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Russell Grandel
Alaska Railroad Corporation
1201 East Whitney Road
(907) 265-2624
Grandelr@akrr.com

RESTORATION
SCIENCE & ENGINEERING, LLC
911 W. 8TH AVENUE, SUITE 100
ANCHORAGE, AK 99501
VOICE: 907-278-1023
FAX: 907-277-5718
EMAIL: LKOENEMAN@RESTORSCI.COM

Subject: Letter Report for Groundwater Sampling within the ARRC Anchorage Terminal Reserve Rev 2.0, Anchorage, ADEC File # 2100.38.447

Mr. Grandel:

Restoration Science & Engineering, LLC (RSE) is providing the following letter report for groundwater sampling at eight (8) monitoring wells located within the Alaska Railroad Corporation (ARRC) Anchorage Terminal Reserve (Reserve). The Reserve is located in Ship Creek Valley in Anchorage, Alaska (See Figure 1 in Attachment A). This site is listed in the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Database as File #2100.38.447.

SITE OVERVIEW

The Reserve is comprised of approximately 600 acres of property owned by the ARRC within the lower Ship Creek Valley. It is operated by the ARRC and various tenants who lease parcels for a variety of commercial and industrial businesses. The site was transferred to the State of Alaska in 1985, prior to which the property was owned by the federal government. Site contamination was present at the time of the transfer in 1985, originating from various historic releases.

In 2004, an administrative order on by consent (AOC), US EPA Docket No. CERCLA 10-2004-0065, was signed to include the Reserve. From 2004 to 2016, environmental concerns and proceedings related to the Reserve were overseen directly by the Environmental Protection Agency (EPA). In 2016, the EPA transferred oversight and management of the Reserve to the ADEC.

From 2004 to 2016 numerous investigations and reports were completed in the Reserve. Specific reports applicable to the work outlined in this report include:

- RETEC Remedial Investigation (RETEC, 2008)
- Remedial Investigation/Feasibility Study (AECOM, 2010)
- Well Reconnaissance Report (FES, 2016)

The remedial investigation and feasibility studies identified remaining hydrocarbon and metals impacts from historic site activities and releases. A recent well reconnaissance report identified twenty-seven (27) wells on the subject property (FES, 2016). Of these wells, the following eight (8) wells were sampled for ongoing groundwater monitoring as a part of this report: MWB08, MWD01, DPD04, MWE04, MWC02, MWE20, MWC01, and MWE11. See Figure 1 in Attachment A for well locations.

OBJECTIVES

The work described in this letter report provides additional groundwater data for ongoing environmental monitoring and compliance for the Reserve.

GROUNDWATER SAMPLING

Based upon the results of previous investigations, RSE identified the following contaminants of potential concern (COPCs):

Table A. Contaminants of Potential Concern

COPC	Matrix	COPC Abbreviation	ADEC-Approved Lab Method	ADEC Table C Groundwater Cleanup
Gasoline Range Organics	Water	GRO	AK 101	2.2 mg/L
Diesel Range Organics	Water	DRO	AK 102	1.5 mg/L
Residual Range Organics	Water	RRO	AK 103	1.1 mg/L
Benzene	Water	Collectively referred to as BTEX	EPA 8260	4.6 ug/L
Toluene	Water			1100 ug/L
Ethylbenzene	Water			15 ug/L
Total Xylenes	Water			190 ug/L
Volatile Organic Compounds	Water	VOCs	EPA 8260	Varies
Polycyclic Aromatic Hydrocarbons	Water	PAH SIMs	EPS 8270D	Varies
Metals	Water	Metals	EPA 200.8	Varies
Mercury	Water	Hg	EPA 245.1	0.52 ug/L

Sampled monitoring wells and the associated analytes are as listed in Table B on the next page.

Table B. Monitoring Well Sampling

WELL ID	DRO/RRO	GRO	VOCs	Metals	Reference
MWB08	X	X	X		4-11b
MWD01	X	X	X		4-12b
DPD04	X	X	X		4-12b
MWE04	X	X	X		4-12b
MWC02	X	X	X		4-12b
MWE20	X	X	X	X	4-12b
MWC01	X	X	X		4-12b
MWE11	X	X	X	X	4-11b

NOTES: Tables 4-11b and 4-12b are included within the Remedial Investigation/Feasibility Study (RETEC, 2010)

RSE first examined the condition of each well and documented evidence of compromise. RSE measured the depth to the bottom of each well, and the depth to groundwater. Following these observations, RSE then purged three (3) well volumes from each well. The following water quality parameters were monitored for stabilization using an YSI 556 Water Quality Meter.

- pH ± 0.1
- Temperature ±3% (minimum of ± 0.2C)
- Conductivity ± 3%
- Dissolved Oxygen ±10%

These results can be found in Table 1 of Attachment C.

Water samples were collected using a positive-pressure submersible pump in all wells besides DPD04, for which a peristaltic pump was used. The peristaltic pump was used on DPD04 because the 1-inch diameter well was too narrow for the submersible pump. This work plan deviation was approved by the ADEC on July 12, 2018. Both the submersible and peristaltic pumps were set to low-flow rates, as per the EPA Low Flow Groundwater Sampling Procedures (EPA/540/S-95/504, April 1996). The target flow rate during low-flow sampling was less than 0.5 L/min (8 gallons per hour).

One (1) sample was collected from each well. Two (2) blind duplicates, MWCX of MWC02, and MWX of MWD01, were collected. All water samples were collected using new, dedicated tubing. The water level indicator and any other non-disposable equipment was decontaminated with a

distilled water and Alconox wash in between wells. As water samples were collected, care was taken to minimize volatile loss by preventing excessive turbulence or air mixing. Field personnel avoided spilling or over-diluting sample preservatives. Water samples were placed directly into method-specific containers and stored in clean sample coolers, which were transported under chain-of-custody to an ADEC-approved laboratory, SGS North America (SGS), located in Anchorage, Alaska.

FIELD EVENTS

Monitoring wells MWB08, MWD01, DPD04, MWE04, MWC02, MWE20, MWC01, and MWE11 were sampled during two discrete sampling events in the summer of 2018: July 16th (MWB08, MWD01, DPD04, MWE04, MWE20, and MWC01) and September 14th (MWE11 and MSC02).

RSE was unable to sample MWE11 during the July 16th sampling event, when gravel bedding between the polyvinyl chloride (PVC) well and metal outer casing fell into the PVC, wedging the submersible pump to the wall of the well. The pump could not be easily removed without risking significant damage to the well. RSE sampled additional wells while working on a solution to the jam.

On September 12th, RSE personnel removed the metal outer protective casing using car jacks, which exposed the inner PVC well. RSE then cut the PVC below where the pump was stuck and successfully removed the pump from the PVC. RSE reattached PVC riser with glue and a PVC coupling. The metal outer housing was lowered back around the PVC, and filled the interstitial space with pea gravel and cemented the protective casing. All disturbance was conducted on the upper three (3) feet stick-up portion on the well.

RSE returned to MWE11 on September 14th. RSE also sampled MWC02 on this day. Monitoring well MWC02 was covered by fill material, and not found during the first sampling event. RSE personnel used a magnetic locator to find the well, utilizing GPS coordinates and photographs from a previous report as a guide. Upon finding and opening the well, RSE noted that there was several yards of abandoned tubing suspended in the well. This was removed prior to sampling.

MWC01 contained abandoned tubing in the well. Strong solvent odors were noted around MWC01 during the July 16th sampling event believed to be attributed to active rail car painting at the adjacent facility.

RESULTS

A review of the laboratory results for the eight (8) monitoring well locations with an additional two (2) duplicate samples shows that hydrocarbon concentrations in several wells remain above

cleanup levels. Tabulated laboratory data can be found in Attachment C and laboratory reports can be found in Attachment D.

DRO Results

Samples MWE04, MWE20, MWC01, and MWC02 yielded DRO results above the ADEC Method 2 Migration to Groundwater Cleanup Level (cleanup level) of 1.5 mg/L. These wells are clustered in the northwest area of the Reserve around several large facilities that act as railroad facilities. All other monitoring wells yielded DRO results ranging from 0.172J mg/L to 0.377J mg/L.

Sample MWE04 is located on the northwest end of the Reserve, between several large railroad facilities. The DRO result for this well is 9.09 mg/L, significantly elevated above the cleanup level of 1.5 mg/L.

Well MWE20 is located on the western edge of the Reserve. The purge water was highly turbid and exhibited a dark gray opaque color, which was not reduced by purging. The DRO result for this well is 19.3 mg/L, also significantly elevated above the cleanup level of 1.5 mg/L.

MWC01 and MWC02 are located north and northwest of a railcar painting shop, principal Reserve area. Both wells contained abandoned tubing that was removed prior to sampling. Purge water in MWC01 was highly turbid and orange in color. After settling, the turbidity decreased, but remained orange. MWC02 was also highly turbid, and was dark gray in color. MWC01 yielded a DRO result of 1.57 mg/L. MWC02 and its duplicate, MWCX, yielded DRO results of 3.09 mg/L and 3.12 mg/L, respectively.

RRO Results

Samples MWE04 and MWE20 yielded RRO results of 3.45 mg/L and 1.64 mg/L, respectively, above the cleanup level of 1.1 mg/L. All other samples yield RRO results ranging from non-detect to 1.07 mg/L.

GRO Results

GRO results for all samples are below the cleanup level of 2.2 mg/L. The results range from non-detect to 0.127 mg/L.

BTEX Results

Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) results are below cleanup levels for all samples. Benzene results range from non-detect to 0.430 ug/L, well below the cleanup level of 4.6 ug/L. Toluene, Ethylbenzene, and Xylene results are all non-detect and well under the cleanup levels of 1,100 ug/L, 15 ug/L, and 190 ug/L, respectively.

VOC Results

VOC results for all analytes except Vinyl chloride are below cleanup levels. Vinyl chloride results in MWB08 and MWE04 are 0.510 ug/L and 0.300 ug/L, respectively, above the cleanup level of 0.19 ug/L. Monitoring well MWB08 is located between Ship Creek Trail and West Ship Creek Drive, in a dilapidated backyard of a non-descript building. It is southeast of the train support facilities located in the primary area of the Reserve. Purge water in MWB08 exhibited low turbidity.

The detection limit for 1,2,3-Trichloropropane is above the cleanup level, resulting in non-detect exceedances for all wells. Due to diffuse impacts across the Reserve, this is not believed to affect risk-based decision making for the capacity.

PAH SIMs

PAH SIM analyte results for all wells besides MWE04 and MWC01 are below cleanup levels. Benzo(a)Anthracene in MWE04 is 0.330 ug/L, above the cleanup level of 0.12 ug/L. Flourene in MWE04 is 8.39 ug/L, above the cleanup level of 4.3 ug/L. All other analytes in MWE04 are either non-detect or below cleanup levels.

Several PAH SIM analytes are above cleanup levels in MWC01. Benzo(a)Anthracene is 1.15 ug/L, above the cleanup level of 0.12 ug/L. Benzo[g,h,i]pyrene is 1.79 ug/L, above the cleanup level of 0.26 ug/L. Benzo[k]flouranthene is 0.880 ug/L, above the cleanup level of 0.8 ug/L. Chrysene is 2.22 ug/L, above the cleanup level of 2 ug/L. Dibenzo[a.h]anthracene is 0.403 ug/L, above the cleanup level of 0.034 ug/L. Indeno[1,2,3-c,d]pyrene is 1.26 ug/L, above the cleanup level of 0.19 ug/L. All other analytes for MWC01 are below cleanup levels.

RCRA Metals

Monitoring wells MWE20 and MWE11 were the only wells sampled for metals, per the July 13, 2018-approved work plan. Several metal analytes in MWE20 are above cleanup levels. Arsenic is 139 ug/L, above the cleanup level of 0.52 ug/L. Cadmium is 29.4 ug/L, above the cleanup level of 9.2 ug/L. Lead is 231 ug/L, above the cleanup level of 15 ug/L. Mercury is 2.76 ug/L, above the cleanup level of 0.52 ug/L. All other metals are non-detect or below cleanup levels in MWE20.

MWE11 is located along Ship Creek, and is the easternmost well of those sampled in 2018. Arsenic is the only exceedance in MWE11 at 13.2 ug/L, above the cleanup level of 0.52 ug/L. All other metals are non-detect or blow cleanup levels.

INVESTIGATIVE DERIVED WASTE

Consumables such as tubing and gloves were placed into a trash receptacle for disposal. Non-consumables such as the submersible pump were decontaminated using a distilled water and Alconox wash between each well. Tubing for water samples was dedicated to each well and

disposed of following use.

Purge and decontamination water from each monitoring well was containerized in sealed and labeled buckets and stored onsite pending laboratory analysis and ADEC approval for disposal. The ADEC approved NRC Alaska, LLC (NRC) to transport stored purge and decontamination water offsite for treatment and disposal on October 10, 2018. The approval form for treatment and disposal can be found in Attachment G. Approximately 50 gallons of purge water was picked up by NRC on October 26, 2018. The waste manifest can be found in Attachment H.

QUALITY ASSURANCE AND QUALITY CONTROL

RSE collected each sample in general accordance with applicable ADEC regulation and guidance documents and the ADEC approved work plan dated June 13, 2018. Sampling was conducted by a Qualified Sampler (QS) and overseen by a Qualified Environmental Professional (QEP). Two blind duplicates, MWX and MWCX, were collected for a duplicate sampling frequency of 10% per field day. RSE submitted one (1) trip blank in each sample cooler containing volatile samples.

Sampling at well location DPD04, required a deviation from the work plan due to the narrow (less than 1-inch) diameter of the well. RSE contacted the ADEC regarding this issue on July 16th and the use of the peristaltic pump was approved. When using the peristaltic pump, every effort was made to ensure a smooth laminal flow to minimize the loss of volatiles. Review of volatile data indicates there are no significant differences between data produced from this well and that from the wells sampled using a submersible pump.

Water from monitoring well MWE11 contained PVC shavings following the removal actions for the pump. SGS was notified of the shavings and assured no data quality would be affected by these particulates.

In the work plan dated June 13, 2018, RSE proposed measuring the free product in MWE05, if any. If free product was not present, RSE proposed samples MWE05 for DRO, RRO, GRO, VOCs, and PAH SIMs. Due to an oversight, MWE05 was not sampled or measured.

RSE has completed the ADEC Laboratory Review checklists for both lab reports. These can be found in Attachment E. All data was determined to be usable for comparison with the ADEC Table C Groundwater cleanup levels.

CONCLUSION AND RECOMMENDATIONS

A majority of the reported exceedances come from the cluster of monitoring wells near the train support facilities in the northwest corner of the Reserve; those wells being MWE04, MWC02, MWC01, and MWE20. These wells uniformly yielded DRO exceedances. MWE04 and MWE20 yielded RRO exceedances. MWE04 and MWB08 VOC analyte results for Vinyl chloride were

above cleanup levels. MWE04 yielded PAH SIM exceedances for Benzo(a)Anthracene and Flourene. MWC01 yielded several analytes above cleanup levels for PAH SIMs. MWE11 yielded an arsenic level above the cleanup levels.

Monitoring wells MWD01 and DPD04 yielded no exceedances.

Please contact Lisa Koeneman at 278-1023, extension 110 if you have any questions, comments, or concerns. We appreciate the opportunity to work with the ADEC on this project.

The preparation of this letter report was prepared by a QS and overseen by a QEP in accordance with 18 AAC 75/78.

Lisa Koeneman, QS

Lucus Gamble, QEP

RESTORATION SCIENCE & ENGINEERING, LLC

ATTACHMENTS

Attachment A:	2016 FES Wells Located Map (Excerpted)
Attachment B:	Select Site Photographs
Attachment C:	Tabulated Laboratory Results
Attachment D:	SGS North America Final Laboratory Reports
Attachment E:	ADEC Data Quality Review Checklists
Attachment F:	Scanned Field Notes
Attachment G:	ADEC Transport, Treatment, and Disposal Approval for Contaminated Media
Attachment H:	Non-Hazardous Waste Manifest

REFERENCES

AECOM, 2010. *Feasability Study Alaska Railroad Corporation, Anchorage Terminal Reserve.* December 2010

Fairbanks Environmental Services (FES). 2016. *2016 Well Reconnaissance, Anchorage Terminal Reserve,* November 4, 2016

Restoration Science & Engineering, LLC (RSE). 2018. *Work Plan for Groundwater Sampling at the ARRC Terminal Reserve.* ADEC File # 2100.38.447, Hazard ID 4074. RSE Project No. 17-1782 Rev 2. June 13, 2018

RETEC Group, Inc. 2008. *Remedial Investigation Alaska Railroad Corporation, Anchorage Terminal Reserve Revision 2.0.* May 12, 2008

Attachment A:

2016 FES Wells Located Map (Excerpted)

RESTORATION
Science & Engineering, LLC

MWC01
DRO: 1.57 mg/L
BENZO[A]ANTHRACENE: 1.15 µg/L
BENZO[A]PYRENE: 1.79 µg/L
BENZO[B]FLUORANTHENE: 2.54 µg/L
BENZO[G,H,I]PERYLENE: 1.59 µg/L
BENZO[K]FLUORANTHENE: 0.880 µg/L
CHRYSENE: 2.22 µg/L
DIBENZO[A,H]ANTHRACENE: 0.403 µg/L
INDENO[1,2,3-C,D]PYRENE: 1.26

MWE20
DRO: 19.3 mg/L
RRO: 1.64 mg/L
ARSENIC: 139 µg/L
CADMIUM: 29.4 µg/L
LEAD: 231µg/L
MERCURY: 2.76 µg/L

MWE04
DRO: 9.09 mg/L
RRO: 3.45 mg/L
VINYL CHLORIDE: 0.300 µg/L
BENZO[A]ANTHRACENE: 0.330 µg/L
FLUORENE: 8.39 µg/L

MWC02/MWCX
DRO: 3.09/3.12 mg/L

MWE11
ARSENIC: 13.2 µg/L

MWB08
VINYL CHLORIDE: 0.510 µg/L

DPD03 (Removed)
DPD04
DPA03 (Decommissioned)
MWE04
MWE05
MWE06
MWD01
MWE20
MWC02
MWC01
MWA05
MWA07
DPB02
DPB04
MWB06
MWB08
MWB09
MW24
MWE09
DPC06
MWE11
DPD12
MWC12
MWC10
MWA24 (Decommissioned)
DPA32
MWA22
MWB17
DPB21
MWA18
N
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND:

- 2018 Sampled Wells
- Located Wells
- Railroad
- Road

NOTES:

1. Coordinate System: NAD83, State Plane, Zone 4, Feet

SOURCES:

Imagery Source: ESRI Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Commmunity

0 350 700 1,400 Feet

ALASKA RAILROAD CORPORATION

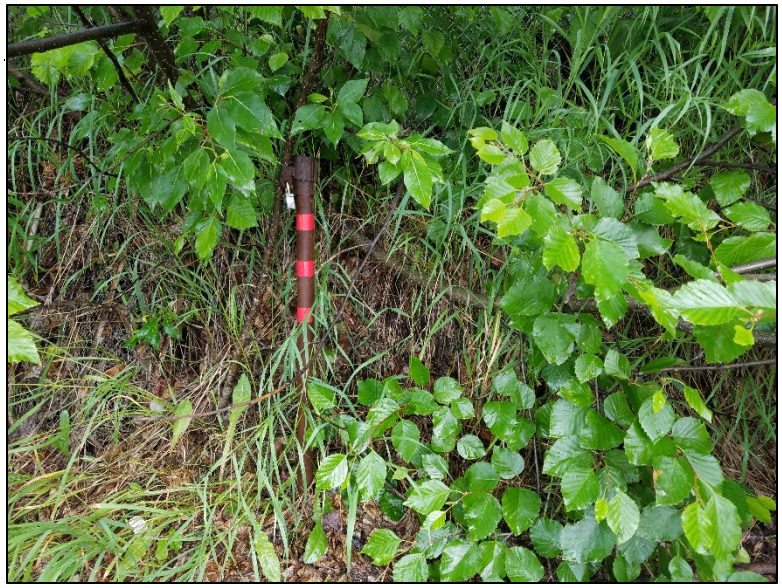
2018 Groundwater Monitoring Well Location
Anchorage, Alaska

FIGURE: 1

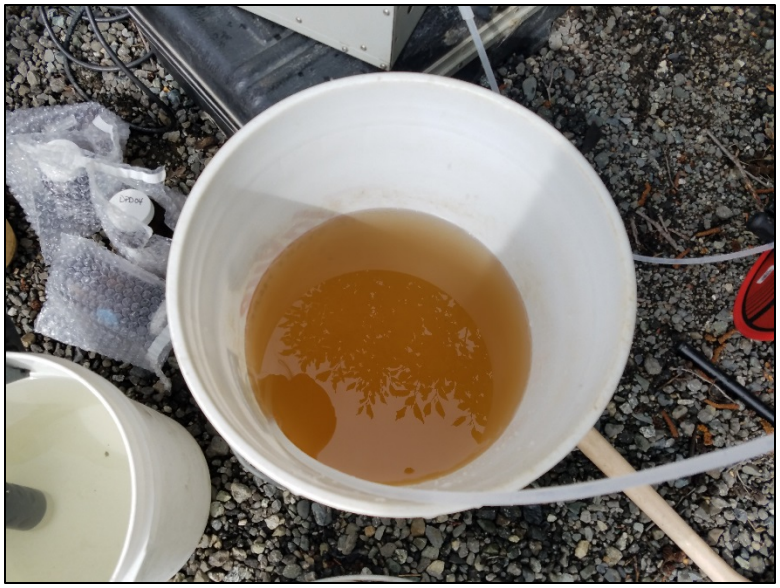
DATE: 4.2019

Attachment B:

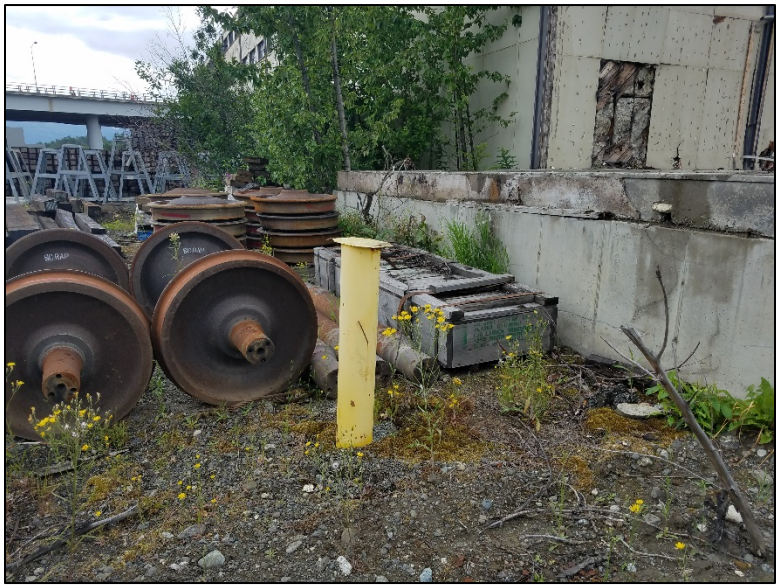
Select Site Photographs



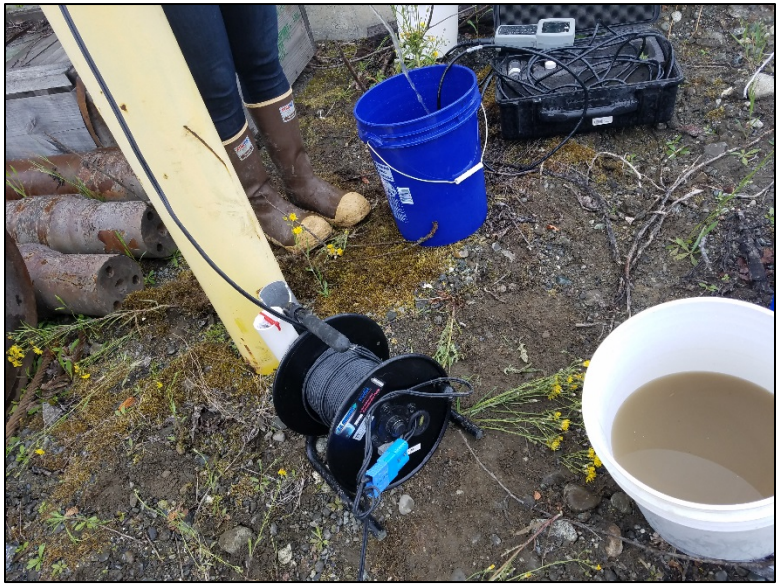
DPD04 well casing along bluff; looking north.



