
4-Bromofluorobenzene (surr)	124		50-150		%	5		09/19/17 01:21

Batch Information

Analytical Batch: VFC13888
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/19/17 01:21
Container ID: 1176354004-C

Prep Batch: VXX31325
Prep Method: SW5030B
Prep Date/Time: 09/18/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354004
Lab Project ID: 1176354

Collection Date: 09/06/17 12:00
Received Date: 09/06/17 16:06
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		09/15/17 19:16
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:16
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/15/17 19:16
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,2,4-Trimethylbenzene	471		10.0	3.10	ug/L	10		09/18/17 16:58
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:16
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/15/17 19:16
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:16
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,3,5-Trimethylbenzene	149		1.00	0.310	ug/L	1		09/15/17 19:16
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:16
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:16
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:16
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:16
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
4-Isopropyltoluene	3.53		1.00	0.310	ug/L	1		09/15/17 19:16
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:16
Benzene	37.6		0.400	0.120	ug/L	1		09/15/17 19:16
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:16
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/15/17 19:16
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:16
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:16
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:16

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Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354004
Lab Project ID: 1176354

Collection Date: 09/06/17 12:00
Received Date: 09/06/17 16:06
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		09/15/17 19:16
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 19:16
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 19:16
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
Ethylbenzene	213		10.0	3.10	ug/L	10		09/18/17 16:58
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:16
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
Isopropylbenzene (Cumene)	49.1		1.00	0.310	ug/L	1		09/15/17 19:16
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 19:16
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:16
Naphthalene	77.6		1.00	0.310	ug/L	1		09/15/17 19:16
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
n-Propylbenzene	86.6		1.00	0.310	ug/L	1		09/15/17 19:16
o-Xylene	147		1.00	0.310	ug/L	1		09/15/17 19:16
P & M -Xylene	675		20.0	6.20	ug/L	10		09/18/17 16:58
sec-Butylbenzene	9.32		1.00	0.310	ug/L	1		09/15/17 19:16
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
tert-Butylbenzene	10.7		1.00	0.310	ug/L	1		09/15/17 19:16
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
Toluene	61.3		1.00	0.310	ug/L	1		09/15/17 19:16
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:16
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:16
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 19:16
Xylenes (total)	837		30.0	10.0	ug/L	10		09/18/17 16:58
Surrogates								
1,2-Dichloroethane-D4 (surr)	99		81-118		%	1		09/15/17 19:16
4-Bromofluorobenzene (surr)	98.9		85-114		%	1		09/15/17 19:16
Toluene-d8 (surr)	97.4		89-112		%	1		09/15/17 19:16

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Results of **RSE-4**

Client Sample ID: **RSE-4**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354004
Lab Project ID: 1176354

Collection Date: 09/06/17 12:00
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17192
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/18/17 16:58
Container ID: 1176354004-C

Prep Batch: VXX31315
Prep Method: SW5030B
Prep Date/Time: 09/18/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 19:16
Container ID: 1176354004-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354005
Lab Project ID: 1176354

Collection Date: 09/06/17 12:30
Received Date: 09/06/17 16:06
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	28.2		0.481	0.144	ug/L	10		09/19/17 05:05
2-Methylnaphthalene	37.9		0.481	0.144	ug/L	10		09/19/17 05:05
Acenaphthene	0.326		0.0481	0.0144	ug/L	1		09/16/17 22:05
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 22:05
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 22:05
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 22:05
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		09/16/17 22:05
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 22:05
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 22:05
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 22:05
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 22:05
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		09/16/17 22:05
Fluoranthene	0.0672		0.0481	0.0144	ug/L	1		09/16/17 22:05
Fluorene	0.353		0.0481	0.0144	ug/L	1		09/16/17 22:05
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		09/16/17 22:05
Naphthalene	43.8		0.962	0.298	ug/L	10		09/19/17 05:05
Phenanthrene	0.427		0.0481	0.0144	ug/L	1		09/16/17 22:05
Pyrene	0.0757		0.0481	0.0144	ug/L	1		09/16/17 22:05
Surrogates								
2-Methylnaphthalene-d10 (surr)	72		47-106		%	1		09/16/17 22:05
Fluoranthene-d10 (surr)	42		24-116		%	1		09/16/17 22:05

Batch Information

Analytical Batch: XMS10411
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/19/17 05:05
Container ID: 1176354005-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/16/17 22:05
Container ID: 1176354005-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 09/25/2017 11:12:47AM

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Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354005
Lab Project ID: 1176354

Collection Date: 09/06/17 12:30
Received Date: 09/06/17 16:06
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	3.05		0.566	0.170	mg/L	1		09/13/17 18:51
Surrogates								
5a Androstane (surr)	74.3		50-150		%	1		09/13/17 18:51

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 18:51
Container ID: 1176354005-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
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	0.910		0.472	0.142	mg/L	1		09/13/17 18:51
Surrogates								
n-Triacontane-d62 (surr)	79.8		50-150		%	1		09/13/17 18:51

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 09/13/17 18:51
Container ID: 1176354005-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

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Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354005
Lab Project ID: 1176354

Collection Date: 09/06/17 12:30
Received Date: 09/06/17 16:06
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	2.91		0.100	0.0310	mg/L	1		09/08/17 19:34
Surrogates								
4-Bromofluorobenzene (surr)	289	*	50-150		%	1		09/08/17 19:34

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/08/17 19:34
Container ID: 1176354005-B

Prep Batch: VXX31250
Prep Method: SW5030B
Prep Date/Time: 09/08/17 08:00
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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354005
Lab Project ID: 1176354

Collection Date: 09/06/17 12:30
Received Date: 09/06/17 16:06
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		09/15/17 19:33
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:33
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/15/17 19:33
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,2,4-Trimethylbenzene	454		10.0	3.10	ug/L	10		09/18/17 17:16
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:33
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/15/17 19:33
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:33
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,3,5-Trimethylbenzene	147		1.00	0.310	ug/L	1		09/15/17 19:33
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:33
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:33
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:33
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:33
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
4-Isopropyltoluene	5.17		1.00	0.310	ug/L	1		09/15/17 19:33
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:33
Benzene	11.4		0.400	0.120	ug/L	1		09/15/17 19:33
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:33
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/15/17 19:33
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:33
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:33
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:33

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Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354005
Lab Project ID: 1176354

Collection Date: 09/06/17 12:30
Received Date: 09/06/17 16:06
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		09/15/17 19:33
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 19:33
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 19:33
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
Ethylbenzene	130		1.00	0.310	ug/L	1		09/15/17 19:33
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:33
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
Isopropylbenzene (Cumene)	32.4		1.00	0.310	ug/L	1		09/15/17 19:33
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 19:33
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:33
Naphthalene	49.1		1.00	0.310	ug/L	1		09/15/17 19:33
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
n-Propylbenzene	79.2		1.00	0.310	ug/L	1		09/15/17 19:33
o-Xylene	17.3		1.00	0.310	ug/L	1		09/15/17 19:33
P & M -Xylene	467		20.0	6.20	ug/L	10		09/18/17 17:16
sec-Butylbenzene	9.22		1.00	0.310	ug/L	1		09/15/17 19:33
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
tert-Butylbenzene	9.61		1.00	0.310	ug/L	1		09/15/17 19:33
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
Toluene	3.48		1.00	0.310	ug/L	1		09/15/17 19:33
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:33
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:33
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 19:33
Xylenes (total)	484		30.0	10.0	ug/L	10		09/18/17 17:16
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.5		81-118		%	1		09/15/17 19:33
4-Bromofluorobenzene (surr)	99.2		85-114		%	1		09/15/17 19:33
Toluene-d8 (surr)	98.1		89-112		%	1		09/15/17 19:33

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Results of **RSE-5**

Client Sample ID: **RSE-5**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354005
Lab Project ID: 1176354

Collection Date: 09/06/17 12:30
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17192
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/18/17 17:16
Container ID: 1176354005-C

Prep Batch: VXX31315
Prep Method: SW5030B
Prep Date/Time: 09/18/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 19:33
Container ID: 1176354005-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354006
Lab Project ID: 1176354

Collection Date: 09/06/17 13:00
Received Date: 09/06/17 16:06
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	13.2		0.463	0.139	ug/L	10		09/19/17 05:25
2-Methylnaphthalene	15.6		0.463	0.139	ug/L	10		09/19/17 05:25
Acenaphthene	0.126		0.0463	0.0139	ug/L	1		09/16/17 22:26
Acenaphthylene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Benzo(a)Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Benzo[a]pyrene	0.00925	U	0.0185	0.00574	ug/L	1		09/16/17 22:26
Benzo[b]Fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Benzo[g,h,i]perylene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Benzo[k]fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Chrysene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Dibenzo[a,h]anthracene	0.00925	U	0.0185	0.00574	ug/L	1		09/16/17 22:26
Fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Fluorene	0.108		0.0463	0.0139	ug/L	1		09/16/17 22:26
Indeno[1,2,3-c,d] pyrene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Naphthalene	39.5		0.926	0.287	ug/L	10		09/19/17 05:25
Phenanthrene	0.113		0.0463	0.0139	ug/L	1		09/16/17 22:26
Pyrene	0.0232	U	0.0463	0.0139	ug/L	1		09/16/17 22:26
Surrogates								
2-Methylnaphthalene-d10 (surr)	74.4		47-106		%	1		09/16/17 22:26
Fluoranthene-d10 (surr)	46.7		24-116		%	1		09/16/17 22:26

Batch Information

Analytical Batch: XMS10411
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/19/17 05:25
Container ID: 1176354006-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/16/17 22:26
Container ID: 1176354006-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

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Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354006
Lab Project ID: 1176354

Collection Date: 09/06/17 13:00
Received Date: 09/06/17 16:06
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	2.25		0.577	0.173	mg/L	1		09/13/17 19:12
Surrogates								
5a Androstane (surr)	82		50-150		%	1		09/13/17 19:12

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 19:12
Container ID: 1176354006-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
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	1.12		0.481	0.144	mg/L	1		09/13/17 19:12
Surrogates								
n-Triacontane-d62 (surr)	86.5		50-150		%	1		09/13/17 19:12

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 09/13/17 19:12
Container ID: 1176354006-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

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Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354006
Lab Project ID: 1176354

Collection Date: 09/06/17 13:00
Received Date: 09/06/17 16:06
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	1.67		0.100	0.0310	mg/L	1		09/08/17 19:53
Surrogates								
4-Bromofluorobenzene (surr)	240	*	50-150		%	1		09/08/17 19:53

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/08/17 19:53
Container ID: 1176354006-B

Prep Batch: VXX31250
Prep Method: SW5030B
Prep Date/Time: 09/08/17 08:00
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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354006
Lab Project ID: 1176354

Collection Date: 09/06/17 13:00
Received Date: 09/06/17 16:06
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		09/15/17 19:51
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:51
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/15/17 19:51
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,2,4-Trimethylbenzene	314		10.0	3.10	ug/L	10		09/18/17 17:33
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:51
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/15/17 19:51
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:51
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,3,5-Trimethylbenzene	82.3		1.00	0.310	ug/L	1		09/15/17 19:51
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:51
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:51
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:51
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:51
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
4-Isopropyltoluene	1.95		1.00	0.310	ug/L	1		09/15/17 19:51
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:51
Benzene	38.0		0.400	0.120	ug/L	1		09/15/17 19:51
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:51
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/15/17 19:51
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/15/17 19:51
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 19:51
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 19:51

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Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354006
Lab Project ID: 1176354

Collection Date: 09/06/17 13:00
Received Date: 09/06/17 16:06
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		09/15/17 19:51
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 19:51
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 19:51
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
Ethylbenzene	66.3		1.00	0.310	ug/L	1		09/15/17 19:51
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:51
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
Isopropylbenzene (Cumene)	26.8		1.00	0.310	ug/L	1		09/15/17 19:51
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 19:51
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:51
Naphthalene	48.5		1.00	0.310	ug/L	1		09/15/17 19:51
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
n-Propylbenzene	47.3		1.00	0.310	ug/L	1		09/15/17 19:51
o-Xylene	2.89		1.00	0.310	ug/L	1		09/15/17 19:51
P & M -Xylene	342		2.00	0.620	ug/L	1		09/15/17 19:51
sec-Butylbenzene	3.38		1.00	0.310	ug/L	1		09/15/17 19:51
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
tert-Butylbenzene	5.70		1.00	0.310	ug/L	1		09/15/17 19:51
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
Toluene	1.44		1.00	0.310	ug/L	1		09/15/17 19:51
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 19:51
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 19:51
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 19:51
Xylenes (total)	345		3.00	1.00	ug/L	1		09/15/17 19:51
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.6		81-118		%	1		09/15/17 19:51
4-Bromofluorobenzene (surr)	99.4		85-114		%	1		09/15/17 19:51
Toluene-d8 (surr)	101		89-112		%	1		09/15/17 19:51

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J flagging is activated

Results of **RSE-6**

Client Sample ID: **RSE-6**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354006
Lab Project ID: 1176354

Collection Date: 09/06/17 13:00
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17192
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/18/17 17:33
Container ID: 1176354006-C

Prep Batch: VXX31315
Prep Method: SW5030B
Prep Date/Time: 09/18/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 19:51
Container ID: 1176354006-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354007
Lab Project ID: 1176354

Collection Date: 09/06/17 13:30
Received Date: 09/06/17 16:06
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	0.230	J	0.472	0.142	ug/L	10		09/16/17 22:46
2-Methylnaphthalene	0.286	J	0.472	0.142	ug/L	10		09/16/17 22:46
Acenaphthene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Acenaphthylene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Anthracene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Benzo(a)Anthracene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Benzo[a]pyrene	0.0945	U	0.189	0.0585	ug/L	10		09/16/17 22:46
Benzo[b]Fluoranthene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Benzo[g,h,i]perylene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Benzo[k]fluoranthene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Chrysene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Dibenzo[a,h]anthracene	0.0945	U	0.189	0.0585	ug/L	10		09/16/17 22:46
Fluoranthene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Fluorene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Indeno[1,2,3-c,d] pyrene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Naphthalene	0.471	U	0.943	0.292	ug/L	10		09/16/17 22:46
Phenanthrene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Pyrene	0.236	U	0.472	0.142	ug/L	10		09/16/17 22:46
Surrogates								
2-Methylnaphthalene-d10 (surr)	81.8		47-106		%	10		09/16/17 22:46
Fluoranthene-d10 (surr)	52.2		24-116		%	10		09/16/17 22:46

Batch Information

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/16/17 22:46
Container ID: 1176354007-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 09/25/2017 11:12:47AM

J flagging is activated

Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354007
Lab Project ID: 1176354

Collection Date: 09/06/17 13:30
Received Date: 09/06/17 16:06
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	0.195	J	0.605	0.181	mg/L	1		09/13/17 19:32
Surrogates								
5a Androstane (surr)	74.6		50-150		%	1		09/13/17 19:32

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 19:32
Container ID: 1176354007-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.713		0.504	0.151	mg/L	1		09/13/17 19:32
Surrogates								
n-Triacontane-d62 (surr)	79		50-150		%	1		09/13/17 19:32

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 09/13/17 19:32
Container ID: 1176354007-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

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Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354007
Lab Project ID: 1176354

Collection Date: 09/06/17 13:30
Received Date: 09/06/17 16:06
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		09/08/17 20:13
Surrogates								
4-Bromofluorobenzene (surr)	90.9		50-150		%	1		09/08/17 20:13

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/08/17 20:13
Container ID: 1176354007-B

Prep Batch: VXX31250
Prep Method: SW5030B
Prep Date/Time: 09/08/17 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354007
Lab Project ID: 1176354

Collection Date: 09/06/17 13:30
Received Date: 09/06/17 16:06
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		09/15/17 20:09
1,1,1-Trichloroethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,1,2,2-Tetrachloroethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 20:09
1,1,2-Trichloroethane	0.200 U		0.400	0.120	ug/L	1		09/15/17 20:09
1,1-Dichloroethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,1-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,1-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,2,3-Trichlorobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,2,3-Trichloropropane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,2,4-Trichlorobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,2,4-Trimethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/18/17 16:41
1,2-Dibromo-3-chloropropane	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:09
1,2-Dibromoethane	0.0375 U		0.0750	0.0180	ug/L	1		09/15/17 20:09
1,2-Dichlorobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,2-Dichloroethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 20:09
1,2-Dichloropropane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,3,5-Trimethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,3-Dichlorobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
1,3-Dichloropropane	0.250 U		0.500	0.150	ug/L	1		09/15/17 20:09
1,4-Dichlorobenzene	0.250 U		0.500	0.150	ug/L	1		09/15/17 20:09
2,2-Dichloropropane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
2-Butanone (MEK)	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:09
2-Chlorotoluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
2-Hexanone	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:09
4-Chlorotoluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
4-Isopropyltoluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
4-Methyl-2-pentanone (MIBK)	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:09
Benzene	0.200 U		0.400	0.120	ug/L	1		09/18/17 16:41
Bromobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Bromochloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Bromodichloromethane	1.40		0.500	0.150	ug/L	1		09/15/17 20:09
Bromoform	0.440 J		1.00	0.310	ug/L	1		09/15/17 20:09
Bromomethane	2.50 U		5.00	1.50	ug/L	1		09/15/17 20:09
Carbon disulfide	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:09
Carbon tetrachloride	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Chlorobenzene	0.250 U		0.500	0.150	ug/L	1		09/15/17 20:09
Chloroethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09

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J flagging is activated

Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354007
Lab Project ID: 1176354

Collection Date: 09/06/17 13:30
Received Date: 09/06/17 16:06
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	6.32		1.00	0.310	ug/L	1		09/15/17 20:09
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 20:09
Dibromochloromethane	0.570		0.500	0.150	ug/L	1		09/15/17 20:09
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:09
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 20:09
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:09
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/18/17 16:41
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/15/17 20:09
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Toluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:09
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:09
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 20:09
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/15/17 20:09
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.9		81-118		%	1		09/15/17 20:09
4-Bromofluorobenzene (surr)	101		85-114		%	1		09/15/17 20:09
Toluene-d8 (surr)	99.7		89-112		%	1		09/15/17 20:09

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Results of **RSE-7**

Client Sample ID: **RSE-7**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354007
Lab Project ID: 1176354

Collection Date: 09/06/17 13:30
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17192
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/18/17 16:41
Container ID: 1176354007-C

Prep Batch: VXX31315
Prep Method: SW5030B
Prep Date/Time: 09/18/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 20:09
Container ID: 1176354007-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354008
Lab Project ID: 1176354

Collection Date: 09/06/17 13:45
Received Date: 09/06/17 16:06
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	45.9		2.00	0.600	ug/L	40		09/19/17 05:46
2-Methylnaphthalene	82.0		2.00	0.600	ug/L	40		09/19/17 05:46
Acenaphthene	0.553		0.0500	0.0150	ug/L	1		09/16/17 23:06
Acenaphthylene	0.0250 U		0.0500	0.0150	ug/L	1		09/16/17 23:06
Anthracene	0.0250 U		0.0500	0.0150	ug/L	1		09/16/17 23:06
Benzo(a)Anthracene	0.0250 U		0.0500	0.0150	ug/L	1		09/16/17 23:06
Benzo[a]pyrene	0.0100 U		0.0200	0.00620	ug/L	1		09/16/17 23:06
Benzo[b]Fluoranthene	0.0384 J		0.0500	0.0150	ug/L	1		09/16/17 23:06
Benzo[g,h,i]perylene	0.0250 U		0.0500	0.0150	ug/L	1		09/16/17 23:06
Benzo[k]fluoranthene	0.0250 U		0.0500	0.0150	ug/L	1		09/16/17 23:06
Chrysene	0.0250 U		0.0500	0.0150	ug/L	1		09/16/17 23:06
Dibenzo[a,h]anthracene	0.0100 U		0.0200	0.00620	ug/L	1		09/16/17 23:06
Fluoranthene	0.0794		0.0500	0.0150	ug/L	1		09/16/17 23:06
Fluorene	1.08		0.0500	0.0150	ug/L	1		09/16/17 23:06
Indeno[1,2,3-c,d] pyrene	0.0250 U		0.0500	0.0150	ug/L	1		09/16/17 23:06
Naphthalene	104		4.00	1.24	ug/L	40		09/19/17 05:46
Phenanthrene	1.03		0.0500	0.0150	ug/L	1		09/16/17 23:06
Pyrene	0.0984		0.0500	0.0150	ug/L	1		09/16/17 23:06
Surrogates								
2-Methylnaphthalene-d10 (surr)	54.5		47-106		%	1		09/16/17 23:06
Fluoranthene-d10 (surr)	21.3	*	24-116		%	1		09/16/17 23:06

Batch Information

Analytical Batch: XMS10411
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/19/17 05:46
Container ID: 1176354008-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/16/17 23:06
Container ID: 1176354008-F

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 09/07/17 08:23
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 09/25/2017 11:12:47AM

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Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354008
Lab Project ID: 1176354

Collection Date: 09/06/17 13:45
Received Date: 09/06/17 16:06
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	4.32		0.588	0.176	mg/L	1		09/13/17 19:53
Surrogates								
5a Androstane (surr)	80.8		50-150		%	1		09/13/17 19:53

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Analyst: JMG
Analytical Date/Time: 09/13/17 19:53
Container ID: 1176354008-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
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	1.24		0.490	0.147	mg/L	1		09/13/17 19:53
Surrogates								
n-Triacontane-d62 (surr)	86.3		50-150		%	1		09/13/17 19:53

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Analyst: JMG
Analytical Date/Time: 09/13/17 19:53
Container ID: 1176354008-D

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 09/09/17 08:20
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354008
Lab Project ID: 1176354

Collection Date: 09/06/17 13:45
Received Date: 09/06/17 16:06
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	3.84		0.100	0.0310	mg/L	1		09/08/17 20:32
Surrogates								
4-Bromofluorobenzene (surr)	363	*	50-150		%	1		09/08/17 20:32

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/08/17 20:32
Container ID: 1176354008-B

Prep Batch: VXX31250
Prep Method: SW5030B
Prep Date/Time: 09/08/17 08:00
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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354008
Lab Project ID: 1176354

Collection Date: 09/06/17 13:45
Received Date: 09/06/17 16:06
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		09/15/17 20:26
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 20:26
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/15/17 20:26
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,2,4-Trimethylbenzene	544		10.0	3.10	ug/L	10		09/18/17 17:51
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/15/17 20:26
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/15/17 20:26
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 20:26
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,3,5-Trimethylbenzene	138		1.00	0.310	ug/L	1		09/15/17 20:26
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/15/17 20:26
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 20:26
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 20:26
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/15/17 20:26
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
4-Isopropyltoluene	3.78		1.00	0.310	ug/L	1		09/15/17 20:26
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/15/17 20:26
Benzene	31.8		0.400	0.120	ug/L	1		09/15/17 20:26
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/15/17 20:26
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/15/17 20:26
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/15/17 20:26
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/15/17 20:26
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/15/17 20:26

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Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354008
Lab Project ID: 1176354

Collection Date: 09/06/17 13:45
Received Date: 09/06/17 16:06
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		09/15/17 20:26
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 20:26
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 20:26
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
Ethylbenzene	193		1.00	0.310	ug/L	1		09/15/17 20:26
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:26
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
Isopropylbenzene (Cumene)	43.4		1.00	0.310	ug/L	1		09/15/17 20:26
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 20:26
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:26
Naphthalene	77.4		1.00	0.310	ug/L	1		09/15/17 20:26
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
n-Propylbenzene	78.2		1.00	0.310	ug/L	1		09/15/17 20:26
o-Xylene	136		1.00	0.310	ug/L	1		09/15/17 20:26
P & M -Xylene	655		20.0	6.20	ug/L	10		09/18/17 17:51
sec-Butylbenzene	8.70		1.00	0.310	ug/L	1		09/15/17 20:26
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
tert-Butylbenzene	9.63		1.00	0.310	ug/L	1		09/15/17 20:26
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
Toluene	50.8		1.00	0.310	ug/L	1		09/15/17 20:26
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 20:26
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 20:26
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 20:26
Xylenes (total)	811		30.0	10.0	ug/L	10		09/18/17 17:51
Surrogates								
1,2-Dichloroethane-D4 (surr)	95		81-118		%	1		09/15/17 20:26
4-Bromofluorobenzene (surr)	100		85-114		%	1		09/15/17 20:26
Toluene-d8 (surr)	98.1		89-112		%	1		09/15/17 20:26