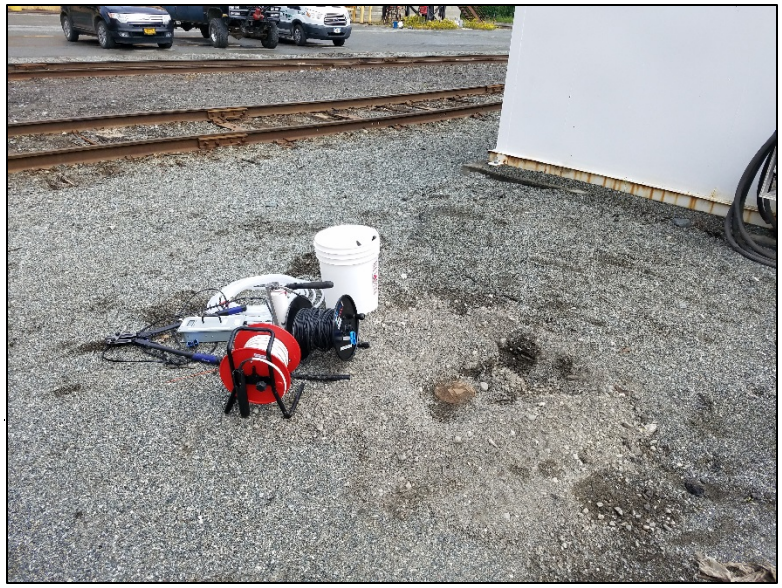
Purge water from DPD04.



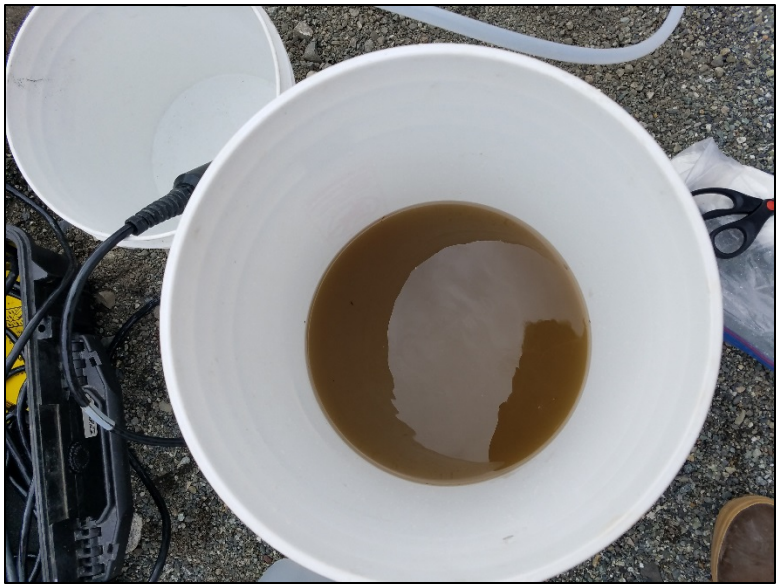
Monitoring well MWD01; looking east-southeast.



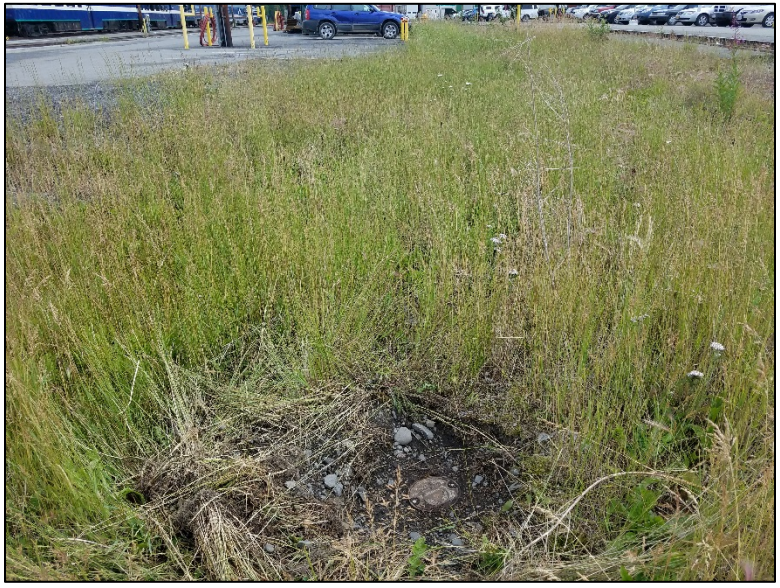
Sampling MWD01 with a submersible pump; purge water.



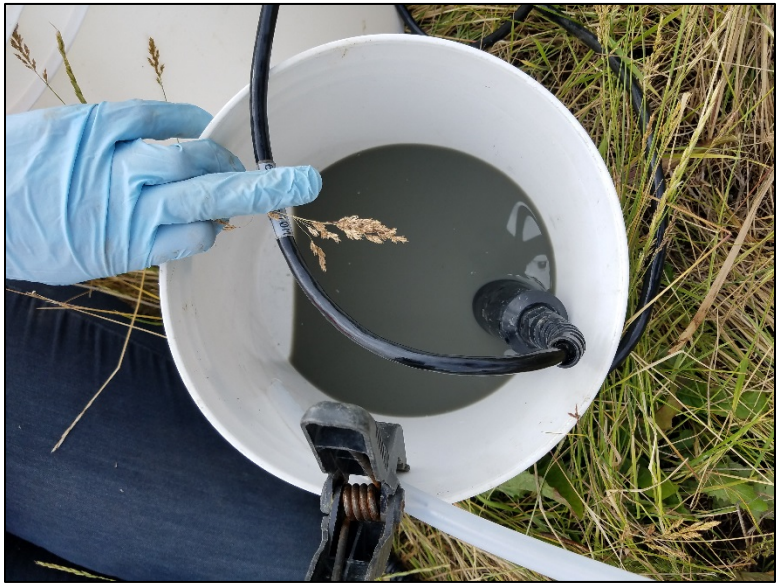
Flush mount monitoring well MWE04; looking northeast.



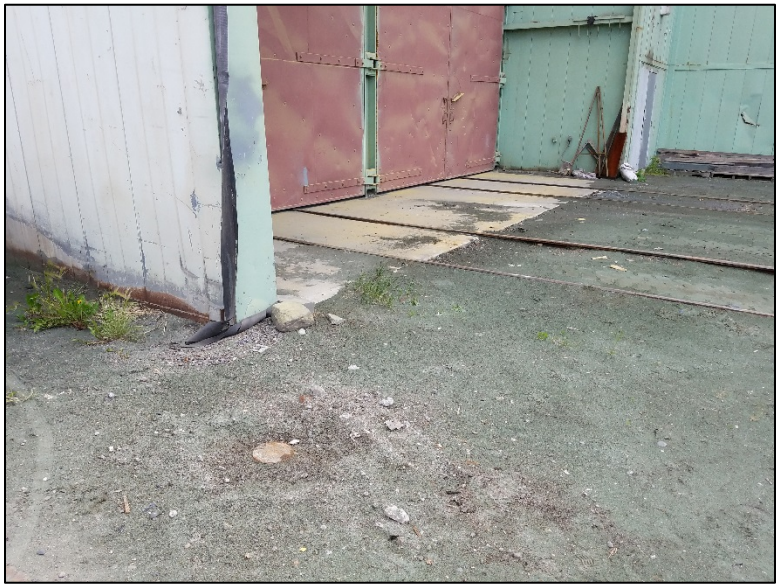
Purge water from monitoring well MWE04.



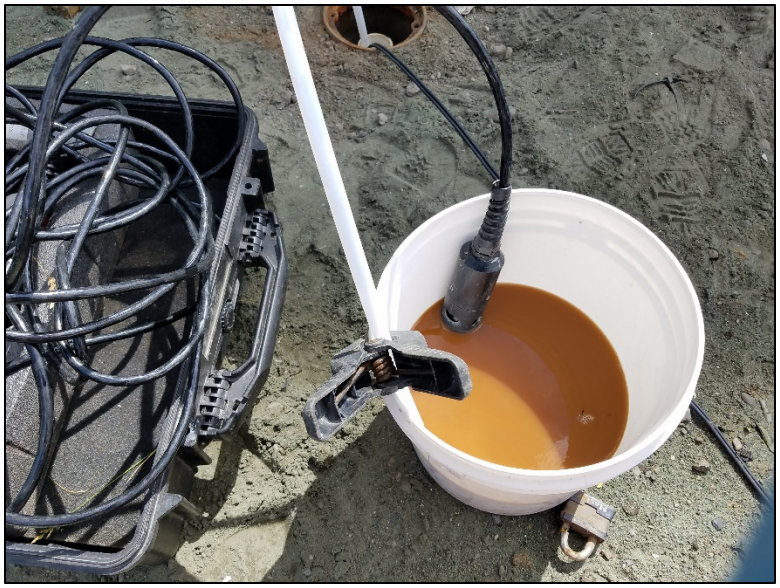
Flush mount monitoring well MWE20; looking east.



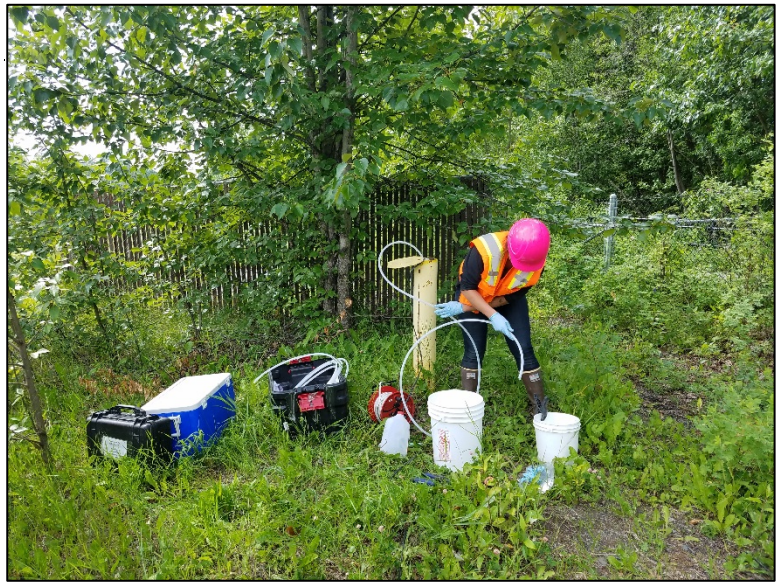
Purge water from MWE20.



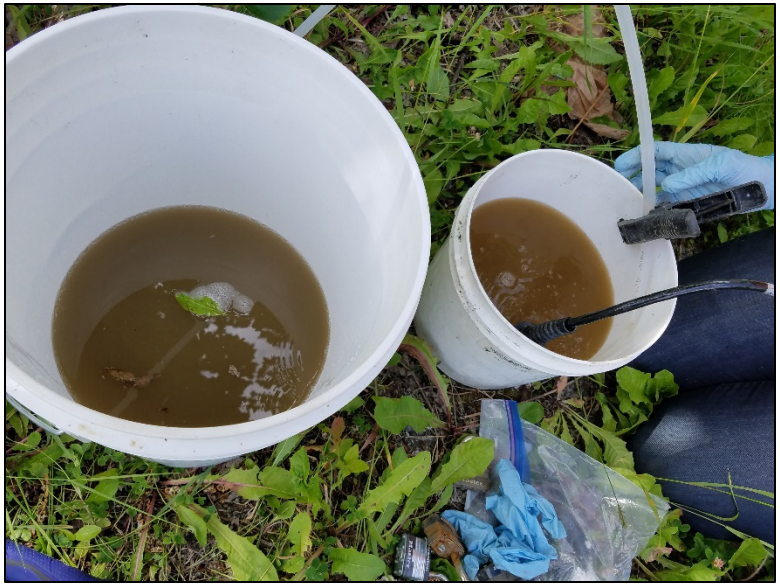
Flush mount monitoring well MWC01; looking southeast.



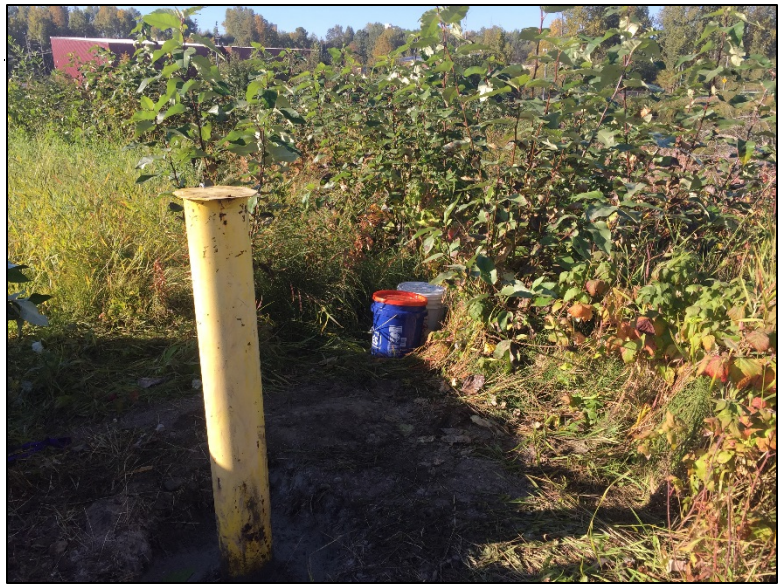
Purge water from MWC01.



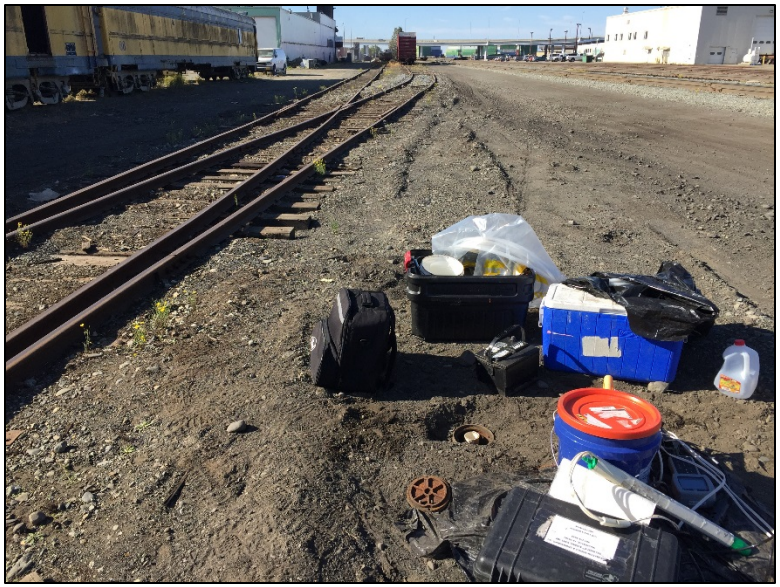
Sampling monitoring well MWB08 with a submersible pump; looking west.



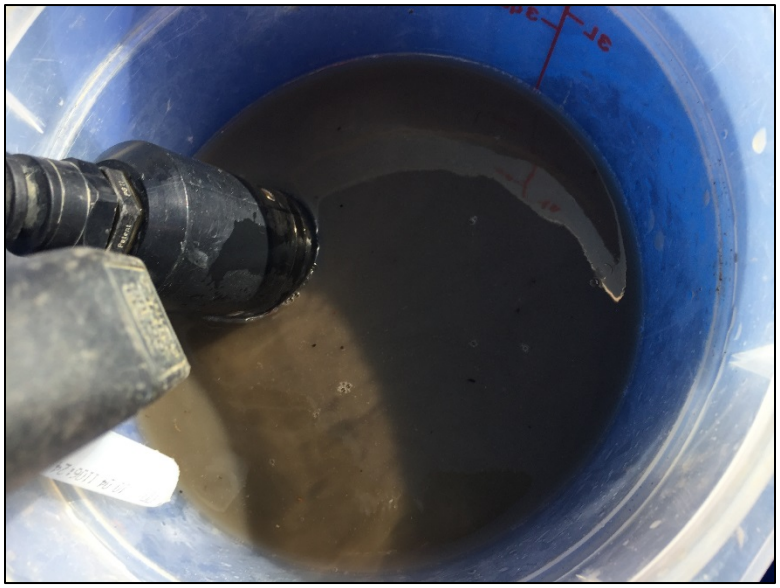
Purge water from MWB08.



Monitoring well MWE11 and stored purge water; looking southwest.



Monitoring well MWC02; looking west.



Purge water from MWC02.

Attachment C:

Tabulated Laboratory Results

TABLE 1
Groundwater Quality Field Parameters
2018 Terminal Reserve Groundwater Monitoring

GROUNDWATER QUALITY FIELD PARAMETERS													
LOCATION	DATE	DEPTH TO WATER (feet)	DEPTH TO BOTTOM (feet)	DEPTH TO WATER POST-PURGING (feet)	VOLUME PURGED (gal)	TIME (hh:mm)	TOTAL WATER REMOVED (gal)	TEMPERATURE (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SPECIFIC CONDUCTANCE (mS/cm)	SALINITY (ppt)	DISSOLVED OXYGEN %
MWB08	7/16/2018	9.31	21.32	9.35	6	1520	2	8.4	6.82	0.343	240	0.16	8.6
						1522	4	8.24	8.24	0.397	233	0.14	8.5
						1524	6	8.14	8.14	0.391	207	0.14	8.6
MWD01	7/16/2018	13.06	20.89	12.99	5	1200	1.3	7.88	7.31	0.64	430	0.31	55.3
						1202	2.6	7.33	6.70	0.663	458	0.38	45.1
						1204	3.9	7.03	6.61	0.703	480	0.38	41.1
						1206	5	7.00	6.66	0.711	478	0.38	40.9
DPD04	7/16/2018	8.48	23.34	19.04	7.5	1050	2.5	7.72	7.80	0.516	345	0.25	55.8
						1055	5	7.63	7.75	0.492	336	0.24	62.2
						1105	7.5	7.74	7.61	0.483	335	0.23	63.9
MWC02	9/14/2018	14.54	18.71	NOT TAKEN	0.7	1224	0.7	8.13	6.13	0.797	549	0.39	41.4
						1227	1.4	7.84	6.26	0.791	532	0.39	38.3
						1230	2.1	7.54	6.29	0.798	532	0.39	37.2
						1234	2.8	7.8	6.3	0.795	534	0.39	37.1
MWE04	7/16/2018	12.14	16.82	12.16	2.4	1250	0.8	9.52	6.98	0.919	683	0.46	11.4
						1252	1.6	9.78	6.84	0.935	681	0.46	8.4
						1254	2.4	9.69	6.75	0.933	692	0.49	8.5
MWE11	9/14/2018	11.82	18.91	NOT TAKEN	1.2	1005	1.2	11.28	6.50	0.618	456	0.3	14.4
						1007	2.4	11.08	6.86	0.62	456	0.3	5
						1010	3.6	11.03	6.91	0.619	454	0.3	3.2
MWE20	7/16/2018	9.53	13.88	9.61	2.3	1345	0.75	8.7	6.68	1.006	692	0.50	5.8
						1347	1.5	8.41	6.54	0.988	660	0.49	6.0
						1349	2.3	8.56	6.50	0.977	646	0.48	6.5
MWC01	7/16/2018	17.71	23.29	17.89	3	1435	1	8.04	6.67	0.852	576	0.42	10.0
						1437	2	7.99	6.61	0.844	565	0.42	8.2
						1439	3	7.78	6.59	0.840	559	0.42	8.5

NOTES:
1) Groundwater quality parameters collected with a YSI 556
2) Purging conducted with a submersible pump, with the exception of DPD04, which was collected using a peristaltic pump due to narrow PVC diameter
3) Sample MWE11 was collected from a disturbed well (see report).

TABLE 2
Hydrocarbons In Groundwater
2018 Terminal Reserve Groundwater Monitoring

HYDROCARBONS IN GROUNDWATER									
SAMPLE ID	**DATE**	**DIESEL RANGE ORGANICS (mg/L)**	**RESIDUAL RANGE ORGANICS (mg/L)**	**GASOLINE RANGE ORGANICS (mg/L)**	**BENZENE (µg/L)**	**TOLUENE (µg/L)**	**ETHYL-BENZENE (µg/L)**	**XYLENES (µg/L)**	**SGS PROJECT NO.**
MWB08	7/16/2018	0.377 J	0.246 J	*0.0500 U*	**0.430**	*0.500 U*	*0.500 U*	*1.50 U*	
MWD01	7/16/2018	0.295 J	0.390 J	**0.127**	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	
DPD04	7/16/2018	0.245 J	0.373 J	*0.0500 U*	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	
MWE04	7/16/2018	**9.09**	**3.45**	*0.0500 U*	**0.410**	*0.500 U*	*0.500 U*	*1.50 U*	
MWE20	7/16/2018	**19.3**	**1.64**	*0.0500 U*	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	1183702/
MWC01	7/16/2018	**1.57**	**1.07**	*0.0500 U*	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	1185244
MWX	7/16/2018	0.279 J	0.330 J	*0.0500 U*	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	
MWE11	9/14/2018	0.172 J	0.256 J	*0.0500 U*	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	
MWC02	9/14/2018	**3.09**	**0.915**	*0.0500 U*	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	
MWCX	9/14/2018	**3.12**	**0.904**	*0.0500 U*	*0.200 U*	*0.500 U*	*0.500 U*	*1.50 U*	
ADEC GROUNDWATER CLEANUP LEVELS TABLE C (18 AAC 75)		**1.5**	**1.1**	**2.2**	**4.6**	**1100**	**15**	**190**	

NOTES:
1) Diesel Range Organics (DRO) samples analyzed by AK Method 102; Residual Range Organics (RRO) sampled by AK Method 103; Gasoline Range Organics (GRO) samples analyzed by AK Method 101; BTEX samples analyzed by EPA SW8260C
2) "mg/L" means "milligrams per liter"; "µg/L" means "micrograms per liter".
3) **Bold** font indicates the analyte was detected above the Detection Limit (DL).
4) *Italicized* font with a U-flag indicates the analyte was not detected at the DL; the value presented is the Limit of Detection.
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) MWX is a blind duplicate of MWD01; MWCX is a blind duplicate of MWC02.

TABLE 3
Volatile Organic Compounds in Groundwater
2018 Terminal Reserve Groundwater Monitoring

VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN GROUNDWATER											
SAMPLE ID **Date** **Units**	MWB08 7/16/2018 (µg/L)	MWD01 7/16/2018 (µg/L)	DPD04 7/16/2018 (µg/L)	MWE04 7/16/2018 (µg/L)	MWE20 7/16/2018 (µg/L)	MWC01 7/16/2018 (µg/L)	MWX 7/16/2018 (µg/L)	MWE11 9/14/2018 (µg/L)	MWC02 9/14/2018 (µg/L)	MWCX 9/14/2018 (µg/L)	**ADEC Table C Groundwater Cleanup Levels**
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*	*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*	*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*	*0.250 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*	*0.200 U*	*0.200 U*	0.41
1,1-Dichloroethane	*0.500 U*	*0.500 U*	*0.500 U*	0.420 J	*0.500 U*	0.490 J	*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*	*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*	*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*	*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*	*0.500 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*	*0.500 U*	*0.500 U*	4
1,2,4-Trimethylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	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*	*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*	*0.0375 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*	*0.500 U*	*0.500 U*	300
1,2-Dichloroethane	0.160 J	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 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*	*0.500 U*	*0.500 U*	4.4
1,3,5-Trimethylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	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*	*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*	*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*	*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*	*0.500 U*	*0.500 U*	--
2-Butanone (MEK)	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 U*	*5.00 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*	*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*	*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*	*0.500 U*	*0.500 U*	--
4-Isopropyltoluene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	--
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*	*5.00 U*	*5.00 U*	6,300
Benzene	*0.430*	*0.200 U*	*0.200 U*	**0.410**	*0.200 U*	*0.200 U*	*0.200 U*	*0.200 U*	*0.200 U*	*0.200 U*	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*	*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*	*0.500 U*	*0.500 U*	--
Bromodichloromethane	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	1.3
Bromoform	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	33
Bromomethane	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*2.50 U*	*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*	*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*	*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*	*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*	*0.500 U*	*0.500 U*	--
Chloroform	*0.500 U*	*0.500 U*	**1.01**	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	2.2
Chloromethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	**1.84**	**1.80**	*0.500 U*	190
Dibromochloromethane	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	*0.250 U*	8.7
Dibromomethane	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*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*	*0.500 U*	*0.500 U*	200
Ethylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	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*	*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*	*0.500 U*	*0.500 U*	1.4
Isopropylbenzene (Cumene)	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	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*	*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*	*2.50 U*	*2.50 U*	110
Naphthalene	0.470 J	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	1.7
P & M -Xylene	*1.00 U*	*1.00 U*	*1.00 U*	*1.00 U*	*1.00 U*	*1.00 U*	*1.00 U*	*1.00 U*	*1.00 U*	*1.00 U*	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*	*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*	*0.500 U*	*0.500 U*	41
Toluene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	1,100
Trichloroethene	*0.500 U*	*0.500 U*	*0.500 U*	0.850 J	**1.42**	*0.500 U*	*0.500 U*	*0.500 U*	**1.55**	**1.93**	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*	*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*	*5.00 U*	*5.00 U*	410
Vinyl chloride	**0.510**	*0.0750 U*	*0.0750 U*	**0.300**	*0.0750 U*	*0.0750 U*	*0.0750 U*	*0.0750 U*	*0.0750 U*	*0.0750 U*	0.19
Xylenes (total)	*1.50 U*	*1.50 U*	*1.50 U*	*1.50 U*	*1.50 U*	*1.50 U*	*1.50 U*	*1.50 U*	*1.50 U*	*1.50 U*	190
cis-1,2-Dichloroethene	**1.29**	*0.500 U*	*0.500 U*	**1.77**	**2.84**	0.370 J	*0.500 U*	*0.500 U*	**1.41**	**1.62**	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*	*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*	*0.500 U*	*0.500 U*	1,000
n-Propylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	660
o-Xylene	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	See Total Xylenes
sec-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*	*0.500 U*	*0.500 U*	2,000
tert-Butylbenzene	*0.500 U*	*0.500 U*	*0.500 U*	0.330 J	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	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*	*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*	*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 Detection Limit (DL).
4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the Limit of Detection.
5) J flag indicates the result is an estimated value.
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) MWX is a blind duplicate of MWD01; MWCX is a blind duplicate of MWC02.

TABLE 4
Polynuclear Aromatic Hydrocarbons in Groundwater
2018 Terminal Reserve Groundwater Monitoring

POLYNUCLEAR AROMATIC HYDROCARBONS IN GROUNDWATER											
SAMPLE ID	MWB08	MWD01	DPD04	MWE04	MWE20	MWC01	MWX	MWE11	MWC02	MWCX	**ADEC TABLE C**
DATE	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	7/16/2018	9/14/2018	9/14/2018	9/14/2018	**GROUNDWATER CLEANUP**
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1-Methylnaphthalene	*0.0236 U*	*0.0245 U*	*0.0240 U*	*0.232 U*	*0.0227 U*	**0.342**	*0.0232 U*	*0.00640 U*	*0.00630 U*	*0.00640 U*	11
2-Methylnaphthalene	*0.0236 U*	*0.0245 U*	*0.0240 U*	*0.232 U*	*0.0227 U*	**0.659**	*0.0232 U*	*0.00640 U*	*0.00630 U*	*0.00640 U*	36
Acenaphthene	**0.213**	*0.0245 U*	*0.0240 U*	*0.232 U*	*0.0227 U*	**0.100**	*0.0232 U*	*0.00640 U*	**0.201**	**0.150**	530
Acenaphthylene	*0.0236 U*	*0.0245 U*	*0.0240 U*	*0.232 U*	*0.0227 U*	**0.273**	*0.0232 U*	*0.00640 U*	*0.00630 U*	*0.00640 U*	260
Anthracene	*0.0236 U*	*0.0245 U*	*0.0240 U*	*0.232 U*	*0.0227 U*	**0.595**	*0.0232 U*	*0.00640 U*	**0.0502**	**0.0311**	43
Benzo(a)Anthracene	*0.0236 U*	*0.0245 U*	*0.0240 U*	**0.330**	*0.0227 U*	**1.15**	*0.0232 U*	*0.00640 U*	0.00767 J	*0.00640 U*	0.12
Benzo[a]pyrene	*0.00945 U*	*0.00980 U*	*0.00960 U*	*0.00925 U*	*0.00910 U*	**1.79**	*0.00925 U*	*0.00255 U*	*0.00252 U*	*0.00255 U*	0.34
Benzo[b]Fluoranthene	*0.0236 U*	*0.0245 U*	*0.0240 U*	*0.0232 U*	*0.0227 U*	**2.54**	*0.0232 U*	*0.00640 U*	**0.0173**	*0.00640 U*	0.34
Benzo[g,h,i]perylene	*0.0236 U*	*0.0245 U*	*0.0240 U*	*0.0232 U*	*0.0227 U*	**1.59**	*0.0232 U*	0.00640 U	*0.00630 U*	*0.00640 U*	0.26
Benzo[k]fluoranthene	*0.0236 U*	*0.0245 U*	*0.0240 U*	*0.0232 U*	*0.0227 U*	**0.880**	*0.0232 U*	0.00640 U	*0.00630 U*	*0.00640 U*	0.8
Chrysene	*0.0236 U*	*0.0245 U*	*0.0240 U*	**0.454**	*0.0227 U*	**2.22**	*0.0232 U*	0.00640 U	**0.0215**	*0.00640 U*	2
Dibenzo[a,h]anthracene	*0.00945 U*	*0.00980 U*	*0.00960 U*	*0.00925 U*	*0.00910 U*	**0.403**	*0.00925 U*	0.00255 U	*0.00252 U*	*0.00255 U*	0.034
Fluoranthene	*0.0236 U*	*0.0245 U*	*0.0240 U*	**3.03**	**0.185**	**2.26**	*0.0232 U*	0.00640 U	**0.0560**	**0.0337**	260
Fluorene	0.0442 J	*0.0245 U*	*0.0240 U*	**8.39**	*0.0227 U*	**0.110**	*0.0232 U*	0.00640 U	**0.532**	**0.394**	4.3
Indeno[1,2,3-c,d] pyrene	*0.0236 U*	*0.0245 U*	*0.0240 U*	*0.0232 U*	*0.0227 U*	**1.26**	*0.0232 U*	0.00640 U	*0.00630 U*	*0.00640 U*	0.19
Naphthalene	*0.0471 U*	*0.0490 U*	*0.0481 U*	*0.463 U*	*0.0454 U*	**1.42**	*0.0463 U*	0.0127 U	*0.0127 U*	*0.0127 U*	1.7
Phenanthrene	*0.0236 U*	*0.0245 U*	*0.0240 U*	**6.40**	*0.0227 U*	**1.63**	*0.0232 U*	0.0255 U	0.0482 J	0.0332 J	170
Pyrene	*0.0236 U*	*0.0245 U*	*0.0240 U*	**3.18**	**0.359**	**1.89**	*0.0232 U*	0.0255 U	0.0457 J	0.0286 J	120

NOTES:
1) PAH analyses by Method EPA 8270D
2) "µg/L" means "micrograms per kilogram"
3) **Bold** font indicates the analyte was detected above the Detection Limit (DL).
4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the Limit of Detection
5) J flag indicates the result is an estimated value.
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) MWX is a blind duplicate of MWD01; MWCX is a blind duplicate of MWC02

TABLE 5
RCRA Metals in Groundwater
2018 Terminal Reserve Groundwater Monitoring

RCRA METALS IN GROUNDWATER			
SAMPLE ID	MWE20	MWE11	**ADEC TABLE C GROUNDWATER CLEANUP LEVELS**
DATE	7/16/2018	9/14/2018	
UNITS	µg/L	µg/L	µg/L
Arsenic	**139**	**13.2**	0.52
Barium	**2030**	**86.6**	3,800
Cadmium	**29.4**	*1.00 U*	9.2
Chromium	**949**	**4.65**	22,000
Lead	**231**	**4.61**	15
Mercury	**2.76**	0.158 J	0.52
Selenium	*10.0 U*	*10.0 U*	100
Silver	**2.98**	*1.00 U*	94

NOTES:
1) Metals analyses by EPA SW6020A
2) "ug/Kg" means "micrograms per kilogram"
3) **Bold** font indicates the analyte was detected above the laboratory Detection Limit (DL).
4) *Italicized* font indicates the analyte was not detected above the DL; the value present is the LOD.
5) J flag indicates the result is an estimated value.
6) Light blue highlighting indicates the DL is higher than the ADEC Table C Cleanup Level.
7) Yellow highlighting indicates the result exceeds ADEC Cleanup Standards.

Attachment D:
SGS North America Final Laboratory Reports

Laboratory Report of Analysis

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

Report Number: **1183702**

Client Project: **Term Res 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

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: **1183702**
Project Name/Site: **Term Res Groundwater**
Project Contact: **Russell Grandel**

Refer to sample receipt form for information on sample condition.

MWE04 (1183702004) PS

8270D SIM - PAH surrogate recovery for Fluoranthene-d10 does not meet QC criteria

MWE20 (1183702005) PS

8270D SIM - PAH surrogate recovery for Fluoranthene-d10 does not meet QC criteria

MB for HBN 1782937 [MXX/31769] (1461418) MB

6020A - Metals analyte mercury is detected in the MB at a concentration greater than half the LOQ but less than the LOQ The associated sample concentrations for DOD are less than the LOQ.

*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
8270D SIM LV (PAH)				
1183702004	MWE04	XMS10903	Fluoranthene	RP
1183702006	MWC01	XMS10903	Acenaphthene	SP
1183702006	MWC01	XMS10903	Benzo[k]fluoranthene	RP
SW8260C				
1183702001	MWB08	VMS18016	Naphthalene	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: 07/26/2018 12:23:43PM

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 (Provisionally Certified as of 06/11/2018 for Mercury by EPA245.1,Beryllium and Copper by EPA200.8) & Microbiology & 17-021 (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
MWB08	1183702001	07/16/2018	07/16/2018	Water (Surface, Eff., Ground)
MWD01	1183702002	07/16/2018	07/16/2018	Water (Surface, Eff., Ground)
DPD04	1183702003	07/16/2018	07/16/2018	Water (Surface, Eff., Ground)
MWE04	1183702004	07/16/2018	07/16/2018	Water (Surface, Eff., Ground)
MWE20	1183702005	07/16/2018	07/16/2018	Water (Surface, Eff., Ground)
MWC01	1183702006	07/16/2018	07/16/2018	Water (Surface, Eff., Ground)
MWX	1183702007	07/16/2018	07/16/2018	Water (Surface, Eff., Ground)
Trip Blank	1183702008	07/16/2018	07/16/2018	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (W)
SW6020A	Metals by ICP-MS
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MWB08**
Lab Sample ID: 1183702001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Acenaphthene	0.213	ug/L
	Fluorene	0.0442J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.377J	mg/L
	Residual Range Organics	0.246J	mg/L
Volatile GC/MS	1,2-Dichloroethane	0.160J	ug/L
	Benzene	0.430	ug/L
	cis-1,2-Dichloroethene	1.29	ug/L
	Naphthalene	0.470J	ug/L
	Vinyl chloride	0.510	ug/L

Client Sample ID: **MWD01**
Lab Sample ID: 1183702002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.295J	mg/L
	Residual Range Organics	0.390J	mg/L
Volatile Fuels	Gasoline Range Organics	0.127	mg/L

Client Sample ID: **DPD04**
Lab Sample ID: 1183702003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.245J	mg/L
	Residual Range Organics	0.373J	mg/L
Volatile GC/MS	Chloroform	1.01	ug/L

Client Sample ID: **MWE04**
Lab Sample ID: 1183702004

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Benzo(a)Anthracene	0.330	ug/L
	Chrysene	0.454	ug/L
	Fluoranthene	3.03	ug/L
	Fluorene	8.39	ug/L
	Phenanthrene	6.40	ug/L
	Pyrene	3.18	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	9.09	mg/L
	Residual Range Organics	3.45	mg/L
Volatile GC/MS	1,1-Dichloroethane	0.420J	ug/L
	Benzene	0.410	ug/L
	cis-1,2-Dichloroethene	1.77	ug/L
	tert-Butylbenzene	0.330J	ug/L
	Trichloroethene	0.850J	ug/L
	Vinyl chloride	0.300	ug/L

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Detectable Results Summary

Client Sample ID: **MWE20**
Lab Sample ID: 1183702005

	Parameter	Result	Units
Metals by ICP/MS	Aluminum	306000	ug/L
	Antimony	2.92J	ug/L
	Arsenic	139	ug/L
	Barium	2030	ug/L
	Beryllium	9.72	ug/L
	Boron	168J	ug/L
	Cadmium	29.4	ug/L
	Calcium	173000	ug/L
	Chromium	949	ug/L
	Cobalt	373	ug/L
	Copper	807	ug/L
	Iron	455000	ug/L
	Lead	231	ug/L
	Magnesium	168000	ug/L
	Manganese	7950	ug/L
	Mercury	2.76	ug/L
	Molybdenum	23.9	ug/L
	Nickel	1060	ug/L
	Potassium	18600	ug/L
	Silver	2.98	ug/L
	Sodium	106000	ug/L
	Thallium	5.51	ug/L
	Vanadium	1110	ug/L
	Zinc	1430	ug/L
Polynuclear Aromatics GC/MS	Fluoranthene	0.185	ug/L
	Pyrene	0.359	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	19.3	mg/L
	Residual Range Organics	1.64	mg/L
Volatile GC/MS	cis-1,2-Dichloroethene	2.84	ug/L
	Trichloroethene	1.42	ug/L

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Detectable Results Summary

Client Sample ID: **MWC01**
Lab Sample ID: 1183702006

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.342	ug/L
	2-Methylnaphthalene	0.659	ug/L
	Acenaphthene	0.100	ug/L
	Acenaphthylene	0.273	ug/L
	Anthracene	0.595	ug/L
	Benzo(a)Anthracene	1.15	ug/L
	Benzo[a]pyrene	1.79	ug/L
	Benzo[b]Fluoranthene	2.54	ug/L
	Benzo[g,h,i]perylene	1.59	ug/L
	Benzo[k]fluoranthene	0.880	ug/L
	Chrysene	2.22	ug/L
	Dibenzo[a,h]anthracene	0.403	ug/L
	Fluoranthene	2.26	ug/L
	Fluorene	0.110	ug/L
	Indeno[1,2,3-c,d] pyrene	1.26	ug/L
	Naphthalene	1.42	ug/L
	Phenanthrene	1.63	ug/L
	Pyrene	1.89	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	1.57	mg/L
	Residual Range Organics	1.07	mg/L
Volatile GC/MS	1,1-Dichloroethane	0.490J	ug/L
	cis-1,2-Dichloroethene	0.370J	ug/L

Client Sample ID: **MWX**
Lab Sample ID: 1183702007

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.279J	mg/L
	Residual Range Organics	0.330J	mg/L

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Results of **MWB08**

Client Sample ID: **MWB08**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702001
Lab Project ID: 1183702

Collection Date: 07/16/18 15:30
Received Date: 07/16/18 16:16
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	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
2-Methylnaphthalene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Acenaphthene	0.213		0.0472	0.0142	ug/L	1		07/20/18 17:11
Acenaphthylene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Benzo(a)Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Benzo[a]pyrene	0.00945	U	0.0189	0.00585	ug/L	1		07/20/18 17:11
Benzo[b]Fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Benzo[g,h,i]perylene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Benzo[k]fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Chrysene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Dibenzo[a,h]anthracene	0.00945	U	0.0189	0.00585	ug/L	1		07/20/18 17:11
Fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Fluorene	0.0442	J	0.0472	0.0142	ug/L	1		07/20/18 17:11
Indeno[1,2,3-c,d] pyrene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Naphthalene	0.0471	U	0.0943	0.0292	ug/L	1		07/20/18 17:11
Phenanthrene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Pyrene	0.0236	U	0.0472	0.0142	ug/L	1		07/20/18 17:11
Surrogates								
2-Methylnaphthalene-d10 (surr)	50.4		47-106		%	1		07/20/18 17:11
Fluoranthene-d10 (surr)	49.9		24-116		%	1		07/20/18 17:11

Batch Information

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 07/20/18 17:11
Container ID: 1183702001-C

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:28
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **MWB08**

Client Sample ID: **MWB08**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702001
Lab Project ID: 1183702

Collection Date: 07/16/18 15:30
Received Date: 07/16/18 16:16
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	0.377	J	0.556	0.167	mg/L	1		07/18/18 09:38
Surrogates								
5a Androstane (surr)	93.3		50-150		%	1		07/18/18 09:38

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/18/18 09:38
Container ID: 1183702001-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.246	J	0.463	0.139	mg/L	1		07/18/18 09:38
Surrogates								
n-Triacontane-d62 (surr)	96.2		50-150		%	1		07/18/18 09:38

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 07/18/18 09:38
Container ID: 1183702001-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **MWB08**

Client Sample ID: **MWB08**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702001
Lab Project ID: 1183702

Collection Date: 07/16/18 15:30
Received Date: 07/16/18 16:16
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		07/19/18 12:27
Surrogates								
4-Bromofluorobenzene (surr)	102		50-150		%	1		07/19/18 12:27

Batch Information

Analytical Batch: VFC14286
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/18 12:27
Container ID: 1183702001-E

Prep Batch: VXX32658
Prep Method: SW5030B
Prep Date/Time: 07/19/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

SGS

Results of **MWB08**

Client Sample ID: **MWB08**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702001
Lab Project ID: 1183702

Collection Date: 07/16/18 15:30
Received Date: 07/16/18 16:16
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		07/17/18 16:03
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:03
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/17/18 16:03
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:03
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/17/18 16:03
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,2-Dichloroethane	0.160	J	0.500	0.150	ug/L	1		07/17/18 16:03
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:03
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:03
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:03
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:03
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:03
Benzene	0.430		0.400	0.120	ug/L	1		07/17/18 16:03
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:03
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/17/18 16:03
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:03
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:03
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:03

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Results of **MWB08**

Client Sample ID: **MWB08**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702001
Lab Project ID: 1183702

Collection Date: 07/16/18 15:30
Received Date: 07/16/18 16:16
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		07/17/18 16:03
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
cis-1,2-Dichloroethene	1.29		1.00	0.310	ug/L	1		07/17/18 16:03
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/17/18 16:03
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/17/18 16:03
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/17/18 16:03
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		07/17/18 16:03
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/17/18 16:03
Naphthalene	0.470 J		1.00	0.310	ug/L	1		07/17/18 16:03
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/17/18 16:03
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Styrene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Toluene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:03
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/17/18 16:03
Vinyl chloride	0.510		0.150	0.0500	ug/L	1		07/17/18 16:03
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/17/18 16:03
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/17/18 16:03
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/17/18 16:03
Toluene-d8 (surr)	101		89-112		%	1		07/17/18 16:03

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Results of **MWB08**

Client Sample ID: **MWB08**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702001
Lab Project ID: 1183702

Collection Date: 07/16/18 15:30
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/17/18 16:03
Container ID: 1183702001-H

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 07/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWD01**

Client Sample ID: **MWD01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702002
Lab Project ID: 1183702

Collection Date: 07/16/18 12:15
Received Date: 07/16/18 16:16
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	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
2-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Acenaphthene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		07/20/18 17:32
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		07/20/18 17:32
Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Fluorene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Naphthalene	0.0490	U	0.0980	0.0304	ug/L	1		07/20/18 17:32
Phenanthrene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Pyrene	0.0245	U	0.0490	0.0147	ug/L	1		07/20/18 17:32
Surrogates								
2-Methylnaphthalene-d10 (surr)	69.6		47-106		%	1		07/20/18 17:32
Fluoranthene-d10 (surr)	67.6		24-116		%	1		07/20/18 17:32

Batch Information

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 07/20/18 17:32
Container ID: 1183702002-C

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:28
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **MWD01**

Client Sample ID: **MWD01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702002
Lab Project ID: 1183702

Collection Date: 07/16/18 12:15
Received Date: 07/16/18 16:16
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	0.295	J	0.588	0.176	mg/L	1		07/18/18 09:48
Surrogates								
5a Androstane (surr)	90.2		50-150		%	1		07/18/18 09:48

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/18/18 09:48
Container ID: 1183702002-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.390	J	0.490	0.147	mg/L	1		07/18/18 09:48
Surrogates								
n-Triacontane-d62 (surr)	91.4		50-150		%	1		07/18/18 09:48

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 07/18/18 09:48
Container ID: 1183702002-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

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Results of **MWD01**

Client Sample ID: **MWD01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702002
Lab Project ID: 1183702

Collection Date: 07/16/18 12:15
Received Date: 07/16/18 16:16
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	0.127		0.100	0.0310	mg/L	1		07/19/18 12:45
Surrogates								
4-Bromofluorobenzene (surr)	107		50-150		%	1		07/19/18 12:45

Batch Information

Analytical Batch: VFC14286
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/18 12:45
Container ID: 1183702002-E

Prep Batch: VXX32658
Prep Method: SW5030B
Prep Date/Time: 07/19/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWD01**

Client Sample ID: **MWD01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702002
Lab Project ID: 1183702

Collection Date: 07/16/18 12:15
Received Date: 07/16/18 16:16
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		07/17/18 16:20
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:20
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/17/18 16:20
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:20
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/17/18 16:20
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:20
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:20
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:20
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:20
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:20
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:20
Benzene	0.200	U	0.400	0.120	ug/L	1		07/17/18 16:20
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:20
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/17/18 16:20
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:20
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:20
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20

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Results of **MWD01**

Client Sample ID: **MWD01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702002
Lab Project ID: 1183702

Collection Date: 07/16/18 12:15
Received Date: 07/16/18 16:16
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		07/17/18 16:20
Chloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:20
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:20
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Freon-113	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:20
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		07/17/18 16:20
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:20
Naphthalene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/17/18 16:20
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Styrene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Toluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:20
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:20
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		07/17/18 16:20
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		07/17/18 16:20
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/17/18 16:20
4-Bromofluorobenzene (surr)	99.8		85-114		%	1		07/17/18 16:20
Toluene-d8 (surr)	100		89-112		%	1		07/17/18 16:20

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **MWD01**

Client Sample ID: **MWD01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702002
Lab Project ID: 1183702

Collection Date: 07/16/18 12:15
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/17/18 16:20
Container ID: 1183702002-H

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 07/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **DPD04**

Client Sample ID: **DPD04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702003
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
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	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		07/20/18 17:52
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		07/20/18 17:52
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		07/20/18 17:52
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/20/18 17:52
Surrogates								
2-Methylnaphthalene-d10 (surr)	65.9		47-106		%	1		07/20/18 17:52
Fluoranthene-d10 (surr)	66.9		24-116		%	1		07/20/18 17:52

Batch Information

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 07/20/18 17:52
Container ID: 1183702003-C

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:28
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **DPD04**

Client Sample ID: **DPD04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702003
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
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	0.245	J	0.566	0.170	mg/L	1		07/18/18 09:58
Surrogates								
5a Androstane (surr)	97.8		50-150		%	1		07/18/18 09:58

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/18/18 09:58
Container ID: 1183702003-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
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	0.373	J	0.472	0.142	mg/L	1		07/18/18 09:58
Surrogates								
n-Triacontane-d62 (surr)	99.4		50-150		%	1		07/18/18 09:58

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 07/18/18 09:58
Container ID: 1183702003-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **DPD04**

Client Sample ID: **DPD04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702003
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
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		07/19/18 13:03
Surrogates								
4-Bromofluorobenzene (surr)	98.8		50-150		%	1		07/19/18 13:03

Batch Information

Analytical Batch: VFC14286
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/18 13:03
Container ID: 1183702003-E

Prep Batch: VXX32658
Prep Method: SW5030B
Prep Date/Time: 07/19/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **DPD04**

Client Sample ID: **DPD04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702003
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
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		07/17/18 16:38
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:38
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/17/18 16:38
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:38
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/17/18 16:38
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:38
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:38
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:38
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:38
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:38
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:38
Benzene	0.200	U	0.400	0.120	ug/L	1		07/17/18 16:38
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:38
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/17/18 16:38
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:38
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:38
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38

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Results of **DPD04**

Client Sample ID: **DPD04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702003
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
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	1.01		1.00	0.310	ug/L	1		07/17/18 16:38
Chloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:38
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:38
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Freon-113	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:38
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		07/17/18 16:38
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:38
Naphthalene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/17/18 16:38
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Styrene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Toluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:38
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:38
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		07/17/18 16:38
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		07/17/18 16:38
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/17/18 16:38
4-Bromofluorobenzene (surr)	102		85-114		%	1		07/17/18 16:38
Toluene-d8 (surr)	101		89-112		%	1		07/17/18 16:38

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **DPD04**

Client Sample ID: **DPD04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702003
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/17/18 16:38
Container ID: 1183702003-H

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 07/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **MWE04**

Client Sample ID: **MWE04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702004
Lab Project ID: 1183702

Collection Date: 07/16/18 13:00
Received Date: 07/16/18 16:16
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	0.232 U		0.463	0.139	ug/L	10		07/23/18 12:31
2-Methylnaphthalene	0.232 U		0.463	0.139	ug/L	10		07/23/18 12:31
Acenaphthene	0.232 U		0.463	0.139	ug/L	10		07/23/18 12:31
Acenaphthylene	0.232 U		0.463	0.139	ug/L	10		07/23/18 12:31
Anthracene	0.232 U		0.463	0.139	ug/L	10		07/23/18 12:31
Benzo(a)Anthracene	0.330		0.0463	0.0139	ug/L	1		07/20/18 18:13
Benzo[a]pyrene	0.00925 U		0.0185	0.00574	ug/L	1		07/20/18 18:13
Benzo[b]Fluoranthene	0.0232 U		0.0463	0.0139	ug/L	1		07/20/18 18:13
Benzo[g,h,i]perylene	0.0232 U		0.0463	0.0139	ug/L	1		07/20/18 18:13
Benzo[k]fluoranthene	0.0232 U		0.0463	0.0139	ug/L	1		07/20/18 18:13
Chrysene	0.454		0.0463	0.0139	ug/L	1		07/20/18 18:13
Dibenzo[a,h]anthracene	0.00925 U		0.0185	0.00574	ug/L	1		07/20/18 18:13
Fluoranthene	3.03		0.0463	0.0139	ug/L	1		07/20/18 18:13
Fluorene	8.39		0.463	0.139	ug/L	10		07/23/18 12:31
Indeno[1,2,3-c,d] pyrene	0.0232 U		0.0463	0.0139	ug/L	1		07/20/18 18:13
Naphthalene	0.463 U		0.926	0.287	ug/L	10		07/23/18 12:31
Phenanthrene	6.40		0.463	0.139	ug/L	10		07/23/18 12:31
Pyrene	3.18		0.0463	0.0139	ug/L	1		07/20/18 18:13
Surrogates								
2-Methylnaphthalene-d10 (surr)	88.9		47-106		%	10		07/23/18 12:31
Fluoranthene-d10 (surr)	12.9	*	24-116		%	1		07/20/18 18:13