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Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354008
Lab Project ID: 1176354

Collection Date: 09/06/17 13:45
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17192
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/18/17 17:51
Container ID: 1176354008-C

Prep Batch: VXX31315
Prep Method: SW5030B
Prep Date/Time: 09/18/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 20:26
Container ID: 1176354008-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354009
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
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		09/08/17 12:14
Surrogates								
4-Bromofluorobenzene (surr)	91.1		50-150		%	1		09/08/17 12:14

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/08/17 12:14
Container ID: 1176354009-B

Prep Batch: VXX31249
Prep Method: SW5030B
Prep Date/Time: 09/08/17 08:00
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: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354009
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
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		09/15/17 15:46
1,1,1-Trichloroethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,1,2,2-Tetrachloroethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 15:46
1,1,2-Trichloroethane	0.200 U		0.400	0.120	ug/L	1		09/15/17 15:46
1,1-Dichloroethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,1-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,1-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,2,3-Trichlorobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,2,3-Trichloropropane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,2,4-Trichlorobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,2,4-Trimethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,2-Dibromo-3-chloropropane	5.00 U		10.0	3.10	ug/L	1		09/15/17 15:46
1,2-Dibromoethane	0.0375 U		0.0750	0.0180	ug/L	1		09/15/17 15:46
1,2-Dichlorobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,2-Dichloroethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 15:46
1,2-Dichloropropane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,3,5-Trimethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,3-Dichlorobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
1,3-Dichloropropane	0.250 U		0.500	0.150	ug/L	1		09/15/17 15:46
1,4-Dichlorobenzene	0.250 U		0.500	0.150	ug/L	1		09/15/17 15:46
2,2-Dichloropropane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
2-Butanone (MEK)	5.00 U		10.0	3.10	ug/L	1		09/15/17 15:46
2-Chlorotoluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
2-Hexanone	5.00 U		10.0	3.10	ug/L	1		09/15/17 15:46
4-Chlorotoluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
4-Isopropyltoluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
4-Methyl-2-pentanone (MIBK)	5.00 U		10.0	3.10	ug/L	1		09/15/17 15:46
Benzene	0.200 U		0.400	0.120	ug/L	1		09/15/17 15:46
Bromobenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Bromochloromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Bromodichloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 15:46
Bromoform	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Bromomethane	2.50 U		5.00	1.50	ug/L	1		09/15/17 15:46
Carbon disulfide	5.00 U		10.0	3.10	ug/L	1		09/15/17 15:46
Carbon tetrachloride	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Chlorobenzene	0.250 U		0.500	0.150	ug/L	1		09/15/17 15:46
Chloroethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354009
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
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		09/18/17 15:49
Chloromethane	0.360 J		1.00	0.310	ug/L	1		09/15/17 15:46
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/15/17 15:46
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/15/17 15:46
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/15/17 15:46
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/15/17 15:46
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/15/17 15:46
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/15/17 15:46
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Styrene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Toluene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/15/17 15:46
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/15/17 15:46
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/15/17 15:46
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/15/17 15:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		09/15/17 15:46
4-Bromofluorobenzene (surr)	98.4		85-114		%	1		09/15/17 15:46
Toluene-d8 (surr)	98.1		89-112		%	1		09/15/17 15:46

Print Date: 09/25/2017 11:12:47AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **AKRR Ship Creek Groundwater**
Lab Sample ID: 1176354009
Lab Project ID: 1176354

Collection Date: 09/06/17 10:30
Received Date: 09/06/17 16:06
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17191
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/15/17 15:46
Container ID: 1176354009-A

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 09/15/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS17192
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/18/17 15:49
Container ID: 1176354009-C

Prep Batch: VXX31315
Prep Method: SW5030B
Prep Date/Time: 09/18/17 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1767933 [VXX/31249]
Blank Lab ID: 1411593

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354001, 1176354002, 1176354009

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	94.1	50-150		%

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 9/8/2017 10:38:00AM

Prep Batch: VXX31249
Prep Method: SW5030B
Prep Date/Time: 9/8/2017 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/25/2017 11:12:51AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176354 [VXX31249]
Blank Spike Lab ID: 1411594
Date Analyzed: 09/08/2017 11:16

Spike Duplicate ID: LCSD for HBN 1176354 [VXX31249]
Spike Duplicate Lab ID: 1411595
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354001, 1176354002, 1176354009

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	1.09	109	1.00	1.09	109	(60-120)	0.13	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	96.4	96	0.0500	96.9	97	(50-150)	0.43	

Batch Information

Analytical Batch: **VFC13864**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX31249**
Prep Method: **SW5030B**
Prep Date/Time: **09/08/2017 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 1767934 [VXX/31250]
Blank Lab ID: 1411596

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354003, 1176354005, 1176354006, 1176354007, 1176354008

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	93.2	50-150		%

Batch Information

Analytical Batch: VFC13864
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 9/8/2017 6:37:00PM

Prep Batch: VXX31250
Prep Method: SW5030B
Prep Date/Time: 9/8/2017 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/25/2017 11:12:53AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176354 [VXX31250]
Blank Spike Lab ID: 1411597
Date Analyzed: 09/09/2017 00:42

Spike Duplicate ID: LCSD for HBN 1176354 [VXX31250]
Spike Duplicate Lab ID: 1411598
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354003, 1176354005, 1176354006, 1176354007, 1176354008

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	1.07	107	1.00	1.03	103	(60-120)	3.90	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	93.5	94	0.0500	92.8	93	(50-150)	0.79	

Batch Information

Analytical Batch: **VFC13864**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX31250**
Prep Method: **SW5030B**
Prep Date/Time: **09/08/2017 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 1768670 [VXX/31310]
Blank Lab ID: 1413639

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

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 1768670 [VXX/31310]
Blank Lab ID: 1413639

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.340J	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)	109	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	99.3	89-112		%

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Method Blank

Blank ID: MB for HBN 1768670 [VXX/31310]
Blank Lab ID: 1413639

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17191
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 9/15/2017 11:39:00AM

Prep Batch: VXX31310
Prep Method: SW5030B
Prep Date/Time: 9/15/2017 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 1176354 [VXX31310]
Blank Spike Lab ID: 1413640
Date Analyzed: 09/15/2017 12:12

Spike Duplicate ID: LCSD for HBN 1176354 [VXX31310]
Spike Duplicate Lab ID: 1413641
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

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	30.3	101	30	30.3	101	(78-124)	0.03	(< 20)
1,1,1-Trichloroethane	30	30.3	101	30	29.8	99	(74-131)	1.50	(< 20)
1,1,2,2-Tetrachloroethane	30	28.2	94	30	29.4	98	(71-121)	4.00	(< 20)
1,1,2-Trichloroethane	30	29.6	99	30	30.1	100	(80-119)	1.70	(< 20)
1,1-Dichloroethane	30	30.1	100	30	29.8	99	(77-125)	0.94	(< 20)
1,1-Dichloroethene	30	30.4	101	30	30.0	100	(71-131)	1.40	(< 20)
1,1-Dichloropropene	30	30.2	101	30	29.9	100	(79-125)	1.20	(< 20)
1,2,3-Trichlorobenzene	30	29.4	98	30	32.9	110	(69-129)	11.30	(< 20)
1,2,3-Trichloropropane	30	28.5	95	30	29.3	98	(73-122)	2.70	(< 20)
1,2,4-Trichlorobenzene	30	30.1	100	30	31.8	106	(69-130)	5.30	(< 20)
1,2,4-Trimethylbenzene	30	30.5	102	30	30.0	100	(79-124)	1.60	(< 20)
1,2-Dibromo-3-chloropropane	30	28.3	94	30	30.9	103	(62-128)	8.70	(< 20)
1,2-Dibromoethane	30	29.6	99	30	30.3	101	(77-121)	2.30	(< 20)
1,2-Dichlorobenzene	30	28.7	96	30	29.2	97	(80-119)	1.70	(< 20)
1,2-Dichloroethane	30	28.3	94	30	28.4	95	(73-128)	0.32	(< 20)
1,2-Dichloropropane	30	29.7	99	30	29.4	98	(78-122)	0.81	(< 20)
1,3,5-Trimethylbenzene	30	30.4	101	30	30.0	100	(75-124)	1.30	(< 20)
1,3-Dichlorobenzene	30	29.2	97	30	29.8	99	(80-119)	2.10	(< 20)
1,3-Dichloropropane	30	29.5	98	30	30.2	101	(80-119)	2.30	(< 20)
1,4-Dichlorobenzene	30	28.9	96	30	29.1	97	(79-118)	0.62	(< 20)
2,2-Dichloropropane	30	31.2	104	30	30.7	102	(60-139)	1.70	(< 20)
2-Butanone (MEK)	90	82.3	91	90	87.7	97	(56-143)	6.30	(< 20)
2-Chlorotoluene	30	29.1	97	30	29.3	98	(79-122)	0.75	(< 20)
2-Hexanone	90	90.3	100	90	93.5	104	(57-139)	3.50	(< 20)
4-Chlorotoluene	30	29.4	98	30	29.4	98	(78-122)	0.07	(< 20)
4-Isopropyltoluene	30	31.5	105	30	29.8	99	(77-127)	5.70	(< 20)
4-Methyl-2-pentanone (MIBK)	90	92.0	102	90	94.4	105	(67-130)	2.60	(< 20)
Benzene	30	29.5	98	30	29.3	98	(79-120)	0.68	(< 20)
Bromobenzene	30	28.2	94	30	29.1	97	(80-120)	2.90	(< 20)
Bromochloromethane	30	30.5	102	30	30.6	102	(78-123)	0.07	(< 20)
Bromodichloromethane	30	30.0	100	30	30.1	100	(79-125)	0.33	(< 20)
Bromoform	30	30.4	101	30	30.8	103	(66-130)	1.00	(< 20)
Bromomethane	30	33.8	113	30	31.0	103	(53-141)	8.90	(< 20)
Carbon disulfide	45	46.0	102	45	45.1	100	(64-133)	1.90	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176354 [VXX31310]
Blank Spike Lab ID: 1413640
Date Analyzed: 09/15/2017 12:12

Spike Duplicate ID: LCSD for HBN 1176354 [VXX31310]
Spike Duplicate Lab ID: 1413641
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

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	30.7	102	30	30.1	100	(72-136)	2.00	(< 20)
Chlorobenzene	30	28.5	95	30	28.5	95	(82-118)	0.14	(< 20)
Chloroethane	30	30.9	103	30	28.1	94	(60-138)	9.50	(< 20)
Chloroform	30	29.7	99	30	29.6	99	(79-124)	0.24	(< 20)
Chloromethane	30	26.6	89	30	29.7	99	(50-139)	11.00	(< 20)
cis-1,2-Dichloroethene	30	29.8	99	30	29.3	98	(78-123)	1.50	(< 20)
cis-1,3-Dichloropropene	30	30.3	101	30	30.5	102	(75-124)	0.86	(< 20)
Dibromochloromethane	30	30.1	100	30	30.6	102	(74-126)	1.40	(< 20)
Dibromomethane	30	29.8	100	30	30.3	101	(79-123)	1.60	(< 20)
Dichlorodifluoromethane	30	26.8	90	30	26.5	89	(32-152)	1.10	(< 20)
Ethylbenzene	30	29.6	99	30	29.6	99	(79-121)	0.10	(< 20)
Freon-113	45	46.9	104	45	46.0	102	(70-136)	1.80	(< 20)
Hexachlorobutadiene	30	31.3	104	30	29.1	97	(66-134)	7.10	(< 20)
Isopropylbenzene (Cumene)	30	30.8	103	30	29.9	100	(72-131)	2.80	(< 20)
Methylene chloride	30	29.8	99	30	30.1	100	(74-124)	1.00	(< 20)
Methyl-t-butyl ether	45	44.9	100	45	45.8	102	(71-124)	2.10	(< 20)
Naphthalene	30	28.5	95	30	33.5	112	(61-128)	16.00	(< 20)
n-Butylbenzene	30	32.0	107	30	29.8	99	(75-128)	7.10	(< 20)
n-Propylbenzene	30	29.6	99	30	29.1	97	(76-126)	1.80	(< 20)
o-Xylene	30	30.3	101	30	29.9	100	(78-122)	1.10	(< 20)
P & M -Xylene	60	60.3	100	60	59.9	100	(80-121)	0.57	(< 20)
sec-Butylbenzene	30	30.9	103	30	29.4	98	(77-126)	4.80	(< 20)
Styrene	30	27.2	91	30	27.1	91	(78-123)	0.33	(< 20)
tert-Butylbenzene	30	30.4	101	30	29.4	98	(78-124)	3.30	(< 20)
Tetrachloroethene	30	29.4	98	30	29.2	97	(74-129)	0.65	(< 20)
Toluene	30	27.4	91	30	27.3	91	(80-121)	0.29	(< 20)
trans-1,2-Dichloroethene	30	29.6	99	30	29.6	99	(75-124)	0.03	(< 20)
trans-1,3-Dichloropropene	30	31.0	103	30	31.4	105	(73-127)	1.10	(< 20)
Trichloroethene	30	29.7	99	30	29.4	98	(79-123)	1.10	(< 20)
Trichlorofluoromethane	30	30.7	102	30	30.0	100	(65-141)	2.30	(< 20)
Vinyl acetate	30	29.4	98	30	29.5	98	(54-146)	0.61	(< 20)
Vinyl chloride	30	29.0	97	30	28.9	96	(58-137)	0.31	(< 20)
Xylenes (total)	90	90.5	101	90	89.8	100	(79-121)	0.74	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176354 [VXX31310]
Blank Spike Lab ID: 1413640
Date Analyzed: 09/15/2017 12:12

Spike Duplicate ID: LCSD for HBN 1176354 [VXX31310]
Spike Duplicate Lab ID: 1413641
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

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	100	100	30	100	100	(81-118)	0.20	
4-Bromofluorobenzene (surr)	30	97.1	97	30	98.5	99	(85-114)	1.50	
Toluene-d8 (surr)	30	100	100	30	100	100	(89-112)	0.37	

Batch Information

Analytical Batch: **VMS17191**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX31310**
Prep Method: **SW5030B**
Prep Date/Time: **09/15/2017 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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Method Blank

Blank ID: MB for HBN 1768706 [VXX/31315]
Blank Lab ID: 1413822

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Chloroform	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	112	81-118		%
4-Bromofluorobenzene (surr)	109	85-114		%
Toluene-d8 (surr)	95.7	89-112		%

Batch Information

Analytical Batch: VMS17192
Analytical Method: SW8260C
Instrument: VSA Agilent GC/MS 7890B/5977A
Analyst: FDR
Analytical Date/Time: 9/18/2017 10:59:00AM

Prep Batch: VXX31315
Prep Method: SW5030B
Prep Date/Time: 9/18/2017 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 1768394 [TCLP/9042]
Blank Lab ID: 1413235

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Benzene	10.0U	20.0	6.00	ug/L
Chloroform	25.0U	50.0	15.5	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	81-118		%
4-Bromofluorobenzene (surr)	107	85-114		%
Toluene-d8 (surr)	98	89-112		%

Batch Information

Analytical Batch: VMS17192
Analytical Method: SW8260C
Instrument: VSA Agilent GC/MS 7890B/5977A
Analyst: FDR
Analytical Date/Time: 9/18/2017 1:55:00PM

Prep Batch: VXX31315
Prep Method: SW5030B
Prep Date/Time: 9/18/2017 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 1176354 [VXX31315]
Blank Spike Lab ID: 1413823
Date Analyzed: 09/18/2017 12:09

Spike Duplicate ID: LCSD for HBN 1176354 [VXX31315]
Spike Duplicate Lab ID: 1413824
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2,4-Trimethylbenzene	30	34.5	115	30	35.4	118	(79-124)	2.50	(< 20)
Benzene	30	33.7	112	30	33.5	112	(79-120)	0.48	(< 20)
Chloroform	30	32.5	108	30	33.2	111	(79-124)	2.10	(< 20)
Ethylbenzene	30	33.6	112	30	33.8	113	(79-121)	0.47	(< 20)
Naphthalene	30	31.0	103	30	33.3	111	(61-128)	7.10	(< 20)
P & M -Xylene	60	69.2	115	60	68.0	113	(80-121)	1.70	(< 20)
Xylenes (total)	90	104	116	90	103	114	(79-121)	1.30	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	97.6	98	30	98	98	(81-118)	0.41	
4-Bromofluorobenzene (surr)	30	97.8	98	30	97.8	98	(85-114)	0.03	
Toluene-d8 (surr)	30	101	101	30	101	101	(89-112)	0.20	

Batch Information

Analytical Batch: **VMS17192**
Analytical Method: **SW8260C**
Instrument: **VSA Agilent GC/MS 7890B/5977A**
Analyst: **FDR**

Prep Batch: **VXX31315**
Prep Method: **SW5030B**
Prep Date/Time: **09/18/2017 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 09/25/2017 11:13:00AM

Matrix Spike Summary

Original Sample ID: 1414172
MS Sample ID: 1414173 MS
MSD Sample ID: 1414174 MSD

Analysis Date: 09/18/2017 20:28
Analysis Date: 09/18/2017 20:46
Analysis Date: 09/18/2017 21:03
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354004, 1176354005, 1176354006, 1176354007, 1176354008, 1176354009

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2,4-Trimethylbenzene	134	1500	1900	118	1500	1860	115	79-124	2.00	(< 20)
Benzene	395	1500	2150	117	1500	2060	111	79-120	4.20	(< 20)
Chloroform	25.0U	1500	1670	111	1500	1620	108	79-124	3.10	(< 20)
Ethylbenzene	299	1500	1990	113	1500	1940	109	79-121	2.50	(< 20)
Naphthalene	123	1500	1670	103	1500	1740	108	61-128	4.20	(< 20)
P & M -Xylene	917	3000	4420	117	3000	4190	109	80-121	5.30	(< 20)
Xylenes (total)	1420	4500	6670	117	4500	6350	109	79-121	5.00	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		1500	1460	97	1500	1450	97	81-118	0.38	
4-Bromofluorobenzene (surr)		1500	1410	94	1500	1430	95	85-114	1.50	
Toluene-d8 (surr)		1500	1520	101	1500	1520	101	89-112	0.00	

Batch Information

Analytical Batch: VMS17192
Analytical Method: SW8260C
Instrument: VSA Agilent GC/MS 7890B/5977A
Analyst: FDR
Analytical Date/Time: 9/18/2017 8:46:00PM

Prep Batch: VXX31315
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 9/18/2017 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 09/25/2017 11:13:01AM

Method Blank

Blank ID: MB for HBN 1768802 [VXX/31325]
Blank Lab ID: 1414313

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354004

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	79.8	50-150		%

Batch Information

Analytical Batch: VFC13888
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 9/19/2017 12:05:00AM

Prep Batch: VXX31325
Prep Method: SW5030B
Prep Date/Time: 9/18/2017 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176354 [VXX31325]
Blank Spike Lab ID: 1414316
Date Analyzed: 09/18/2017 19:57

Spike Duplicate ID: LCSD for HBN 1176354 [VXX31325]
Spike Duplicate Lab ID: 1414317
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354004

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	1.07	107	1.00	1.04	104	(60-120)	3.60	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	83.4	83	0.0500	88.3	88	(50-150)	5.70	

Batch Information

Analytical Batch: **VFC13888**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX31325**
Prep Method: **SW5030B**
Prep Date/Time: **09/18/2017 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 1767747 [XXX/38354]
Blank Lab ID: 1410797

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008

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)	78.3	47-106		%
Fluoranthene-d10 (surr)	81.2	24-116		%

Batch Information

Analytical Batch: XMS10404
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 9/16/2017 5:38:00PM

Prep Batch: XXX38354
Prep Method: SW3520C
Prep Date/Time: 9/7/2017 8:23:16AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176354 [XXX38354]
Blank Spike Lab ID: 1410798
Date Analyzed: 09/16/2017 17:59

Spike Duplicate ID: LCSD for HBN 1176354 [XXX38354]
Spike Duplicate Lab ID: 1410799
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008

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	1.58	79	2	1.63	82	(41-115)	3.00	(< 20)
2-Methylnaphthalene	2	1.50	75	2	1.52	76	(39-114)	1.40	(< 20)
Acenaphthene	2	1.91	96	2	1.80	90	(48-114)	6.10	(< 20)
Acenaphthylene	2	1.59	79	2	1.50	75	(35-121)	5.70	(< 20)
Anthracene	2	1.64	82	2	1.82	91	(53-119)	10.30	(< 20)
Benzo(a)Anthracene	2	1.63	81	2	1.58	79	(59-120)	2.70	(< 20)
Benzo[a]pyrene	2	1.62	81	2	1.54	77	(53-120)	4.90	(< 20)
Benzo[b]Fluoranthene	2	1.69	84	2	1.64	82	(53-126)	2.70	(< 20)
Benzo[g,h,i]perylene	2	1.50	75	2	1.47	74	(44-128)	1.90	(< 20)
Benzo[k]fluoranthene	2	1.59	80	2	1.57	78	(54-125)	1.50	(< 20)
Chrysene	2	1.69	85	2	1.68	84	(57-120)	0.82	(< 20)
Dibenzo[a,h]anthracene	2	1.39	70	2	1.37	69	(44-131)	1.30	(< 20)
Fluoranthene	2	1.62	81	2	1.62	81	(58-120)	0.19	(< 20)
Fluorene	2	1.51	76	2	1.60	80	(50-118)	5.40	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.51	76	2	1.50	75	(48-130)	0.91	(< 20)
Naphthalene	2	1.42	71	2	1.66	83	(43-114)	15.50	(< 20)
Phenanthrene	2	1.58	79	2	1.75	88	(53-115)	10.60	(< 20)
Pyrene	2	1.64	82	2	1.64	82	(53-121)	0.00	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2	80.3	80	2	83	83	(47-106)	3.20	
Fluoranthene-d10 (surr)	2	82.2	82	2	83.2	83	(24-116)	1.20	

Batch Information

Analytical Batch: **XMS10404**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **DSD**

Prep Batch: **XXX38354**
Prep Method: **SW3520C**
Prep Date/Time: **09/07/2017 08:23**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 09/25/2017 11:13:07AM

Method Blank

Blank ID: MB for HBN 1767927 [XXX/38379]
Blank Lab ID: 1411566

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	83.9	60-120		%

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK102
Instrument: HP 7890A FID SV E F
Analyst: JMG
Analytical Date/Time: 9/13/2017 12:16:00PM

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 9/9/2017 8:20:36AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176354 [XXX38379]
Blank Spike Lab ID: 1411567
Date Analyzed: 09/13/2017 12:37

Spike Duplicate ID: LCSD for HBN 1176354 [XXX38379]
Spike Duplicate Lab ID: 1411568
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008

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	20.3	101	20	19.4	97	(75-125)	4.20	(< 20)
Surrogates									
5a Androstane (surr)	0.4	101	101	0.4	99.5	100	(60-120)	1.40	

Batch Information

Analytical Batch: **XFC13793**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E F**
Analyst: **JMG**