Batch Information

Analytical Batch: XMS10908
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 07/23/18 12:31
Container ID: 1183702004-C

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:28
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 07/20/18 18:13
Container ID: 1183702004-C

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:28
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **MWE04**

Client Sample ID: **MWE04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702004
Lab Project ID: 1183702

Collection Date: 07/16/18 13:00
Received Date: 07/16/18 16:16
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	9.09		0.577	0.173	mg/L	1		07/18/18 10:08
Surrogates								
5a Androstane (surr)	91.5		50-150		%	1		07/18/18 10:08

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/18/18 10:08
Container ID: 1183702004-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
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	3.45		0.481	0.144	mg/L	1		07/18/18 10:08
Surrogates								
n-Triacontane-d62 (surr)	94.7		50-150		%	1		07/18/18 10:08

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 07/18/18 10:08
Container ID: 1183702004-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **MWE04**

Client Sample ID: **MWE04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702004
Lab Project ID: 1183702

Collection Date: 07/16/18 13:00
Received Date: 07/16/18 16:16
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		07/19/18 13:21
Surrogates								
4-Bromofluorobenzene (surr)	102		50-150		%	1		07/19/18 13:21

Batch Information

Analytical Batch: VFC14286
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/18 13:21
Container ID: 1183702004-E

Prep Batch: VXX32658
Prep Method: SW5030B
Prep Date/Time: 07/19/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

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Results of **MWE04**

Client Sample ID: **MWE04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702004
Lab Project ID: 1183702

Collection Date: 07/16/18 13:00
Received Date: 07/16/18 16:16
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		07/17/18 16:55
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:55
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/17/18 16:55
1,1-Dichloroethane	0.420	J	1.00	0.310	ug/L	1		07/17/18 16:55
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:55
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/17/18 16:55
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:55
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:55
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:55
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:55
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:55
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:55
Benzene	0.410		0.400	0.120	ug/L	1		07/17/18 16:55
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:55
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/17/18 16:55
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/17/18 16:55
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 16:55
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 16:55

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Results of **MWE04**

Client Sample ID: **MWE04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702004
Lab Project ID: 1183702

Collection Date: 07/16/18 13:00
Received Date: 07/16/18 16:16
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		07/17/18 16:55
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
cis-1,2-Dichloroethene	1.77		1.00	0.310	ug/L	1		07/17/18 16:55
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/17/18 16:55
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/17/18 16:55
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/17/18 16:55
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		07/17/18 16:55
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/17/18 16:55
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/17/18 16:55
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Styrene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
tert-Butylbenzene	0.330 J		1.00	0.310	ug/L	1		07/17/18 16:55
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Toluene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Trichloroethene	0.850 J		1.00	0.310	ug/L	1		07/17/18 16:55
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 16:55
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/17/18 16:55
Vinyl chloride	0.300		0.150	0.0500	ug/L	1		07/17/18 16:55
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/17/18 16:55
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/17/18 16:55
4-Bromofluorobenzene (surr)	103		85-114		%	1		07/17/18 16:55
Toluene-d8 (surr)	101		89-112		%	1		07/17/18 16:55

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Results of **MWE04**

Client Sample ID: **MWE04**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702004
Lab Project ID: 1183702

Collection Date: 07/16/18 13:00
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/17/18 16:55
Container ID: 1183702004-H

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 07/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWE20**

Client Sample ID: **MWE20**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702005
Lab Project ID: 1183702

Collection Date: 07/16/18 13:55
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aluminum	306000		40000	12400	ug/L	1000		07/24/18 00:11
Antimony	2.92	J	3.00	0.940	ug/L	5		07/23/18 23:34
Arsenic	139		5.00	1.50	ug/L	5		07/23/18 23:34
Barium	2030		3.00	0.940	ug/L	5		07/23/18 23:34
Beryllium	9.72		1.00	0.310	ug/L	5		07/23/18 23:34
Boron	168	J	200	62.0	ug/L	5		07/23/18 23:34
Cadmium	29.4		2.00	0.620	ug/L	5		07/23/18 23:34
Calcium	173000		500	150	ug/L	5		07/23/18 23:34
Chromium	949		4.00	1.30	ug/L	5		07/23/18 23:34
Cobalt	373		1.00	0.310	ug/L	5		07/23/18 23:34
Copper	807		6.00	1.80	ug/L	5		07/23/18 23:34
Iron	455000		10000	3000	ug/L	100		07/23/18 23:39
Lead	231		1.00	0.310	ug/L	5		07/23/18 23:34
Magnesium	168000		10000	3000	ug/L	100		07/23/18 23:39
Manganese	7950		40.0	12.4	ug/L	100		07/23/18 23:39
Mercury	2.76		0.200	0.0620	ug/L	5		07/25/18 09:20
Molybdenum	23.9		5.00	1.50	ug/L	5		07/23/18 23:34
Nickel	1060		2.00	0.620	ug/L	5		07/23/18 23:34
Potassium	18600		1000	310	ug/L	5		07/23/18 23:34
Selenium	10.0	U	20.0	6.20	ug/L	5		07/23/18 23:34
Silver	2.98		2.00	0.620	ug/L	5		07/23/18 23:34
Sodium	106000		20000	6200	ug/L	100		07/23/18 23:39
Thallium	5.51		2.00	0.620	ug/L	5		07/23/18 23:34
Vanadium	1110		20.0	6.20	ug/L	5		07/23/18 23:34
Zinc	1430		25.0	7.80	ug/L	5		07/23/18 23:34

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Results of **MWE20**

Client Sample ID: **MWE20**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702005
Lab Project ID: 1183702

Collection Date: 07/16/18 13:55
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Batch Information

Analytical Batch: MMS10252
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/24/18 00:11
Container ID: 1183702005-E

Prep Batch: MXX31769
Prep Method: SW3010A
Prep Date/Time: 07/23/18 12:00
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Analytical Batch: MMS10255
Analytical Method: SW6020A
Analyst: DSH
Analytical Date/Time: 07/25/18 09:20
Container ID: 1183702005-E

Prep Batch: MXX31769
Prep Method: SW3010A
Prep Date/Time: 07/23/18 12:00
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Analytical Batch: MMS10252
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/23/18 23:34
Container ID: 1183702005-E

Prep Batch: MXX31769
Prep Method: SW3010A
Prep Date/Time: 07/23/18 12:00
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Analytical Batch: MMS10252
Analytical Method: SW6020A
Analyst: ACF
Analytical Date/Time: 07/23/18 23:39
Container ID: 1183702005-E

Prep Batch: MXX31769
Prep Method: SW3010A
Prep Date/Time: 07/23/18 12:00
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

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Results of **MWE20**

Client Sample ID: **MWE20**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702005
Lab Project ID: 1183702

Collection Date: 07/16/18 13:55
Received Date: 07/16/18 16:16
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	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
2-Methylnaphthalene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Acenaphthene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Acenaphthylene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Anthracene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Benzo(a)Anthracene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Benzo[a]pyrene	0.00910 U		0.0182	0.00564	ug/L	1		07/20/18 18:33
Benzo[b]Fluoranthene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Benzo[g,h,i]perylene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Benzo[k]fluoranthene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Chrysene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Dibenzo[a,h]anthracene	0.00910 U		0.0182	0.00564	ug/L	1		07/20/18 18:33
Fluoranthene	0.185		0.0455	0.0136	ug/L	1		07/20/18 18:33
Fluorene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Indeno[1,2,3-c,d] pyrene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Naphthalene	0.0454 U		0.0909	0.0282	ug/L	1		07/20/18 18:33
Phenanthrene	0.0227 U		0.0455	0.0136	ug/L	1		07/20/18 18:33
Pyrene	0.359		0.0455	0.0136	ug/L	1		07/20/18 18:33
Surrogates								
2-Methylnaphthalene-d10 (surr)	60.6		47-106		%	1		07/20/18 18:33
Fluoranthene-d10 (surr)	21.2	*	24-116		%	1		07/20/18 18:33

Batch Information

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 07/20/18 18:33
Container ID: 1183702005-C

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:28
Prep Initial Wt./Vol.: 275 mL
Prep Extract Vol: 1 mL

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Results of **MWE20**

Client Sample ID: **MWE20**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702005
Lab Project ID: 1183702

Collection Date: 07/16/18 13:55
Received Date: 07/16/18 16:16
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	19.3		0.556	0.167	mg/L	1		07/18/18 10:18
Surrogates								
5a Androstane (surr)	83.2		50-150		%	1		07/18/18 10:18

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/18/18 10:18
Container ID: 1183702005-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1.64		0.463	0.139	mg/L	1		07/18/18 10:18
Surrogates								
n-Triacontane-d62 (surr)	83		50-150		%	1		07/18/18 10:18

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 07/18/18 10:18
Container ID: 1183702005-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

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Results of **MWE20**

Client Sample ID: **MWE20**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702005
Lab Project ID: 1183702

Collection Date: 07/16/18 13:55
Received Date: 07/16/18 16:16
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		07/19/18 13:39
Surrogates								
4-Bromofluorobenzene (surr)	99.3		50-150		%	1		07/19/18 13:39

Batch Information

Analytical Batch: VFC14286
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/18 13:39
Container ID: 1183702005-F

Prep Batch: VXX32658
Prep Method: SW5030B
Prep Date/Time: 07/19/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWE20**

Client Sample ID: **MWE20**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702005
Lab Project ID: 1183702

Collection Date: 07/16/18 13:55
Received Date: 07/16/18 16:16
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		07/17/18 17:12
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:12
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/17/18 17:12
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:12
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/17/18 17:12
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:12
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:12
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:12
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:12
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:12
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:12
Benzene	0.200	U	0.400	0.120	ug/L	1		07/17/18 17:12
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:12
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/17/18 17:12
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:12
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:12
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:12

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Results of **MWE20**

Client Sample ID: **MWE20**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702005
Lab Project ID: 1183702

Collection Date: 07/16/18 13:55
Received Date: 07/16/18 16:16
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		07/17/18 17:12
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
cis-1,2-Dichloroethene	2.84		1.00	0.310	ug/L	1		07/17/18 17:12
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/17/18 17:12
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/17/18 17:12
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:12
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		07/17/18 17:12
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:12
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/17/18 17:12
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Styrene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Toluene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Trichloroethene	1.42		1.00	0.310	ug/L	1		07/17/18 17:12
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:12
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:12
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/17/18 17:12
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/17/18 17:12
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		07/17/18 17:12
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/17/18 17:12
Toluene-d8 (surr)	100		89-112		%	1		07/17/18 17:12

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Results of **MWE20**

Client Sample ID: **MWE20**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702005
Lab Project ID: 1183702

Collection Date: 07/16/18 13:55
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/17/18 17:12
Container ID: 1183702005-I

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 07/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWC01**

Client Sample ID: **MWC01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702006
Lab Project ID: 1183702

Collection Date: 07/16/18 14:45
Received Date: 07/16/18 16:16
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	0.342		0.0455	0.0136	ug/L	1		07/20/18 18:54
2-Methylnaphthalene	0.659		0.0455	0.0136	ug/L	1		07/20/18 18:54
Acenaphthene	0.100		0.0455	0.0136	ug/L	1		07/20/18 18:54
Acenaphthylene	0.273		0.0455	0.0136	ug/L	1		07/20/18 18:54
Anthracene	0.595		0.0455	0.0136	ug/L	1		07/20/18 18:54
Benzo(a)Anthracene	1.15		0.0455	0.0136	ug/L	1		07/20/18 18:54
Benzo[a]pyrene	1.79		0.0182	0.00564	ug/L	1		07/20/18 18:54
Benzo[b]Fluoranthene	2.54		0.0455	0.0136	ug/L	1		07/20/18 18:54
Benzo[g,h,i]perylene	1.59		0.0455	0.0136	ug/L	1		07/20/18 18:54
Benzo[k]fluoranthene	0.880		0.0455	0.0136	ug/L	1		07/20/18 18:54
Chrysene	2.22		0.0455	0.0136	ug/L	1		07/20/18 18:54
Dibenzo[a,h]anthracene	0.403		0.0182	0.00564	ug/L	1		07/20/18 18:54
Fluoranthene	2.26		0.0455	0.0136	ug/L	1		07/20/18 18:54
Fluorene	0.110		0.0455	0.0136	ug/L	1		07/20/18 18:54
Indeno[1,2,3-c,d] pyrene	1.26		0.0455	0.0136	ug/L	1		07/20/18 18:54
Naphthalene	1.42		0.0909	0.0282	ug/L	1		07/20/18 18:54
Phenanthrene	1.63		0.0455	0.0136	ug/L	1		07/20/18 18:54
Pyrene	1.89		0.0455	0.0136	ug/L	1		07/20/18 18:54
Surrogates								
2-Methylnaphthalene-d10 (surr)	67.8		47-106		%	1		07/20/18 18:54
Fluoranthene-d10 (surr)	65.4		24-116		%	1		07/20/18 18:54

Batch Information

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 07/20/18 18:54
Container ID: 1183702006-C

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:28
Prep Initial Wt./Vol.: 275 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

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Results of **MWC01**

Client Sample ID: **MWC01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702006
Lab Project ID: 1183702

Collection Date: 07/16/18 14:45
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.57		0.566	0.170	mg/L	1		07/18/18 10:27
Surrogates								
5a Androstane (surr)	86		50-150		%	1		07/18/18 10:27

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/18/18 10:27
Container ID: 1183702006-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1.07		0.472	0.142	mg/L	1		07/18/18 10:27
Surrogates								
n-Triacontane-d62 (surr)	88.3		50-150		%	1		07/18/18 10:27

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 07/18/18 10:27
Container ID: 1183702006-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

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Results of **MWC01**

Client Sample ID: **MWC01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702006
Lab Project ID: 1183702

Collection Date: 07/16/18 14:45
Received Date: 07/16/18 16:16
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		07/19/18 13:56
Surrogates								
4-Bromofluorobenzene (surr)	102		50-150		%	1		07/19/18 13:56

Batch Information

Analytical Batch: VFC14286
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/18 13:56
Container ID: 1183702006-E

Prep Batch: VXX32658
Prep Method: SW5030B
Prep Date/Time: 07/19/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWC01**

Client Sample ID: **MWC01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702006
Lab Project ID: 1183702

Collection Date: 07/16/18 14:45
Received Date: 07/16/18 16:16
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		07/17/18 17:30
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:30
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/17/18 17:30
1,1-Dichloroethane	0.490	J	1.00	0.310	ug/L	1		07/17/18 17:30
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:30
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/17/18 17:30
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:30
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:30
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:30
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:30
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:30
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:30
Benzene	0.200	U	0.400	0.120	ug/L	1		07/17/18 17:30
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:30
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/17/18 17:30
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:30
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:30
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:30

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Results of **MWC01**

Client Sample ID: **MWC01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702006
Lab Project ID: 1183702

Collection Date: 07/16/18 14:45
Received Date: 07/16/18 16:16
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		07/17/18 17:30
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
cis-1,2-Dichloroethene	0.370 J		1.00	0.310	ug/L	1		07/17/18 17:30
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/17/18 17:30
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/17/18 17:30
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:30
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		07/17/18 17:30
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:30
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/17/18 17:30
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Styrene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Toluene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:30
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:30
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/17/18 17:30
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/17/18 17:30
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/17/18 17:30
4-Bromofluorobenzene (surr)	102		85-114		%	1		07/17/18 17:30
Toluene-d8 (surr)	101		89-112		%	1		07/17/18 17:30

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Results of **MWC01**

Client Sample ID: **MWC01**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702006
Lab Project ID: 1183702

Collection Date: 07/16/18 14:45
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/17/18 17:30
Container ID: 1183702006-H

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 07/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702007
Lab Project ID: 1183702

Collection Date: 07/16/18 12:25
Received Date: 07/16/18 16:16
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	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
2-Methylnaphthalene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Acenaphthene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Acenaphthylene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Benzo(a)Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Benzo[a]pyrene	0.00925	U	0.0185	0.00574	ug/L	1		07/20/18 19:15
Benzo[b]Fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Benzo[g,h,i]perylene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Benzo[k]fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Chrysene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Dibenzo[a,h]anthracene	0.00925	U	0.0185	0.00574	ug/L	1		07/20/18 19:15
Fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Fluorene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Indeno[1,2,3-c,d] pyrene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Naphthalene	0.0463	U	0.0926	0.0287	ug/L	1		07/20/18 19:15
Phenanthrene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Pyrene	0.0232	U	0.0463	0.0139	ug/L	1		07/20/18 19:15
Surrogates								
2-Methylnaphthalene-d10 (surr)	62.3		47-106		%	1		07/20/18 19:15
Fluoranthene-d10 (surr)	61.4		24-116		%	1		07/20/18 19:15

Batch Information

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 07/20/18 19:15
Container ID: 1183702007-C

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:28
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702007
Lab Project ID: 1183702

Collection Date: 07/16/18 12:25
Received Date: 07/16/18 16:16
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	0.279	J	0.566	0.170	mg/L	1		07/18/18 10:37
Surrogates								
5a Androstane (surr)	90.8		50-150		%	1		07/18/18 10:37

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/18/18 10:37
Container ID: 1183702007-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
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	0.330	J	0.472	0.142	mg/L	1		07/18/18 10:37
Surrogates								
n-Triacontane-d62 (surr)	96.4		50-150		%	1		07/18/18 10:37

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 07/18/18 10:37
Container ID: 1183702007-A

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 07/17/18 08:53
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702007
Lab Project ID: 1183702

Collection Date: 07/16/18 12:25
Received Date: 07/16/18 16:16
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		07/19/18 14:14
Surrogates								
4-Bromofluorobenzene (surr)	103		50-150		%	1		07/19/18 14:14

Batch Information

Analytical Batch: VFC14286
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/18 14:14
Container ID: 1183702007-E

Prep Batch: VXX32658
Prep Method: SW5030B
Prep Date/Time: 07/19/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/26/2018 12:23:48PM

J flagging is activated

Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702007
Lab Project ID: 1183702

Collection Date: 07/16/18 12:25
Received Date: 07/16/18 16:16
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		07/17/18 17:47
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:47
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/17/18 17:47
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:47
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/17/18 17:47
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:47
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:47
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:47
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:47
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:47
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:47
Benzene	0.200	U	0.400	0.120	ug/L	1		07/17/18 17:47
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:47
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/17/18 17:47
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/17/18 17:47
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 17:47
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 17:47

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Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702007
Lab Project ID: 1183702

Collection Date: 07/16/18 12:25
Received Date: 07/16/18 16:16
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		07/17/18 17:47
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/17/18 17:47
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/17/18 17:47
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:47
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		07/17/18 17:47
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:47
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/17/18 17:47
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Styrene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Toluene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/17/18 17:47
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/17/18 17:47
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/17/18 17:47
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/17/18 17:47
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/17/18 17:47
4-Bromofluorobenzene (surr)	100		85-114		%	1		07/17/18 17:47
Toluene-d8 (surr)	100		89-112		%	1		07/17/18 17:47

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Results of **MWX**

Client Sample ID: **MWX**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702007
Lab Project ID: 1183702

Collection Date: 07/16/18 12:25
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/17/18 17:47
Container ID: 1183702007-H

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 07/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702008
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
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		07/21/18 16:15
Surrogates								
4-Bromofluorobenzene (surr)	82.9		50-150		%	1		07/21/18 16:15

Batch Information

Analytical Batch: VFC14291
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/21/18 16:15
Container ID: 1183702008-A

Prep Batch: VXX32668
Prep Method: SW5030B
Prep Date/Time: 07/21/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/26/2018 12:23:48PM

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702008
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
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		07/17/18 14:01
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 14:01
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/17/18 14:01
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/17/18 14:01
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/17/18 14:01
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 14:01
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/17/18 14:01
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 14:01
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 14:01
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/17/18 14:01
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/17/18 14:01
Benzene	0.200	U	0.400	0.120	ug/L	1		07/17/18 14:01
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 14:01
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Bromomethane	2.50	U	5.00	1.50	ug/L	1		07/17/18 14:01
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/17/18 14:01
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/17/18 14:01
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702008
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
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		07/17/18 14:01
Chloromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		07/17/18 14:01
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		07/17/18 14:01
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Freon-113	5.00	U	10.0	3.10	ug/L	1		07/17/18 14:01
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		07/17/18 14:01
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		07/17/18 14:01
Naphthalene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/17/18 14:01
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Styrene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Toluene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		07/17/18 14:01
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		07/17/18 14:01
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		07/17/18 14:01
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		07/17/18 14:01
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/17/18 14:01
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/17/18 14:01
Toluene-d8 (surr)	99.2		89-112		%	1		07/17/18 14:01

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Term Res Groundwater**
Lab Sample ID: 1183702008
Lab Project ID: 1183702

Collection Date: 07/16/18 11:20
Received Date: 07/16/18 16:16
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 07/17/18 14:01
Container ID: 1183702008-A

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 07/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1782937 [MXX/31769]
Blank Lab ID: 1461418

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702005

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Aluminum	100U	200	62.0	ug/L
Antimony	1.50U	3.00	0.940	ug/L
Arsenic	2.50U	5.00	1.50	ug/L
Barium	1.50U	3.00	0.940	ug/L
Beryllium	0.500U	1.00	0.310	ug/L
Boron	100U	200	62.0	ug/L
Cadmium	1.00U	2.00	0.620	ug/L
Calcium	250U	500	150	ug/L
Chromium	2.00U	4.00	1.30	ug/L
Cobalt	0.500U	1.00	0.310	ug/L
Copper	3.00U	6.00	1.80	ug/L
Iron	250U	500	150	ug/L
Lead	0.500U	1.00	0.310	ug/L
Magnesium	250U	500	150	ug/L
Manganese	1.00U	2.00	0.620	ug/L
Mercury	0.128J	0.200	0.0620	ug/L
Molybdenum	2.50U	5.00	1.50	ug/L
Nickel	1.00U	2.00	0.620	ug/L
Potassium	500U	1000	310	ug/L
Selenium	10.0U	20.0	6.20	ug/L
Silver	1.00U	2.00	0.620	ug/L
Sodium	500U	1000	310	ug/L
Thallium	1.00U	2.00	0.620	ug/L
Vanadium	10.0U	20.0	6.20	ug/L
Zinc	12.6J	25.0	7.80	ug/L

Batch Information

Analytical Batch: MMS10252
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/23/2018 10:38:05PM

Prep Batch: MXX31769
Prep Method: SW3010A
Prep Date/Time: 7/23/2018 12:00:49PM
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183702 [MXX31769]
Blank Spike Lab ID: 1461419
Date Analyzed: 07/23/2018 22:42

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702005

Results by **SW6020A**

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
Aluminum	1000	1060	106	(84-117)
Antimony	1000	1010	101	(85-117)
Arsenic	1000	957	96	(84-116)
Barium	1000	1020	102	(86-114)
Beryllium	100	110	110	(83-121)
Boron	1000	1110	111	(73-130)
Cadmium	100	94.6	95	(87-115)
Calcium	10000	10800	108	(87-118)
Chromium	400	386	97	(85-116)
Cobalt	500	496	99	(86-115)
Copper	1000	994	99	(85-118)
Iron	5000	4880	98	(87-118)
Lead	1000	1070	107	(88-115)
Magnesium	10000	10400	104	(83-118)
Manganese	500	482	97	(87-115)
Mercury	10	10.1	101	(70-124)
Molybdenum	400	371	93	(83-115)
Nickel	1000	984	98	(85-117)
Potassium	10000	10200	102	(87-115)
Selenium	1000	960	96	(80-120)
Silver	100	108	108	(85-116)
Sodium	10000	10400	104	(85-117)
Thallium	10	10.9	109	(82-116)
Vanadium	200	189	95	(86-115)
Zinc	1000	996	100	(83-119)

Batch Information

Analytical Batch: **MMS10252**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **ACF**

Prep Batch: **MXX31769**
Prep Method: **SW3010A**
Prep Date/Time: **07/23/2018 12:00**
Spike Init Wt./Vol.: 1000 ug/L Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1461420
MS Sample ID: 1461422 MS
MSD Sample ID: 1461423 MSD

QC for Samples: 1183702005

Analysis Date: 07/23/2018 22:47
Analysis Date: 07/23/2018 22:52
Analysis Date: 07/23/2018 22:56
Matrix: Water (Surface, Eff., Ground)

Results by **SW6020A**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Aluminum	100U	1000	1070	107	1000	1060	106	84-117	1.08	(< 20)
Antimony	1.50U	1000	1050	105	1000	1040	104	85-117	1.13	(< 20)
Arsenic	6.01	1000	972	97	1000	962	96	84-116	1.00	(< 20)
Barium	114	1000	1120	101	1000	1130	101	86-114	0.35	(< 20)
Beryllium	0.500U	100	105	105	100	107	107	83-121	1.76	(< 20)
Boron	279	1000	1320	104	1000	1350	107	73-130	2.03	(< 20)
Cadmium	1.00U	100	97.2	97	100	97.6	98	87-115	0.40	(< 20)
Calcium	98700	10000	110000	113	10000	112000	137 *	87-118	2.14	(< 20)
Chromium	2.00U	400	380	95	400	376	94	85-116	0.96	(< 20)
Cobalt	1.93	500	490	98	500	488	97	86-115	0.29	(< 20)
Copper	3.00U	1000	973	97	1000	957	96	85-118	1.71	(< 20)
Iron	10200	5000	15600	108	5000	15400	104	87-118	1.30	(< 20)
Lead	0.500U	1000	1070	107	1000	1040	104	88-115	2.30	(< 20)
Magnesium	36000	10000	46300	103	10000	47400	114	83-118	2.44	(< 20)
Manganese	1100	500	1570	95	500	1620	105	87-115	3.27	(< 20)
Mercury	0.140J	10.0	10.3	102	10.0	10.0	99	70-124	2.88	(< 20)
Molybdenum	2.50U	400	377	94	400	391	98	83-115	3.50	(< 20)
Nickel	5.25	1000	979	97	1000	979	97	85-117	0.03	(< 20)
Potassium	6080	10000	16200	102	10000	16500	104	87-115	1.40	(< 20)
Selenium	10.0U	1000	974	97	1000	956	96	80-120	1.86	(< 20)
Silver	1.00U	100	110	110	100	110	110	85-116	0.38	(< 20)
Sodium	7350	10000	17500	102	10000	18000	106	85-117	2.59	(< 20)
Thallium	1.00U	10.0	11	110	10.0	10.8	108	82-116	2.27	(< 20)
Vanadium	10.0U	200	192	96	200	192	96	86-115	0.24	(< 20)
Zinc	9.06J	1000	988	98	1000	970	96	83-119	1.88	(< 20)

Batch Information

Analytical Batch: MMS10252
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/23/2018 10:52:07PM

Prep Batch: MXX31769
Prep Method: 3010 H20 Digest for Metals ICP-MS
Prep Date/Time: 7/23/2018 12:00:49PM
Prep Initial Wt./Vol.: 25.00mL
Prep Extract Vol: 25.00mL

Print Date: 07/26/2018 12:23:55PM

Bench Spike Summary

Original Sample ID: 1461420
MS Sample ID: 1461421 BND
MSD Sample ID:

QC for Samples: 1183702005

Analysis Date: 07/23/2018 22:47
Analysis Date: 07/23/2018 23:01
Analysis Date:
Matrix: Water (Surface, Eff., Ground)

Results by **SW6020A**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Calcium	98700	25000	124000	99				80-120		

Batch Information

Analytical Batch: MMS10252
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: ACF
Analytical Date/Time: 7/23/2018 11:01:31PM

Prep Batch: MXX31769
Prep Method: 3010 H20 Digest for Metals ICP-MS
Prep Date/Time: 7/23/2018 12:00:49PM
Prep Initial Wt./Vol.: 25.00mL
Prep Extract Vol: 25.00mL

Print Date: 07/26/2018 12:23:55PM

Method Blank

Blank ID: MB for HBN 1782647 [VXX/32637]
Blank Lab ID: 1460083

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007, 1183702008

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 1782647 [VXX/32637]
Blank Lab ID: 1460083

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007, 1183702008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	104	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	98.8	89-112		%

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Method Blank

Blank ID: MB for HBN 1782647 [VXX/32637]
Blank Lab ID: 1460083

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007, 1183702008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS18016
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 7/17/2018 10:11:00AM

Prep Batch: VXX32637
Prep Method: SW5030B
Prep Date/Time: 7/17/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183702 [VXX32637]
Blank Spike Lab ID: 1460084
Date Analyzed: 07/17/2018 10:28

Spike Duplicate ID: LCSD for HBN 1183702 [VXX32637]
Spike Duplicate Lab ID: 1460085
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007, 1183702008

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	33.2	111	30	32.1	107	(78-124)	3.20	(< 20)
1,1,1-Trichloroethane	30	32.0	107	30	31.0	103	(74-131)	3.20	(< 20)
1,1,2,2-Tetrachloroethane	30	32.5	108	30	32.6	109	(71-121)	0.15	(< 20)
1,1,2-Trichloroethane	30	32.5	108	30	31.8	106	(80-119)	2.20	(< 20)
1,1-Dichloroethane	30	31.4	105	30	30.7	102	(77-125)	2.40	(< 20)
1,1-Dichloroethene	30	31.4	105	30	30.6	102	(71-131)	2.50	(< 20)
1,1-Dichloropropene	30	32.4	108	30	31.4	105	(79-125)	3.10	(< 20)
1,2,3-Trichlorobenzene	30	33.4	111	30	29.8	99	(69-129)	11.40	(< 20)
1,2,3-Trichloropropane	30	31.9	106	30	31.7	106	(73-122)	0.63	(< 20)
1,2,4-Trichlorobenzene	30	33.6	112	30	31.6	105	(69-130)	6.30	(< 20)
1,2,4-Trimethylbenzene	30	33.4	111	30	32.8	109	(79-124)	1.80	(< 20)
1,2-Dibromo-3-chloropropane	30	34.6	115	30	32.0	107	(62-128)	7.70	(< 20)
1,2-Dibromoethane	30	32.9	110	30	32.2	107	(77-121)	2.10	(< 20)
1,2-Dichlorobenzene	30	32.0	107	30	31.8	106	(80-119)	0.82	(< 20)
1,2-Dichloroethane	30	29.7	99	30	29.2	97	(73-128)	1.80	(< 20)
1,2-Dichloropropane	30	32.1	107	30	31.1	104	(78-122)	2.90	(< 20)
1,3,5-Trimethylbenzene	30	33.0	110	30	32.7	109	(75-124)	0.94	(< 20)
1,3-Dichlorobenzene	30	32.3	108	30	32.2	107	(80-119)	0.37	(< 20)
1,3-Dichloropropane	30	32.8	109	30	32.0	107	(80-119)	2.40	(< 20)
1,4-Dichlorobenzene	30	32.3	108	30	32.2	107	(79-118)	0.40	(< 20)
2,2-Dichloropropane	30	33.7	112	30	32.0	107	(60-139)	5.00	(< 20)
2-Butanone (MEK)	90	102	114	90	91.7	102	(56-143)	11.00	(< 20)
2-Chlorotoluene	30	32.9	110	30	32.7	109	(79-122)	0.52	(< 20)
2-Hexanone	90	106	118	90	96.1	107	(57-139)	10.10	(< 20)
4-Chlorotoluene	30	32.7	109	30	32.2	107	(78-122)	1.30	(< 20)
4-Isopropyltoluene	30	34.1	114	30	33.8	113	(77-127)	0.71	(< 20)
4-Methyl-2-pentanone (MIBK)	90	106	118	90	98.0	109	(67-130)	7.80	(< 20)
Benzene	30	31.7	106	30	30.8	103	(79-120)	2.80	(< 20)
Bromobenzene	30	31.3	104	30	31.6	105	(80-120)	1.10	(< 20)
Bromochloromethane	30	31.3	104	30	30.8	103	(78-123)	1.50	(< 20)
Bromodichloromethane	30	32.5	108	30	31.9	106	(79-125)	1.90	(< 20)
Bromoform	30	33.3	111	30	32.4	108	(66-130)	2.50	(< 20)
Bromomethane	30	24.6	82	30	25.5	85	(53-141)	3.60	(< 20)
Carbon disulfide	45	46.5	103	45	45.3	101	(64-133)	2.50	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183702 [VXX32637]
Blank Spike Lab ID: 1460084
Date Analyzed: 07/17/2018 10:28

Spike Duplicate ID: LCSD for HBN 1183702 [VXX32637]
Spike Duplicate Lab ID: 1460085
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007, 1183702008

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	32.7	109	30	31.8	106	(72-136)	2.70	(< 20)
Chlorobenzene	30	31.4	105	30	30.4	101	(82-118)	3.30	(< 20)
Chloroethane	30	31.1	104	30	30.1	100	(60-138)	3.00	(< 20)
Chloroform	30	31.4	105	30	30.5	102	(79-124)	2.70	(< 20)
Chloromethane	30	30.4	101	30	29.0	97	(50-139)	4.50	(< 20)
cis-1,2-Dichloroethene	30	31.1	104	30	30.3	101	(78-123)	2.60	(< 20)
cis-1,3-Dichloropropene	30	33.4	111	30	32.8	109	(75-124)	1.90	(< 20)
Dibromochloromethane	30	33.3	111	30	32.8	109	(74-126)	1.50	(< 20)
Dibromomethane	30	31.7	106	30	31.6	105	(79-123)	0.32	(< 20)
Dichlorodifluoromethane	30	33.2	111	30	32.9	110	(32-152)	1.00	(< 20)
Ethylbenzene	30	32.8	109	30	31.4	105	(79-121)	4.40	(< 20)
Freon-113	45	49.5	110	45	48.3	107	(70-136)	2.60	(< 20)
Hexachlorobutadiene	30	33.7	112	30	32.7	109	(66-134)	2.90	(< 20)
Isopropylbenzene (Cumene)	30	33.3	111	30	32.0	107	(72-131)	4.10	(< 20)
Methylene chloride	30	29.9	100	30	29.4	98	(74-124)	1.50	(< 20)
Methyl-t-butyl ether	45	47.2	105	45	46.4	103	(71-124)	1.80	(< 20)
Naphthalene	30	34.6	115	30	29.8	99	(61-128)	14.80	(< 20)
n-Butylbenzene	30	35.3	118	30	34.9	116	(75-128)	1.30	(< 20)
n-Propylbenzene	30	33.3	111	30	33.5	112	(76-126)	0.57	(< 20)
o-Xylene	30	32.4	108	30	31.5	105	(78-122)	3.10	(< 20)
P & M -Xylene	60	65.5	109	60	63.5	106	(80-121)	3.20	(< 20)
sec-Butylbenzene	30	34.0	113	30	33.8	113	(77-126)	0.38	(< 20)
Styrene	30	33.2	111	30	31.9	106	(78-123)	4.10	(< 20)
tert-Butylbenzene	30	32.7	109	30	32.6	109	(78-124)	0.34	(< 20)
Tetrachloroethene	30	33.6	112	30	32.0	107	(74-129)	5.10	(< 20)
Toluene	30	31.4	105	30	30.4	101	(80-121)	3.50	(< 20)
trans-1,2-Dichloroethene	30	31.3	104	30	30.5	102	(75-124)	2.50	(< 20)
trans-1,3-Dichloropropene	30	34.5	115	30	34.0	113	(73-127)	1.40	(< 20)
Trichloroethene	30	31.9	106	30	31.0	103	(79-123)	3.00	(< 20)
Trichlorofluoromethane	30	32.1	107	30	31.8	106	(65-141)	1.00	(< 20)
Vinyl acetate	30	34.3	114	30	34.0	113	(54-146)	0.97	(< 20)
Vinyl chloride	30	32.0	107	30	31.8	106	(58-137)	0.63	(< 20)
Xylenes (total)	90	97.9	109	90	94.9	105	(79-121)	3.10	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183702 [VXX32637]
Blank Spike Lab ID: 1460084
Date Analyzed: 07/17/2018 10:28

Spike Duplicate ID: LCSD for HBN 1183702 [VXX32637]
Spike Duplicate Lab ID: 1460085
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007, 1183702008

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	96.8	97	30	97.3	97	(81-118)	0.55	
4-Bromofluorobenzene (surr)	30	97.8	98	30	102	102	(85-114)	4.00	
Toluene-d8 (surr)	30	99.9	100	30	99.2	99	(89-112)	0.70	

Batch Information

Analytical Batch: **VMS18016**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX32637**
Prep Method: **SW5030B**
Prep Date/Time: **07/17/2018 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1782831 [VXX/32658]
Blank Lab ID: 1460957

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

Results by **AK101**

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

Batch Information

Analytical Batch: VFC14286
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 7/19/2018 9:29:00AM

Prep Batch: VXX32658
Prep Method: SW5030B
Prep Date/Time: 7/19/2018 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 1183702 [VXX32658]
Blank Spike Lab ID: 1460960
Date Analyzed: 07/19/2018 10:22

Spike Duplicate ID: LCSD for HBN 1183702 [VXX32658]
Spike Duplicate Lab ID: 1460961
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.925	93	1.00	0.962	96	(60-120)	3.90	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	101	101	0.0500	103	103	(50-150)	1.60	

Batch Information

Analytical Batch: **VFC14286**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX32658**
Prep Method: **SW5030B**
Prep Date/Time: **07/19/2018 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1782867 [VXX/32668]
Blank Lab ID: 1461113

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702008

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	85.6	50-150		%

Batch Information

Analytical Batch: VFC14291
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 7/21/2018 2:10:00PM

Prep Batch: VXX32668
Prep Method: SW5030B
Prep Date/Time: 7/21/2018 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 1183702 [VXX32668]
Blank Spike Lab ID: 1461114
Date Analyzed: 07/21/2018 14:46

Spike Duplicate ID: LCSD for HBN 1183702 [VXX32668]
Spike Duplicate Lab ID: 1461115
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702008

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.981	98	1.00	0.972	97	(60-120)	0.97	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	87.8	88	0.0500	90.3	90	(50-150)	2.80	

Batch Information

Analytical Batch: **VFC14291**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX32668**
Prep Method: **SW5030B**
Prep Date/Time: **07/21/2018 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1782575 [XXX/39921]
Blank Lab ID: 1459776

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

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)	80	47-106		%
Fluoranthene-d10 (surr)	82.6	24-116		%

Batch Information

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 7/20/2018 1:05:00PM

Prep Batch: XXX39921
Prep Method: SW3520C
Prep Date/Time: 7/17/2018 8:28:01AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183702 [XXX39921]
Blank Spike Lab ID: 1459777
Date Analyzed: 07/20/2018 13:25

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

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

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	2	1.58	79	(41-115)
2-Methylnaphthalene	2	1.45	73	(39-114)
Acenaphthene	2	1.65	82	(48-114)
Acenaphthylene	2	1.54	77	(35-121)
Anthracene	2	1.53	76	(53-119)
Benzo(a)Anthracene	2	1.57	79	(59-120)
Benzo[a]pyrene	2	1.54	77	(53-120)
Benzo[b]Fluoranthene	2	1.57	79	(53-126)
Benzo[g,h,i]perylene	2	1.45	73	(44-128)
Benzo[k]fluoranthene	2	1.59	80	(54-125)
Chrysene	2	1.69	84	(57-120)
Dibenzo[a,h]anthracene	2	1.28	64	(44-131)
Fluoranthene	2	1.61	81	(58-120)
Fluorene	2	1.53	76	(50-118)
Indeno[1,2,3-c,d] pyrene	2	1.48	74	(48-130)
Naphthalene	2	1.54	77	(43-114)
Phenanthrene	2	1.46	73	(53-115)
Pyrene	2	1.68	84	(53-121)
Surrogates				
2-Methylnaphthalene-d10 (surr)	2	74.3	74	(47-106)
Fluoranthene-d10 (surr)	2	76.2	76	(24-116)

Batch Information

Analytical Batch: **XMS10903**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BMZ**

Prep Batch: **XXX39921**
Prep Method: **SW3520C**
Prep Date/Time: **07/17/2018 08:28**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1183697005
MS Sample ID: 1459778 MS
MSD Sample ID: 1459779 MSD

Analysis Date: 07/20/2018 14:27
Analysis Date: 07/20/2018 14:47
Analysis Date: 07/20/2018 15:08
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

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

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.0512U	2.12	1.62	77	2.02	1.65	82	41-115	1.90	(< 20)
2-Methylnaphthalene	0.0512U	2.12	1.51	71	2.02	1.54	76	39-114	2.10	(< 20)
Acenaphthene	0.0512U	2.12	1.72	81	2.02	1.76	87	48-114	2.20	(< 20)
Acenaphthylene	0.0512U	2.12	1.58	75	2.02	1.64	81	35-121	3.50	(< 20)
Anthracene	0.0512U	2.12	1.53	72	2.02	1.59	79	53-119	3.90	(< 20)
Benzo(a)Anthracene	0.0512U	2.12	1.5	71	2.02	1.55	77	59-120	3.80	(< 20)
Benzo[a]pyrene	0.0205U	2.12	1.36	64	2.02	1.45	72	53-120	6.80	(< 20)
Benzo[b]Fluoranthene	0.0512U	2.12	1.44	68	2.02	1.51	75	53-126	4.40	(< 20)
Benzo[g,h,i]perylene	0.0512U	2.12	1.07	50	2.02	1.25	62	44-128	16.00	(< 20)
Benzo[k]fluoranthene	0.0512U	2.12	1.39	66	2.02	1.51	75	54-125	8.20	(< 20)
Chrysene	0.0512U	2.12	1.59	75	2.02	1.66	82	57-120	4.00	(< 20)
Dibenzo[a,h]anthracene	0.0205U	2.12	1.03	49	2.02	1.19	59	44-131	14.30	(< 20)
Fluoranthene	0.0512U	2.12	1.62	76	2.02	1.66	82	58-120	2.60	(< 20)
Fluorene	0.0512U	2.12	1.59	75	2.02	1.65	82	50-118	3.60	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0512U	2.12	1.06	50	2.02	1.24	62	48-130	15.90	(< 20)
Naphthalene	0.102U	2.12	1.59	75	2.02	1.62	80	43-114	1.40	(< 20)
Phenanthrene	0.0512U	2.12	1.51	71	2.02	1.55	77	53-115	2.90	(< 20)
Pyrene	0.0512U	2.12	1.66	78	2.02	1.72	85	53-121	3.20	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		2.12	1.54	73	2.02	1.59	79	47-106	2.90	
Fluoranthene-d10 (surr)		2.12	1.59	75	2.02	1.61	80	24-116	1.30	

Batch Information

Analytical Batch: XMS10903
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 7/20/2018 2:47:00PM

Prep Batch: XXX39921
Prep Method: 3520 Liq/Liq Ext for 8270 PAH SIM LV
Prep Date/Time: 7/17/2018 8:28:01AM
Prep Initial Wt./Vol.: 236.00mL
Prep Extract Vol: 1.00mL

Print Date: 07/26/2018 12:24:07PM

Method Blank

Blank ID: MB for HBN 1782576 [XXX/39922]
Blank Lab ID: 1459780

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	104	60-120		%

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: VDL
Analytical Date/Time: 7/18/2018 9:09:00AM

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 7/17/2018 8:53:52AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183702 [XXX39922]
Blank Spike Lab ID: 1459781
Date Analyzed: 07/18/2018 09:19

Spike Duplicate ID: LCSD for HBN 1183702 [XXX39922]
Spike Duplicate Lab ID: 1459782
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

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	21.6	108	20	20.9	105	(75-125)	3.20	(< 20)
Surrogates									
5a Androstane (surr)	0.4	112	112	0.4	106	106	(60-120)	6.00	

Batch Information

Analytical Batch: **XFC14391**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **VDL**

Prep Batch: **XXX39922**
Prep Method: **SW3520C**
Prep Date/Time: **07/17/2018 08:53**
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 1782576 [XXX/39922]
Blank Lab ID: 1459780

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.194J	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	98.9	60-120		%

Batch Information

Analytical Batch: XFC14391
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: VDL
Analytical Date/Time: 7/18/2018 9:09:00AM

Prep Batch: XXX39922
Prep Method: SW3520C
Prep Date/Time: 7/17/2018 8:53:52AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183702 [XXX39922]
Blank Spike Lab ID: 1459781
Date Analyzed: 07/18/2018 09:19

Spike Duplicate ID: LCSD for HBN 1183702 [XXX39922]
Spike Duplicate Lab ID: 1459782
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1183702001, 1183702002, 1183702003, 1183702004, 1183702005, 1183702006, 1183702007

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	22.0	110	20	21.1	106	(60-120)	4.30	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	97.6	98	0.4	98.7	99	(60-120)	1.20	

Batch Information

Analytical Batch: **XFC14391**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **VDL**

Prep Batch: **XXX39922**
Prep Method: **SW3520C**
Prep Date/Time: **07/17/2018 08:53**
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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CHAIN OF CUSTODY RECORD

REVISED S.D.

1183702

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

Page 1 of 1

Section 1

CLIENT: Restoration Science & Engineering LLC

CONTACT: Arran Forbes PHONE NO: 907-278-1023

PROJECT NAME: Term Res Groundwater Monitoring PROJECT/ PWSID/ PERMIT#

REPORTS TO: E-MAIL: aforbes@restorsci.com

Restoration Science & Engineering, LLC

INVOICE TO: QUOTE #:

ARRC 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 HCl DRO/RRO	HCl GRO	HCl VOC	PAH SIM	HNO_3 Metals					REMARKS/ LOC ID
(1) A-J	MWB08	07/16/18	1530	H_2O	10	G	2	3	3	2						
(2) A-J	MWD01	07/16/18	1215	H_2O	10	G	2	3	3	2						
(3) A-J	DPD04	07/16/18	1120	H_2O	10	G	2	3	3	2						
(4) A-J	MWE04	07/16/18	1300	H_2O	10	G	2	3	3	2						
~~5 ACT~~	~~MWE02~~ cf			H_2O	10	G	2	3	3	2						not sampled
(5) A-K	MWE20	07/16/18	1355	H_2O	11	G	2	3	3	2	1					
(6) A-J	MWC01	07/16/18	1445	H_2O	10	G	2	3	3	2						
~~8 ACT~~	~~MWE11~~ cf			H_2O	11	G	2	3	3	2	1					not sampled
(7) A-J	MWX	07/16/18	1225	H_2O	10	G	2	3	3	2						
(8) A-C	TRIP BLANK															

Section 5

	Date	Time	Received By:
Relinquished By: (1)			
Relinquished By: (2)			
Relinquished By: (3)			
Relinquished By: (4)	7/16/18	16:16	Received For Laboratory By:

Section 4

DOD Project? Yes No

Data Deliverable Requirements:

Cooler ID:

Requested Turnaround Time and/or Special Instructions:

standard TAT

Temp Blank °C: ~~1.7 DIO~~ 5.7 DIO or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT) NO

(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

e-Sample Receipt Form

SGS Workorder #: **1183702**

1 1 8 3 7 0 2

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	
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 @ 1.7 °C Therm. ID: D10
	yes	Cooler ID: 1 @ 5.7 °C Therm. ID: D10
	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	
	yes	***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)?	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):

Limited volume for Sample 1H&1 - Bubble greater than 6 mm in sample vial.

Sample Containers and Preservatives

Container Id	Preservative	Container Condition
1183702001-A	HCL to pH < 2	OK
1183702001-B	HCL to pH < 2	OK
1183702001-C	No Preservative Required	OK
1183702001-D	No Preservative Required	OK
1183702001-E	HCL to pH < 2	OK
1183702001-F	HCL to pH < 2	OK
1183702001-G	HCL to pH < 2	OK
1183702001-H	HCL to pH < 2	OK
1183702001-I	HCL to pH < 2	OK
1183702001-J	HCL to pH < 2	OK
1183702002-A	HCL to pH < 2	OK
1183702002-B	HCL to pH < 2	OK
1183702002-C	No Preservative Required	OK
1183702002-D	No Preservative Required	OK
1183702002-E	HCL to pH < 2	OK
1183702002-F	HCL to pH < 2	OK
1183702002-G	HCL to pH < 2	OK
1183702002-H	HCL to pH < 2	OK
1183702002-I	HCL to pH < 2	OK
1183702002-J	HCL to pH < 2	OK
1183702003-A	HCL to pH < 2	OK
1183702003-B	HCL to pH < 2	OK
1183702003-C	No Preservative Required	OK
1183702003-D	No Preservative Required	OK
1183702003-E	HCL to pH < 2	OK
1183702003-F	HCL to pH < 2	OK
1183702003-G	HCL to pH < 2	OK
1183702003-H	HCL to pH < 2	OK
1183702003-I	HCL to pH < 2	OK
1183702003-J	HCL to pH < 2	OK
1183702004-A	HCL to pH < 2	OK
1183702004-B	HCL to pH < 2	OK
1183702004-C	No Preservative Required	OK
1183702004-D	No Preservative Required	OK
1183702004-E	HCL to pH < 2	OK
1183702004-F	HCL to pH < 2	OK
1183702004-G	HCL to pH < 2	OK
1183702004-H	HCL to pH < 2	OK
1183702004-I	HCL to pH < 2	OK
1183702004-J	HCL to pH < 2	OK
1183702005-A	HCL to pH < 2	OK
1183702005-B	HCL to pH < 2	OK
1183702005-C	No Preservative Required	OK
1183702005-D	No Preservative Required	OK
1183702005-E	HNO3 to pH < 2	OK
1183702005-F	HCL to pH < 2	OK
1183702005-G	HCL to pH < 2	OK
1183702005-H	HCL to pH < 2	OK
1183702005-I	HCL to pH < 2	OK
1183702005-J	HCL to pH < 2	OK
1183702005-K	HCL to pH < 2	OK
1183702006-A	HCL to pH < 2	OK
1183702006-B	HCL to pH < 2	OK
1183702006-C	No Preservative Required	OK
1183702006-D	No Preservative Required	OK
1183702006-E	HCL to pH < 2	OK
1183702006-F	HCL to pH < 2	OK
1183702006-G	HCL to pH < 2	OK
1183702006-H	HCL to pH < 2	OK
1183702006-I	HCL to pH < 2	OK
1183702006-J	HCL to pH < 2	OK
1183702007-A	HCL to pH < 2	OK
1183702007-B	HCL to pH < 2	OK
1183702007-C	No Preservative Required	OK
1183702007-D	No Preservative Required	OK
1183702007-E	HCL to pH < 2	OK
1183702007-F	HCL to pH < 2	OK
1183702007-G	HCL to pH < 2	OK
1183702007-H	HCL to pH < 2	OK
1183702007-I	HCL to pH < 2	OK
1183702007-J	HCL to pH < 2	OK
1183702008-A	HCL to pH < 2	OK
1183702008-B	HCL to pH < 2	OK
1183702008-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.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Laboratory Report of Analysis

To: Restoration Science & Eng

,
278-1023

Report Number: **1185244**

Client Project: **Term Res GW**

Dear Lisa Koeneman,

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: **Restoration Science & Eng**
SGS Project: **1185244**
Project Name/Site: **Term Res GW**
Project Contact: **Lisa Koeneman**

Refer to sample receipt form for information on sample condition.