Prep Batch: **XXX38379**
Prep Method: **SW3520C**
Prep Date/Time: **09/09/2017 08:20**
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 1767927 [XXX/38379]
Blank Lab ID: 1411566

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008

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)	94	60-120		%

Batch Information

Analytical Batch: XFC13793
Analytical Method: AK103
Instrument: HP 7890A FID SV E F
Analyst: JMG
Analytical Date/Time: 9/13/2017 12:16:00PM

Prep Batch: XXX38379
Prep Method: SW3520C
Prep Date/Time: 9/9/2017 8:20:36AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176354 [XXX38379]
Blank Spike Lab ID: 1411567
Date Analyzed: 09/13/2017 12:37

Spike Duplicate ID: LCSD for HBN 1176354 [XXX38379]
Spike Duplicate Lab ID: 1411568
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1176354001, 1176354002, 1176354003, 1176354004, 1176354005, 1176354006, 1176354007, 1176354008

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	20.2	101	20	19.9	100	(60-120)	1.20	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	91	91	0.4	90.4	90	(60-120)	0.65	

Batch Information

Analytical Batch: **XFC13793**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E F**
Analyst: **JMG**

Prep Batch: **XXX38379**
Prep Method: **SW3520C**
Prep Date/Time: **09/09/2017 08:20**
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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1176354

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

Page 1 of 1

Section 1

CLIENT: RSE	
CONTACT: Arran Forbes	PHONE #: 907 278 1023
PROJECT NAME: AKRR Ship Creek Groundwater	Project/ PWSID/ PERMIT#:
REPORTS TO: RSE	E-MAIL: aforbes@restorsci.com
INVOICE TO: ARRC - Russ Grandel	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)	DRO PRO	PAH	VOC/GRO HCl	salinity							REMARKS/ LOC ID
(1) A-G	RSE-1	09/06/17	1030	H_2O	7	G	x	x	x								
(2) A-G	RSE-2		1100		7	G	x	x	x								
(3) A-G	RSE-3		1130		7	G	x	x	x								
(4) A-H	RSE-4		1200		8	G	x	x	x	x							hold RSE-4 salinity
(5) A-G	RSE-5		1230		7	G	x	x	x								
(6) A-G	RSE-6		1300		7	G	x	x	x								
(7) A-G	RSE-7		1330		7	G	x	x	x								
(8) A-G	RSE-X		1345		7	G	x	x	x								
(9) A-C	Trip Blank																

Section 5

	Date	Time	
Relinquished By: (1)	9/6/17	1006	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	9/6/17	16:06	Received For Laboratory By:

Section 4

DOD Project? Yes No

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 3.0 #D40
or Ambient [ ]
(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT
(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

http://www.sgs.com/terms-and-conditions

Hand Delivered

e-Sample Receipt Form

SGS Workorder #: **1176354**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	Absent
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 @ 3.0 °C Therm. ID: D40
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	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)? **Note: If times differ <1hr, record details & login per COC.	Yes	
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?	No	**Sample 1E and 4E were received unpreserved, 2mL of HCl was added LW09-0463-12-019, pH verified.**
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
1176354001-A	HCL to pH < 2	OK
1176354001-B	HCL to pH < 2	OK
1176354001-C	HCL to pH < 2	OK
1176354001-D	HCL to pH < 2	OK
1176354001-E	HCL to pH < 2	OK
1176354001-F	No Preservative Required	OK
1176354001-G	No Preservative Required	OK
1176354002-A	HCL to pH < 2	OK
1176354002-B	HCL to pH < 2	OK
1176354002-C	HCL to pH < 2	OK
1176354002-D	HCL to pH < 2	OK
1176354002-E	HCL to pH < 2	OK
1176354002-F	No Preservative Required	OK
1176354002-G	No Preservative Required	OK
1176354003-A	HCL to pH < 2	OK
1176354003-B	HCL to pH < 2	OK
1176354003-C	HCL to pH < 2	OK
1176354003-D	HCL to pH < 2	OK
1176354003-E	HCL to pH < 2	OK
1176354003-F	No Preservative Required	OK
1176354003-G	No Preservative Required	OK
1176354004-A	HCL to pH < 2	OK
1176354004-B	HCL to pH < 2	OK
1176354004-C	HCL to pH < 2	OK
1176354004-D	HCL to pH < 2	OK
1176354004-E	HCL to pH < 2	OK
1176354004-F	No Preservative Required	OK
1176354004-G	No Preservative Required	OK
1176354004-H	No Preservative Required	OK
1176354005-A	HCL to pH < 2	OK
1176354005-B	HCL to pH < 2	OK
1176354005-C	HCL to pH < 2	OK
1176354005-D	HCL to pH < 2	OK
1176354005-E	HCL to pH < 2	OK
1176354005-F	No Preservative Required	OK
1176354005-G	No Preservative Required	OK
1176354006-A	HCL to pH < 2	OK
1176354006-B	HCL to pH < 2	OK
1176354006-C	HCL to pH < 2	OK
1176354006-D	HCL to pH < 2	OK
1176354006-E	HCL to pH < 2	OK
1176354006-F	No Preservative Required	OK
1176354006-G	No Preservative Required	OK
1176354007-A	HCL to pH < 2	OK
1176354007-B	HCL to pH < 2	OK
1176354007-C	HCL to pH < 2	OK
1176354007-D	HCL to pH < 2	OK
1176354007-E	HCL to pH < 2	OK
1176354007-F	No Preservative Required	OK
1176354007-G	No Preservative Required	OK
1176354008-A	HCL to pH < 2	OK
1176354008-B	HCL to pH < 2	OK
1176354008-C	HCL to pH < 2	OK
1176354008-D	HCL to pH < 2	OK
1176354008-E	HCL to pH < 2	OK
1176354008-F	No Preservative Required	OK
1176354008-G	No Preservative Required	OK
1176354009-A	HCL to pH < 2	OK
1176354009-B	HCL to pH < 2	OK
1176354009-C	HCL to pH < 2	OK

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Laboratory Report of Analysis

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

Report Number: **1176161**

Client Project: **801 Ship Creek Soils**

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: **1176161**
Project Name/Site: **801 Ship Creek Soils**
Project Contact: **Russell Grandel**

Refer to sample receipt form for information on sample condition.

RSE-5-4 (1176161005) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (187%) does not meet QC criteria due to matrix interference.

RSE-X (1176161015) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (403 %) does not meet QC criteria due to matrix interference.

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

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Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
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-1-2	1176161001	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-2-2	1176161002	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-3-4	1176161003	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-4-5	1176161004	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-5-4	1176161005	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-6-4	1176161006	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-7-3	1176161007	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-1-3	1176161008	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-2-3	1176161009	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-3-3	1176161010	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-4-4	1176161011	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-5-2	1176161012	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-6-3	1176161013	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-7-4	1176161014	08/29/2017	08/30/2017	Soil/Solid (dry weight)
RSE-X	1176161015	08/29/2017	08/30/2017	Soil/Solid (dry weight)
Trip Blank	1176161016	08/29/2017	08/30/2017	Soil/Solid (dry weight)

Method	Method Description
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8260C	VOC 8260 (S) Field Extracted

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Detectable Results Summary

Client Sample ID: **RSE-1-2**
Lab Sample ID: 1176161001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	84.2	ug/Kg
	Fluorene	8.14J	ug/Kg
	Naphthalene	9.74J	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	7.50J	mg/Kg
	Residual Range Organics	20.2J	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.03J	mg/Kg
Volatile GC/MS	4-Isopropyltoluene	6.79J	ug/Kg
	Naphthalene	21.4	ug/Kg

Client Sample ID: **RSE-2-2**
Lab Sample ID: 1176161002

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	12.4J	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.691J	mg/Kg

Client Sample ID: **RSE-3-4**
Lab Sample ID: 1176161003

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	11.4J	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.822J	mg/Kg

Client Sample ID: **RSE-4-5**
Lab Sample ID: 1176161004

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	69.9	ug/Kg
	2-Methylnaphthalene	103	ug/Kg
	Naphthalene	46.9	ug/Kg
	Phenanthrene	17.1J	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	16.9J	mg/Kg
	Residual Range Organics	25.9	mg/Kg
Volatile Fuels	Gasoline Range Organics	10.7	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	1290	ug/Kg
	1,3,5-Trimethylbenzene	399	ug/Kg
	4-Isopropyltoluene	84.2	ug/Kg
	Benzene	13.8	ug/Kg
	Ethylbenzene	220	ug/Kg
	Isopropylbenzene (Cumene)	82.3	ug/Kg
	Naphthalene	172	ug/Kg
	n-Propylbenzene	248	ug/Kg
	o-Xylene	129	ug/Kg
	P & M -Xylene	690	ug/Kg
	sec-Butylbenzene	36.0	ug/Kg
	Toluene	37.7	ug/Kg
	Xylenes (total)	819	ug/Kg

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Detectable Results Summary

Client Sample ID: **RSE-5-4**
Lab Sample ID: 1176161005

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	530	ug/Kg
	2-Methylnaphthalene	878	ug/Kg
	Fluorene	20.0J	ug/Kg
	Naphthalene	400	ug/Kg
	Phenanthrene	37.6	ug/Kg
	Pyrene	14.1J	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	105	mg/Kg
	Residual Range Organics	57.6	mg/Kg
Volatile Fuels	Gasoline Range Organics	42.0	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	5320	ug/Kg
	1,3,5-Trimethylbenzene	1750	ug/Kg
	4-Isopropyltoluene	468	ug/Kg
	Benzene	26.8	ug/Kg
	Ethylbenzene	702	ug/Kg
	Isopropylbenzene (Cumene)	304	ug/Kg
	Naphthalene	458	ug/Kg
	n-Propylbenzene	1260	ug/Kg
	o-Xylene	47.8	ug/Kg
	P & M -Xylene	2590	ug/Kg
	sec-Butylbenzene	194	ug/Kg
	Toluene	37.6	ug/Kg
	Xylenes (total)	2630	ug/Kg

Client Sample ID: **RSE-6-4**
Lab Sample ID: 1176161006

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	324	ug/Kg
	2-Methylnaphthalene	444	ug/Kg
	Naphthalene	333	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	13.8J	mg/Kg
	Residual Range Organics	44.2	mg/Kg
Volatile Fuels	Gasoline Range Organics	10.5	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	3030	ug/Kg
	1,3,5-Trimethylbenzene	881	ug/Kg
	4-Isopropyltoluene	137	ug/Kg
	Benzene	28.2	ug/Kg
	Ethylbenzene	286	ug/Kg
	Isopropylbenzene (Cumene)	161	ug/Kg
	Naphthalene	589	ug/Kg
	n-Propylbenzene	526	ug/Kg
	o-Xylene	10.5J	ug/Kg
	P & M -Xylene	1270	ug/Kg
	sec-Butylbenzene	52.2	ug/Kg
	Xylenes (total)	1280	ug/Kg

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Detectable Results Summary

Client Sample ID: **RSE-7-3**
Lab Sample ID: 1176161007
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Residual Range Organics	13.1J	mg/Kg
Gasoline Range Organics	0.629J	mg/Kg
1,2,4-Trimethylbenzene	19.9J	ug/Kg
1,3,5-Trimethylbenzene	6.15J	ug/Kg

Client Sample ID: **RSE-1-3**
Lab Sample ID: 1176161008
Semivolatile Organic Fuels

Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	11.6J	mg/Kg
Residual Range Organics	82.2	mg/Kg
Gasoline Range Organics	0.642J	mg/Kg

Client Sample ID: **RSE-2-3**
Lab Sample ID: 1176161009
Semivolatile Organic Fuels

Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	11.8J	mg/Kg
Residual Range Organics	83.4	mg/Kg
Gasoline Range Organics	0.666J	mg/Kg

Client Sample ID: **RSE-3-3**
Lab Sample ID: 1176161010
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Residual Range Organics	19.7J	mg/Kg
Benzene	4.80J	ug/Kg

Client Sample ID: **RSE-4-4**
Lab Sample ID: 1176161011
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Residual Range Organics	41.8	mg/Kg
Toluene	9.36J	ug/Kg

Client Sample ID: **RSE-5-2**
Lab Sample ID: 1176161012
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Residual Range Organics	25.5	mg/Kg
Benzene	13.4	ug/Kg
Ethylbenzene	81.4	ug/Kg
Gasoline Range Organics	1.31J	mg/Kg
o-Xylene	9.79J	ug/Kg
P & M -Xylene	92.3	ug/Kg
Toluene	12.6J	ug/Kg

Client Sample ID: **RSE-6-3**
Lab Sample ID: 1176161013
Semivolatile Organic Fuels

Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	10.4J	mg/Kg
Residual Range Organics	42.4	mg/Kg
Benzene	9.37J	ug/Kg
Ethylbenzene	30.3	ug/Kg
Gasoline Range Organics	1.34J	mg/Kg
P & M -Xylene	62.0	ug/Kg

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Detectable Results Summary

Client Sample ID: **RSE-7-4**
Lab Sample ID: 1176161014
Semivolatile Organic Fuels

Parameter	Result	Units
Residual Range Organics	9.58J	mg/Kg

Client Sample ID: **RSE-X**
Lab Sample ID: 1176161015
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	70.5	mg/Kg
Residual Range Organics	117	mg/Kg

Volatile Fuels

Benzene	248	ug/Kg
Ethylbenzene	1540	ug/Kg
Gasoline Range Organics	82.7	mg/Kg
o-Xylene	222	ug/Kg
P & M -Xylene	4720	ug/Kg
Toluene	348	ug/Kg

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Results of **RSE-1-2**

Client Sample ID: **RSE-1-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161001
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	84.2		26.9	8.06	ug/Kg	1		09/06/17 03:49
2-Methylnaphthalene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Acenaphthene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Acenaphthylene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Anthracene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Benzo(a)Anthracene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Benzo[a]pyrene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Benzo[b]Fluoranthene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Benzo[g,h,i]perylene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Benzo[k]fluoranthene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Chrysene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Dibenzo[a,h]anthracene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Fluoranthene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Fluorene	8.14	J	26.9	8.06	ug/Kg	1		09/06/17 03:49
Indeno[1,2,3-c,d] pyrene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Naphthalene	9.74	J	21.5	6.45	ug/Kg	1		09/06/17 03:49
Phenanthrene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Pyrene	13.4	U	26.9	8.06	ug/Kg	1		09/06/17 03:49
Surrogates								
2-Methylnaphthalene-d10 (surr)	87.7		50-150		%	1		09/06/17 03:49
Fluoranthene-d10 (surr)	87.3		50-150		%	1		09/06/17 03:49

Batch Information

Analytical Batch: XMS10370
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/06/17 03:49
Container ID: 1176161001-A

Prep Batch: XXX38337
Prep Method: SW3550C
Prep Date/Time: 09/05/17 11:40
Prep Initial Wt./Vol.: 22.67 g
Prep Extract Vol: 5 mL

J flagging is activated

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Results of **RSE-1-2**

Client Sample ID: **RSE-1-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161001
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	7.50	J	21.4	6.64	mg/Kg	1		09/03/17 16:19
Surrogates								
5a Androstane (surr)	84.5		50-150		%	1		09/03/17 16:19

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 16:19
Container ID: 1176161001-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.348 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	20.2	J	21.4	6.64	mg/Kg	1		09/03/17 16:19
Surrogates								
n-Triacontane-d62 (surr)	81.7		50-150		%	1		09/03/17 16:19

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 16:19
Container ID: 1176161001-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.348 g
Prep Extract Vol: 1 mL

Results of **RSE-1-2**

Client Sample ID: **RSE-1-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161001
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.03	J	2.06	0.618	mg/Kg	1		08/31/17 15:45
Surrogates								
4-Bromofluorobenzene (surr)	94.7		50-150		%	1		08/31/17 15:45

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 15:45
Container ID: 1176161001-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:05
Prep Initial Wt./Vol.: 82.425 g
Prep Extract Vol: 31.3321 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

SGS

Results of **RSE-1-2**

Client Sample ID: **RSE-1-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161001
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.25	U	16.5	5.11	ug/Kg	1		08/31/17 21:36
1,1,1-Trichloroethane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,1,2,2-Tetrachloroethane	5.15	U	10.3	3.21	ug/Kg	1		08/31/17 21:36
1,1,2-Trichloroethane	4.12	U	8.24	2.55	ug/Kg	1		08/31/17 21:36
1,1-Dichloroethane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,1-Dichloroethene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,1-Dichloropropene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,2,3-Trichlorobenzene	20.6	U	41.2	12.4	ug/Kg	1		08/31/17 21:36
1,2,3-Trichloropropane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,2,4-Trichlorobenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,2,4-Trimethylbenzene	20.6	U	41.2	12.4	ug/Kg	1		08/31/17 21:36
1,2-Dibromo-3-chloropropane	41.2	U	82.4	25.5	ug/Kg	1		08/31/17 21:36
1,2-Dibromoethane	4.12	U	8.24	2.55	ug/Kg	1		08/31/17 21:36
1,2-Dichlorobenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,2-Dichloroethane	4.12	U	8.24	2.55	ug/Kg	1		08/31/17 21:36
1,2-Dichloropropane	4.12	U	8.24	2.55	ug/Kg	1		08/31/17 21:36
1,3,5-Trimethylbenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,3-Dichlorobenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
1,3-Dichloropropane	4.12	U	8.24	2.55	ug/Kg	1		08/31/17 21:36
1,4-Dichlorobenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
2,2-Dichloropropane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
2-Butanone (MEK)	103	U	206	64.2	ug/Kg	1		08/31/17 21:36
2-Chlorotoluene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
2-Hexanone	41.2	U	82.4	25.5	ug/Kg	1		08/31/17 21:36
4-Chlorotoluene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
4-Isopropyltoluene	6.79	J	20.6	6.42	ug/Kg	1		08/31/17 21:36
4-Methyl-2-pentanone (MIBK)	103	U	206	64.2	ug/Kg	1		08/31/17 21:36
Benzene	5.15	U	10.3	3.21	ug/Kg	1		08/31/17 21:36
Bromobenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Bromochloromethane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Bromodichloromethane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Bromoform	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Bromomethane	82.5	U	165	51.1	ug/Kg	1		08/31/17 21:36
Carbon disulfide	41.2	U	82.4	25.5	ug/Kg	1		08/31/17 21:36
Carbon tetrachloride	5.15	U	10.3	3.21	ug/Kg	1		08/31/17 21:36
Chlorobenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Chloroethane	82.5	U	165	51.1	ug/Kg	1		08/31/17 21:36

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Results of **RSE-1-2**

Client Sample ID: **RSE-1-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161001
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Chloromethane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
cis-1,2-Dichloroethene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
cis-1,3-Dichloropropene	5.15	U	10.3	3.21	ug/Kg	1		08/31/17 21:36
Dibromochloromethane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Dibromomethane	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Dichlorodifluoromethane	20.6	U	41.2	12.4	ug/Kg	1		08/31/17 21:36
Ethylbenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Freon-113	41.2	U	82.4	25.5	ug/Kg	1		08/31/17 21:36
Hexachlorobutadiene	8.25	U	16.5	5.11	ug/Kg	1		08/31/17 21:36
Isopropylbenzene (Cumene)	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Methylene chloride	41.2	U	82.4	25.5	ug/Kg	1		08/31/17 21:36
Methyl-t-butyl ether	41.2	U	82.4	25.5	ug/Kg	1		08/31/17 21:36
Naphthalene	21.4		20.6	6.42	ug/Kg	1		08/31/17 21:36
n-Butylbenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
n-Propylbenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
o-Xylene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
P & M -Xylene	20.6	U	41.2	12.4	ug/Kg	1		08/31/17 21:36
sec-Butylbenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Styrene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
tert-Butylbenzene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
Tetrachloroethene	5.15	U	10.3	3.21	ug/Kg	1		08/31/17 21:36
Toluene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
trans-1,2-Dichloroethene	10.3	U	20.6	6.42	ug/Kg	1		08/31/17 21:36
trans-1,3-Dichloropropene	5.15	U	10.3	3.21	ug/Kg	1		08/31/17 21:36
Trichloroethene	4.12	U	8.24	2.55	ug/Kg	1		08/31/17 21:36
Trichlorofluoromethane	20.6	U	41.2	12.4	ug/Kg	1		08/31/17 21:36
Vinyl acetate	41.2	U	82.4	25.5	ug/Kg	1		08/31/17 21:36
Vinyl chloride	4.12	U	8.24	2.55	ug/Kg	1		08/31/17 21:36
Xylenes (total)	30.9	U	61.8	18.8	ug/Kg	1		08/31/17 21:36
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.4		71-136		%	1		08/31/17 21:36
4-Bromofluorobenzene (surr)	117		55-151		%	1		08/31/17 21:36
Toluene-d8 (surr)	103		85-116		%	1		08/31/17 21:36

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Results of **RSE-1-2**

Client Sample ID: **RSE-1-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161001
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 08/31/17 21:36
Container ID: 1176161001-B

Prep Batch: VXX31189
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:05
Prep Initial Wt./Vol.: 82.425 g
Prep Extract Vol: 31.3321 mL

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Results of **RSE-2-2**

Client Sample ID: **RSE-2-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161002
Lab Project ID: 1176161

Collection Date: 08/29/17 10:45
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
2-Methylnaphthalene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Acenaphthene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Acenaphthylene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Anthracene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Benzo(a)Anthracene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Benzo[a]pyrene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Benzo[b]Fluoranthene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Benzo[g,h,i]perylene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Benzo[k]fluoranthene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Chrysene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Dibenzo[a,h]anthracene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Fluoranthene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Fluorene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Indeno[1,2,3-c,d] pyrene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Naphthalene	10.7	U	21.3	6.38	ug/Kg	1		09/06/17 19:36
Phenanthrene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Pyrene	13.3	U	26.6	7.97	ug/Kg	1		09/06/17 19:36
Surrogates								
2-Methylnaphthalene-d10 (surr)	92.1		50-150		%	1		09/06/17 19:36
Fluoranthene-d10 (surr)	92.1		50-150		%	1		09/06/17 19:36

Batch Information

Analytical Batch: XMS10377
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/06/17 19:36
Container ID: 1176161002-A

Prep Batch: XXX38321
Prep Method: SW3550C
Prep Date/Time: 09/01/17 18:34
Prep Initial Wt./Vol.: 22.708 g
Prep Extract Vol: 5 mL

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Results of **RSE-2-2**

Client Sample ID: **RSE-2-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161002
Lab Project ID: 1176161

Collection Date: 08/29/17 10:45
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.7	U	21.3	6.59	mg/Kg	1		09/03/17 16:30
Surrogates								
5a Androstane (surr)	82.4		50-150		%	1		09/03/17 16:30

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 16:30
Container ID: 1176161002-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.272 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	12.4	J	21.3	6.59	mg/Kg	1		09/03/17 16:30
Surrogates								
n-Triacontane-d62 (surr)	79.1		50-150		%	1		09/03/17 16:30

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 16:30
Container ID: 1176161002-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.272 g
Prep Extract Vol: 1 mL

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Results of **RSE-2-2**

Client Sample ID: **RSE-2-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161002
Lab Project ID: 1176161

Collection Date: 08/29/17 10:45
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.691	J	2.13	0.639	mg/Kg	1		08/31/17 16:03
Surrogates								
4-Bromofluorobenzene (surr)	92.1		50-150		%	1		08/31/17 16:03

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 16:03
Container ID: 1176161002-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:45
Prep Initial Wt./Vol.: 76.014 g
Prep Extract Vol: 30.1809 mL

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Results of **RSE-2-2**

Client Sample ID: **RSE-2-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161002
Lab Project ID: 1176161