MWC02 (1185244002) PS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria.
8270D SIM- PAH sample was re-extracted within hold time. Results are comparable and original data reported.

MWCX (1185244003) PS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria
8270D SIM- PAH sample was re-extracted within hold time. Results are comparable and original data reported.

*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				
1476066	1185195020(1476065MS)	VMS18323	Chloromethane	RSP
1476067	1185195020(1476065MSD)	VMS18323	Chloromethane	RSP

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.

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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) & 17-021 (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
MWE11	1185244001	09/14/2018	09/14/2018	Water (Surface, Eff., Ground)
MWC02	1185244002	09/14/2018	09/14/2018	Water (Surface, Eff., Ground)
MWCX	1185244003	09/14/2018	09/14/2018	Water (Surface, Eff., Ground)
Trip Blank	1185244004	09/14/2018	09/14/2018	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM (PAH)	8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (W)
SW6020A	Metals by ICP-MS
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MWE11**
Lab Sample ID: 1185244001

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	13.2	ug/L
	Barium	86.6	ug/L
	Chromium	4.65	ug/L
	Lead	4.61	ug/L
	Mercury	0.158J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.172J	mg/L
	Residual Range Organics	0.256J	mg/L
Volatile GC/MS	Chloromethane	1.84	ug/L

Client Sample ID: **MWC02**
Lab Sample ID: 1185244002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Acenaphthene	0.201	ug/L
	Anthracene	0.0502	ug/L
	Benzo(a)Anthracene	0.00767J	ug/L
	Benzo[b]Fluoranthene	0.0173	ug/L
	Chrysene	0.0215	ug/L
	Fluoranthene	0.0560	ug/L
	Fluorene	0.532	ug/L
	Phenanthrene	0.0482J	ug/L
	Pyrene	0.0457J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	3.09	mg/L
	Residual Range Organics	0.915	mg/L
Volatile GC/MS	Chloromethane	1.80	ug/L
	cis-1,2-Dichloroethene	1.41	ug/L
	Trichloroethene	1.55	ug/L

Client Sample ID: **MWCX**
Lab Sample ID: 1185244003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Acenaphthene	0.150	ug/L
	Anthracene	0.0311	ug/L
	Fluoranthene	0.0337	ug/L
	Fluorene	0.394	ug/L
	Phenanthrene	0.0332J	ug/L
	Pyrene	0.0286J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	3.12	mg/L
	Residual Range Organics	0.904	mg/L
Volatile GC/MS	cis-1,2-Dichloroethene	1.62	ug/L
	Trichloroethene	1.93	ug/L

Client Sample ID: **Trip Blank**
Lab Sample ID: 1185244004

	Parameter	Result	Units
Volatile GC/MS	Methylene chloride	1.17J	ug/L

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Results of **MWE11**

Client Sample ID: **MWE11**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244001
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 14:20
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	13.2		5.00	1.50	ug/L	5		10/02/18 15:54
Barium	86.6		3.00	0.940	ug/L	5		10/02/18 15:54
Cadmium	1.00 U		2.00	0.620	ug/L	5		10/02/18 15:54
Chromium	4.65		4.00	1.30	ug/L	5		10/02/18 15:54
Lead	4.61		1.00	0.310	ug/L	5		10/02/18 15:54
Mercury	0.158 J		0.200	0.0620	ug/L	5		10/04/18 15:46
Selenium	10.0 U		20.0	6.20	ug/L	5		10/02/18 15:54
Silver	1.00 U		2.00	0.620	ug/L	5		10/02/18 15:54

Batch Information

Analytical Batch: MMS10339
Analytical Method: SW6020A
Analyst: DSH
Analytical Date/Time: 10/04/18 15:46
Container ID: 1185244001-K

Prep Batch: MXX31962
Prep Method: SW3010A
Prep Date/Time: 09/20/18 09:00
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Analytical Batch: MMS10336
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 10/02/18 15:54
Container ID: 1185244001-K

Prep Batch: MXX31962
Prep Method: SW3010A
Prep Date/Time: 09/20/18 09:00
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

Results of **MWE11**

Client Sample ID: **MWE11**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244001
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 14:20
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	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
2-Methylnaphthalene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Acenaphthene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Acenaphthylene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Anthracene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Benzo(a)Anthracene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Benzo[a]pyrene	0.00255	U	0.00510	0.00153	ug/L	1		09/20/18 02:53
Benzo[b]Fluoranthene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Benzo[g,h,i]perylene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Benzo[k]fluoranthene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Chrysene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Dibenzo[a,h]anthracene	0.00255	U	0.00510	0.00153	ug/L	1		09/20/18 02:53
Fluoranthene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Fluorene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Indeno[1,2,3-c,d] pyrene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 02:53
Naphthalene	0.0127	U	0.0255	0.00796	ug/L	1		09/20/18 02:53
Phenanthrene	0.0255	U	0.0510	0.00378	ug/L	1		09/20/18 02:53
Pyrene	0.0255	U	0.0510	0.00378	ug/L	1		09/20/18 02:53
Surrogates								
2-Methylnaphthalene-d10 (surr)	61.5		47-106		%	1		09/20/18 02:53
Fluoranthene-d10 (surr)	59		24-116		%	1		09/20/18 02:53

Batch Information

Analytical Batch: XMS11086
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 09/20/18 02:53
Container ID: 1185244001-C

Prep Batch: XXX40476
Prep Method: SW3520C
Prep Date/Time: 09/15/18 08:23
Prep Initial Wt./Vol.: 980 mL
Prep Extract Vol: 1 mL

Print Date: 10/08/2018 8:49:39AM

J flagging is activated

Results of **MWE11**

Client Sample ID: **MWE11**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244001
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 14:20
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	0.172	J	0.566	0.170	mg/L	1		09/17/18 10:51
Surrogates								
5a Androstane (surr)	67.8		50-150		%	1		09/17/18 10:51

Batch Information

Analytical Batch: XFC14607
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/17/18 10:51
Container ID: 1185244001-A

Prep Batch: XXX40483
Prep Method: SW3520C
Prep Date/Time: 09/16/18 08:10
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	0.256	J	0.472	0.142	mg/L	1		09/17/18 10:51
Surrogates								
n-Triacontane-d62 (surr)	78		50-150		%	1		09/17/18 10:51

Batch Information

Analytical Batch: XFC14607
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/17/18 10:51
Container ID: 1185244001-A

Prep Batch: XXX40483
Prep Method: SW3520C
Prep Date/Time: 09/16/18 08:10
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Results of **MWE11**

Client Sample ID: **MWE11**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244001
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 14:20
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		09/17/18 23:41
Surrogates								
4-Bromofluorobenzene (surr)	86.5		50-150		%	1		09/17/18 23:41

Batch Information

Analytical Batch: VFC14432
Analytical Method: AK101
Analyst: ACL
Analytical Date/Time: 09/17/18 23:41
Container ID: 1185244001-E

Prep Batch: VXX33129
Prep Method: SW5030B
Prep Date/Time: 09/17/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MWE11**

Client Sample ID: **MWE11**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244001
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 14:20
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		09/17/18 21:54
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 21:54
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/17/18 21:54
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/17/18 21:54
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/17/18 21:54
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 21:54
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/17/18 21:54
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/17/18 21:54
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/17/18 21:54
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/17/18 21:54
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/17/18 21:54
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/18 21:54
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 21:54
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/17/18 21:54
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/17/18 21:54
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/17/18 21:54
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 21:54

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Results of **MWE11**

Client Sample ID: **MWE11**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244001
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 14:20
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		09/17/18 21:54
Chloromethane	1.84		1.00	0.310	ug/L	1		09/17/18 21:54
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/17/18 21:54
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/17/18 21:54
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/17/18 21:54
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/17/18 21:54
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/17/18 21:54
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/17/18 21:54
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Styrene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Toluene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 21:54
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/17/18 21:54
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/17/18 21:54
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/17/18 21:54
Surrogates								
1,2-Dichloroethane-D4 (surr)	108		81-118		%	1		09/17/18 21:54
4-Bromofluorobenzene (surr)	95.9		85-114		%	1		09/17/18 21:54
Toluene-d8 (surr)	102		89-112		%	1		09/17/18 21:54

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Results of **MWE11**

Client Sample ID: **MWE11**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244001
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 14:20
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18323
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/17/18 21:54
Container ID: 1185244001-H

Prep Batch: VXX33131
Prep Method: SW5030B
Prep Date/Time: 09/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWC02**

Client Sample ID: **MWC02**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244002
Lab Project ID: 1185244

Collection Date: 09/14/18 12:30
Received Date: 09/14/18 14:20
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	0.00630	U	0.0126	0.00374	ug/L	1		09/20/18 03:14
2-Methylnaphthalene	0.00630	U	0.0126	0.00374	ug/L	1		09/20/18 03:14
Acenaphthene	0.201		0.0126	0.00374	ug/L	1		09/20/18 03:14
Acenaphthylene	0.00630	U	0.0126	0.00374	ug/L	1		09/20/18 03:14
Anthracene	0.0502		0.0126	0.00374	ug/L	1		09/20/18 03:14
Benzo(a)Anthracene	0.00767	J	0.0126	0.00374	ug/L	1		09/20/18 03:14
Benzo[a]pyrene	0.00252	U	0.00505	0.00152	ug/L	1		09/20/18 03:14
Benzo[b]Fluoranthene	0.0173		0.0126	0.00374	ug/L	1		09/20/18 03:14
Benzo[g,h,i]perylene	0.00630	U	0.0126	0.00374	ug/L	1		09/20/18 03:14
Benzo[k]fluoranthene	0.00630	U	0.0126	0.00374	ug/L	1		09/20/18 03:14
Chrysene	0.0215		0.0126	0.00374	ug/L	1		09/20/18 03:14
Dibenzo[a,h]anthracene	0.00252	U	0.00505	0.00152	ug/L	1		09/20/18 03:14
Fluoranthene	0.0560		0.0126	0.00374	ug/L	1		09/20/18 03:14
Fluorene	0.532		0.0126	0.00374	ug/L	1		09/20/18 03:14
Indeno[1,2,3-c,d] pyrene	0.00630	U	0.0126	0.00374	ug/L	1		09/20/18 03:14
Naphthalene	0.0127	U	0.0253	0.00788	ug/L	1		09/20/18 03:14
Phenanthrene	0.0482	J	0.0505	0.00374	ug/L	1		09/20/18 03:14
Pyrene	0.0457	J	0.0505	0.00374	ug/L	1		09/20/18 03:14
Surrogates								
2-Methylnaphthalene-d10 (surr)	43.7	*	47-106		%	1		09/20/18 03:14
Fluoranthene-d10 (surr)	36.1		24-116		%	1		09/20/18 03:14

Batch Information

Analytical Batch: XMS11086
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 09/20/18 03:14
Container ID: 1185244002-C

Prep Batch: XXX40476
Prep Method: SW3520C
Prep Date/Time: 09/15/18 08:23
Prep Initial Wt./Vol.: 990 mL
Prep Extract Vol: 1 mL

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Results of **MWC02**

Client Sample ID: **MWC02**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244002
Lab Project ID: 1185244

Collection Date: 09/14/18 12:30
Received Date: 09/14/18 14:20
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	3.09		0.577	0.173	mg/L	1		09/17/18 11:01
Surrogates								
5a Androstane (surr)	67.1		50-150		%	1		09/17/18 11:01

Batch Information

Analytical Batch: XFC14607
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/17/18 11:01
Container ID: 1185244002-A

Prep Batch: XXX40483
Prep Method: SW3520C
Prep Date/Time: 09/16/18 08:10
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.915		0.481	0.144	mg/L	1		09/17/18 11:01
Surrogates								
n-Triacontane-d62 (surr)	75.9		50-150		%	1		09/17/18 11:01

Batch Information

Analytical Batch: XFC14607
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/17/18 11:01
Container ID: 1185244002-A

Prep Batch: XXX40483
Prep Method: SW3520C
Prep Date/Time: 09/16/18 08:10
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **MWC02**

Client Sample ID: **MWC02**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244002
Lab Project ID: 1185244

Collection Date: 09/14/18 12:30
Received Date: 09/14/18 14:20
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		09/17/18 23:59
Surrogates								
4-Bromofluorobenzene (surr)	85.9		50-150		%	1		09/17/18 23:59

Batch Information

Analytical Batch: VFC14432
Analytical Method: AK101
Analyst: ACL
Analytical Date/Time: 09/17/18 23:59
Container ID: 1185244002-E

Prep Batch: VXX33129
Prep Method: SW5030B
Prep Date/Time: 09/17/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MWC02**

Client Sample ID: **MWC02**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244002
Lab Project ID: 1185244

Collection Date: 09/14/18 12:30
Received Date: 09/14/18 14:20
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		09/17/18 22:10
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:10
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/17/18 22:10
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:10
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/17/18 22:10
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:10
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:10
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:10
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:10
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:10
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:10
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/18 22:10
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:10
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/17/18 22:10
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:10
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:10
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:10

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Results of **MWC02**

Client Sample ID: **MWC02**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244002
Lab Project ID: 1185244

Collection Date: 09/14/18 12:30
Received Date: 09/14/18 14:20
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		09/17/18 22:10
Chloromethane	1.80		1.00	0.310	ug/L	1		09/17/18 22:10
cis-1,2-Dichloroethene	1.41		1.00	0.310	ug/L	1		09/17/18 22:10
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/17/18 22:10
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/17/18 22:10
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/17/18 22:10
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/17/18 22:10
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/17/18 22:10
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/17/18 22:10
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Styrene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Toluene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Trichloroethene	1.55		1.00	0.310	ug/L	1		09/17/18 22:10
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:10
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/17/18 22:10
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/17/18 22:10
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/17/18 22:10
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		09/17/18 22:10
4-Bromofluorobenzene (surr)	95.4		85-114		%	1		09/17/18 22:10
Toluene-d8 (surr)	101		89-112		%	1		09/17/18 22:10

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Results of **MWC02**

Client Sample ID: **MWC02**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244002
Lab Project ID: 1185244

Collection Date: 09/14/18 12:30
Received Date: 09/14/18 14:20
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18323
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/17/18 22:10
Container ID: 1185244002-H

Prep Batch: VXX33131
Prep Method: SW5030B
Prep Date/Time: 09/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MWCX**

Client Sample ID: **MWCX**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244003
Lab Project ID: 1185244

Collection Date: 09/14/18 12:45
Received Date: 09/14/18 14:20
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	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
2-Methylnaphthalene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
Acenaphthene	0.150		0.0128	0.00378	ug/L	1		09/20/18 03:34
Acenaphthylene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
Anthracene	0.0311		0.0128	0.00378	ug/L	1		09/20/18 03:34
Benzo(a)Anthracene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
Benzo[a]pyrene	0.00255	U	0.00510	0.00153	ug/L	1		09/20/18 03:34
Benzo[b]Fluoranthene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
Benzo[g,h,i]perylene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
Benzo[k]fluoranthene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
Chrysene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
Dibenzo[a,h]anthracene	0.00255	U	0.00510	0.00153	ug/L	1		09/20/18 03:34
Fluoranthene	0.0337		0.0128	0.00378	ug/L	1		09/20/18 03:34
Fluorene	0.394		0.0128	0.00378	ug/L	1		09/20/18 03:34
Indeno[1,2,3-c,d] pyrene	0.00640	U	0.0128	0.00378	ug/L	1		09/20/18 03:34
Naphthalene	0.0127	U	0.0255	0.00796	ug/L	1		09/20/18 03:34
Phenanthrene	0.0332	J	0.0510	0.00378	ug/L	1		09/20/18 03:34
Pyrene	0.0286	J	0.0510	0.00378	ug/L	1		09/20/18 03:34
Surrogates								
2-Methylnaphthalene-d10 (surr)	40.5	*	47-106		%	1		09/20/18 03:34
Fluoranthene-d10 (surr)	34.6		24-116		%	1		09/20/18 03:34

Batch Information

Analytical Batch: XMS11086
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 09/20/18 03:34
Container ID: 1185244003-C

Prep Batch: XXX40476
Prep Method: SW3520C
Prep Date/Time: 09/15/18 08:23
Prep Initial Wt./Vol.: 980 mL
Prep Extract Vol: 1 mL

Print Date: 10/08/2018 8:49:39AM

J flagging is activated

Results of **MWCX**

Client Sample ID: **MWCX**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244003
Lab Project ID: 1185244

Collection Date: 09/14/18 12:45
Received Date: 09/14/18 14:20
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	3.12		0.588	0.176	mg/L	1		09/17/18 11:12
Surrogates								
5a Androstane (surr)	68.2		50-150		%	1		09/17/18 11:12

Batch Information

Analytical Batch: XFC14607
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/17/18 11:12
Container ID: 1185244003-A

Prep Batch: XXX40483
Prep Method: SW3520C
Prep Date/Time: 09/16/18 08:10
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.904		0.490	0.147	mg/L	1		09/17/18 11:12
Surrogates								
n-Triacontane-d62 (surr)	76.3		50-150		%	1		09/17/18 11:12

Batch Information

Analytical Batch: XFC14607
Analytical Method: AK103
Analyst: CMS
Analytical Date/Time: 09/17/18 11:12
Container ID: 1185244003-A

Prep Batch: XXX40483
Prep Method: SW3520C
Prep Date/Time: 09/16/18 08:10
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 10/08/2018 8:49:39AM

J flagging is activated

Results of **MWCX**

Client Sample ID: **MWCX**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244003
Lab Project ID: 1185244

Collection Date: 09/14/18 12:45
Received Date: 09/14/18 14:20
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		09/18/18 00:17
Surrogates								
4-Bromofluorobenzene (surr)	87.1		50-150		%	1		09/18/18 00:17

Batch Information

Analytical Batch: VFC14432
Analytical Method: AK101
Analyst: ACL
Analytical Date/Time: 09/18/18 00:17
Container ID: 1185244003-E

Prep Batch: VXX33129
Prep Method: SW5030B
Prep Date/Time: 09/17/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/08/2018 8:49:39AM

J flagging is activated

Results of **MWCX**

Client Sample ID: **MWCX**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244003
Lab Project ID: 1185244

Collection Date: 09/14/18 12:45
Received Date: 09/14/18 14:20
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		09/17/18 22:27
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:27
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/17/18 22:27
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:27
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/17/18 22:27
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:27
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:27
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:27
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:27
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:27
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:27
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/18 22:27
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:27
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/17/18 22:27
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/17/18 22:27
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/17/18 22:27
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 22:27

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Results of **MWCX**

Client Sample ID: **MWCX**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244003
Lab Project ID: 1185244

Collection Date: 09/14/18 12:45
Received Date: 09/14/18 14:20
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		09/17/18 22:27
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
cis-1,2-Dichloroethene	1.62		1.00	0.310	ug/L	1		09/17/18 22:27
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/17/18 22:27
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/17/18 22:27
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/17/18 22:27
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/17/18 22:27
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/17/18 22:27
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/17/18 22:27
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Styrene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Toluene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Trichloroethene	1.93		1.00	0.310	ug/L	1		09/17/18 22:27
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 22:27
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/17/18 22:27
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/17/18 22:27
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/17/18 22:27
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		09/17/18 22:27
4-Bromofluorobenzene (surr)	95.2		85-114		%	1		09/17/18 22:27
Toluene-d8 (surr)	102		89-112		%	1		09/17/18 22:27

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Results of **MWCX**

Client Sample ID: **MWCX**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244003
Lab Project ID: 1185244

Collection Date: 09/14/18 12:45
Received Date: 09/14/18 14:20
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18323
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/17/18 22:27
Container ID: 1185244003-H

Prep Batch: VXX33131
Prep Method: SW5030B
Prep Date/Time: 09/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244004
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 17:18
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		09/17/18 21:54
Surrogates								
4-Bromofluorobenzene (surr)	87.7		50-150		%	1		09/17/18 21:54

Batch Information

Analytical Batch: VFC14432
Analytical Method: AK101
Analyst: ACL
Analytical Date/Time: 09/17/18 21:54
Container ID: 1185244004-A

Prep Batch: VXX33129
Prep Method: SW5030B
Prep Date/Time: 09/17/18 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244004
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 17:18
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		09/17/18 17:10
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 17:10
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/17/18 17:10
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/17/18 17:10
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/17/18 17:10
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 17:10
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/17/18 17:10
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/17/18 17:10
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/17/18 17:10
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/17/18 17:10
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/17/18 17:10
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/18 17:10
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/17/18 17:10
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/17/18 17:10
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/17/18 17:10
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/17/18 17:10
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/17/18 17:10

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244004
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 17:18
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		09/17/18 17:10
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/17/18 17:10
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/17/18 17:10
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/17/18 17:10
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Methylene chloride	1.17 J		5.00	1.00	ug/L	1		09/17/18 17:10
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/17/18 17:10
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/17/18 17:10
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Styrene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Toluene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/17/18 17:10
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/17/18 17:10
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/17/18 17:10
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/17/18 17:10
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		09/17/18 17:10
4-Bromofluorobenzene (surr)	95.9		85-114		%	1		09/17/18 17:10
Toluene-d8 (surr)	103		89-112		%	1		09/17/18 17:10

Print Date: 10/08/2018 8:49:39AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Term Res GW**
Lab Sample ID: 1185244004
Lab Project ID: 1185244

Collection Date: 09/14/18 10:30
Received Date: 09/14/18 17:18
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18323
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/17/18 17:10
Container ID: 1185244004-B

Prep Batch: VXX33131
Prep Method: SW5030B
Prep Date/Time: 09/17/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1786334 [MXX/31962]
Blank Lab ID: 1476681

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1185244001

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	2.50U	5.00	1.50	ug/L
Barium	1.50U	3.00	0.940	ug/L
Cadmium	1.00U	2.00	0.620	ug/L
Chromium	2.00U	4.00	1.30	ug/L
Lead	0.500U	1.00	0.310	ug/L
Mercury	0.100U	0.200	0.0620	ug/L
Selenium	10.0U	20.0	6.20	ug/L
Silver	1.00U	2.00	0.620	ug/L

Batch Information

Analytical Batch: MMS10336
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 10/2/2018 3:21:45PM

Prep Batch: MXX31962
Prep Method: SW3010A
Prep Date/Time: 9/20/2018 9:00:34AM
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1185244 [MXX31962]
Blank Spike Lab ID: 1476682
Date Analyzed: 10/02/2018 15:26

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001

Results by **SW6020A**

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
Arsenic	1000	984	98	(84-116)
Barium	1000	986	99	(86-114)
Cadmium	100	96.8	97	(87-115)
Chromium	400	409	102	(85-116)
Lead	1000	1020	102	(88-115)
Mercury	10	10.3	103	(70-124)
Selenium	1000	1010	101	(80-120)
Silver	100	101	101	(85-116)

Batch Information

Analytical Batch: **MMS10336**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexlon P5**
Analyst: **VDL**

Prep Batch: **MXX31962**
Prep Method: **SW3010A**
Prep Date/Time: **09/20/2018 09:00**
Spike Init Wt./Vol.: 1000 ug/L Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1185343009
MS Sample ID: 1476684 MS
MSD Sample ID: 1476685 MSD

QC for Samples: 1185244001

Analysis Date: 10/02/2018 15:31
Analysis Date: 10/02/2018 15:35
Analysis Date: 10/02/2018 15:40
Matrix: Water (Surface, Eff., Ground)

Results by **SW6020A**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Arsenic	8.34	1000	1010	100	1000	996	99	84-116	1.67	(< 20)
Barium	128	1000	1080	95	1000	1110	98	86-114	2.42	(< 20)
Cadmium	1.00U	100	94.9	95	100	96.8	97	87-115	2.00	(< 20)
Chromium	2.61J	400	390	97	400	388	96	85-116	0.51	(< 20)
Lead	6.52	1000	1030	103	1000	1050	104	88-115	1.22	(< 20)
Mercury	0.0970J	10.0	10.3	102	10.0	10.2	101	70-124	0.56	(< 20)
Selenium	10.0U	1000	1010	101	1000	990	99	80-120	1.52	(< 20)
Silver	1.00U	100	103	103	100	104	104	85-116	0.67	(< 20)

Batch Information

Analytical Batch: MMS10336
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 10/2/2018 3:35:49PM

Prep Batch: MXX31962
Prep Method: 3010 H20 Digest for Metals ICP-MS
Prep Date/Time: 9/20/2018 9:00:34AM
Prep Initial Wt./Vol.: 25.00mL
Prep Extract Vol: 25.00mL

Print Date: 10/08/2018 8:49:48AM

Method Blank

Blank ID: MB for HBN 1786203 [VXX/33129]
Blank Lab ID: 1476042

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1185244001, 1185244002, 1185244003, 1185244004

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	84.4	50-150		%

Batch Information

Analytical Batch: VFC14432
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ACL
Analytical Date/Time: 9/17/2018 12:55:00PM