Collection Date: 08/29/17 10:45
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	8.50 U		17.0	5.28	ug/Kg	1		08/31/17 21:54
1,1,1-Trichloroethane	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,1,2,2-Tetrachloroethane	5.35 U		10.7	3.32	ug/Kg	1		08/31/17 21:54
1,1,2-Trichloroethane	4.26 U		8.52	2.64	ug/Kg	1		08/31/17 21:54
1,1-Dichloroethane	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,1-Dichloroethene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,1-Dichloropropene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,2,3-Trichlorobenzene	21.3 U		42.6	12.8	ug/Kg	1		08/31/17 21:54
1,2,3-Trichloropropane	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,2,4-Trichlorobenzene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,2,4-Trimethylbenzene	21.3 U		42.6	12.8	ug/Kg	1		08/31/17 21:54
1,2-Dibromo-3-chloropropane	42.6 U		85.2	26.4	ug/Kg	1		08/31/17 21:54
1,2-Dibromoethane	4.26 U		8.52	2.64	ug/Kg	1		08/31/17 21:54
1,2-Dichlorobenzene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,2-Dichloroethane	4.26 U		8.52	2.64	ug/Kg	1		08/31/17 21:54
1,2-Dichloropropane	4.26 U		8.52	2.64	ug/Kg	1		08/31/17 21:54
1,3,5-Trimethylbenzene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,3-Dichlorobenzene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
1,3-Dichloropropane	4.26 U		8.52	2.64	ug/Kg	1		08/31/17 21:54
1,4-Dichlorobenzene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
2,2-Dichloropropane	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
2-Butanone (MEK)	107 U		213	66.5	ug/Kg	1		08/31/17 21:54
2-Chlorotoluene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
2-Hexanone	42.6 U		85.2	26.4	ug/Kg	1		08/31/17 21:54
4-Chlorotoluene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
4-Isopropyltoluene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
4-Methyl-2-pentanone (MIBK)	107 U		213	66.5	ug/Kg	1		08/31/17 21:54
Benzene	5.35 U		10.7	3.32	ug/Kg	1		08/31/17 21:54
Bromobenzene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
Bromochloromethane	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
Bromodichloromethane	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
Bromoform	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
Bromomethane	85.0 U		170	52.8	ug/Kg	1		08/31/17 21:54
Carbon disulfide	42.6 U		85.2	26.4	ug/Kg	1		08/31/17 21:54
Carbon tetrachloride	5.35 U		10.7	3.32	ug/Kg	1		08/31/17 21:54
Chlorobenzene	10.7 U		21.3	6.65	ug/Kg	1		08/31/17 21:54
Chloroethane	85.0 U		170	52.8	ug/Kg	1		08/31/17 21:54

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Results of **RSE-2-2**

Client Sample ID: **RSE-2-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161002
Lab Project ID: 1176161

Collection Date: 08/29/17 10:45
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
Chloromethane	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
cis-1,2-Dichloroethene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
cis-1,3-Dichloropropene	5.35	U	10.7	3.32	ug/Kg	1		08/31/17 21:54
Dibromochloromethane	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
Dibromomethane	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
Dichlorodifluoromethane	21.3	U	42.6	12.8	ug/Kg	1		08/31/17 21:54
Ethylbenzene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
Freon-113	42.6	U	85.2	26.4	ug/Kg	1		08/31/17 21:54
Hexachlorobutadiene	8.50	U	17.0	5.28	ug/Kg	1		08/31/17 21:54
Isopropylbenzene (Cumene)	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
Methylene chloride	42.6	U	85.2	26.4	ug/Kg	1		08/31/17 21:54
Methyl-t-butyl ether	42.6	U	85.2	26.4	ug/Kg	1		08/31/17 21:54
Naphthalene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
n-Butylbenzene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
n-Propylbenzene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
o-Xylene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
P & M -Xylene	21.3	U	42.6	12.8	ug/Kg	1		08/31/17 21:54
sec-Butylbenzene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
Styrene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
tert-Butylbenzene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
Tetrachloroethene	5.35	U	10.7	3.32	ug/Kg	1		08/31/17 21:54
Toluene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
trans-1,2-Dichloroethene	10.7	U	21.3	6.65	ug/Kg	1		08/31/17 21:54
trans-1,3-Dichloropropene	5.35	U	10.7	3.32	ug/Kg	1		08/31/17 21:54
Trichloroethene	4.26	U	8.52	2.64	ug/Kg	1		08/31/17 21:54
Trichlorofluoromethane	21.3	U	42.6	12.8	ug/Kg	1		08/31/17 21:54
Vinyl acetate	42.6	U	85.2	26.4	ug/Kg	1		08/31/17 21:54
Vinyl chloride	4.26	U	8.52	2.64	ug/Kg	1		08/31/17 21:54
Xylenes (total)	31.9	U	63.9	19.4	ug/Kg	1		08/31/17 21:54
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.6		71-136		%	1		08/31/17 21:54
4-Bromofluorobenzene (surr)	114		55-151		%	1		08/31/17 21:54
Toluene-d8 (surr)	104		85-116		%	1		08/31/17 21:54

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Results of **RSE-2-2**

Client Sample ID: **RSE-2-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161002
Lab Project ID: 1176161

Collection Date: 08/29/17 10:45
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 08/31/17 21:54
Container ID: 1176161002-B

Prep Batch: VXX31189
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:45
Prep Initial Wt./Vol.: 76.014 g
Prep Extract Vol: 30.1809 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-3-4**

Client Sample ID: **RSE-3-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161003
Lab Project ID: 1176161

Collection Date: 08/29/17 11:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.9
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
2-Methylnaphthalene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Acenaphthene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Acenaphthylene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Anthracene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Benzo(a)Anthracene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Benzo[a]pyrene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Benzo[b]Fluoranthene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Benzo[g,h,i]perylene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Benzo[k]fluoranthene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Chrysene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Dibenzo[a,h]anthracene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Fluoranthene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Fluorene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Indeno[1,2,3-c,d] pyrene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Naphthalene	10.9	U	21.7	6.51	ug/Kg	1		09/06/17 19:56
Phenanthrene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Pyrene	13.6	U	27.1	8.14	ug/Kg	1		09/06/17 19:56
Surrogates								
2-Methylnaphthalene-d10 (surr)	93.5		50-150		%	1		09/06/17 19:56
Fluoranthene-d10 (surr)	91.9		50-150		%	1		09/06/17 19:56

Batch Information

Analytical Batch: XMS10377
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/06/17 19:56
Container ID: 1176161003-A

Prep Batch: XXX38321
Prep Method: SW3550C
Prep Date/Time: 09/01/17 18:34
Prep Initial Wt./Vol.: 22.569 g
Prep Extract Vol: 5 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-3-4**

Client Sample ID: **RSE-3-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161003
Lab Project ID: 1176161

Collection Date: 08/29/17 11:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.8	U	21.6	6.68	mg/Kg	1		09/03/17 16:40
Surrogates								
5a Androstane (surr)	84.1		50-150		%	1		09/03/17 16:40

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 16:40
Container ID: 1176161003-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.281 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	11.4	J	21.6	6.68	mg/Kg	1		09/03/17 16:40
Surrogates								
n-Triacontane-d62 (surr)	81.4		50-150		%	1		09/03/17 16:40

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 16:40
Container ID: 1176161003-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.281 g
Prep Extract Vol: 1 mL

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Results of **RSE-3-4**

Client Sample ID: **RSE-3-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161003
Lab Project ID: 1176161

Collection Date: 08/29/17 11:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.822	J	2.55	0.765	mg/Kg	1		08/31/17 16:22
Surrogates								
4-Bromofluorobenzene (surr)	90.1		50-150		%	1		08/31/17 16:22

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 16:22
Container ID: 1176161003-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:10
Prep Initial Wt./Vol.: 64.491 g
Prep Extract Vol: 30.2175 mL

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Results of **RSE-3-4**

Client Sample ID: **RSE-3-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161003
Lab Project ID: 1176161

Collection Date: 08/29/17 11:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	10.2	U	20.4	6.32	ug/Kg	1		08/31/17 22:11
1,1,1-Trichloroethane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,1,2,2-Tetrachloroethane	6.35	U	12.7	3.98	ug/Kg	1		08/31/17 22:11
1,1,2-Trichloroethane	5.10	U	10.2	3.16	ug/Kg	1		08/31/17 22:11
1,1-Dichloroethane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,1-Dichloroethene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,1-Dichloropropene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,2,3-Trichlorobenzene	25.5	U	51.0	15.3	ug/Kg	1		08/31/17 22:11
1,2,3-Trichloropropane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,2,4-Trichlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,2,4-Trimethylbenzene	25.5	U	51.0	15.3	ug/Kg	1		08/31/17 22:11
1,2-Dibromo-3-chloropropane	51.0	U	102	31.6	ug/Kg	1		08/31/17 22:11
1,2-Dibromoethane	5.10	U	10.2	3.16	ug/Kg	1		08/31/17 22:11
1,2-Dichlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,2-Dichloroethane	5.10	U	10.2	3.16	ug/Kg	1		08/31/17 22:11
1,2-Dichloropropane	5.10	U	10.2	3.16	ug/Kg	1		08/31/17 22:11
1,3,5-Trimethylbenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,3-Dichlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
1,3-Dichloropropane	5.10	U	10.2	3.16	ug/Kg	1		08/31/17 22:11
1,4-Dichlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
2,2-Dichloropropane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
2-Butanone (MEK)	128	U	255	79.5	ug/Kg	1		08/31/17 22:11
2-Chlorotoluene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
2-Hexanone	51.0	U	102	31.6	ug/Kg	1		08/31/17 22:11
4-Chlorotoluene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
4-Isopropyltoluene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
4-Methyl-2-pentanone (MIBK)	128	U	255	79.5	ug/Kg	1		08/31/17 22:11
Benzene	6.35	U	12.7	3.98	ug/Kg	1		08/31/17 22:11
Bromobenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Bromochloromethane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Bromodichloromethane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Bromoform	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Bromomethane	102	U	204	63.2	ug/Kg	1		08/31/17 22:11
Carbon disulfide	51.0	U	102	31.6	ug/Kg	1		08/31/17 22:11
Carbon tetrachloride	6.35	U	12.7	3.98	ug/Kg	1		08/31/17 22:11
Chlorobenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Chloroethane	102	U	204	63.2	ug/Kg	1		08/31/17 22:11

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Results of **RSE-3-4**

Client Sample ID: **RSE-3-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161003
Lab Project ID: 1176161

Collection Date: 08/29/17 11:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Chloromethane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
cis-1,2-Dichloroethene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
cis-1,3-Dichloropropene	6.35	U	12.7	3.98	ug/Kg	1		08/31/17 22:11
Dibromochloromethane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Dibromomethane	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Dichlorodifluoromethane	25.5	U	51.0	15.3	ug/Kg	1		08/31/17 22:11
Ethylbenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Freon-113	51.0	U	102	31.6	ug/Kg	1		08/31/17 22:11
Hexachlorobutadiene	10.2	U	20.4	6.32	ug/Kg	1		08/31/17 22:11
Isopropylbenzene (Cumene)	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Methylene chloride	51.0	U	102	31.6	ug/Kg	1		08/31/17 22:11
Methyl-t-butyl ether	51.0	U	102	31.6	ug/Kg	1		08/31/17 22:11
Naphthalene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
n-Butylbenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
n-Propylbenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
o-Xylene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
P & M -Xylene	25.5	U	51.0	15.3	ug/Kg	1		08/31/17 22:11
sec-Butylbenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Styrene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
tert-Butylbenzene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
Tetrachloroethene	6.35	U	12.7	3.98	ug/Kg	1		08/31/17 22:11
Toluene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
trans-1,2-Dichloroethene	12.8	U	25.5	7.95	ug/Kg	1		08/31/17 22:11
trans-1,3-Dichloropropene	6.35	U	12.7	3.98	ug/Kg	1		08/31/17 22:11
Trichloroethene	5.10	U	10.2	3.16	ug/Kg	1		08/31/17 22:11
Trichlorofluoromethane	25.5	U	51.0	15.3	ug/Kg	1		08/31/17 22:11
Vinyl acetate	51.0	U	102	31.6	ug/Kg	1		08/31/17 22:11
Vinyl chloride	5.10	U	10.2	3.16	ug/Kg	1		08/31/17 22:11
Xylenes (total)	38.3	U	76.5	23.2	ug/Kg	1		08/31/17 22:11
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		71-136		%	1		08/31/17 22:11
4-Bromofluorobenzene (surr)	111		55-151		%	1		08/31/17 22:11
Toluene-d8 (surr)	103		85-116		%	1		08/31/17 22:11

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J flagging is activated

Results of **RSE-3-4**

Client Sample ID: **RSE-3-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161003
Lab Project ID: 1176161

Collection Date: 08/29/17 11:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 08/31/17 22:11
Container ID: 1176161003-B

Prep Batch: VXX31189
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:10
Prep Initial Wt./Vol.: 64.491 g
Prep Extract Vol: 30.2175 mL

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Results of **RSE-4-5**

Client Sample ID: **RSE-4-5**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161004
Lab Project ID: 1176161

Collection Date: 08/29/17 11:20
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	69.9		27.9	8.37	ug/Kg	1		09/06/17 20:17
2-Methylnaphthalene	103		27.9	8.37	ug/Kg	1		09/06/17 20:17
Acenaphthene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Acenaphthylene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Anthracene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Benzo(a)Anthracene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Benzo[a]pyrene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Benzo[b]Fluoranthene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Benzo[g,h,i]perylene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Benzo[k]fluoranthene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Chrysene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Dibenzo[a,h]anthracene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Fluoranthene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Fluorene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Indeno[1,2,3-c,d] pyrene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Naphthalene	46.9		22.3	6.70	ug/Kg	1		09/06/17 20:17
Phenanthrene	17.1	J	27.9	8.37	ug/Kg	1		09/06/17 20:17
Pyrene	13.9	U	27.9	8.37	ug/Kg	1		09/06/17 20:17
Surrogates								
2-Methylnaphthalene-d10 (surr)	91.4		50-150		%	1		09/06/17 20:17
Fluoranthene-d10 (surr)	90.7		50-150		%	1		09/06/17 20:17

Batch Information

Analytical Batch: XMS10377
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/06/17 20:17
Container ID: 1176161004-A

Prep Batch: XXX38321
Prep Method: SW3550C
Prep Date/Time: 09/01/17 18:34
Prep Initial Wt./Vol.: 22.857 g
Prep Extract Vol: 5 mL

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Results of **RSE-4-5**

Client Sample ID: **RSE-4-5**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161004
Lab Project ID: 1176161

Collection Date: 08/29/17 11:20
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	16.9	J	22.4	6.95	mg/Kg	1		09/03/17 16:51
Surrogates								
5a Androstane (surr)	81.2		50-150		%	1		09/03/17 16:51

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 16:51
Container ID: 1176161004-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.347 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	25.9		22.4	6.95	mg/Kg	1		09/03/17 16:51
Surrogates								
n-Triacontane-d62 (surr)	78.3		50-150		%	1		09/03/17 16:51

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 16:51
Container ID: 1176161004-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.347 g
Prep Extract Vol: 1 mL

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Results of **RSE-4-5**

Client Sample ID: **RSE-4-5**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161004
Lab Project ID: 1176161

Collection Date: 08/29/17 11:20
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	10.7		2.46	0.739	mg/Kg	1		08/31/17 16:41
Surrogates								
4-Bromofluorobenzene (surr)	125		50-150		%	1		08/31/17 16:41

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 16:41
Container ID: 1176161004-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:20
Prep Initial Wt./Vol.: 79.139 g
Prep Extract Vol: 34.3665 mL

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Results of **RSE-4-5**

Client Sample ID: **RSE-4-5**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161004
Lab Project ID: 1176161

Collection Date: 08/29/17 11:20
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.85	U	19.7	6.11	ug/Kg	1		08/31/17 22:29
1,1,1-Trichloroethane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
1,1,2,2-Tetrachloroethane	6.15	U	12.3	3.84	ug/Kg	1		08/31/17 22:29
1,1,2-Trichloroethane	4.92	U	9.85	3.05	ug/Kg	1		08/31/17 22:29
1,1-Dichloroethane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
1,1-Dichloroethene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
1,1-Dichloropropene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
1,2,3-Trichlorobenzene	24.6	U	49.3	14.8	ug/Kg	1		08/31/17 22:29
1,2,3-Trichloropropane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
1,2,4-Trichlorobenzene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
1,2,4-Trimethylbenzene	1290		49.3	14.8	ug/Kg	1		08/31/17 22:29
1,2-Dibromo-3-chloropropane	49.3	U	98.5	30.5	ug/Kg	1		08/31/17 22:29
1,2-Dibromoethane	4.92	U	9.85	3.05	ug/Kg	1		08/31/17 22:29
1,2-Dichlorobenzene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
1,2-Dichloroethane	4.92	U	9.85	3.05	ug/Kg	1		08/31/17 22:29
1,2-Dichloropropane	4.92	U	9.85	3.05	ug/Kg	1		08/31/17 22:29
1,3,5-Trimethylbenzene	399		24.6	7.68	ug/Kg	1		08/31/17 22:29
1,3-Dichlorobenzene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
1,3-Dichloropropane	4.92	U	9.85	3.05	ug/Kg	1		08/31/17 22:29
1,4-Dichlorobenzene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
2,2-Dichloropropane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
2-Butanone (MEK)	123	U	246	76.8	ug/Kg	1		08/31/17 22:29
2-Chlorotoluene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
2-Hexanone	49.3	U	98.5	30.5	ug/Kg	1		08/31/17 22:29
4-Chlorotoluene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
4-Isopropyltoluene	84.2		24.6	7.68	ug/Kg	1		08/31/17 22:29
4-Methyl-2-pentanone (MIBK)	123	U	246	76.8	ug/Kg	1		08/31/17 22:29
Benzene	13.8		12.3	3.84	ug/Kg	1		08/31/17 22:29
Bromobenzene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Bromochloromethane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Bromodichloromethane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Bromoform	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Bromomethane	98.5	U	197	61.1	ug/Kg	1		08/31/17 22:29
Carbon disulfide	49.3	U	98.5	30.5	ug/Kg	1		08/31/17 22:29
Carbon tetrachloride	6.15	U	12.3	3.84	ug/Kg	1		08/31/17 22:29
Chlorobenzene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Chloroethane	98.5	U	197	61.1	ug/Kg	1		08/31/17 22:29

Results of **RSE-4-5**

Client Sample ID: **RSE-4-5**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161004
Lab Project ID: 1176161

Collection Date: 08/29/17 11:20
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Chloromethane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
cis-1,2-Dichloroethene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
cis-1,3-Dichloropropene	6.15	U	12.3	3.84	ug/Kg	1		08/31/17 22:29
Dibromochloromethane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Dibromomethane	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Dichlorodifluoromethane	24.6	U	49.3	14.8	ug/Kg	1		08/31/17 22:29
Ethylbenzene	220		24.6	7.68	ug/Kg	1		08/31/17 22:29
Freon-113	49.3	U	98.5	30.5	ug/Kg	1		08/31/17 22:29
Hexachlorobutadiene	9.85	U	19.7	6.11	ug/Kg	1		08/31/17 22:29
Isopropylbenzene (Cumene)	82.3		24.6	7.68	ug/Kg	1		08/31/17 22:29
Methylene chloride	49.3	U	98.5	30.5	ug/Kg	1		08/31/17 22:29
Methyl-t-butyl ether	49.3	U	98.5	30.5	ug/Kg	1		08/31/17 22:29
Naphthalene	172		24.6	7.68	ug/Kg	1		08/31/17 22:29
n-Butylbenzene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
n-Propylbenzene	248		24.6	7.68	ug/Kg	1		08/31/17 22:29
o-Xylene	129		24.6	7.68	ug/Kg	1		08/31/17 22:29
P & M -Xylene	690		49.3	14.8	ug/Kg	1		08/31/17 22:29
sec-Butylbenzene	36.0		24.6	7.68	ug/Kg	1		08/31/17 22:29
Styrene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
tert-Butylbenzene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
Tetrachloroethene	6.15	U	12.3	3.84	ug/Kg	1		08/31/17 22:29
Toluene	37.7		24.6	7.68	ug/Kg	1		08/31/17 22:29
trans-1,2-Dichloroethene	12.3	U	24.6	7.68	ug/Kg	1		08/31/17 22:29
trans-1,3-Dichloropropene	6.15	U	12.3	3.84	ug/Kg	1		08/31/17 22:29
Trichloroethene	4.92	U	9.85	3.05	ug/Kg	1		08/31/17 22:29
Trichlorofluoromethane	24.6	U	49.3	14.8	ug/Kg	1		08/31/17 22:29
Vinyl acetate	49.3	U	98.5	30.5	ug/Kg	1		08/31/17 22:29
Vinyl chloride	4.92	U	9.85	3.05	ug/Kg	1		08/31/17 22:29
Xylenes (total)	819		73.9	22.5	ug/Kg	1		08/31/17 22:29
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.9		71-136		%	1		08/31/17 22:29
4-Bromofluorobenzene (surr)	120		55-151		%	1		08/31/17 22:29
Toluene-d8 (surr)	101		85-116		%	1		08/31/17 22:29

Print Date: 09/11/2017 4:22:55PM

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Results of **RSE-4-5**

Client Sample ID: **RSE-4-5**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161004
Lab Project ID: 1176161

Collection Date: 08/29/17 11:20
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):88.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 08/31/17 22:29
Container ID: 1176161004-B

Prep Batch: VXX31189
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:20
Prep Initial Wt./Vol.: 79.139 g
Prep Extract Vol: 34.3665 mL

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Results of **RSE-5-4**

Client Sample ID: **RSE-5-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161005
Lab Project ID: 1176161

Collection Date: 08/29/17 11:35
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	530		29.5	8.84	ug/Kg	1		09/06/17 20:37
2-Methylnaphthalene	878		58.9	17.7	ug/Kg	2		09/08/17 01:29
Acenaphthene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Acenaphthylene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Anthracene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Benzo(a)Anthracene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Benzo[a]pyrene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Benzo[b]Fluoranthene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Benzo[g,h,i]perylene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Benzo[k]fluoranthene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Chrysene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Dibenzo[a,h]anthracene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Fluoranthene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Fluorene	20.0	J	29.5	8.84	ug/Kg	1		09/06/17 20:37
Indeno[1,2,3-c,d] pyrene	14.8	U	29.5	8.84	ug/Kg	1		09/06/17 20:37
Naphthalene	400		23.6	7.07	ug/Kg	1		09/06/17 20:37
Phenanthrene	37.6		29.5	8.84	ug/Kg	1		09/06/17 20:37
Pyrene	14.1	J	29.5	8.84	ug/Kg	1		09/06/17 20:37
Surrogates								
2-Methylnaphthalene-d10 (surr)	82.4		50-150		%	1		09/06/17 20:37
Fluoranthene-d10 (surr)	89.3		50-150		%	1		09/06/17 20:37

Batch Information

Analytical Batch: XMS10383
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/08/17 01:29
Container ID: 1176161005-A

Prep Batch: XXX38321
Prep Method: SW3550C
Prep Date/Time: 09/01/17 18:34
Prep Initial Wt./Vol.: 22.502 g
Prep Extract Vol: 5 mL

Analytical Batch: XMS10377
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/06/17 20:37
Container ID: 1176161005-A

Prep Batch: XXX38321
Prep Method: SW3550C
Prep Date/Time: 09/01/17 18:34
Prep Initial Wt./Vol.: 22.502 g
Prep Extract Vol: 5 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-5-4**

Client Sample ID: **RSE-5-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161005
Lab Project ID: 1176161

Collection Date: 08/29/17 11:35
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	105		23.5	7.28	mg/Kg	1		09/03/17 17:01
Surrogates								
5a Androstane (surr)	84.2		50-150		%	1		09/03/17 17:01

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 17:01
Container ID: 1176161005-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.096 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	57.6		23.5	7.28	mg/Kg	1		09/03/17 17:01
Surrogates								
n-Triacontane-d62 (surr)	87.3		50-150		%	1		09/03/17 17:01

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 17:01
Container ID: 1176161005-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.096 g
Prep Extract Vol: 1 mL

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Results of **RSE-5-4**

Client Sample ID: **RSE-5-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161005
Lab Project ID: 1176161

Collection Date: 08/29/17 11:35
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	42.0		3.39	1.02	mg/Kg	1		08/31/17 16:59
Surrogates								
4-Bromofluorobenzene (surr)	187	*	50-150		%	1		08/31/17 16:59

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 16:59
Container ID: 1176161005-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:35
Prep Initial Wt./Vol.: 58.959 g
Prep Extract Vol: 33.9209 mL

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Results of **RSE-5-4**

Client Sample ID: **RSE-5-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161005
Lab Project ID: 1176161

Collection Date: 08/29/17 11:35
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	13.6	U	27.1	8.41	ug/Kg	1		08/31/17 22:47
1,1,1-Trichloroethane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
1,1,2,2-Tetrachloroethane	8.45	U	16.9	5.29	ug/Kg	1		08/31/17 22:47
1,1,2-Trichloroethane	6.80	U	13.6	4.20	ug/Kg	1		08/31/17 22:47
1,1-Dichloroethane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
1,1-Dichloroethene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
1,1-Dichloropropene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
1,2,3-Trichlorobenzene	33.9	U	67.8	20.3	ug/Kg	1		08/31/17 22:47
1,2,3-Trichloropropane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
1,2,4-Trichlorobenzene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
1,2,4-Trimethylbenzene	5320		67.8	20.3	ug/Kg	1		08/31/17 22:47
1,2-Dibromo-3-chloropropane	68.0	U	136	42.0	ug/Kg	1		08/31/17 22:47
1,2-Dibromoethane	6.80	U	13.6	4.20	ug/Kg	1		08/31/17 22:47
1,2-Dichlorobenzene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
1,2-Dichloroethane	6.80	U	13.6	4.20	ug/Kg	1		08/31/17 22:47
1,2-Dichloropropane	6.80	U	13.6	4.20	ug/Kg	1		08/31/17 22:47
1,3,5-Trimethylbenzene	1750		33.9	10.6	ug/Kg	1		08/31/17 22:47
1,3-Dichlorobenzene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
1,3-Dichloropropane	6.80	U	13.6	4.20	ug/Kg	1		08/31/17 22:47
1,4-Dichlorobenzene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
2,2-Dichloropropane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
2-Butanone (MEK)	170	U	339	106	ug/Kg	1		08/31/17 22:47
2-Chlorotoluene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
2-Hexanone	68.0	U	136	42.0	ug/Kg	1		08/31/17 22:47
4-Chlorotoluene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
4-Isopropyltoluene	468		33.9	10.6	ug/Kg	1		08/31/17 22:47
4-Methyl-2-pentanone (MIBK)	170	U	339	106	ug/Kg	1		08/31/17 22:47
Benzene	26.8		16.9	5.29	ug/Kg	1		08/31/17 22:47
Bromobenzene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Bromochloromethane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Bromodichloromethane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Bromoform	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Bromomethane	136	U	271	84.1	ug/Kg	1		08/31/17 22:47
Carbon disulfide	68.0	U	136	42.0	ug/Kg	1		08/31/17 22:47
Carbon tetrachloride	8.45	U	16.9	5.29	ug/Kg	1		08/31/17 22:47
Chlorobenzene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Chloroethane	136	U	271	84.1	ug/Kg	1		08/31/17 22:47

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-5-4**

Client Sample ID: **RSE-5-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161005
Lab Project ID: 1176161

Collection Date: 08/29/17 11:35
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Chloromethane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
cis-1,2-Dichloroethene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
cis-1,3-Dichloropropene	8.45	U	16.9	5.29	ug/Kg	1		08/31/17 22:47
Dibromochloromethane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Dibromomethane	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Dichlorodifluoromethane	33.9	U	67.8	20.3	ug/Kg	1		08/31/17 22:47
Ethylbenzene	702		33.9	10.6	ug/Kg	1		08/31/17 22:47
Freon-113	68.0	U	136	42.0	ug/Kg	1		08/31/17 22:47
Hexachlorobutadiene	13.6	U	27.1	8.41	ug/Kg	1		08/31/17 22:47
Isopropylbenzene (Cumene)	304		33.9	10.6	ug/Kg	1		08/31/17 22:47
Methylene chloride	68.0	U	136	42.0	ug/Kg	1		08/31/17 22:47
Methyl-t-butyl ether	68.0	U	136	42.0	ug/Kg	1		08/31/17 22:47
Naphthalene	458		33.9	10.6	ug/Kg	1		08/31/17 22:47
n-Butylbenzene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
n-Propylbenzene	1260		33.9	10.6	ug/Kg	1		08/31/17 22:47
o-Xylene	47.8		33.9	10.6	ug/Kg	1		08/31/17 22:47
P & M -Xylene	2590		67.8	20.3	ug/Kg	1		08/31/17 22:47
sec-Butylbenzene	194		33.9	10.6	ug/Kg	1		08/31/17 22:47
Styrene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
tert-Butylbenzene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
Tetrachloroethene	8.45	U	16.9	5.29	ug/Kg	1		08/31/17 22:47
Toluene	37.6		33.9	10.6	ug/Kg	1		08/31/17 22:47
trans-1,2-Dichloroethene	16.9	U	33.9	10.6	ug/Kg	1		08/31/17 22:47
trans-1,3-Dichloropropene	8.45	U	16.9	5.29	ug/Kg	1		08/31/17 22:47
Trichloroethene	6.80	U	13.6	4.20	ug/Kg	1		08/31/17 22:47
Trichlorofluoromethane	33.9	U	67.8	20.3	ug/Kg	1		08/31/17 22:47
Vinyl acetate	68.0	U	136	42.0	ug/Kg	1		08/31/17 22:47
Vinyl chloride	6.80	U	13.6	4.20	ug/Kg	1		08/31/17 22:47
Xylenes (total)	2630		102	30.9	ug/Kg	1		08/31/17 22:47
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.2		71-136		%	1		08/31/17 22:47
4-Bromofluorobenzene (surr)	120		55-151		%	1		08/31/17 22:47
Toluene-d8 (surr)	96.6		85-116		%	1		08/31/17 22:47

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-5-4**

Client Sample ID: **RSE-5-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161005
Lab Project ID: 1176161

Collection Date: 08/29/17 11:35
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):84.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 08/31/17 22:47
Container ID: 1176161005-B

Prep Batch: VXX31189
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:35
Prep Initial Wt./Vol.: 58.959 g
Prep Extract Vol: 33.9209 mL

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Results of **RSE-6-4**

Client Sample ID: **RSE-6-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161006
Lab Project ID: 1176161

Collection Date: 08/29/17 11:55
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	324		29.2	8.77	ug/Kg	1		09/06/17 20:58
2-Methylnaphthalene	444		29.2	8.77	ug/Kg	1		09/06/17 20:58
Acenaphthene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Acenaphthylene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Anthracene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Benzo(a)Anthracene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Benzo[a]pyrene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Benzo[b]Fluoranthene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Benzo[g,h,i]perylene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Benzo[k]fluoranthene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Chrysene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Dibenzo[a,h]anthracene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Fluoranthene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Fluorene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Indeno[1,2,3-c,d] pyrene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Naphthalene	333		23.4	7.02	ug/Kg	1		09/06/17 20:58
Phenanthrene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Pyrene	14.6	U	29.2	8.77	ug/Kg	1		09/06/17 20:58
Surrogates								
2-Methylnaphthalene-d10 (surr)	93.8		50-150		%	1		09/06/17 20:58
Fluoranthene-d10 (surr)	92.5		50-150		%	1		09/06/17 20:58

Batch Information

Analytical Batch: XMS10377
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/06/17 20:58
Container ID: 1176161006-A

Prep Batch: XXX38321
Prep Method: SW3550C
Prep Date/Time: 09/01/17 18:34
Prep Initial Wt./Vol.: 22.623 g
Prep Extract Vol: 5 mL

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Results of **RSE-6-4**

Client Sample ID: **RSE-6-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161006
Lab Project ID: 1176161

Collection Date: 08/29/17 11:55
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	13.8	J	23.4	7.27	mg/Kg	1		09/03/17 17:11
Surrogates								
5a Androstane (surr)	91.4		50-150		%	1		09/03/17 17:11

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 17:11
Container ID: 1176161006-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.104 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	44.2		23.4	7.27	mg/Kg	1		09/03/17 17:11
Surrogates								
n-Triacontane-d62 (surr)	89.3		50-150		%	1		09/03/17 17:11

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 17:11
Container ID: 1176161006-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.104 g
Prep Extract Vol: 1 mL

Results of **RSE-6-4**

Client Sample ID: **RSE-6-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161006
Lab Project ID: 1176161

Collection Date: 08/29/17 11:55
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	10.5		2.64	0.791	mg/Kg	1		08/31/17 17:18
Surrogates								
4-Bromofluorobenzene (surr)	147		50-150		%	1		08/31/17 17:18

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 17:18
Container ID: 1176161006-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:55
Prep Initial Wt./Vol.: 83.772 g
Prep Extract Vol: 37.5599 mL

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Results of **RSE-6-4**

Client Sample ID: **RSE-6-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161006
Lab Project ID: 1176161

Collection Date: 08/29/17 11:55
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	10.6	U	21.1	6.54	ug/Kg	1		08/31/17 23:04
1,1,1-Trichloroethane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
1,1,2,2-Tetrachloroethane	6.60	U	13.2	4.11	ug/Kg	1		08/31/17 23:04
1,1,2-Trichloroethane	5.25	U	10.5	3.27	ug/Kg	1		08/31/17 23:04
1,1-Dichloroethane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
1,1-Dichloroethene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
1,1-Dichloropropene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
1,2,3-Trichlorobenzene	26.4	U	52.7	15.8	ug/Kg	1		08/31/17 23:04
1,2,3-Trichloropropane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
1,2,4-Trichlorobenzene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
1,2,4-Trimethylbenzene	3030		52.7	15.8	ug/Kg	1		08/31/17 23:04
1,2-Dibromo-3-chloropropane	52.5	U	105	32.7	ug/Kg	1		08/31/17 23:04
1,2-Dibromoethane	5.25	U	10.5	3.27	ug/Kg	1		08/31/17 23:04
1,2-Dichlorobenzene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
1,2-Dichloroethane	5.25	U	10.5	3.27	ug/Kg	1		08/31/17 23:04
1,2-Dichloropropane	5.25	U	10.5	3.27	ug/Kg	1		08/31/17 23:04
1,3,5-Trimethylbenzene	881		26.4	8.23	ug/Kg	1		08/31/17 23:04
1,3-Dichlorobenzene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
1,3-Dichloropropane	5.25	U	10.5	3.27	ug/Kg	1		08/31/17 23:04
1,4-Dichlorobenzene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
2,2-Dichloropropane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
2-Butanone (MEK)	132	U	264	82.3	ug/Kg	1		08/31/17 23:04
2-Chlorotoluene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
2-Hexanone	52.5	U	105	32.7	ug/Kg	1		08/31/17 23:04
4-Chlorotoluene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
4-Isopropyltoluene	137		26.4	8.23	ug/Kg	1		08/31/17 23:04
4-Methyl-2-pentanone (MIBK)	132	U	264	82.3	ug/Kg	1		08/31/17 23:04
Benzene	28.2		13.2	4.11	ug/Kg	1		08/31/17 23:04
Bromobenzene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Bromochloromethane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Bromodichloromethane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Bromoform	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Bromomethane	106	U	211	65.4	ug/Kg	1		08/31/17 23:04
Carbon disulfide	52.5	U	105	32.7	ug/Kg	1		08/31/17 23:04
Carbon tetrachloride	6.60	U	13.2	4.11	ug/Kg	1		08/31/17 23:04
Chlorobenzene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Chloroethane	106	U	211	65.4	ug/Kg	1		08/31/17 23:04

Results of **RSE-6-4**

Client Sample ID: **RSE-6-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161006
Lab Project ID: 1176161

Collection Date: 08/29/17 11:55
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Chloromethane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
cis-1,2-Dichloroethene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
cis-1,3-Dichloropropene	6.60	U	13.2	4.11	ug/Kg	1		08/31/17 23:04
Dibromochloromethane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Dibromomethane	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Dichlorodifluoromethane	26.4	U	52.7	15.8	ug/Kg	1		08/31/17 23:04
Ethylbenzene	286		26.4	8.23	ug/Kg	1		08/31/17 23:04
Freon-113	52.5	U	105	32.7	ug/Kg	1		08/31/17 23:04
Hexachlorobutadiene	10.6	U	21.1	6.54	ug/Kg	1		08/31/17 23:04
Isopropylbenzene (Cumene)	161		26.4	8.23	ug/Kg	1		08/31/17 23:04
Methylene chloride	52.5	U	105	32.7	ug/Kg	1		08/31/17 23:04
Methyl-t-butyl ether	52.5	U	105	32.7	ug/Kg	1		08/31/17 23:04
Naphthalene	589		26.4	8.23	ug/Kg	1		08/31/17 23:04
n-Butylbenzene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
n-Propylbenzene	526		26.4	8.23	ug/Kg	1		08/31/17 23:04
o-Xylene	10.5	J	26.4	8.23	ug/Kg	1		08/31/17 23:04
P & M -Xylene	1270		52.7	15.8	ug/Kg	1		08/31/17 23:04
sec-Butylbenzene	52.2		26.4	8.23	ug/Kg	1		08/31/17 23:04
Styrene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
tert-Butylbenzene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
Tetrachloroethene	6.60	U	13.2	4.11	ug/Kg	1		08/31/17 23:04
Toluene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
trans-1,2-Dichloroethene	13.2	U	26.4	8.23	ug/Kg	1		08/31/17 23:04
trans-1,3-Dichloropropene	6.60	U	13.2	4.11	ug/Kg	1		08/31/17 23:04
Trichloroethene	5.25	U	10.5	3.27	ug/Kg	1		08/31/17 23:04
Trichlorofluoromethane	26.4	U	52.7	15.8	ug/Kg	1		08/31/17 23:04
Vinyl acetate	52.5	U	105	32.7	ug/Kg	1		08/31/17 23:04
Vinyl chloride	5.25	U	10.5	3.27	ug/Kg	1		08/31/17 23:04
Xylenes (total)	1280		79.1	24.1	ug/Kg	1		08/31/17 23:04
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		71-136		%	1		08/31/17 23:04
4-Bromofluorobenzene (surr)	132		55-151		%	1		08/31/17 23:04
Toluene-d8 (surr)	101		85-116		%	1		08/31/17 23:04

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-6-4**

Client Sample ID: **RSE-6-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161006
Lab Project ID: 1176161

Collection Date: 08/29/17 11:55
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):85.0
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 08/31/17 23:04
Container ID: 1176161006-B

Prep Batch: VXX31189
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:55
Prep Initial Wt./Vol.: 83.772 g
Prep Extract Vol: 37.5599 mL

J flagging is activated

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Results of **RSE-7-3**

Client Sample ID: **RSE-7-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161007
Lab Project ID: 1176161

Collection Date: 08/29/17 12:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
2-Methylnaphthalene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Acenaphthene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Acenaphthylene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Anthracene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Benzo(a)Anthracene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Benzo[a]pyrene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Benzo[b]Fluoranthene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Benzo[g,h,i]perylene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Benzo[k]fluoranthene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Chrysene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Dibenzo[a,h]anthracene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Fluoranthene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Fluorene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Indeno[1,2,3-c,d] pyrene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Naphthalene	10.8	U	21.5	6.44	ug/Kg	1		09/06/17 21:18
Phenanthrene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Pyrene	13.4	U	26.8	8.05	ug/Kg	1		09/06/17 21:18
Surrogates								
2-Methylnaphthalene-d10 (surr)	94.1		50-150		%	1		09/06/17 21:18
Fluoranthene-d10 (surr)	94.2		50-150		%	1		09/06/17 21:18

Batch Information

Analytical Batch: XMS10377
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/06/17 21:18
Container ID: 1176161007-A

Prep Batch: XXX38321
Prep Method: SW3550C
Prep Date/Time: 09/01/17 18:34
Prep Initial Wt./Vol.: 22.675 g
Prep Extract Vol: 5 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-7-3**

Client Sample ID: **RSE-7-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161007
Lab Project ID: 1176161

Collection Date: 08/29/17 12:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.8	U	21.5	6.67	mg/Kg	1		09/03/17 17:22
Surrogates								
5a Androstane (surr)	87.4		50-150		%	1		09/03/17 17:22

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 17:22
Container ID: 1176161007-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.185 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	13.1	J	21.5	6.67	mg/Kg	1		09/03/17 17:22
Surrogates								
n-Triacontane-d62 (surr)	81.8		50-150		%	1		09/03/17 17:22

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 17:22
Container ID: 1176161007-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.185 g
Prep Extract Vol: 1 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-7-3**

Client Sample ID: **RSE-7-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161007
Lab Project ID: 1176161

Collection Date: 08/29/17 12:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.629	J	1.86	0.559	mg/Kg	1		08/31/17 17:37
Surrogates								
4-Bromofluorobenzene (surr)	85.1		50-150		%	1		08/31/17 17:37

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 17:37
Container ID: 1176161007-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 12:10
Prep Initial Wt./Vol.: 93.076 g
Prep Extract Vol: 32.0439 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

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Results of **RSE-7-3**

Client Sample ID: **RSE-7-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161007
Lab Project ID: 1176161

Collection Date: 08/29/17 12:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	7.45	U	14.9	4.62	ug/Kg	1		08/31/17 23:22
1,1,1-Trichloroethane	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,1,2,2-Tetrachloroethane	4.66	U	9.31	2.91	ug/Kg	1		08/31/17 23:22
1,1,2-Trichloroethane	3.73	U	7.45	2.31	ug/Kg	1		08/31/17 23:22
1,1-Dichloroethane	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,1-Dichloroethene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,1-Dichloropropene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,2,3-Trichlorobenzene	18.6	U	37.2	11.2	ug/Kg	1		08/31/17 23:22
1,2,3-Trichloropropane	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,2,4-Trichlorobenzene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,2,4-Trimethylbenzene	19.9	J	37.2	11.2	ug/Kg	1		08/31/17 23:22
1,2-Dibromo-3-chloropropane	37.3	U	74.5	23.1	ug/Kg	1		08/31/17 23:22
1,2-Dibromoethane	3.73	U	7.45	2.31	ug/Kg	1		08/31/17 23:22
1,2-Dichlorobenzene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,2-Dichloroethane	3.73	U	7.45	2.31	ug/Kg	1		08/31/17 23:22
1,2-Dichloropropane	3.73	U	7.45	2.31	ug/Kg	1		08/31/17 23:22
1,3,5-Trimethylbenzene	6.15	J	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,3-Dichlorobenzene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
1,3-Dichloropropane	3.73	U	7.45	2.31	ug/Kg	1		08/31/17 23:22
1,4-Dichlorobenzene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
2,2-Dichloropropane	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
2-Butanone (MEK)	93.0	U	186	58.1	ug/Kg	1		08/31/17 23:22
2-Chlorotoluene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
2-Hexanone	37.3	U	74.5	23.1	ug/Kg	1		08/31/17 23:22
4-Chlorotoluene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
4-Isopropyltoluene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
4-Methyl-2-pentanone (MIBK)	93.0	U	186	58.1	ug/Kg	1		08/31/17 23:22
Benzene	4.66	U	9.31	2.91	ug/Kg	1		08/31/17 23:22
Bromobenzene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
Bromochloromethane	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
Bromodichloromethane	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
Bromoform	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
Bromomethane	74.5	U	149	46.2	ug/Kg	1		08/31/17 23:22
Carbon disulfide	37.3	U	74.5	23.1	ug/Kg	1		08/31/17 23:22
Carbon tetrachloride	4.66	U	9.31	2.91	ug/Kg	1		08/31/17 23:22
Chlorobenzene	9.30	U	18.6	5.81	ug/Kg	1		08/31/17 23:22
Chloroethane	74.5	U	149	46.2	ug/Kg	1		08/31/17 23:22

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Results of **RSE-7-3**

Client Sample ID: **RSE-7-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161007
Lab Project ID: 1176161

Collection Date: 08/29/17 12:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
Chloromethane	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
cis-1,2-Dichloroethene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
cis-1,3-Dichloropropene	4.66 U		9.31	2.91	ug/Kg	1		08/31/17 23:22
Dibromochloromethane	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
Dibromomethane	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
Dichlorodifluoromethane	18.6 U		37.2	11.2	ug/Kg	1		08/31/17 23:22
Ethylbenzene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
Freon-113	37.3 U		74.5	23.1	ug/Kg	1		08/31/17 23:22
Hexachlorobutadiene	7.45 U		14.9	4.62	ug/Kg	1		08/31/17 23:22
Isopropylbenzene (Cumene)	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
Methylene chloride	37.3 U		74.5	23.1	ug/Kg	1		08/31/17 23:22
Methyl-t-butyl ether	37.3 U		74.5	23.1	ug/Kg	1		08/31/17 23:22
Naphthalene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
n-Butylbenzene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
n-Propylbenzene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
o-Xylene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
P & M -Xylene	18.6 U		37.2	11.2	ug/Kg	1		08/31/17 23:22
sec-Butylbenzene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
Styrene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
tert-Butylbenzene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
Tetrachloroethene	4.66 U		9.31	2.91	ug/Kg	1		08/31/17 23:22
Toluene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
trans-1,2-Dichloroethene	9.30 U		18.6	5.81	ug/Kg	1		08/31/17 23:22
trans-1,3-Dichloropropene	4.66 U		9.31	2.91	ug/Kg	1		08/31/17 23:22
Trichloroethene	3.73 U		7.45	2.31	ug/Kg	1		08/31/17 23:22
Trichlorofluoromethane	18.6 U		37.2	11.2	ug/Kg	1		08/31/17 23:22
Vinyl acetate	37.3 U		74.5	23.1	ug/Kg	1		08/31/17 23:22
Vinyl chloride	3.73 U		7.45	2.31	ug/Kg	1		08/31/17 23:22
Xylenes (total)	27.9 U		55.9	17.0	ug/Kg	1		08/31/17 23:22
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.2		71-136		%	1		08/31/17 23:22
4-Bromofluorobenzene (surr)	108		55-151		%	1		08/31/17 23:22
Toluene-d8 (surr)	103		85-116		%	1		08/31/17 23:22

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Results of **RSE-7-3**

Client Sample ID: **RSE-7-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161007
Lab Project ID: 1176161

Collection Date: 08/29/17 12:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 08/31/17 23:22
Container ID: 1176161007-B

Prep Batch: VXX31189
Prep Method: SW5035A
Prep Date/Time: 08/29/17 12:10
Prep Initial Wt./Vol.: 93.076 g
Prep Extract Vol: 32.0439 mL

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Results of **RSE-1-3**

Client Sample ID: **RSE-1-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161008
Lab Project ID: 1176161

Collection Date: 08/29/17 10:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.6	J	21.8	6.76	mg/Kg	1		09/03/17 17:32
Surrogates								
5a Androstane (surr)	85.4		50-150		%	1		09/03/17 17:32

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 17:32
Container ID: 1176161008-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.235 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	82.2		21.8	6.76	mg/Kg	1		09/03/17 17:32
Surrogates								
n-Triacontane-d62 (surr)	87		50-150		%	1		09/03/17 17:32