Prep Batch: VXX33129
Prep Method: SW5030B
Prep Date/Time: 9/17/2018 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1185244 [VXX33129]
Blank Spike Lab ID: 1476043
Date Analyzed: 09/17/2018 13:31

Spike Duplicate ID: LCSD for HBN 1185244 [VXX33129]
Spike Duplicate Lab ID: 1476044
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003, 1185244004

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.971	97	1.00	1.00	100	(60-120)	3.00	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	91	91	0.0500	96.7	97	(50-150)	6.00	

Batch Information

Analytical Batch: **VFC14432**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ACL**

Prep Batch: **VXX33129**
Prep Method: **SW5030B**
Prep Date/Time: **09/17/2018 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1786208 [VXX/33131]
Blank Lab ID: 1476062

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1185244001, 1185244002, 1185244003, 1185244004

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

Method Blank

Blank ID: MB for HBN 1786208 [VXX/33131]
Blank Lab ID: 1476062

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1185244001, 1185244002, 1185244003, 1185244004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	104	81-118		%
4-Bromofluorobenzene (surr)	99	85-114		%
Toluene-d8 (surr)	101	89-112		%

Method Blank

Blank ID: MB for HBN 1786208 [VXX/33131]
Blank Lab ID: 1476062

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1185244001, 1185244002, 1185244003, 1185244004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS18323
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 9/17/2018 2:19:00PM

Prep Batch: VXX33131
Prep Method: SW5030B
Prep Date/Time: 9/17/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1185244 [VXX33131]
Blank Spike Lab ID: 1476063
Date Analyzed: 09/17/2018 14:35

Spike Duplicate ID: LCSD for HBN 1185244 [VXX33131]
Spike Duplicate Lab ID: 1476064
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003, 1185244004

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	30.1	100	30	29.8	99	(78-124)	0.83	(< 20)
1,1,1-Trichloroethane	30	29.6	99	30	29.5	98	(74-131)	0.20	(< 20)
1,1,2,2-Tetrachloroethane	30	29.0	97	30	28.5	95	(71-121)	1.70	(< 20)
1,1,2-Trichloroethane	30	28.9	96	30	29.0	97	(80-119)	0.38	(< 20)
1,1-Dichloroethane	30	29.1	97	30	29.1	97	(77-125)	0.14	(< 20)
1,1-Dichloroethene	30	30.9	103	30	31.0	103	(71-131)	0.45	(< 20)
1,1-Dichloropropene	30	29.8	99	30	29.5	98	(79-125)	1.10	(< 20)
1,2,3-Trichlorobenzene	30	30.3	101	30	29.6	99	(69-129)	2.40	(< 20)
1,2,3-Trichloropropane	30	29.2	97	30	28.3	94	(73-122)	3.10	(< 20)
1,2,4-Trichlorobenzene	30	30.9	103	30	30.5	102	(69-130)	1.10	(< 20)
1,2,4-Trimethylbenzene	30	29.1	97	30	29.0	97	(79-124)	0.41	(< 20)
1,2-Dibromo-3-chloropropane	30	28.5	95	30	27.1	90	(62-128)	5.10	(< 20)
1,2-Dibromoethane	30	29.8	99	30	29.6	99	(77-121)	0.57	(< 20)
1,2-Dichlorobenzene	30	29.7	99	30	29.9	100	(80-119)	0.50	(< 20)
1,2-Dichloroethane	30	29.0	97	30	29.2	98	(73-128)	0.82	(< 20)
1,2-Dichloropropane	30	29.5	98	30	29.6	99	(78-122)	0.14	(< 20)
1,3,5-Trimethylbenzene	30	29.9	100	30	29.5	98	(75-124)	1.30	(< 20)
1,3-Dichlorobenzene	30	29.9	100	30	30.0	100	(80-119)	0.50	(< 20)
1,3-Dichloropropane	30	29.5	98	30	29.2	97	(80-119)	0.99	(< 20)
1,4-Dichlorobenzene	30	30.2	101	30	30.0	100	(79-118)	0.40	(< 20)
2,2-Dichloropropane	30	30.8	103	30	30.5	102	(60-139)	0.72	(< 20)
2-Butanone (MEK)	90	83.0	92	90	80.8	90	(56-143)	2.80	(< 20)
2-Chlorotoluene	30	29.4	98	30	29.8	99	(79-122)	1.30	(< 20)
2-Hexanone	90	85.8	95	90	81.5	91	(57-139)	5.10	(< 20)
4-Chlorotoluene	30	29.5	98	30	29.3	98	(78-122)	0.54	(< 20)
4-Isopropyltoluene	30	30.3	101	30	29.5	98	(77-127)	2.70	(< 20)
4-Methyl-2-pentanone (MIBK)	90	88.3	98	90	84.7	94	(67-130)	4.20	(< 20)
Benzene	30	29.7	99	30	29.7	99	(79-120)	0.13	(< 20)
Bromobenzene	30	29.6	99	30	29.7	99	(80-120)	0.30	(< 20)
Bromochloromethane	30	31.0	103	30	31.9	106	(78-123)	2.60	(< 20)
Bromodichloromethane	30	29.7	99	30	29.8	99	(79-125)	0.24	(< 20)
Bromoform	30	28.9	96	30	29.3	98	(66-130)	1.40	(< 20)
Bromomethane	30	35.6	119	30	41.7	139	(53-141)	15.80	(< 20)
Carbon disulfide	45	45.3	101	45	47.2	105	(64-133)	4.00	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1185244 [VXX33131]
Blank Spike Lab ID: 1476063
Date Analyzed: 09/17/2018 14:35

Spike Duplicate ID: LCSD for HBN 1185244 [VXX33131]
Spike Duplicate Lab ID: 1476064
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003, 1185244004

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	30.6	102	30	30.6	102	(72-136)	0.03	(< 20)
Chlorobenzene	30	28.4	95	30	28.3	94	(82-118)	0.39	(< 20)
Chloroethane	30	32.1	107	30	31.3	104	(60-138)	2.80	(< 20)
Chloroform	30	28.7	96	30	28.6	95	(79-124)	0.38	(< 20)
Chloromethane	30	28.8	96	30	31.6	105	(50-139)	9.10	(< 20)
cis-1,2-Dichloroethene	30	29.7	99	30	29.9	100	(78-123)	0.87	(< 20)
cis-1,3-Dichloropropene	30	30.0	100	30	30.1	100	(75-124)	0.37	(< 20)
Dibromochloromethane	30	29.6	99	30	29.9	100	(74-126)	0.87	(< 20)
Dibromomethane	30	30.1	100	30	30.4	101	(79-123)	0.76	(< 20)
Dichlorodifluoromethane	30	31.0	103	30	31.9	106	(32-152)	2.80	(< 20)
Ethylbenzene	30	30.0	100	30	30.2	101	(79-121)	0.57	(< 20)
Freon-113	45	48.3	107	45	48.1	107	(70-136)	0.39	(< 20)
Hexachlorobutadiene	30	31.9	106	30	32.7	109	(66-134)	2.30	(< 20)
Isopropylbenzene (Cumene)	30	30.3	101	30	30.4	101	(72-131)	0.36	(< 20)
Methylene chloride	30	29.7	99	30	30.3	101	(74-124)	1.80	(< 20)
Methyl-t-butyl ether	45	44.1	98	45	44.4	99	(71-124)	0.79	(< 20)
Naphthalene	30	30.0	100	30	29.3	98	(61-128)	2.40	(< 20)
n-Butylbenzene	30	30.6	102	30	29.3	98	(75-128)	4.30	(< 20)
n-Propylbenzene	30	30.0	100	30	29.7	99	(76-126)	1.10	(< 20)
o-Xylene	30	30.0	100	30	29.9	100	(78-122)	0.17	(< 20)
P & M -Xylene	60	59.3	99	60	59.8	100	(80-121)	0.87	(< 20)
sec-Butylbenzene	30	30.3	101	30	29.7	99	(77-126)	2.10	(< 20)
Styrene	30	29.5	98	30	29.8	99	(78-123)	0.88	(< 20)
tert-Butylbenzene	30	29.7	99	30	29.4	98	(78-124)	0.95	(< 20)
Tetrachloroethene	30	31.4	105	30	31.2	104	(74-129)	0.67	(< 20)
Toluene	30	28.5	95	30	28.1	94	(80-121)	1.60	(< 20)
trans-1,2-Dichloroethene	30	29.6	99	30	29.7	99	(75-124)	0.54	(< 20)
trans-1,3-Dichloropropene	30	29.5	98	30	29.7	99	(73-127)	0.68	(< 20)
Trichloroethene	30	30.1	100	30	29.9	100	(79-123)	0.47	(< 20)
Trichlorofluoromethane	30	31.6	105	30	32.1	107	(65-141)	1.60	(< 20)
Vinyl acetate	30	29.5	98	30	29.4	98	(54-146)	0.37	(< 20)
Vinyl chloride	30	29.0	97	30	29.7	99	(58-137)	2.60	(< 20)
Xylenes (total)	90	89.2	99	90	89.7	100	(79-121)	0.53	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1185244 [VXX33131]
Blank Spike Lab ID: 1476063
Date Analyzed: 09/17/2018 14:35

Spike Duplicate ID: LCSD for HBN 1185244 [VXX33131]
Spike Duplicate Lab ID: 1476064
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003, 1185244004

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	98.3	98	30	98.4	98	(81-118)	0.14	
4-Bromofluorobenzene (surr)	30	97.6	98	30	97	97	(85-114)	0.62	
Toluene-d8 (surr)	30	101	101	30	101	101	(89-112)	0.33	

Batch Information

Analytical Batch: **VMS18323**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **FDR**

Prep Batch: **VXX33131**
Prep Method: **SW5030B**
Prep Date/Time: **09/17/2018 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Matrix Spike Summary

Original Sample ID: 1476065
MS Sample ID: 1476066 MS
MSD Sample ID: 1476067 MSD

Analysis Date: 09/17/2018 18:01
Analysis Date: 09/17/2018 15:47
Analysis Date: 09/17/2018 16:04
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003, 1185244004

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	5.00U	600	592	99	600	597	99	78-124	0.74	(< 20)
1,1,1-Trichloroethane	10.0U	600	605	101	600	598	100	74-131	1.10	(< 20)
1,1,2,2-Tetrachloroethane	5.00U	600	603	100	600	604	101	71-121	0.30	(< 20)
1,1,2-Trichloroethane	4.00U	600	580	97	600	585	98	80-119	0.96	(< 20)
1,1-Dichloroethane	10.0U	600	593	99	600	588	98	77-125	0.81	(< 20)
1,1-Dichloroethene	10.0U	600	628	105	600	627	104	71-131	0.22	(< 20)
1,1-Dichloropropene	10.0U	600	611	102	600	602	100	79-125	1.50	(< 20)
1,2,3-Trichlorobenzene	10.0U	600	637	106	600	637	106	69-129	0.09	(< 20)
1,2,3-Trichloropropane	10.0U	600	581	97	600	586	98	73-122	0.82	(< 20)
1,2,4-Trichlorobenzene	10.0U	600	639	107	600	634	106	69-130	0.82	(< 20)
1,2,4-Trimethylbenzene	48.4	600	647	100	600	640	99	79-124	0.99	(< 20)
1,2-Dibromo-3-chloropropane	100U	600	583	97	600	580	97	62-128	0.58	(< 20)
1,2-Dibromoethane	42.4	600	631	98	600	631	98	77-121	0.03	(< 20)
1,2-Dichlorobenzene	10.0U	600	609	101	600	601	100	80-119	1.30	(< 20)
1,2-Dichloroethane	230	600	822	99	600	819	98	73-128	0.39	(< 20)
1,2-Dichloropropane	10.0U	600	608	101	600	606	101	78-122	0.40	(< 20)
1,3,5-Trimethylbenzene	11.2J	600	608	100	600	608	100	75-124	0.03	(< 20)
1,3-Dichlorobenzene	10.0U	600	602	100	600	599	100	80-119	0.53	(< 20)
1,3-Dichloropropane	5.00U	600	587	98	600	579	97	80-119	1.40	(< 20)
1,4-Dichlorobenzene	5.00U	600	605	101	600	609	101	79-118	0.66	(< 20)
2,2-Dichloropropane	10.0U	600	641	107	600	632	105	60-139	1.40	(< 20)
2-Butanone (MEK)	1260	1800	2880	90	1800	2980	96	56-143	3.50	(< 20)
2-Chlorotoluene	10.0U	600	600	100	600	595	99	79-122	0.84	(< 20)
2-Hexanone	609	1800	2350	97	1800	2390	99	57-139	1.70	(< 20)
4-Chlorotoluene	10.0U	600	597	100	600	594	99	78-122	0.50	(< 20)
4-Isopropyltoluene	10.8J	600	615	101	600	614	101	77-127	0.03	(< 20)
4-Methyl-2-pentanone (MIBK)	199J	1800	1990	100	1800	2020	101	67-130	1.50	(< 20)
Benzene	1610	600	2120	85	600	2120	85	79-120	0.08	(< 20)
Bromobenzene	10.0U	600	594	99	600	593	99	80-120	0.13	(< 20)
Bromochloromethane	10.0U	600	632	105	600	625	104	78-123	1.00	(< 20)
Bromodichloromethane	5.00U	600	608	101	600	609	102	79-125	0.20	(< 20)
Bromoform	10.0U	600	588	98	600	582	97	66-130	0.92	(< 20)
Bromomethane	50.0U	600	788	131	600	789	131	53-141	0.05	(< 20)
Carbon disulfide	100U	900	923	103	900	894	99	64-133	3.20	(< 20)
Carbon tetrachloride	10.0U	600	623	104	600	614	102	72-136	1.50	(< 20)
Chlorobenzene	5.00U	600	567	95	600	568	95	82-118	0.04	(< 20)
Chloroethane	10.0U	600	668	111	600	652	109	60-138	2.50	(< 20)

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Matrix Spike Summary

Original Sample ID: 1476065
MS Sample ID: 1476066 MS
MSD Sample ID: 1476067 MSD

Analysis Date: 09/17/2018 18:01
Analysis Date: 09/17/2018 15:47
Analysis Date: 09/17/2018 16:04
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003, 1185244004

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	10.0U	600	585	98	600	584	97	79-124	0.21	(< 20)
Chloromethane	10.0U	600	590	98	600	576	96	50-139	2.50	(< 20)
cis-1,2-Dichloroethene	10.0U	600	609	101	600	605	101	78-123	0.53	(< 20)
cis-1,3-Dichloropropene	5.00U	600	619	103	600	618	103	75-124	0.23	(< 20)
Dibromochloromethane	5.00U	600	592	99	600	592	99	74-126	0.00	(< 20)
Dibromomethane	10.0U	600	621	103	600	619	103	79-123	0.29	(< 20)
Dichlorodifluoromethane	10.0U	600	608	101	600	601	100	32-152	1.30	(< 20)
Ethylbenzene	110	600	714	101	600	708	100	79-121	0.87	(< 20)
Freon-113	100U	900	987	110	900	980	109	70-136	0.71	(< 20)
Hexachlorobutadiene	10.0U	600	659	110	600	647	108	66-134	1.80	(< 20)
Isopropylbenzene (Cumene)	11.4J	600	626	103	600	621	102	72-131	0.80	(< 20)
Methylene chloride	50.0U	600	619	103	600	613	102	74-124	1.00	(< 20)
Methyl-t-butyl ether	100U	900	901	100	900	905	101	71-124	0.35	(< 20)
Naphthalene	10.0U	600	647	108	600	649	108	61-128	0.34	(< 20)
n-Butylbenzene	10.0U	600	609	102	600	607	101	75-128	0.33	(< 20)
n-Propylbenzene	10.0U	600	598	100	600	598	100	76-126	0.03	(< 20)
o-Xylene	171	600	780	101	600	772	100	78-122	0.98	(< 20)
P & M -Xylene	429	1200	1660	103	1200	1640	101	80-121	1.20	(< 20)
sec-Butylbenzene	10.0U	600	601	100	600	602	100	77-126	0.30	(< 20)
Styrene	10.0U	600	605	101	600	604	101	78-123	0.26	(< 20)
tert-Butylbenzene	10.0U	600	597	100	600	590	98	78-124	1.30	(< 20)
Tetrachloroethene	10.0U	600	616	103	600	614	102	74-129	0.39	(< 20)
Toluene	1290	600	1840	92	600	1840	92	80-121	0.26	(< 20)
trans-1,2-Dichloroethene	10.0U	600	602	100	600	595	99	75-124	1.20	(< 20)
trans-1,3-Dichloropropene	10.0U	600	596	99	600	593	99	73-127	0.50	(< 20)
Trichloroethene	10.0U	600	612	102	600	608	101	79-123	0.72	(< 20)
Trichlorofluoromethane	10.0U	600	656	109	600	655	109	65-141	0.18	(< 20)
Vinyl acetate	100U	600	604	101	600	603	100	54-146	0.30	(< 20)
Vinyl chloride	1.50U	600	583	97	600	576	96	58-137	1.30	(< 20)
Xylenes (total)	600	1800	2440	102	1800	2420	101	79-121	1.20	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		600	586	98	600	583	97	81-118	0.58	
4-Bromofluorobenzene (surr)		600	583	97	600	583	97	85-114	0.07	
Toluene-d8 (surr)		600	590	98	600	600	100	89-112	1.60	

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Matrix Spike Summary

Original Sample ID: 1476065
MS Sample ID: 1476066 MS
MSD Sample ID: 1476067 MSD

Analysis Date:
Analysis Date: 09/17/2018 15:47
Analysis Date: 09/17/2018 16:04
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003, 1185244004

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS18323
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 9/17/2018 3:47:00PM

Prep Batch: VXX33131
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 9/17/2018 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

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Method Blank

Blank ID: MB for HBN 1786052 [XXX/40476]
Blank Lab ID: 1475380

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1185244001, 1185244002, 1185244003

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.00625U	0.0125	0.00370	ug/L
2-Methylnaphthalene	0.00625U	0.0125	0.00370	ug/L
Acenaphthene	0.00625U	0.0125	0.00370	ug/L
Acenaphthylene	0.00625U	0.0125	0.00370	ug/L
Anthracene	0.00625U	0.0125	0.00370	ug/L
Benzo(a)Anthracene	0.00625U	0.0125	0.00370	ug/L
Benzo[a]pyrene	0.00250U	0.00500	0.00150	ug/L
Benzo[b]Fluoranthene	0.00625U	0.0125	0.00370	ug/L
Benzo[g,h,i]perylene	0.00625U	0.0125	0.00370	ug/L
Benzo[k]fluoranthene	0.00625U	0.0125	0.00370	ug/L
Chrysene	0.00625U	0.0125	0.00370	ug/L
Dibenzo[a,h]anthracene	0.00250U	0.00500	0.00150	ug/L
Fluoranthene	0.00625U	0.0125	0.00370	ug/L
Fluorene	0.00625U	0.0125	0.00370	ug/L
Indeno[1,2,3-c,d] pyrene	0.00625U	0.0125	0.00370	ug/L
Naphthalene	0.0125U	0.0250	0.00780	ug/L
Phenanthrene	0.0250U	0.0500	0.00370	ug/L
Pyrene	0.0250U	0.0500	0.00370	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	62.4	47-106		%
Fluoranthene-d10 (surr)	59.6	24-116		%

Batch Information

Analytical Batch: XMS11086
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 9/20/2018 1:52:00AM

Prep Batch: XXX40476
Prep Method: SW3520C
Prep Date/Time: 9/15/2018 8:23:16AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1185244 [XXX40476]
Blank Spike Lab ID: 1475381
Date Analyzed: 09/20/2018 02:12

Spike Duplicate ID: LCSD for HBN 1185244 [XXX40476]
Spike Duplicate Lab ID: 1475382
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003

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

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.5	0.375	75	0.5	0.328	66	(41-115)	13.50	(< 20)
2-Methylnaphthalene	0.5	0.351	70	0.5	0.309	62	(39-114)	13.00	(< 20)
Acenaphthene	0.5	0.408	82	0.5	0.355	71	(48-114)	13.80	(< 20)
Acenaphthylene	0.5	0.369	74	0.5	0.322	64	(35-121)	13.70	(< 20)
Anthracene	0.5	0.383	77	0.5	0.327	65	(53-119)	15.90	(< 20)
Benzo(a)Anthracene	0.5	0.360	72	0.5	0.311	62	(59-120)	14.40	(< 20)
Benzo[a]pyrene	0.5	0.358	72	0.5	0.312	62	(53-120)	13.80	(< 20)
Benzo[b]Fluoranthene	0.5	0.367	74	0.5	0.320	64	(53-126)	13.80	(< 20)
Benzo[g,h,i]perylene	0.5	0.355	71	0.5	0.300	60	(44-128)	16.90	(< 20)
Benzo[k]fluoranthene	0.5	0.417	84	0.5	0.362	72	(54-125)	14.20	(< 20)
Chrysene	0.5	0.397	79	0.5	0.345	69	(57-120)	14.10	(< 20)
Dibenzo[a,h]anthracene	0.5	0.350	70	0.5	0.288	58	(44-131)	19.40	(< 20)
Fluoranthene	0.5	0.363	73	0.5	0.313	63	(58-120)	14.90	(< 20)
Fluorene	0.5	0.376	75	0.5	0.324	65	(50-118)	15.00	(< 20)
Indeno[1,2,3-c,d] pyrene	0.5	0.363	73	0.5	0.310	62	(48-130)	15.60	(< 20)
Naphthalene	0.5	0.362	72	0.5	0.320	64	(43-114)	12.20	(< 20)
Phenanthrene	0.5	0.360	72	0.5	0.308	62	(53-115)	15.60	(< 20)
Pyrene	0.5	0.375	75	0.5	0.323	65	(53-121)	14.90	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	0.5	75.6	76	0.5	66.7	67	(47-106)	12.60	
Fluoranthene-d10 (surr)	0.5	72.4	72	0.5	63.7	64	(24-116)	12.80	

Batch Information

Analytical Batch: **XMS11086**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BMZ**

Prep Batch: **XXX40476**
Prep Method: **SW3520C**
Prep Date/Time: **09/15/2018 08:23**
Spike Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.5 ug/L Extract Vol: 1 mL

Print Date: 10/08/2018 8:50:02AM

Method Blank

Blank ID: MB for HBN 1786064 [XXX/40483]
Blank Lab ID: 1475454

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1185244001, 1185244002, 1185244003

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	84.6	60-120		%

Batch Information

Analytical Batch: XFC14607
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 9/17/2018 9:23:00AM

Prep Batch: XXX40483
Prep Method: SW3520C
Prep Date/Time: 9/16/2018 8:10:13AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1185244 [XXX40483]
Blank Spike Lab ID: 1475455
Date Analyzed: 09/17/2018 09:32

Spike Duplicate ID: LCSD for HBN 1185244 [XXX40483]
Spike Duplicate Lab ID: 1475456
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003

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	17.5	87	20	16.5	83	(75-125)	5.60	(< 20)
Surrogates									
5a Androstane (surr)	0.4	89.3	89	0.4	87	87	(60-120)	2.60	

Batch Information

Analytical Batch: **XFC14607**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX40483**
Prep Method: **SW3520C**
Prep Date/Time: **09/16/2018 08:10**
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 1786064 [XXX/40483]
Blank Lab ID: 1475454

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1185244001, 1185244002, 1185244003

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)	92.8	60-120		%

Batch Information

Analytical Batch: XFC14607
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 9/17/2018 9:23:00AM

Prep Batch: XXX40483
Prep Method: SW3520C
Prep Date/Time: 9/16/2018 8:10:13AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1185244 [XXX40483]
Blank Spike Lab ID: 1475455
Date Analyzed: 09/17/2018 09:32

Spike Duplicate ID: LCSD for HBN 1185244 [XXX40483]
Spike Duplicate Lab ID: 1475456
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1185244001, 1185244002, 1185244003

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	19.5	98	20	18.5	92	(60-120)	5.40	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	84.7	85	0.4	81.7	82	(60-120)	3.60	

Batch Information

Analytical Batch: **XFC14607**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX40483**
Prep Method: **SW3520C**
Prep Date/Time: **09/16/2018 08:10**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Homestead, Charles (Anchorage)

From: Lisa Koeneman <lkoeneman@restorsci.com>
Sent: Wednesday, September 19, 2018 9:11 AM
To: Homestead, Charles (Anchorage)
Subject: Re: 1185244 Metals

Hello!

It absolutely is. Thank you for confirming.

Lisa

From: Homestead, Charles (Anchorage) <Charles.Homestead@sgs.com>
Sent: Wednesday, September 19, 2018 9:09:10 AM
To: Lisa Koeneman
Subject: 1185244 Metals

Good Morning Lisa, I just wanted to confirm that the “Metals” analysis in this COC is Total RCRA Metals.