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 17:32
Container ID: 1176161008-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.235 g
Prep Extract Vol: 1 mL

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Results of **RSE-1-3**

Client Sample ID: **RSE-1-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161008
Lab Project ID: 1176161

Collection Date: 08/29/17 10:10
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.642	J	2.09	0.628	mg/Kg	1		08/31/17 17:55
Surrogates								
4-Bromofluorobenzene (surr)	92.5		50-150		%	1		08/31/17 17:55

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 17:55
Container ID: 1176161008-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:10
Prep Initial Wt./Vol.: 85.929 g
Prep Extract Vol: 32.7304 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	5.25	U	10.5	3.35	ug/Kg	1		08/31/17 17:55
Ethylbenzene	10.4	U	20.9	6.53	ug/Kg	1		08/31/17 17:55
o-Xylene	10.4	U	20.9	6.53	ug/Kg	1		08/31/17 17:55
P & M -Xylene	20.9	U	41.9	12.6	ug/Kg	1		08/31/17 17:55
Toluene	10.4	U	20.9	6.53	ug/Kg	1		08/31/17 17:55
Surrogates								
1,4-Difluorobenzene (surr)	91.3		72-119		%	1		08/31/17 17:55

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/17 17:55
Container ID: 1176161008-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:10
Prep Initial Wt./Vol.: 85.929 g
Prep Extract Vol: 32.7304 mL

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Results of **RSE-2-3**

Client Sample ID: **RSE-2-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161009
Lab Project ID: 1176161

Collection Date: 08/29/17 10:50
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.8	J	21.7	6.72	mg/Kg	1		09/03/17 17:43
Surrogates								
5a Androstane (surr)	88		50-150		%	1		09/03/17 17:43

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 17:43
Container ID: 1176161009-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.075 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	83.4		21.7	6.72	mg/Kg	1		09/03/17 17:43
Surrogates								
n-Triacontane-d62 (surr)	90.9		50-150		%	1		09/03/17 17:43

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 17:43
Container ID: 1176161009-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.075 g
Prep Extract Vol: 1 mL

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Results of **RSE-2-3**

Client Sample ID: **RSE-2-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161009
Lab Project ID: 1176161

Collection Date: 08/29/17 10:50
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):92.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.666	J	2.20	0.660	mg/Kg	1		08/31/17 18:14
Surrogates								
4-Bromofluorobenzene (surr)	93		50-150		%	1		08/31/17 18:14

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 18:14
Container ID: 1176161009-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:50
Prep Initial Wt./Vol.: 77.07 g
Prep Extract Vol: 31.1802 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	5.50	U	11.0	3.52	ug/Kg	1		08/31/17 18:14
Ethylbenzene	11.0	U	22.0	6.86	ug/Kg	1		08/31/17 18:14
o-Xylene	11.0	U	22.0	6.86	ug/Kg	1		08/31/17 18:14
P & M -Xylene	22.0	U	44.0	13.2	ug/Kg	1		08/31/17 18:14
Toluene	11.0	U	22.0	6.86	ug/Kg	1		08/31/17 18:14
Surrogates								
1,4-Difluorobenzene (surr)	91.5		72-119		%	1		08/31/17 18:14

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/17 18:14
Container ID: 1176161009-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:50
Prep Initial Wt./Vol.: 77.07 g
Prep Extract Vol: 31.1802 mL

Print Date: 09/11/2017 4:22:55PM

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Results of **RSE-3-3**

Client Sample ID: **RSE-3-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161010
Lab Project ID: 1176161

Collection Date: 08/29/17 11:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.9	U	21.7	6.73	mg/Kg	1		09/03/17 18:14
Surrogates								
5a Androstane (surr)	84.8		50-150		%	1		09/03/17 18:14

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 18:14
Container ID: 1176161010-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.14 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	19.7	J	21.7	6.73	mg/Kg	1		09/03/17 18:14
Surrogates								
n-Triacontane-d62 (surr)	83.2		50-150		%	1		09/03/17 18:14

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 18:14
Container ID: 1176161010-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.14 g
Prep Extract Vol: 1 mL

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Results of **RSE-3-3**

Client Sample ID: **RSE-3-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161010
Lab Project ID: 1176161

Collection Date: 08/29/17 11:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):91.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.20 U		2.40	0.721	mg/Kg	1		08/31/17 19:48
Surrogates								
4-Bromofluorobenzene (surr)	98.1		50-150		%	1		08/31/17 19:48

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 19:48
Container ID: 1176161010-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:05
Prep Initial Wt./Vol.: 69.983 g
Prep Extract Vol: 30.8204 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	4.80 J		12.0	3.84	ug/Kg	1		08/31/17 19:48
Ethylbenzene	12.0 U		24.0	7.49	ug/Kg	1		08/31/17 19:48
o-Xylene	12.0 U		24.0	7.49	ug/Kg	1		08/31/17 19:48
P & M -Xylene	24.0 U		48.0	14.4	ug/Kg	1		08/31/17 19:48
Toluene	12.0 U		24.0	7.49	ug/Kg	1		08/31/17 19:48
Surrogates								
1,4-Difluorobenzene (surr)	92.2		72-119		%	1		08/31/17 19:48

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/17 19:48
Container ID: 1176161010-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:05
Prep Initial Wt./Vol.: 69.983 g
Prep Extract Vol: 30.8204 mL

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Results of **RSE-4-4**

Client Sample ID: **RSE-4-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161011
Lab Project ID: 1176161

Collection Date: 08/29/17 11:15
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):89.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.1	U	22.1	6.85	mg/Kg	1		09/03/17 18:24
Surrogates								
5a Androstane (surr)	93.4		50-150		%	1		09/03/17 18:24

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 18:24
Container ID: 1176161011-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.346 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	41.8		22.1	6.85	mg/Kg	1		09/03/17 18:24
Surrogates								
n-Triacontane-d62 (surr)	92.7		50-150		%	1		09/03/17 18:24

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 18:24
Container ID: 1176161011-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.346 g
Prep Extract Vol: 1 mL

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Results of **RSE-4-4**

Client Sample ID: **RSE-4-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161011
Lab Project ID: 1176161

Collection Date: 08/29/17 11:15
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):89.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.26	U	2.53	0.759	mg/Kg	1		08/31/17 20:07
Surrogates								
4-Bromofluorobenzene (surr)	94.7		50-150		%	1		08/31/17 20:07

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 20:07
Container ID: 1176161011-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:15
Prep Initial Wt./Vol.: 72.088 g
Prep Extract Vol: 32.6127 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.30	U	12.6	4.05	ug/Kg	1		08/31/17 20:07
Ethylbenzene	12.7	U	25.3	7.89	ug/Kg	1		08/31/17 20:07
o-Xylene	12.7	U	25.3	7.89	ug/Kg	1		08/31/17 20:07
P & M -Xylene	25.3	U	50.6	15.2	ug/Kg	1		08/31/17 20:07
Toluene	9.36	J	25.3	7.89	ug/Kg	1		08/31/17 20:07
Surrogates								
1,4-Difluorobenzene (surr)	90.8		72-119		%	1		08/31/17 20:07

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/17 20:07
Container ID: 1176161011-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:15
Prep Initial Wt./Vol.: 72.088 g
Prep Extract Vol: 32.6127 mL

Results of **RSE-5-2**

Client Sample ID: **RSE-5-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161012
Lab Project ID: 1176161

Collection Date: 08/29/17 11:30
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):89.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.2	U	22.3	6.90	mg/Kg	1		09/03/17 18:34
Surrogates								
5a Androstane (surr)	84.4		50-150		%	1		09/03/17 18:34

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 18:34
Container ID: 1176161012-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.046 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	25.5		22.3	6.90	mg/Kg	1		09/03/17 18:34
Surrogates								
n-Triacontane-d62 (surr)	82.4		50-150		%	1		09/03/17 18:34

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 18:34
Container ID: 1176161012-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.046 g
Prep Extract Vol: 1 mL

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Results of **RSE-5-2**

Client Sample ID: **RSE-5-2**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161012
Lab Project ID: 1176161

Collection Date: 08/29/17 11:30
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):89.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.31	J	2.58	0.773	mg/Kg	1		08/31/17 20:25
Surrogates								
4-Bromofluorobenzene (surr)	102		50-150		%	1		08/31/17 20:25

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 20:25
Container ID: 1176161012-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:30
Prep Initial Wt./Vol.: 69.702 g
Prep Extract Vol: 32.2106 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	13.4		12.9	4.12	ug/Kg	1		08/31/17 20:25
Ethylbenzene	81.4		25.8	8.04	ug/Kg	1		08/31/17 20:25
o-Xylene	9.79	J	25.8	8.04	ug/Kg	1		08/31/17 20:25
P & M -Xylene	92.3		51.5	15.5	ug/Kg	1		08/31/17 20:25
Toluene	12.6	J	25.8	8.04	ug/Kg	1		08/31/17 20:25
Surrogates								
1,4-Difluorobenzene (surr)	91.7		72-119		%	1		08/31/17 20:25

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/17 20:25
Container ID: 1176161012-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:30
Prep Initial Wt./Vol.: 69.702 g
Prep Extract Vol: 32.2106 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-6-3**

Client Sample ID: **RSE-6-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161013
Lab Project ID: 1176161

Collection Date: 08/29/17 11:50
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):90.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	10.4	J	21.9	6.78	mg/Kg	1		09/03/17 18:45
Surrogates								
5a Androstane (surr)	81.7		50-150		%	1		09/03/17 18:45

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 18:45
Container ID: 1176161013-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.291 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	42.4		21.9	6.78	mg/Kg	1		09/03/17 18:45
Surrogates								
n-Triacontane-d62 (surr)	84.7		50-150		%	1		09/03/17 18:45

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 18:45
Container ID: 1176161013-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.291 g
Prep Extract Vol: 1 mL

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Results of **RSE-6-3**

Client Sample ID: **RSE-6-3**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161013
Lab Project ID: 1176161

Collection Date: 08/29/17 11:50
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):90.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.34	J	2.40	0.721	mg/Kg	1		08/31/17 20:44
Surrogates								
4-Bromofluorobenzene (surr)	100		50-150		%	1		08/31/17 20:44

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 20:44
Container ID: 1176161013-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:50
Prep Initial Wt./Vol.: 73.265 g
Prep Extract Vol: 31.8983 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	9.37	J	12.0	3.85	ug/Kg	1		08/31/17 20:44
Ethylbenzene	30.3		24.0	7.50	ug/Kg	1		08/31/17 20:44
o-Xylene	12.0	U	24.0	7.50	ug/Kg	1		08/31/17 20:44
P & M -Xylene	62.0		48.1	14.4	ug/Kg	1		08/31/17 20:44
Toluene	12.0	U	24.0	7.50	ug/Kg	1		08/31/17 20:44
Surrogates								
1,4-Difluorobenzene (surr)	92.6		72-119		%	1		08/31/17 20:44

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/17 20:44
Container ID: 1176161013-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:50
Prep Initial Wt./Vol.: 73.265 g
Prep Extract Vol: 31.8983 mL

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Results of **RSE-7-4**

Client Sample ID: **RSE-7-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161014
Lab Project ID: 1176161

Collection Date: 08/29/17 12:15
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	11.3	U	22.6	7.00	mg/Kg	1		09/03/17 18:55
Surrogates								
5a Androstane (surr)	83.4		50-150		%	1		09/03/17 18:55

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 18:55
Container ID: 1176161014-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.271 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	9.58	J	22.6	7.00	mg/Kg	1		09/03/17 18:55
Surrogates								
n-Triacontane-d62 (surr)	81.6		50-150		%	1		09/03/17 18:55

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 18:55
Container ID: 1176161014-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.271 g
Prep Extract Vol: 1 mL

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Results of **RSE-7-4**

Client Sample ID: **RSE-7-4**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161014
Lab Project ID: 1176161

Collection Date: 08/29/17 12:15
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.10 U		2.19	0.657	mg/Kg	1		08/31/17 21:03
Surrogates								
4-Bromofluorobenzene (surr)	107		50-150		%	1		08/31/17 21:03

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 21:03
Container ID: 1176161014-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 12:15
Prep Initial Wt./Vol.: 95.152 g
Prep Extract Vol: 36.6007 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	5.50 U		11.0	3.50	ug/Kg	1		08/31/17 21:03
Ethylbenzene	10.9 U		21.9	6.83	ug/Kg	1		08/31/17 21:03
o-Xylene	10.9 U		21.9	6.83	ug/Kg	1		08/31/17 21:03
P & M -Xylene	21.9 U		43.8	13.1	ug/Kg	1		08/31/17 21:03
Toluene	10.9 U		21.9	6.83	ug/Kg	1		08/31/17 21:03
Surrogates								
1,4-Difluorobenzene (surr)	90.9		72-119		%	1		08/31/17 21:03

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/17 21:03
Container ID: 1176161014-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 12:15
Prep Initial Wt./Vol.: 95.152 g
Prep Extract Vol: 36.6007 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161015
Lab Project ID: 1176161

Collection Date: 08/29/17 11:37
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):84.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	70.5		23.7	7.34	mg/Kg	1		09/03/17 19:06
Surrogates								
5a Androstane (surr)	86		50-150		%	1		09/03/17 19:06

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Analyst: KMD
Analytical Date/Time: 09/03/17 19:06
Container ID: 1176161015-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.082 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	117		23.7	7.34	mg/Kg	1		09/03/17 19:06
Surrogates								
n-Triacontane-d62 (surr)	85		50-150		%	1		09/03/17 19:06

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Analyst: KMD
Analytical Date/Time: 09/03/17 19:06
Container ID: 1176161015-A

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 09/02/17 08:25
Prep Initial Wt./Vol.: 30.082 g
Prep Extract Vol: 1 mL

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Results of **RSE-X**

Client Sample ID: **RSE-X**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161015
Lab Project ID: 1176161

Collection Date: 08/29/17 11:37
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):84.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	82.7		2.97	0.891	mg/Kg	1		08/31/17 21:21
Surrogates								
4-Bromofluorobenzene (surr)	403	*	50-150		%	1		08/31/17 21:21

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 21:21
Container ID: 1176161015-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:37
Prep Initial Wt./Vol.: 73.122 g
Prep Extract Vol: 36.5614 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	248		14.8	4.75	ug/Kg	1		08/31/17 21:21
Ethylbenzene	1540		29.7	9.26	ug/Kg	1		08/31/17 21:21
o-Xylene	222		29.7	9.26	ug/Kg	1		08/31/17 21:21
P & M -Xylene	4720		59.4	17.8	ug/Kg	1		08/31/17 21:21
Toluene	348		29.7	9.26	ug/Kg	1		08/31/17 21:21
Surrogates								
1,4-Difluorobenzene (surr)	97		72-119		%	1		08/31/17 21:21

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/17 21:21
Container ID: 1176161015-B

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 11:37
Prep Initial Wt./Vol.: 73.122 g
Prep Extract Vol: 36.5614 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161016
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.25	U	2.49	0.747	mg/Kg	1		08/31/17 14:30
Surrogates								
4-Bromofluorobenzene (surr)	79.8		50-150		%	1		08/31/17 14:30

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/17 14:30
Container ID: 1176161016-A

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:05
Prep Initial Wt./Vol.: 50.199 g
Prep Extract Vol: 25 mL

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161016
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.95	U	19.9	6.18	ug/Kg	1		09/01/17 16:22
1,1,1-Trichloroethane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,1,2,2-Tetrachloroethane	6.25	U	12.5	3.88	ug/Kg	1		09/01/17 16:22
1,1,2-Trichloroethane	4.98	U	9.96	3.09	ug/Kg	1		09/01/17 16:22
1,1-Dichloroethane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,1-Dichloroethene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,1-Dichloropropene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,2,3-Trichlorobenzene	24.9	U	49.8	14.9	ug/Kg	1		09/01/17 16:22
1,2,3-Trichloropropane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,2,4-Trichlorobenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,2,4-Trimethylbenzene	24.9	U	49.8	14.9	ug/Kg	1		09/01/17 16:22
1,2-Dibromo-3-chloropropane	49.8	U	99.6	30.9	ug/Kg	1		09/01/17 16:22
1,2-Dibromoethane	4.98	U	9.96	3.09	ug/Kg	1		09/01/17 16:22
1,2-Dichlorobenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,2-Dichloroethane	4.98	U	9.96	3.09	ug/Kg	1		09/01/17 16:22
1,2-Dichloropropane	4.98	U	9.96	3.09	ug/Kg	1		09/01/17 16:22
1,3,5-Trimethylbenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,3-Dichlorobenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
1,3-Dichloropropane	4.98	U	9.96	3.09	ug/Kg	1		09/01/17 16:22
1,4-Dichlorobenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
2,2-Dichloropropane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
2-Butanone (MEK)	125	U	249	77.7	ug/Kg	1		09/01/17 16:22
2-Chlorotoluene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
2-Hexanone	49.8	U	99.6	30.9	ug/Kg	1		09/01/17 16:22
4-Chlorotoluene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
4-Isopropyltoluene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
4-Methyl-2-pentanone (MIBK)	125	U	249	77.7	ug/Kg	1		09/01/17 16:22
Benzene	6.25	U	12.5	3.88	ug/Kg	1		09/01/17 16:22
Bromobenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Bromochloromethane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Bromodichloromethane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Bromoform	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Bromomethane	99.5	U	199	61.8	ug/Kg	1		09/01/17 16:22
Carbon disulfide	49.8	U	99.6	30.9	ug/Kg	1		09/01/17 16:22
Carbon tetrachloride	6.25	U	12.5	3.88	ug/Kg	1		09/01/17 16:22
Chlorobenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Chloroethane	99.5	U	199	61.8	ug/Kg	1		09/01/17 16:22

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161016
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Chloromethane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
cis-1,2-Dichloroethene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
cis-1,3-Dichloropropene	6.25	U	12.5	3.88	ug/Kg	1		09/01/17 16:22
Dibromochloromethane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Dibromomethane	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Dichlorodifluoromethane	24.9	U	49.8	14.9	ug/Kg	1		09/01/17 16:22
Ethylbenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Freon-113	49.8	U	99.6	30.9	ug/Kg	1		09/01/17 16:22
Hexachlorobutadiene	9.95	U	19.9	6.18	ug/Kg	1		09/01/17 16:22
Isopropylbenzene (Cumene)	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Methylene chloride	49.8	U	99.6	30.9	ug/Kg	1		09/01/17 16:22
Methyl-t-butyl ether	49.8	U	99.6	30.9	ug/Kg	1		09/01/17 16:22
Naphthalene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
n-Butylbenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
n-Propylbenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
o-Xylene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
P & M -Xylene	24.9	U	49.8	14.9	ug/Kg	1		09/01/17 16:22
sec-Butylbenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Styrene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
tert-Butylbenzene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
Tetrachloroethene	6.25	U	12.5	3.88	ug/Kg	1		09/01/17 16:22
Toluene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
trans-1,2-Dichloroethene	12.4	U	24.9	7.77	ug/Kg	1		09/01/17 16:22
trans-1,3-Dichloropropene	6.25	U	12.5	3.88	ug/Kg	1		09/01/17 16:22
Trichloroethene	4.98	U	9.96	3.09	ug/Kg	1		09/01/17 16:22
Trichlorofluoromethane	24.9	U	49.8	14.9	ug/Kg	1		09/01/17 16:22
Vinyl acetate	49.8	U	99.6	30.9	ug/Kg	1		09/01/17 16:22
Vinyl chloride	4.98	U	9.96	3.09	ug/Kg	1		09/01/17 16:22
Xylenes (total)	37.4	U	74.7	22.7	ug/Kg	1		09/01/17 16:22
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.9		71-136		%	1		09/01/17 16:22
4-Bromofluorobenzene (surr)	110		55-151		%	1		09/01/17 16:22
Toluene-d8 (surr)	105		85-116		%	1		09/01/17 16:22

Print Date: 09/11/2017 4:22:55PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **801 Ship Creek Soils**
Lab Sample ID: 1176161016
Lab Project ID: 1176161

Collection Date: 08/29/17 10:05
Received Date: 08/30/17 11:15
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS17126
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 09/01/17 16:22
Container ID: 1176161016-A

Prep Batch: VXX31200
Prep Method: SW5035A
Prep Date/Time: 08/29/17 10:05
Prep Initial Wt./Vol.: 50.199 g
Prep Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1767306 [SPT/10292]
Blank Lab ID: 1409638

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10292
Analytical Method: SM21 2540G
Instrument:
Analyst: JRP
Analytical Date/Time: 8/31/2017 4:15:00PM

Print Date: 09/11/2017 4:22:59PM

Duplicate Sample Summary

Original Sample ID: 1176135019
Duplicate Sample ID: 1409640
QC for Samples:

Analysis Date: 08/31/2017 16:15
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	91.8	92.5	%	0.72	(< 15)

Batch Information

Analytical Batch: SPT10292
Analytical Method: SM21 2540G
Instrument:
Analyst: JRP

Print Date: 09/11/2017 4:23:00PM

Duplicate Sample Summary

Original Sample ID: 1176135035
Duplicate Sample ID: 1409641

Analysis Date: 08/31/2017 16:15
Matrix: Soil/Solid (dry weight)

QC for Samples:

1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	81.2	80.4	%	1.00	(< 15)

Batch Information

Analytical Batch: SPT10292
Analytical Method: SM21 2540G
Instrument:
Analyst: JRP

Print Date: 09/11/2017 4:23:00PM

Duplicate Sample Summary

Original Sample ID: 1176161013
Duplicate Sample ID: 1409642

Analysis Date: 08/31/2017 16:15
Matrix: Soil/Solid (dry weight)

QC for Samples:

1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	90.6	90.3	%	0.30	(< 15)

Batch Information

Analytical Batch: SPT10292
Analytical Method: SM21 2540G
Instrument:
Analyst: JRP

Print Date: 09/11/2017 4:23:00PM

Duplicate Sample Summary

Original Sample ID: 1176181005
Duplicate Sample ID: 1409643
QC for Samples:
1176161014, 1176161015

Analysis Date: 08/31/2017 16:15
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	75.0	74.0	%	1.30	(< 15)

Batch Information

Analytical Batch: SPT10292
Analytical Method: SM21 2540G
Instrument:
Analyst: JRP

Print Date: 09/11/2017 4:23:00PM

Method Blank

Blank ID: MB for HBN 1767309 [VXX/31189]
Blank Lab ID: 1409651

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	10.0U	20.0	6.20	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	50.0U	100	31.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg
Chloroform	12.5U	25.0	7.80	ug/Kg

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Method Blank

Blank ID: MB for HBN 1767309 [VXX/31189]
Blank Lab ID: 1409651

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	5.00U	10.0	3.10	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	103	71-136		%
4-Bromofluorobenzene (surr)	101	55-151		%
Toluene-d8 (surr)	101	85-116		%

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Method Blank

Blank ID: MB for HBN 1767309 [VXX/31189]
Blank Lab ID: 1409651

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 8/31/2017 1:41:00PM

Prep Batch: VXX31189
Prep Method: SW5035A
Prep Date/Time: 8/31/2017 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31189]
Blank Spike Lab ID: 1409652
Date Analyzed: 08/31/2017 14:24

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	766	102	(78-125)
1,1,1-Trichloroethane	750	760	101	(73-130)
1,1,2,2-Tetrachloroethane	750	748	100	(70-124)
1,1,2-Trichloroethane	750	733	98	(78-121)
1,1-Dichloroethane	750	731	98	(76-125)
1,1-Dichloroethene	750	788	105	(70-131)
1,1-Dichloropropene	750	752	100	(76-125)
1,2,3-Trichlorobenzene	750	605	81	(66-130)
1,2,3-Trichloropropane	750	767	102	(73-125)
1,2,4-Trichlorobenzene	750	672	90	(67-129)
1,2,4-Trimethylbenzene	750	775	103	(75-123)
1,2-Dibromo-3-chloropropane	750	707	94	(61-132)
1,2-Dibromoethane	750	744	99	(78-122)
1,2-Dichlorobenzene	750	761	101	(78-121)
1,2-Dichloroethane	750	712	95	(73-128)
1,2-Dichloropropane	750	737	98	(76-123)
1,3,5-Trimethylbenzene	750	780	104	(73-124)
1,3-Dichlorobenzene	750	755	101	(77-121)
1,3-Dichloropropane	750	742	99	(77-121)
1,4-Dichlorobenzene	750	759	101	(75-120)
2,2-Dichloropropane	750	754	100	(67-133)
2-Butanone (MEK)	2250	1980	88	(51-148)
2-Chlorotoluene	750	768	102	(75-122)
2-Hexanone	2250	2020	90	(53-145)
4-Chlorotoluene	750	774	103	(72-124)
4-Isopropyltoluene	750	771	103	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2010	89	(65-135)
Benzene	750	722	96	(77-121)
Bromobenzene	750	759	101	(78-121)
Bromochloromethane	750	760	101	(78-125)
Bromodichloromethane	750	771	103	(75-127)
Bromoform	750	745	99	(67-132)
Bromomethane	750	758	101	(53-143)
Carbon disulfide	1130	1310	117	(63-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31189]
Blank Spike Lab ID: 1409652
Date Analyzed: 08/31/2017 14:24

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	809	108	(70-135)
Chlorobenzene	750	746	99	(79-120)
Chloroethane	750	875	117	(59-139)
Chloroform	750	706	94	(78-123)
Chloromethane	750	647	86	(50-136)
cis-1,2-Dichloroethene	750	734	98	(77-123)
cis-1,3-Dichloropropene	750	773	103	(74-126)
Dibromochloromethane	750	810	108	(74-126)
Dibromomethane	750	725	97	(78-125)
Dichlorodifluoromethane	750	687	92	(29-149)
Ethylbenzene	750	748	100	(76-122)
Freon-113	1130	1170	104	(66-136)
Hexachlorobutadiene	750	825	110	(61-135)
Isopropylbenzene (Cumene)	750	727	97	(68-134)
Methylene chloride	750	727	97	(70-128)
Methyl-t-butyl ether	1130	1070	95	(73-125)
Naphthalene	750	655	87	(62-129)
n-Butylbenzene	750	766	102	(70-128)
n-Propylbenzene	750	771	103	(73-125)
o-Xylene	750	729	97	(77-123)
P & M -Xylene	1500	1480	99	(77-124)
sec-Butylbenzene	750	753	100	(73-126)
Styrene	750	749	100	(76-124)
tert-Butylbenzene	750	757	101	(73-125)
Tetrachloroethene	750	746	99	(73-128)
Toluene	750	737	98	(77-121)
trans-1,2-Dichloroethene	750	763	102	(74-125)
trans-1,3-Dichloropropene	750	786	105	(71-130)
Trichloroethene	750	741	99	(77-123)
Trichlorofluoromethane	750	853	114	(62-140)
Vinyl acetate	750	669	89	(50-151)
Vinyl chloride	750	763	102	(56-135)
Xylenes (total)	2250	2210	98	(78-124)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31189]
Blank Spike Lab ID: 1409652
Date Analyzed: 08/31/2017 14:24

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

	Blank Spike (%)			
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	96.2	96	(71-136)
4-Bromofluorobenzene (surr)	750	100	100	(55-151)
Toluene-d8 (surr)	750	101	101	(85-116)

Batch Information

Analytical Batch: **VMS17119**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **NRO**

Prep Batch: **VXX31189**
Prep Method: **SW5035A**
Prep Date/Time: **08/31/2017 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1176098001
MS Sample ID: 1409653 MS
MSD Sample ID: 1409654 MSD

Analysis Date: 08/31/2017 20:08
Analysis Date: 08/31/2017 18:04
Analysis Date: 08/31/2017 18:22
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	20.9U	784	797	102	784	823	105	78-125	3.20	(< 20)
1,1,1-Trichloroethane	26.2U	784	806	103	784	809	103	73-130	0.26	(< 20)
1,1,2,2-Tetrachloroethane	13.1U	784	891	114	784	969	124	70-124	8.50	(< 20)
1,1,2-Trichloroethane	10.5U	784	811	104	784	874	112	78-121	7.50	(< 20)
1,1-Dichloroethane	26.2U	784	757	97	784	772	99	76-125	1.70	(< 20)
1,1-Dichloroethene	26.2U	784	843	108	784	815	104	70-131	3.30	(< 20)
1,1-Dichloropropene	26.2U	784	798	102	784	798	102	76-125	0.07	(< 20)
1,2,3-Trichlorobenzene	52.3U	784	653	83	784	879	112	66-130	29.40	* (< 20)
1,2,3-Trichloropropane	26.2U	784	878	112	784	966	123	73-125	9.60	(< 20)
1,2,4-Trichlorobenzene	26.2U	784	713	91	784	848	108	67-129	17.20	(< 20)
1,2,4-Trimethylbenzene	52.3U	784	781	100	784	785	100	75-123	0.53	(< 20)
1,2-Dibromo-3-chloropropane	105U	784	815	104	784	960	123	61-132	16.40	(< 20)
1,2-Dibromoethane	10.5U	784	823	105	784	886	113	78-122	7.40	(< 20)
1,2-Dichlorobenzene	26.2U	784	765	98	784	797	102	78-121	4.20	(< 20)
1,2-Dichloroethane	10.5U	784	759	97	784	797	102	73-128	5.00	(< 20)
1,2-Dichloropropane	10.5U	784	757	97	784	786	100	76-123	3.70	(< 20)
1,3,5-Trimethylbenzene	26.2U	784	779	99	784	797	102	73-124	2.30	(< 20)
1,3-Dichlorobenzene	26.2U	784	750	96	784	772	99	77-121	2.70	(< 20)
1,3-Dichloropropane	10.5U	784	806	103	784	867	111	77-121	7.10	(< 20)
1,4-Dichlorobenzene	26.2U	784	780	100	784	788	101	75-120	1.20	(< 20)
2,2-Dichloropropane	26.2U	784	863	110	784	844	108	67-133	2.20	(< 20)
2-Butanone (MEK)	262U	2354	2200	94	2354	2545	108	51-148	14.60	(< 20)
2-Chlorotoluene	26.2U	784	792	101	784	800	102	75-122	1.10	(< 20)
2-Hexanone	105U	2354	2342	100	2354	2771	118	53-145	16.50	(< 20)
4-Chlorotoluene	26.2U	784	792	101	784	810	103	72-124	2.30	(< 20)
4-Isopropyltoluene	26.2U	784	791	101	784	807	103	73-127	2.00	(< 20)
4-Methyl-2-pentanone (MIBK)	262U	2354	2271	97	2354	2616	111	65-135	13.90	(< 20)
Benzene	13.1U	784	749	96	784	775	99	77-121	3.40	(< 20)
Bromobenzene	26.2U	784	786	100	784	815	104	78-121	3.60	(< 20)
Bromochloromethane	26.2U	784	805	103	784	826	106	78-125	2.70	(< 20)
Bromodichloromethane	26.2U	784	800	102	784	830	106	75-127	3.70	(< 20)
Bromoform	26.2U	784	825	105	784	895	114	67-132	8.10	(< 20)
Bromomethane	209U	784	795	102	784	785	100	53-143	1.30	(< 20)
Carbon disulfide	105U	1175	1439	122	1175	1332	114	63-132	7.40	(< 20)
Carbon tetrachloride	13.1U	784	870	111	784	866	110	70-135	0.54	(< 20)
Chlorobenzene	26.2U	784	775	99	784	804	103	79-120	3.60	(< 20)
Chloroethane	209U	784	961	123	784	931	119	59-139	3.10	(< 20)

Print Date: 09/11/2017 4:23:05PM

Matrix Spike Summary

Original Sample ID: 1176098001
MS Sample ID: 1409653 MS
MSD Sample ID: 1409654 MSD

Analysis Date: 08/31/2017 20:08
Analysis Date: 08/31/2017 18:04
Analysis Date: 08/31/2017 18:22
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Chloroform	26.2U	784	728	93		784	747	95		78-123	2.60	(< 20)
Chloromethane	26.2U	784	697	89		784	747	95		50-136	7.00	(< 20)
cis-1,2-Dichloroethene	26.2U	784	763	98		784	769	98		77-123	0.75	(< 20)
cis-1,3-Dichloropropene	13.1U	784	818	104		784	845	108		74-126	3.40	(< 20)
Dibromochloromethane	26.2U	784	875	112		784	932	119		74-126	6.40	(< 20)
Dibromomethane	26.2U	784	786	100		784	832	106		78-125	5.80	(< 20)
Dichlorodifluoromethane	52.3U	784	753	96		784	711	91		29-149	5.60	(< 20)
Ethylbenzene	26.2U	784	773	99		784	788	101		76-122	2.00	(< 20)
Freon-113	105U	1175	1237	105		1175	1201	103		66-136	2.50	(< 20)
Hexachlorobutadiene	20.9U	784	1950	249	*	784	2081	266	*	61-135	6.40	(< 20)
Isopropylbenzene (Cumene)	26.2U	784	744	95		784	778	99		68-134	4.30	(< 20)
Methylene chloride	105U	784	762	97		784	765	98		70-128	0.31	(< 20)
Methyl-t-butyl ether	105U	1175	1156	98		1175	1225	104		73-125	6.10	(< 20)
Naphthalene	26.2U	784	728	93		784	918	117		62-129	23.10	* (< 20)
n-Butylbenzene	26.2U	784	862	110		784	893	114		70-128	3.50	(< 20)
n-Propylbenzene	26.2U	784	785	100		784	788	101		73-125	0.33	(< 20)
o-Xylene	26.2U	784	736	94		784	772	99		77-123	4.80	(< 20)
P & M -Xylene	52.3U	1570	1510	97		1570	1570	100		77-124	3.20	(< 20)
sec-Butylbenzene	26.2U	784	778	99		784	781	100		73-126	0.54	(< 20)
Styrene	26.2U	784	762	97		784	800	102		76-124	4.80	(< 20)
tert-Butylbenzene	26.2U	784	760	97		784	769	98		73-125	1.30	(< 20)
Tetrachloroethene	13.1U	784	810	103		784	794	101		73-128	2.00	(< 20)
Toluene	26.2U	784	780	100		784	803	103		77-121	2.80	(< 20)
trans-1,2-Dichloroethene	26.2U	784	804	103		784	782	100		74-125	2.70	(< 20)
trans-1,3-Dichloropropene	13.1U	784	872	111		784	919	117		71-130	5.30	(< 20)
Trichloroethene	10.5U	784	776	99		784	786	100		77-123	1.20	(< 20)
Trichlorofluoromethane	52.3U	784	943	120		784	906	116		62-140	4.00	(< 20)
Vinyl acetate	105U	784	771	98		784	817	104		50-151	5.80	(< 20)
Vinyl chloride	10.5U	784	850	109		784	864	110		56-135	1.70	(< 20)
Xylenes (total)	78.5U	2354	2247	96		2354	2331	99		78-124	3.70	(< 20)
Surrogates												
1,2-Dichloroethane-D4 (surr)		784	786	100		784	813	104		71-136	3.40	
4-Bromofluorobenzene (surr)		837	339	40	*	837	345	41	*	55-151	1.90	
Toluene-d8 (surr)		784	795	102		784	804	103		85-116	1.00	

Print Date: 09/11/2017 4:23:05PM

Matrix Spike Summary

Original Sample ID: 1176098001
MS Sample ID: 1409653 MS
MSD Sample ID: 1409654 MSD

Analysis Date:
Analysis Date: 08/31/2017 18:04
Analysis Date: 08/31/2017 18:22
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS17119
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 8/31/2017 6:04:00PM

Prep Batch: VXX31189
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 8/31/2017 6:00:00AM
Prep Initial Wt./Vol.: 88.82g
Prep Extract Vol: 39.09mL

Print Date: 09/11/2017 4:23:05PM

Method Blank

Blank ID: MB for HBN 1767329 [VXX/31194]
Blank Lab ID: 1409732

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015, 1176161016

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	90.8	72-119		%
4-Bromofluorobenzene (surr)	89.8	50-150		%

Batch Information

Analytical Batch: VFC13849
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 8/31/2017 2:11:00PM

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 8/31/2017 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31194]
Blank Spike Lab ID: 1409733
Date Analyzed: 08/31/2017 12:37

Spike Duplicate ID: LCSD for HBN 1176161 [VXX31194]
Spike Duplicate Lab ID: 1409734
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015, 1176161016

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.25	1.20	96	1.25	1.19	95	(75-125)	1.50	(< 20)
Ethylbenzene	1.25	1.19	95	1.25	1.17	93	(75-125)	1.90	(< 20)
o-Xylene	1.25	1.15	92	1.25	1.13	90	(75-125)	1.70	(< 20)
P & M -Xylene	2.50	2.34	94	2.50	2.29	92	(80-125)	1.90	(< 20)
Toluene	1.25	1.21	97	1.25	1.19	95	(70-125)	1.90	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	89.2	89	1.25	92	92	(72-119)	3.20	

Batch Information

Analytical Batch: **VFC13849**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31194**
Prep Method: **SW5035A**
Prep Date/Time: **08/31/2017 08:00**
Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31194]
Blank Spike Lab ID: 1409735
Date Analyzed: 08/31/2017 13:15

Spike Duplicate ID: LCSD for HBN 1176161 [VXX31194]
Spike Duplicate Lab ID: 1409736
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015, 1176161016

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	12.8	103	12.5	13.0	104	(60-120)	1.10	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	94.5	95	1.25	93.4	93	(50-150)	1.20	

Batch Information

Analytical Batch: **VFC13849**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31194**
Prep Method: **SW5035A**
Prep Date/Time: **08/31/2017 08:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1767329 [VXX/31194]
Blank Lab ID: 1409732

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015, 1176161016

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	90.8	72-119		%

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 8/31/2017 2:11:00PM

Prep Batch: VXX31194
Prep Method: SW5035A
Prep Date/Time: 8/31/2017 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31194]
Blank Spike Lab ID: 1409733
Date Analyzed: 08/31/2017 12:37

Spike Duplicate ID: LCSD for HBN 1176161 [VXX31194]
Spike Duplicate Lab ID: 1409734
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015, 1176161016

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1200	96	1250	1190	95	(75-125)	1.50	(< 20)
Ethylbenzene	1250	1190	95	1250	1170	93	(75-125)	1.90	(< 20)
o-Xylene	1250	1150	92	1250	1130	90	(75-125)	1.70	(< 20)
P & M -Xylene	2500	2340	94	2500	2290	92	(80-125)	1.90	(< 20)
Toluene	1250	1210	97	1250	1190	95	(70-125)	1.90	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	89.2	89	1250	92	92	(72-119)	3.20	

Batch Information

Analytical Batch: **VFC13849**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX31194**
Prep Method: **SW5035A**
Prep Date/Time: **08/31/2017 08:00**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1176161009
MS Sample ID: 1409737 MS
MSD Sample ID: 1409738 MSD

Analysis Date: 08/31/2017 18:14
Analysis Date: 08/31/2017 19:10
Analysis Date: 08/31/2017 19:29
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015, 1176161016

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	5.50U	882	851	97	882	866	98	75-125	1.80	(< 20)
Ethylbenzene	11.0U	882	841	95	882	864	98	75-125	2.70	(< 20)
o-Xylene	11.0U	882	821	93	882	849	96	75-125	3.40	(< 20)
P & M -Xylene	22.0U	1761	1652	94	1761	1707	97	80-125	2.90	(< 20)
Toluene	11.0U	882	855	97	882	871	99	70-125	1.70	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		882	848	96	882	799	91	72-119	6.00	

Batch Information

Analytical Batch: VFC13849
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 8/31/2017 7:10:00PM

Prep Batch: VXX31194
Prep Method: AK101 Extraction (S)
Prep Date/Time: 8/31/2017 8:00:00AM
Prep Initial Wt./Vol.: 77.07g
Prep Extract Vol: 25.00mL

Print Date: 09/11/2017 4:23:12PM

Method Blank

Blank ID: MB for HBN 1767353 [VXX/31200]
Blank Lab ID: 1409845

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161016

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	10.0U	20.0	6.20	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	50.0U	100	31.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg
Chloroform	12.5U	25.0	7.80	ug/Kg

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Method Blank

Blank ID: MB for HBN 1767353 [VXX/31200]
Blank Lab ID: 1409845

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161016

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	5.00U	10.0	3.10	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	103	71-136		%
4-Bromofluorobenzene (surr)	102	55-151		%
Toluene-d8 (surr)	105	85-116		%

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Method Blank

Blank ID: MB for HBN 1767353 [VXX/31200]
Blank Lab ID: 1409845

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161016

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS17126
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 9/1/2017 12:52:00PM

Prep Batch: VXX31200
Prep Method: SW5035A
Prep Date/Time: 9/1/2017 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31200]
Blank Spike Lab ID: 1409846
Date Analyzed: 09/01/2017 13:09

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161016

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	750	100	(78-125)
1,1,1-Trichloroethane	750	673	90	(73-130)
1,1,2,2-Tetrachloroethane	750	808	108	(70-124)
1,1,2-Trichloroethane	750	726	97	(78-121)
1,1-Dichloroethane	750	652	87	(76-125)
1,1-Dichloroethene	750	677	90	(70-131)
1,1-Dichloropropene	750	666	89	(76-125)
1,2,3-Trichlorobenzene	750	690	92	(66-130)
1,2,3-Trichloropropane	750	808	108	(73-125)
1,2,4-Trichlorobenzene	750	742	99	(67-129)
1,2,4-Trimethylbenzene	750	830	111	(75-123)
1,2-Dibromo-3-chloropropane	750	771	103	(61-132)
1,2-Dibromoethane	750	728	97	(78-122)
1,2-Dichlorobenzene	750	793	106	(78-121)
1,2-Dichloroethane	750	636	85	(73-128)
1,2-Dichloropropane	750	661	88	(76-123)
1,3,5-Trimethylbenzene	750	854	114	(73-124)
1,3-Dichlorobenzene	750	804	107	(77-121)
1,3-Dichloropropane	750	724	97	(77-121)
1,4-Dichlorobenzene	750	803	107	(75-120)
2,2-Dichloropropane	750	692	92	(67-133)
2-Butanone (MEK)	2250	1920	85	(51-148)
2-Chlorotoluene	750	817	109	(75-122)
2-Hexanone	2250	2100	94	(53-145)
4-Chlorotoluene	750	832	111	(72-124)
4-Isopropyltoluene	750	836	112	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	1880	84	(65-135)
Benzene	750	650	87	(77-121)
Bromobenzene	750	801	107	(78-121)
Bromochloromethane	750	668	89	(78-125)
Bromodichloromethane	750	688	92	(75-127)
Bromoform	750	723	96	(67-132)
Bromomethane	750	597	80	(53-143)
Carbon disulfide	1130	1080	96	(63-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31200]
Blank Spike Lab ID: 1409846
Date Analyzed: 09/01/2017 13:09

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161016

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	750	718	96	(70-135)
Chlorobenzene	750	734	98	(79-120)
Chloroethane	750	692	92	(59-139)
Chloroform	750	629	84	(78-123)
Chloromethane	750	630	84	(50-136)
cis-1,2-Dichloroethene	750	654	87	(77-123)
cis-1,3-Dichloropropene	750	692	92	(74-126)
Dibromochloromethane	750	778	104	(74-126)
Dibromomethane	750	652	87	(78-125)
Dichlorodifluoromethane	750	683	91	(29-149)
Ethylbenzene	750	740	99	(76-122)
Freon-113	1130	1020	90	(66-136)
Hexachlorobutadiene	750	809	108	(61-135)
Isopropylbenzene (Cumene)	750	736	98	(68-134)
Methylene chloride	750	642	86	(70-128)
Methyl-t-butyl ether	1130	967	86	(73-125)
Naphthalene	750	723	96	(62-129)
n-Butylbenzene	750	842	112	(70-128)
n-Propylbenzene	750	834	111	(73-125)
o-Xylene	750	717	96	(77-123)
P & M -Xylene	1500	1450	97	(77-124)
sec-Butylbenzene	750	814	109	(73-126)
Styrene	750	738	98	(76-124)
tert-Butylbenzene	750	819	109	(73-125)
Tetrachloroethene	750	733	98	(73-128)
Toluene	750	727	97	(77-121)
trans-1,2-Dichloroethene	750	670	89	(74-125)
trans-1,3-Dichloropropene	750	764	102	(71-130)
Trichloroethene	750	663	88	(77-123)
Trichlorofluoromethane	750	707	94	(62-140)
Vinyl acetate	750	722	96	(50-151)
Vinyl chloride	750	669	89	(56-135)
Xylenes (total)	2250	2170	97	(78-124)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [VXX31200]
Blank Spike Lab ID: 1409846
Date Analyzed: 09/01/2017 13:09

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161016

Results by **SW8260C**

Parameter	Blank Spike (%) Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	94.2	94	(71-136)
4-Bromofluorobenzene (surr)	750	110	110	(55-151)
Toluene-d8 (surr)	750	104	104	(85-116)

Batch Information

Analytical Batch: **VMS17126**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **NRO**

Prep Batch: **VXX31200**
Prep Method: **SW5035A**
Prep Date/Time: **09/01/2017 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1410338
MS Sample ID: 1410155 MS
MSD Sample ID: 1410156 MSD

Analysis Date: 09/01/2017 17:32
Analysis Date: 09/01/2017 14:54
Analysis Date: 09/01/2017 15:11
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161016

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	4.32U	324	333	103	324	340	105	78-125	1.80	(< 20)
1,1,1-Trichloroethane	5.40U	324	310	96	324	302	93	73-130	2.50	(< 20)
1,1,2,2-Tetrachloroethane	2.70U	324	343	106	324	359	111	70-124	4.60	(< 20)
1,1,2-Trichloroethane	2.16U	324	325	100	324	339	105	78-121	4.50	(< 20)
1,1-Dichloroethane	5.40U	324	294	91	324	291	90	76-125	1.10	(< 20)
1,1-Dichloroethene	5.40U	324	321	99	324	305	94	70-131	5.00	(< 20)
1,1-Dichloropropene	5.40U	324	307	95	324	300	93	76-125	2.40	(< 20)
1,2,3-Trichlorobenzene	10.8U	324	258	80	324	336	104	66-130	26.00	* (< 20)
1,2,3-Trichloropropane	5.40U	324	336	104	324	355	110	73-125	5.60	(< 20)
1,2,4-Trichlorobenzene	5.40U	324	290	89	324	331	102	67-129	13.50	(< 20)
1,2,4-Trimethylbenzene	10.8U	324	343	106	324	343	106	75-123	0.06	(< 20)
1,2-Dibromo-3-chloropropane	21.6U	324	320	99	324	356	110	61-132	10.60	(< 20)
1,2-Dibromoethane	2.16U	324	329	102	324	339	105	78-122	3.00	(< 20)
1,2-Dichlorobenzene	5.40U	324	323	100	324	332	103	78-121	2.90	(< 20)
1,2-Dichloroethane	2.16U	324	286	88	324	288	89	73-128	0.53	(< 20)
1,2-Dichloropropane	2.16U	324	294	91	324	295	91	76-123	0.04	(< 20)
1,3,5-Trimethylbenzene	5.40U	324	344	106	324	343	106	73-124	0.31	(< 20)
1,3-Dichlorobenzene	5.40U	324	330	102	324	333	103	77-121	0.75	(< 20)
1,3-Dichloropropane	2.16U	324	325	100	324	337	104	77-121	3.60	(< 20)
1,4-Dichlorobenzene	5.40U	324	337	104	324	336	104	75-120	0.22	(< 20)
2,2-Dichloropropane	5.40U	324	335	103	324	320	99	67-133	4.70	(< 20)
2-Butanone (MEK)	54.0U	971	809	83	971	903	93	51-148	10.90	(< 20)
2-Chlorotoluene	5.40U	324	350	108	324	338	105	75-122	3.30	(< 20)
2-Hexanone	21.6U	971	907	93	971	998	103	53-145	9.60	(< 20)
4-Chlorotoluene	5.40U	324	338	104	324	344	106	72-124	1.90	(< 20)
4-Isopropyltoluene	5.40U	324	343	106	324	342	106	73-127	0.16	(< 20)
4-Methyl-2-pentanone (MIBK)	54.0U	971	813	84	971	877	90	65-135	7.60	(< 20)
Benzene	2.70U	324	291	90	324	287	89	77-121	1.20	(< 20)
Bromobenzene	5.40U	324	337	104	324	337	104	78-121	0.03	(< 20)
Bromochloromethane	5.40U	324	306	95	324	303	94	78-125	0.96	(< 20)
Bromodichloromethane	5.40U	324	308	95	324	308	95	75-127	0.04	(< 20)
Bromoform	5.40U	324	328	101	324	344	106	67-132	4.60	(< 20)
Bromomethane	43.1U	324	310	96	324	287	89	53-143	7.70	(< 20)
Carbon disulfide	21.6U	486	543	112	486	498	103	63-132	8.60	(< 20)
Carbon tetrachloride	2.70U	324	336	104	324	326	101	70-135	3.00	(< 20)
Chlorobenzene	5.40U	324	325	100	324	329	102	79-120	1.20	(< 20)
Chloroethane	43.1U	324	380	117	324	317	98	59-139	18.00	(< 20)

Print Date: 09/11/2017 4:23:15PM

Matrix Spike Summary

Original Sample ID: 1410338
MS Sample ID: 1410155 MS
MSD Sample ID: 1410156 MSD

QC for Samples: 1176161016

Analysis Date: 09/01/2017 17:32
Analysis Date: 09/01/2017 14:54
Analysis Date: 09/01/2017 15:11
Matrix: Soil/Solid (dry weight)

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	5.40U	324	283	87	324	280	87	78-123	0.84	(< 20)
Chloromethane	5.40U	324	274	85	324	276	85	50-136	0.74	(< 20)
cis-1,2-Dichloroethene	5.40U	324	295	91	324	291	90	77-123	1.50	(< 20)
cis-1,3-Dichloropropene	2.70U	324	315	97	324	313	97	74-126	0.79	(< 20)
Dibromochloromethane	5.40U	324	356	110	324	365	113	74-126	2.60	(< 20)
Dibromomethane	5.40U	324	295	91	324	298	92	78-125	1.20	(< 20)
Dichlorodifluoromethane	10.8U	324	314	97	324	295	91	29-149	6.20	(< 20)
Ethylbenzene	5.40U	324	331	102	324	330	102	76-122	0.49	(< 20)
Freon-113	21.6U	486	479	99	486	456	94	66-136	5.00	(< 20)
Hexachlorobutadiene	4.32U	324	531	164 *	324	526	163 *	61-135	0.84	(< 20)
Isopropylbenzene (Cumene)	5.40U	324	320	99	324	331	102	68-134	3.30	(< 20)
Methylene chloride	21.6U	324	296	91	324	284	88	70-128	4.20	(< 20)
Methyl-t-butyl ether	21.6U	486	432	89	486	432	89	73-125	0.17	(< 20)
Naphthalene	5.40U	324	283	87	324	347	107	62-129	20.20 *	(< 20)
n-Butylbenzene	5.40U	324	354	109	324	352	109	70-128	0.31	(< 20)
n-Propylbenzene	5.40U	324	342	106	324	341	105	73-125	0.38	(< 20)
o-Xylene	5.40U	324	321	99	324	328	101	77-123	2.10	(< 20)
P & M -Xylene	10.8U	648	650	100	648	647	100	77-124	0.53	(< 20)
sec-Butylbenzene	5.40U	324	331	102	324	331	102	73-126	0.13	(< 20)
Styrene	5.40U	324	329	102	324	336	104	76-124	2.00	(< 20)
tert-Butylbenzene	5.40U	324	338	104	324	332	103	73-125	1.60	(< 20)
Tetrachloroethene	2.70U	324	336	104	324	339	105	73-128	0.67	(< 20)
Toluene	5.40U	324	327	101	324	330	102	77-121	0.76	(< 20)
trans-1,2-Dichloroethene	5.40U	324	310	96	324	297	92	74-125	4.30	(< 20)
trans-1,3-Dichloropropene	2.70U	324	354	109	324	360	111	71-130	1.70	(< 20)
Trichloroethene	2.16U	324	299	93	324	294	91	77-123	1.90	(< 20)
Trichlorofluoromethane	10.8U	324	357	110	324	327	101	62-140	8.70	(< 20)
Vinyl acetate	21.6U	324	357	110	324	364	112	50-151	1.80	(< 20)
Vinyl chloride	2.16U	324	316	98	324	306	94	56-135	3.40	(< 20)
Xylenes (total)	16.2U	971	971	100	971	975	100	78-124	0.35	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		324	314	97	324	321	99	71-136	2.40	
4-Bromofluorobenzene (surr)		540	405	75	540	401	74	55-151	0.99	
Toluene-d8 (surr)		324	341	105	324	344	106	85-116	0.95	

Print Date: 09/11/2017 4:23:15PM

Matrix Spike Summary

Original Sample ID: 1410338
MS Sample ID: 1410155 MS
MSD Sample ID: 1410156 MSD

QC for Samples: 1176161016

Analysis Date:
Analysis Date: 09/01/2017 14:54
Analysis Date: 09/01/2017 15:11
Matrix: Soil/Solid (dry weight)

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS17126
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 9/1/2017 2:54:01PM

Prep Batch: VXX31200
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/1/2017 6:00:00AM
Prep Initial Wt./Vol.: 115.83g
Prep Extract Vol: 25.00mL

Print Date: 09/11/2017 4:23:15PM

Method Blank

Blank ID: MB for HBN 1767358 [XXX/38321]
Blank Lab ID: 1409871

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	12.5U	25.0	7.50	ug/Kg
2-Methylnaphthalene	12.5U	25.0	7.50	ug/Kg
Acenaphthene	12.5U	25.0	7.50	ug/Kg
Acenaphthylene	12.5U	25.0	7.50	ug/Kg
Anthracene	12.5U	25.0	7.50	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	7.50	ug/Kg
Benzo[a]pyrene	12.5U	25.0	7.50	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	7.50	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	7.50	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	7.50	ug/Kg
Chrysene	12.5U	25.0	7.50	ug/Kg
Dibenzo[a,h]anthracene	12.5U	25.0	7.50	ug/Kg
Fluoranthene	12.5U	25.0	7.50	ug/Kg
Fluorene	12.5U	25.0	7.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	12.5U	25.0	7.50	ug/Kg
Naphthalene	10.0U	20.0	6.00	ug/Kg
Phenanthrene	12.5U	25.0	7.50	ug/Kg
Pyrene	12.5U	25.0	7.50	ug/Kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	92	50-150		%
Fluoranthene-d10 (surr)	92.8	50-150		%

Batch Information

Analytical Batch: XMS10377
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/6/2017 6:55:00PM

Prep Batch: XXX38321
Prep Method: SW3550C
Prep Date/Time: 9/1/2017 6:34:13PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Print Date: 09/11/2017 4:23:16PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [XXX38321]
Blank Spike Lab ID: 1409872
Date Analyzed: 09/06/2017 19:15

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	99.1	89	(43-111)
2-Methylnaphthalene	111	91.4	82	(39-114)
Acenaphthene	111	124	111	(44-111)
Acenaphthylene	111	99.9	90	(39-116)
Anthracene	111	107	97	(50-114)
Benzo(a)Anthracene	111	104	94	(54-122)
Benzo[a]pyrene	111	105	94	(50-125)
Benzo[b]Fluoranthene	111	106	95	(53-128)
Benzo[g,h,i]perylene	111	108	97	(49-127)
Benzo[k]fluoranthene	111	103	92	(56-123)
Chrysene	111	108	97	(57-118)
Dibenzo[a,h]anthracene	111	111	100	(50-129)
Fluoranthene	111	101	91	(55-119)
Fluorene	111	104	94	(47-114)
Indeno[1,2,3-c,d] pyrene	111	108	97	(49-130)
Naphthalene	111	92.6	83	(38-111)
Phenanthrene	111	106	95	(49-113)
Pyrene	111	106	95	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	111	94.8	95	(50-150)
Fluoranthene-d10 (surr)	111	94.7	95	(50-150)

Batch Information

Analytical Batch: **XMS10377**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSD**

Prep Batch: **XXX38321**
Prep Method: **SW3550C**
Prep Date/Time: **09/01/2017 18:34**
Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1176204001
MS Sample ID: 1409880 MS
MSD Sample ID: 1409881 MSD

Analysis Date: 09/07/2017 1:45
Analysis Date: 09/07/2017 2:06
Analysis Date: 09/07/2017 2:26
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007

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

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	15.4U	136	122	90	135	122	90	43-111	0.17	(< 20)
2-Methylnaphthalene	15.4U	136	113	83	135	114	84	39-114	0.48	(< 20)
Acenaphthene	15.4U	136	150	110	135	150	110	44-111	0.36	(< 20)
Acenaphthylene	15.4U	136	121	89	135	121	89	39-116	0.16	(< 20)
Anthracene	15.4U	136	127	93	135	125	92	50-114	1.40	(< 20)
Benzo(a)Anthracene	15.4U	136	115	85	135	113	83	54-122	1.60	(< 20)
Benzo[a]pyrene	15.4U	136	112	83	135	110	81	50-125	2.30	(< 20)
Benzo[b]Fluoranthene	15.4U	136	112	82	135	113	83	53-128	1.20	(< 20)
Benzo[g,h,i]perylene	15.4U	136	100	74	135	95.6	70	49-127	4.90	(< 20)
Benzo[k]fluoranthene	15.4U	136	112	82	135	106	78	56-123	5.00	(< 20)
Chrysene	15.4U	136	119	87	135	117	86	57-118	1.60	(< 20)
Dibenzo[a,h]anthracene	15.4U	136	109	80	135	104	77	50-129	4.70	(< 20)
Fluoranthene	15.4U	136	116	85	135	115	85	55-119	0.65	(< 20)
Fluorene	15.4U	136	127	93	135	125	92	47-114	1.70	(< 20)
Indeno[1,2,3-c,d] pyrene	15.4U	136	104	76	135	99.4	73	49-130	4.40	(< 20)
Naphthalene	12.3U	136	108	80	135	111	82	38-111	2.00	(< 20)
Phenanthrene	15.4U	136	129	95	135	128	94	49-113	1.20	(< 20)
Pyrene	15.4U	136	123	90	135	122	90	55-117	0.83	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		136	127	93	135	127	94	50-150	0.22	
Fluoranthene-d10 (surr)		136	127	93	135	128	94	50-150	0.66	

Batch Information

Analytical Batch: XMS10377
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/7/2017 2:06:00AM

Prep Batch: XXX38321
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 9/1/2017 6:34:13PM
Prep Initial Wt./Vol.: 22.56g
Prep Extract Vol: 5.00mL

Print Date: 09/11/2017 4:23:18PM

Method Blank

Blank ID: MB for HBN 1767369 [XXX/38325]
Blank Lab ID: 1409914

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	92.7	60-120		%

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: KMD
Analytical Date/Time: 9/3/2017 3:48:00PM

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 9/2/2017 8:25:30AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [XXX38325]
Blank Spike Lab ID: 1409915
Date Analyzed: 09/03/2017 15:59

Spike Duplicate ID: LCSD for HBN 1176161 [XXX38325]
Spike Duplicate Lab ID: 1409916
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	157	95	167	142	85	(75-125)	10.00	(< 20)
Surrogates									
5a Androstane (surr)	3.33	105	105	3.33	94.5	95	(60-120)	10.60	

Batch Information

Analytical Batch: **XFC13755**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **KMD**

Prep Batch: **XXX38325**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2017 08:25**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1767369 [XXX/38325]
Blank Lab ID: 1409914

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	89.5	60-120		%

Batch Information

Analytical Batch: XFC13755
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: KMD
Analytical Date/Time: 9/3/2017 3:48:00PM

Prep Batch: XXX38325
Prep Method: SW3550C
Prep Date/Time: 9/2/2017 8:25:30AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [XXX38325]
Blank Spike Lab ID: 1409915
Date Analyzed: 09/03/2017 15:59

Spike Duplicate ID: LCSD for HBN 1176161 [XXX38325]
Spike Duplicate Lab ID: 1409916
Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001, 1176161002, 1176161003, 1176161004, 1176161005, 1176161006, 1176161007, 1176161008, 1176161009, 1176161010, 1176161011, 1176161012, 1176161013, 1176161014, 1176161015

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	165	99	167	147	88	(60-120)	11.20	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	96.1	96	3.33	87.6	88	(60-120)	9.20	

Batch Information

Analytical Batch: **XFC13755**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **KMD**

Prep Batch: **XXX38325**
Prep Method: **SW3550C**
Prep Date/Time: **09/02/2017 08:25**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1767597 [XXX/38337]
Blank Lab ID: 1410234

Matrix: Soil/Solid (dry weight)

QC for Samples:
1176161001

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	12.5U	25.0	7.50	ug/Kg
2-Methylnaphthalene	12.5U	25.0	7.50	ug/Kg
Acenaphthene	12.5U	25.0	7.50	ug/Kg
Acenaphthylene	12.5U	25.0	7.50	ug/Kg
Anthracene	12.5U	25.0	7.50	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	7.50	ug/Kg
Benzo[a]pyrene	12.5U	25.0	7.50	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	7.50	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	7.50	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	7.50	ug/Kg
Chrysene	12.5U	25.0	7.50	ug/Kg
Dibenzo[a,h]anthracene	12.5U	25.0	7.50	ug/Kg
Fluoranthene	12.5U	25.0	7.50	ug/Kg
Fluorene	12.5U	25.0	7.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	12.5U	25.0	7.50	ug/Kg
Naphthalene	10.0U	20.0	6.00	ug/Kg
Phenanthrene	12.5U	25.0	7.50	ug/Kg
Pyrene	12.5U	25.0	7.50	ug/Kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	88.7	50-150		%
Fluoranthene-d10 (surr)	89	50-150		%

Batch Information

Analytical Batch: XMS10370
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/5/2017 7:56:00PM

Prep Batch: XXX38337
Prep Method: SW3550C
Prep Date/Time: 9/5/2017 11:40:27AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Print Date: 09/11/2017 4:23:27PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1176161 [XXX38337]
Blank Spike Lab ID: 1410235
Date Analyzed: 09/05/2017 20:16

Matrix: Soil/Solid (dry weight)

QC for Samples: 1176161001

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	91.7	83	(43-111)
2-Methylnaphthalene	111	85.0	77	(39-114)
Acenaphthene	111	113	101	(44-111)
Acenaphthylene	111	90.4	81	(39-116)
Anthracene	111	95.8	86	(50-114)
Benzo(a)Anthracene	111	92.8	84	(54-122)
Benzo[a]pyrene	111	95.8	86	(50-125)
Benzo[b]Fluoranthene	111	92.5	83	(53-128)
Benzo[g,h,i]perylene	111	97.7	88	(49-127)
Benzo[k]fluoranthene	111	95.6	86	(56-123)
Chrysene	111	98.9	89	(57-118)
Dibenzo[a,h]anthracene	111	102	91	(50-129)
Fluoranthene	111	93.5	84	(55-119)
Fluorene	111	94.0	85	(47-114)
Indeno[1,2,3-c,d] pyrene	111	97.8	88	(49-130)
Naphthalene	111	86.5	78	(38-111)
Phenanthrene	111	95.3	86	(49-113)
Pyrene	111	96.5	87	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	111	88.1	88	(50-150)
Fluoranthene-d10 (surr)	111	88.9	89	(50-150)

Batch Information

Analytical Batch: **XMS10370**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSD**

Prep Batch: **XXX38337**
Prep Method: **SW3550C**
Prep Date/Time: **09/05/2017 11:40**
Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1176263012
MS Sample ID: 1410236 MS
MSD Sample ID: 1410237 MSD

QC for Samples: 1176161001

Analysis Date: 09/06/2017 0:23
Analysis Date: 09/06/2017 0:44
Analysis Date: 09/06/2017 1:04
Matrix: Soil/Solid (dry weight)

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

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	64.1	130	176	86	130	176	85	43-111	0.20	(< 20)
2-Methylnaphthalene	73.8	130	179	81	130	177	79	39-114	1.30	(< 20)
Acenaphthene	14.7J	130	148	103	130	146	101	44-111	1.40	(< 20)
Acenaphthylene	14.4U	130	110	85	130	108	83	39-116	1.90	(< 20)
Anthracene	14.4U	130	122	95	130	122	94	50-114	0.34	(< 20)
Benzo(a)Anthracene	14.4U	130	113	87	130	113	87	54-122	0.29	(< 20)
Benzo[a]pyrene	14.4U	130	114	88	130	114	87	50-125	0.38	(< 20)
Benzo[b]Fluoranthene	14.4U	130	112	86	130	110	85	53-128	1.30	(< 20)
Benzo[g,h,i]perylene	14.4U	130	114	88	130	112	86	49-127	1.50	(< 20)
Benzo[k]fluoranthene	14.4U	130	112	87	130	110	84	56-123	2.00	(< 20)
Chrysene	14.4U	130	117	90	130	117	90	57-118	0.05	(< 20)
Dibenzo[a,h]anthracene	14.4U	130	117	90	130	116	89	50-129	0.67	(< 20)
Fluoranthene	14.4U	130	112	87	130	113	87	55-119	0.26	(< 20)
Fluorene	33.5	130	148	89	130	147	88	47-114	0.74	(< 20)
Indeno[1,2,3-c,d] pyrene	14.4U	130	114	88	130	113	87	49-130	0.86	(< 20)
Naphthalene	13.7J	130	116	79	130	114	77	38-111	2.20	(< 20)
Phenanthrene	63.0	130	183	92	130	181	91	49-113	0.31	(< 20)
Pyrene	14.4U	130	119	92	130	120	92	55-117	0.24	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		130	119	92	130	116	89	50-150	2.10	
Fluoranthene-d10 (surr)		130	113	87	130	112	86	50-150	1.10	

Batch Information

Analytical Batch: XMS10370
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/6/2017 12:44:00AM

Prep Batch: XXX38337
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 9/5/2017 11:40:27AM
Prep Initial Wt./Vol.: 22.73g
Prep Extract Vol: 5.00mL

Print Date: 09/11/2017 4:23:30PM

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

Page 1 of 2

Section 1

CLIENT: Restoration Science + Engineering
CONTACT: Avan Fobes PHONE NO: 278 1023
PROJECT NAME: 801 Ship Creek Soils PROJECT/ PWSID/ PERMIT#:
REPORTS TO: RSE E-MAIL: afobes@restorsci.com
INVOICE TO: ARRC - Russ Grandel QUOTE #: P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incremental Soils	Preservative										REMARKS/ LOC ID
								MeOH	MeOH	MeOH							
							DRO/RRO	GRO	BTEX 8021	VOC 8260	PAH 8270						
(1) A-B	RSE-1-2	08/29/17	1005	Soil	2	G	X	X		X	X						
(8) A-B	RSE-1-3		1010		2		X	X	X								
(2) A-B	RSE-2-2		1045		2		X	X		X	X						
~~(3) A-B~~ (9) A-B	RSE-2-3		1050		2		X	X	X								
(10) A-B	RSE-3-3		1105		2		X	X	X								
(3) A-B	RSE-3-4		1110		2		X	X		X	X						
~~(4) A-B~~ (11) A-B	RSE-4-4		1115		2		X	X	X								
(4) A-B	RSE-4-5		1120		2		X	X		X	X						
(12) A-B	RSE-5-2		1130		2		X	X	X								
(5) A-B	RSE-5-4		1135		2		X	X		X	X						

Section 5

	Date	Time	
Relinquished By: (1)	8/30/17	1115	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	8/30/17	11:15	Received For Laboratory By:

Section 4

DOD Project? Yes No

Data Deliverable Requirements:

Cooler ID:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: -1.7 #D20
or Ambient [ ]
(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)
INTACT BROKEN (ABSENT)
(See attached Sample Receipt Form)

Hand Delivered

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

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

Page 2 of 2

Section 1

CLIENT: Restoration Science + Engineering
CONTACT: PHONE NO:
PROJECT NAME: 801 Ship Creek Soils PROJECT/ PWSID/ PERMIT#:
REPORTS TO: E-MAIL:
INVOICE TO: QUOTE #: P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	Preservative: DRO PRO	GRO	BTEX 8021	VOC 8260	cAH 8270						REMARKS/ LOC ID
								MeOH	MeOH	MeOH							
(13) A-B	RSE-6-3	08/29/17	1150	Soil	2	G	X	X	X								
(6) A-B	RSE-6-4		1155		2		X	X		X	X						
(7) A-B	RSE-7-3		1210		2		X	X		X	X						
(14) A-B	RSE-7-4		1215		2		X	X	X								
(15) A-B	RSE-X	"	1137	"	2	"	X	X	X								
(10) ~~4-B~~ 6ms																	
	Trip Blank																

Section 5

	Date	Time	
Relinquished By: (1)	8/30/17	1115	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	8/30/17	11:15	Received For Laboratory By:

Section 4

DOD Project? Yes No

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: -1.7 #D26
or Ambient [ ]
(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT
(See attached Sample Receipt Form)

Hand Delivered

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

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e-Sample Receipt Form

SGS Workorder #: **1176161**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	Hand Delivered
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)?	No	Cooler ID: 1 @ -1.7 °C Therm. ID: D20
		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?	Yes	
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".		Proceed per Client
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)? **Note: If times differ <1hr, record details & login per COC.	Yes	
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	
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)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1176161001-A	No Preservative Required	OK			
1176161001-B	Methanol field pres. 4 C	OK			
1176161002-A	No Preservative Required	OK			
1176161002-B	Methanol field pres. 4 C	OK			
1176161003-A	No Preservative Required	OK			
1176161003-B	Methanol field pres. 4 C	OK			
1176161004-A	No Preservative Required	OK			
1176161004-B	Methanol field pres. 4 C	OK			
1176161005-A	No Preservative Required	OK			
1176161005-B	Methanol field pres. 4 C	OK			
1176161006-A	No Preservative Required	OK			
1176161006-B	Methanol field pres. 4 C	OK			
1176161007-A	No Preservative Required	OK			
1176161007-B	Methanol field pres. 4 C	OK			
1176161008-A	No Preservative Required	OK			
1176161008-B	Methanol field pres. 4 C	OK			
1176161009-A	No Preservative Required	OK			
1176161009-B	Methanol field pres. 4 C	OK			
1176161010-A	No Preservative Required	OK			
1176161010-B	Methanol field pres. 4 C	OK			
1176161011-A	No Preservative Required	OK			
1176161011-B	Methanol field pres. 4 C	OK			
1176161012-A	No Preservative Required	OK			
1176161012-B	Methanol field pres. 4 C	OK			
1176161013-A	No Preservative Required	OK			
1176161013-B	Methanol field pres. 4 C	OK			
1176161014-A	No Preservative Required	OK			
1176161014-B	Methanol field pres. 4 C	OK			
1176161015-A	No Preservative Required	OK			
1176161015-B	Methanol field pres. 4 C	OK			
1176161016-A	Methanol field pres. 4 C	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.