Please advise. Thanks, CGH

SGS REVIEWED KET

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CHAIN OF CUSTODY RECORD

1185244

Locations Nationwide

ka	Maryland
Jersey	New York
h Carolina	Indiana
t Virgina	Kentucky

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

Page ___ of ___

Section 1

CLIENT: Restoration Science & Engineering LLC (RSE)
CONTACT: Lisa Koeneman PHONE NO: 278-1023
PROJECT NAME: Term Res GW PROJECT/ PWSID/ PERMIT#:
REPORTS TO: RSE E-MAIL: lkoeneman@restorsci.com
INVOICE TO: ARRC QUOTE #:
P.O. #:

Section 3

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: HCl / DRO/PRO	HCl / GRO	HCl / VOC	PAH SIM	HNO3 / Metals					REMARKS/ LOC ID
(1) A-K	MWE11	9/14/18	10:30	H2O	11	G	2	3	3	2	1					
	~~me~~															
(2) A-J	MWC02	9/14/18	12:30	H2O	10	G	2	3	3	2						
(3) A-J	MWCX	9/14/18	12:45	H2O	10	G	2	3	3	2						
(4) A-C																

Section 5

	Date	Time	
Relinquished By: (1)	14:20	9/14/18	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	9/14/18	14:20	Received For Laboratory By: KET

Section 4

DOD Project? Yes No

Cooler ID: _____

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:
MWE11 has some PVC shavings in it

Temp Blank °C: 6.0 D35
or Ambient [ ]
(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)
INTACT BROKEN (ABSENT) HD
(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

e-Sample Receipt Form

SGS Workorder #: **1185244**

1 1 8 5 2 4 4

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 @ 6.0 °C Therm. ID: D35
	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)?	YES	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	YES	
	N/A	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	NO	**Only three trip blank vials received for GRO and VOC. Logged in one for GRO and two for VOC.**
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	YES	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	YES	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1185244001-A	HCL to pH < 2	OK			
1185244001-B	HCL to pH < 2	OK			
1185244001-C	No Preservative Required	OK			
1185244001-D	No Preservative Required	OK			
1185244001-E	HCL to pH < 2	OK			
1185244001-F	HCL to pH < 2	OK			
1185244001-G	HCL to pH < 2	OK			
1185244001-H	HCL to pH < 2	OK			
1185244001-I	HCL to pH < 2	OK			
1185244001-J	HCL to pH < 2	OK			
1185244001-K	HNO3 to pH < 2	OK			
1185244002-A	HCL to pH < 2	OK			
1185244002-B	HCL to pH < 2	OK			
1185244002-C	No Preservative Required	OK			
1185244002-D	No Preservative Required	OK			
1185244002-E	HCL to pH < 2	OK			
1185244002-F	HCL to pH < 2	OK			
1185244002-G	HCL to pH < 2	OK			
1185244002-H	HCL to pH < 2	OK			
1185244002-I	HCL to pH < 2	OK			
1185244002-J	HCL to pH < 2	OK			
1185244003-A	HCL to pH < 2	OK			
1185244003-B	HCL to pH < 2	OK			
1185244003-C	No Preservative Required	OK			
1185244003-D	No Preservative Required	OK			
1185244003-E	HCL to pH < 2	OK			
1185244003-F	HCL to pH < 2	OK			
1185244003-G	HCL to pH < 2	OK			
1185244003-H	HCL to pH < 2	OK			
1185244003-I	HCL to pH < 2	OK			
1185244003-J	HCL to pH < 2	OK			
1185244004-A	HCL to pH < 2	OK			
1185244004-B	HCL to pH < 2	OK			
1185244004-C	HCL to pH < 2	OK			

Container Condition Glossary

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

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

Attachment E:
ADEC Laboratory Data Quality Review Checklists

RESTORATION
Science & Engineering, LLC

Laboratory Data Review Checklist

Completed by: Arran Forbes

Title: Environmental Scientist Date: 8/2/18

CS Report Name: ARRC Terminal Reserve 2018 GW Monitoring Report Date: 7/27/18

Consultant Firm: Restoration Science & Engineering, LLC

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1183702

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 78.

   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 1.7C 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. No issues with preservatives were noted. One sample (1H, with no associated parent sample identified in the report) had limited volume due to headspace, but this did not affect sample extraction or analysis.

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

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

Review of the sample receipt form indicated one sample had a bubble greater than 6mm.

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:

Sample condition was documented. See section 3.b for additional discussion.

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

Comments:

Data quality and usability was not affected. Adequate volume was present in the sample for extraction, and acidification was preserved.

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 PAH surrogate recovery failures were reported. Mercury was additionally detected in the method blank.

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. Further discussion in specific sections below.

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 orders of magnitude below cleanup standards for fluoranthene; the degree to which the surrogate recovery was outside of QC limits is insufficient to increase the parent sample concentration above the standard. Mercury is well above Table C levels, in addition to multiple other metals at this location; no claim of this location meeting applicable standards is being made.

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

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

Correct analyses were performed as requested.

   c. All applicable holding times met?

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

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

   d. All soils reported on a dry weight basis?

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

Samples are groundwater.

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

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

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

   f. Data quality or usability affected?

Comments:

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

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

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

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

ii. All method blank results less than PQL?

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

Mercury was detected in the method blank above the limit of quantitation.

iii. If above PQL, what samples are affected?

Comments:

MWE20.

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

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

The data is flagged with an asterisks (*).

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

Data quality or usability was not affected. Mercury is well above Table C levels beyond that which the detection in the method blank could generate, in addition to multiple other metals at this location; no claim of this location meeting applicable standards is being made.

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:

7. One LCS and LCSDs were performed per analysis (one metals sample submitted)

i. 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.

ii. 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.

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

Comments:

No affected samples.

iv. 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.

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

Comments:

There is no effect on data quality and usability.

b. 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 method 8270 for fluoranthene in samples MWE04 and MWE20.

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.)

There is no effect on data quality and usability. Parent results associated with affected surrogate were orders of magnitude below cleanup standards for fluoranthene; the degree to which the surrogate recovery was outside of QC limits is insufficient to increase the parent sample concentration above the standard.

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

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

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

One trip blank included.

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

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

The trip blank is clearly indicated on the COC.

iii. All results less than PQL?

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

Trip blank results are uniformly below the PQL.

iv. If above PQL, what samples are affected?

Comments:

No affected samples.

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

Comments:

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

d. 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 MWD01.

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 are within DQOs with the exception of GRO, which was nondetect in the blind duplicate and detected in the parent sample. Other analytes are well correlated.

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.

e. 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:

8. 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:

Lisa Koeneman

Title:

Environmental Scientist

Date:

4/1/2019

CS Report Name:

ARRC Terminal Reserve 2018 GW Monitoring

Report Date:

April 19

Consultant Firm:

Restoration Science & Engineering, LLC

Laboratory Name:

SGS North America, Inc

Laboratory Report Number:

1185244

ADEC File Number:

2100.38.514 & 2100.26.602

Hazard Identification Number:

1185244

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   ☑ Yes ☐ No Comments:

SGS North America, Inc. an ADEC-approved lab performed all the submitted sample analyses.

   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 Comments:

No samples were transferred.

2. Chain of Custody (CoC)

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

   ☑ Yes ☐ No Comments:

A signed copy of the CoC is provided at the end of the lab report.

   b. Correct Analyses requested?

   ☑ Yes ☐ No Comments:

SGS completed the requested analyses.

3. Laboratory Sample Receipt Documentation

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

   ☑ Yes ☐ No Comments:

The sample cooler temperature blank was 6.0° C upon delivery.

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

   ☑ Yes ☐ No Comments:

Volatile water samples were persevered in HCl. No soil samples were taken.

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

   ☑ Yes ☐ No Comments:

All samples were in good condition upon delivery to the lab.

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 Comments:

Only three trip blanks were received for GRO and VOCs. One was logged for GRO and two for VOCs.

e. Data quality or usability affected?

Comments:

The three trip blanks were considered sufficient for GRO and VOC by the lab, so the data and usability were not effected.

4. Case Narrative

a. Present and understandable?

☑ Yes ☐ No Comments:

The case narrative is present and understandable. It can be found on page 2 for the lab report.

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

☑ Yes ☐ No Comments:

Two PAH surrogate recoveries did not meet lab criteria.

c. Were all corrective actions documented?

☑ Yes ☐ No Comments:

The sample was re-extracted within the hold time.

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

Comments:

No data or usability was effected, as the sample was re-extracted within the hold time.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

☑ Yes ☐ No Comments:

The correct analyses were performed as requested on the CoC.

b. All applicable holding times met?

☑ Yes ☐ No Comments:

Holding times were met for all samples according the lab methods.

c. All soils reported on a dry weight basis?

☐ Yes ☒ No Comments:

Samples are groundwater.

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

☐ Yes ☒ No Comments:

The lab reports data below the LOQ but above the detection limit (DL) as an estimate result flagged with a "j". Constituents that were analyzed but not detected are reported as a value equal to 2 times the DL and flagged with a "U". One constituent reported the LOQ above cleanup standards: 1,2,3-trichloropropane for all samples.

e. Data quality or usability affected?

☐ Yes ☒ No Comments:

There is no effect on the data quality or usability. This is known contaminated site, and LOQs exceeding cleanup standards is common, particularly under new ADEC cleanup standards, which are frequently lower than achievable lab DLs. Additionally, this is a non-target analyte. 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 Comments:

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

ii. All method blank results less than limit of quantitation (LOQ)?

☒ Yes ☐ No Comments:

All method blanks are less than the LOQs.

iii. If above LOQ, what samples are affected?

Comments:

No samples are affected.

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

☒ Yes ☐ No Comments:

Affected samples are flagged with an asterisk (*).

v. Data quality or usability affected?

Comments:

Data quality and usability are not affected.

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

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

☑ Yes ☐ No Comments:

One LCS and LCSD 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 Comments:

One LCS and LCSD were performed per analysis (one metals sample submitted).

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 Comments:

Percent recoveries were within lab 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 Comments:

The RPDs for the LCS/LCSD are within lab 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 Comments:

No affected samples.

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

Comments:

There is no effect on the data quality or usability.

c. Surrogates – Organics Only

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

☑ Yes ☐ No 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 Comments:

All percent recoveries are within lab limits.

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

☑ Yes ☐ No Comments:

Failed surrogate recoveries are flagged with an asterisk (*).

iv. Data quality or usability affected?

Comments:

There is no effect on data quality or usability.

d. 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 Comments:

One trip blank was 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 Comments:

The trip blank is clearly indicated on the CoC.

iii. All results less than LOQ?

☑ Yes ☐ No Comments:

Trip blank results are uniformly below the LOQs.

iv. If above LOQ, what samples are affected?

Comments:

No samples are affected.

v. Data quality or usability affected?

Comments:

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

e. Field Duplicate

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

☑ Yes ☐ No Comments:

One blind duplicate was submitted from the samples.

ii. Submitted blind to lab?

☑ Yes ☐ No Comments:

MWX is a blind duplicate of MWC02.

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 Comments:

RPDs calculated are within the DQOs with the exception of DRO, which was non-detect in the blind duplicate and detected in the parent sample. Other analyses were correlated.

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

Comments:

When results differ, the higher result will be used for regulatory purposes. Data quality and usability are not affected.

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below).

☐ Yes ☒ No ☐ Not Applicable

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. Additionally, the pump and dedicated equipment was decontaminated between wells.

i. All results less than LOQ?

☐ Yes ☒ No Comments:

There are no decontamination or equipment blanks.

ii. If above LOQ, what samples are affected?

Comments:

There are no decontamination or equipment blanks.

iii. Data quality or usability affected?

Comments:

Data quality and usability are not affected.

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

a. Defined and appropriate?

☒ Yes ☐ No Comments:

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

Attachment F:
Scanned Field Notes

RESTORATION
Science & Engineering, LLC

RSE GROUNDWATER SAMPLING FORM DATE: 7/16/18 WEATHER: partly sunny ~62°F

PROJECT NAME: ARRC Terminal Reserve **SITE LOCATION:** Terminal Reserve **SAMPLER:** UK/AF
PROJECT NO.: 17-1782 **WELL NUMBER:** MW808 **COMPANY:** RSE
CONTACT #: 278 1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 21.32
B) DEPTH TO WATER FROM TOC (FT): 9.31 3.44' riser
C) COLUMN OF WATER IN WELL (FT): 12.02
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

North yard of AK floor + wall, south of SC trail. 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): 12.01
*value from row "C" in previous section
F) VOLUME OF WATER IN WELL (GAL): 2.0
*row "D" value multiplied by row "E" value
TOTAL VOLUME REMOVED (GAL): 6

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

WATER OBSERVATIONS

brown but low turbidity/clearish

WATER LEVEL AND FIELD PARAMETERS

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

7.00

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	~~O2~~ (mg/L)	REDOX (mV)
320			2	8.35	6.82	0.343	240	.16		8.6	
322			4	8.24	6.80	0.397	233	.14		8.5	
324		9.35	6	8.14	6.76	0.391	207	.14		8.6	

Odor or Sheen Observed? none
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
MW808	7/16	330	UK/AF

SAMPLE ID: MW808
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO RRO GRO VOC PAH

COMMENTS:

- second bucket lid broken. ~~to~~ excess purge water stored in 1-gallon lidded container.
- PVC sticks up beyond cover for casing. Top is well protected by cap.

RSE GROUNDWATER SAMPLING FORM DATE: 7/16/18 WEATHER: raining ~55°F

PROJECT NAME: ARRC Terminal Reserve **SITE LOCATION:** Terminal Reserve **SAMPLER:** LK/AF
PROJECT NO.: 17-1782 **WELL NUMBER:** MWD01 **COMPANY:** RSE
CONTACT #: 2781023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 20.89

B) DEPTH TO WATER FROM TOC (FT): 13.06' 3.10' since 4

C) COLUMN OF WATER IN WELL (FT): 7.83
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

NW edge of Reserve. 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): 7.83
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): 1.33
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 5.0

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

WATER OBSERVATIONS

turbid, silty. Not reduced by purging.

WATER LEVEL AND FIELD PARAMETERS

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

0.100

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			1.33	7.88	7.31	0.640	430	.31		55.3	
1202			2.6	7.55	6.70	0.6063	458	.38		45.1	
1204			3.9	7.03	6.61	0.703	480	.38		41.1	
1206	12.99		5.0	7.00	6.66	0.711	478	.38		40.9	

Odor or Sheen Observed? none
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
MWD 01	7/16	1215	LK/AF
MW X		1225	

SAMPLE ID: MWD-01
FIELD DUPLICATE: yes - MW X @ 1225
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

ERO DRO RRO VOC PAH

COMMENTS:

Duplicate sample collected to represent furthest downgradient well.

Decon water, also containerized onsite. X2 buckets

RSE GROUNDWATER SAMPLING FORM **DATE:** 7/16/18 **WEATHER:** light rain, post-storm ~55°F

PROJECT NAME: ARRC Terminal Reserve **SITE LOCATION:** Reserve **SAMPLER:** LK/AF
PROJECT NO.: 17-1782 **WELL NUMBER:** DPD04 **COMPANY:** RSE
CONTACT #: 2781023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 23.34 stick up = 3.92'

B) DEPTH TO WATER FROM TOC (FT): 8.48

C) COLUMN OF WATER IN WELL (FT): 14.86
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

north rail yard against Govt. Hill bluff, see map

PURGE INFORMATION 1-in = XX GAL/FT; 2-IN = 0.17 GAL/FT

D) GALLONS PER FOOT OF 2-INCH SCREEN: 0.17

E) COLUMN OF WATER IN WELL (FT): 14.86
*value from row "C" in previous section

F) VOLUME OF WATER IN WELL (GAL): 2.5
*row "D" value multiplied by row "E" value

TOTAL VOLUME REMOVED (GAL): 7.5

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

WATER OBSERVATIONS

light brown low turbidity, clarity increased with purging volumes

WATER LEVEL AND FIELD PARAMETERS

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

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	%DO / O_2 (mg/L)	REDOX (mV)
1050			2.5	7.72	7.80	0.516	345	.25		55.8	
1055			2.5	7.663	7.75	0.492	336	.24		62.2	
1105	19.04		2.5	7.74	7.61	0.483	355	.23		63.9	

slowed purging, potentially going dry - insufficient for sample. note: overpurged. did not calculate reduced well diameter.

Odor or Sheen Observed? none
Notes: but noted hard to tease out odors in this environment with lots of fumes.

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
DPD04	7/16	1120	LK/AF

SAMPLE ID: DPD04
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:
DRO RRO ERO VOC ~~SVOC~~ PAH

COMMENTS:
- 1-inch over diameter well. Arm from Grant Lidren to sample with peristaltic pump to fit 7/12.
- break lock + replace lock w/ new keyset.
- two buckets purge water stored adj. to well.

RSE GROUNDWATER SAMPLING FORM **DATE:** 7/16/18 **WEATHER:** raining w/sun ~55°F

PROJECT NAME: ARFC Terminal Reserve **SITE LOCATION:** Terminal Reserve **SAMPLER:** LK/AF
PROJECT NO.: 17-7782 **WELL NUMBER:** MWE04 **COMPANY:** RSE
CONTACT #: 278 1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 16.82
B) DEPTH TO WATER FROM TOC (FT): 12.14 negative grade
C) COLUMN OF WATER IN WELL (FT): 4.68
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

East of maintenance shop. see map.

PURGE INFORMATION

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

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17
E) COLUMN OF WATER IN WELL (FT): 4.68
*value from row "C" in previous section
F) VOLUME OF WATER IN WELL (GAL): 0.8
*row "D" value multiplied by row "E" value
TOTAL VOLUME REMOVED (GAL): 2.4

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

WATER OBSERVATIONS

dark brown, almost greenish, high turbidity, but well reduced by purging to nearly clear, but then increased again moderately.

WATER LEVEL AND FIELD PARAMETERS

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

DO %

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	O_2 (mg/L)	REDOX (mV)
1250			0.8	9.52	6.98	0.919	683	.46		11.4	
1252			1.6	9.78	6.84	0.935	681	.46		8.4	
1254	12.16		2.4	9.69	6.75	0.933	692	0.49		8.5	

Odor or Sheen Observed? none, but abundance of fumes in area.
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
MWE04	7/16	1300	LK/AF

SAMPLE ID: MWE04
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO RRO GRO VOC PAH

COMMENTS:

TOC 97 negative grade. dug out ~ 6"

RSE GROUNDWATER SAMPLING FORM **DATE:** 7/16/18 **WEATHER:** Overcast ~60°F

PROJECT NAME: ARRC Terminal Reserve **SITE LOCATION:** Terminal Reserve **SAMPLER:** LK/AF
PROJECT NO.: 17-1782 **WELL NUMBER:** MWE20 **COMPANY:** RSE
CONTACT #: 278 1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 13.88
B) DEPTH TO WATER FROM TOC (FT): 9.53 negative grade
C) COLUMN OF WATER IN WELL (FT): ~~9.35~~ 4.35
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

South of princess Lines. See map.

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

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

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17
E) COLUMN OF WATER IN WELL (FT): 4.35
*value from row "C" in previous section
F) VOLUME OF WATER IN WELL (GAL): .75
*row "D" value multiplied by row "E" value
TOTAL VOLUME REMOVED (GAL): 2.3

WATER OBSERVATIONS

Dark gray, opaque. High turbidity.
All purge volumes.

WATER LEVEL AND FIELD PARAMETERS

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

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	DO (mg/L)	REDOX (mV)
1345			.75	8.70	6.68	1.006	692	.50		5.8	
1347			1.5	8.41	6.54	0.988	6660	.49		6.0	
1349	9.61		2.3	8.56	6.50	0.977	6460	.48		6.5	

DO: 0.00

Odor or Sheen Observed? Slight HC odor on agitation. No sheen observed
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
MWE20	7/16	1355	LK/AF

SAMPLE ID: MWE20
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

(t)metals DRO RRO GRO VOC PAH

COMMENTS:

- Well ~8" below grade. Dug out.
- Low stored in bucket west of well at edge of field.

RSE GROUNDWATER SAMPLING FORM **DATE:** 7/16/18 **WEATHER:** overcast, partly sunny ~60°F

PROJECT NAME: ARRC Terminal Reserve **SITE LOCATION:** Terminal Reserve **SAMPLER:** LK/AF
PROJECT NO.: **WELL NUMBER:** MW07 **COMPANY:** RSE
CONTACT #: 278 1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 23.29'
B) DEPTH TO WATER FROM TOC (FT): 17.71' flush
C) COLUMN OF WATER IN WELL (FT): 5.58
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

north west corner screen please bldg. ↓ Alk Industrial paint
see map.

PURGE INFORMATION

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

D) GALLONS PER FOOT OF 2-INCH SCREEN: .17
E) COLUMN OF WATER IN WELL (FT): 5.58
*value from row "C" in previous section
F) VOLUME OF WATER IN WELL (GAL): 0.95
*row "D" value multiplied by row "E" value
TOTAL VOLUME REMOVED (GAL): 3

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

WATER OBSERVATIONS

highly turbid, rust-colored water. Reduced after 1.5 volumes, later turbidity with orange coloration.

WATER LEVEL AND FIELD PARAMETERS

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

DO%

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	O_2 (mg/L)	REDOX (mV)
1435			1	8.09	6.07	0.852	576	.42		10.0	
1437			2	7.99	6.61	0.844	565	.42		8.2	
1439	17.89		3	7.78	6.59	0.840	559	.42		8.5	

Odor or Sheen Observed? none.
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
MW07	7/16	245	LK/AF

SAMPLE ID: MW07
FIELD DUPLICATE: no
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:

DRO RRO GRO VOC PAH

COMMENTS:

- Strong solvent odors in area paint exhaust fan in use.
- abandoned tubing inside well (removed)

RSE GROUNDWATER SAMPLING FORM DATE: 7/12/18 WEATHER: partly sunny ~55°F

PROJECT NAME: ARRC Terminal Reserve SITE LOCATION: MWE11 SAMPLER: LK/AF
PROJECT NO.: 17-1782 WELL NUMBER: COMPANY: RSF
CONTACT #: 2781023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT): 19.11

B) DEPTH TO WATER FROM TOC (FT): 11.52 Stick up ~3.5'

C) COLUMN OF WATER IN WELL (FT): 7.60
*row "A" value minus row "B" value

WELL LOCATION MAP AND SURVEY

See map. East of ASR tent.

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.g. peristaltic or bladder pump, Bailer

E) COLUMN OF WATER IN WELL (FT): 7.60
*value from row "C" in previous section

WATER OBSERVATIONS

highly turbid, silty.
Not reduced by purging.

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

TOTAL VOLUME REMOVED (GAL): 4

WATER LEVEL AND FIELD PARAMETERS

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

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	% DO (mg/L)	REDOX (mV)
0950	11.91		1.3	11.25	8.39	0.554	415	.28		31.8	
0952			2.6	10.97	8.35	0.588	426	.29		26.8	
0955			4	10.88	8.21	0.587	423	.29		27.8	

Odor or Sheen Observed? None
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
MWE11			

SAMPLE ID: MWE11
FIELD DUPLICATE:
EQUIPMENT BLANK:
TRIP BLANK:

LAB ANALYSIS REQUESTED:

COMMENTS:

Stick up well, traffic zone over. Broke lock w/ bolt cutters, replaced @ conclusion of sampling. PVC in poor condition.

- Well jammed when attempting to collect depth following 3rd purge prior to sampling. Part of PVC was not threaded properly and came off, dumping pea gravel into space btw pump and inner well. Appx 2.5 hrs spent attempting to remove well and/or gravel causing the jam. Unsuccessful. Leave pump in-place. Lock well. Will remob with power equipment. May have to cut well pipe below pump (above ground surface).
No sample collected.

7/12/18 Arran Foster

RSE GROUNDWATER SAMPLING FORM **DATE:** 9/14/18 **WEATHER:** Sunny 60° 11:20

PROJECT NAME: ARRC Terminal Reserve **SITE LOCATION:** Whitney Road **SAMPLER:** LK | EG
PROJECT NO.: 17-1782 **WELL NUMBER:** MWC02 **COMPANY:** RSE
CONTACT #: 278-1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT):	18.71
B) DEPTH TO WATER FROM TOC (FT):	14.54
C) COLUMN OF WATER IN WELL (FT): *row "A" value minus row "B" value	4.17

WELL LOCATION MAP AND SURVEY
NW area of reserve: See map

PURGE INFORMATION

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

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

D) GALLONS PER FOOT OF 2-INCH SCREEN:	0.17
E) COLUMN OF WATER IN WELL (FT): *value from row "C" in previous section	4.17
F) VOLUME OF WATER IN WELL (GAL): *row "D" value multiplied by row "E" value	0.71
TOTAL VOLUME REMOVED (GAL):	2.10

WATER OBSERVATIONS
very turbid

WATER LEVEL AND FIELD PARAMETERS
INSTRUMENT: YSI 556
*e.g. YSI 63, YSI 556, other

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	O_2 (mg/L)	REDOX (mV)
12:24			0.70	8.13	6.13	0.797	544	0.39		26.5	41.4
12:27			0.70	7.84	6.26	0.791	532	0.39		18.0	38.3
12:30			0.70	7.54	6.29	0.798	532	0.39		19.2	37.2
			0.70	7.80	6.30	0.795	534	0.39		18.6	37.1

Odor or Sheen Observed?
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
MWC02	9/14/18	12:30	LK
MWCX	9/14/18	12:45	

SAMPLE ID: MWC02
FIELD DUPLICATE: MWCX
EQUIPMENT BLANK: no
TRIP BLANK: yes

LAB ANALYSIS REQUESTED:
DRO, RRO, GRO, VOCs, PAH SIMs

COMMENTS:
removed ~30 feet of tubing from well before sampling

RSE GROUNDWATER SAMPLING FORM DATE: 9/14/18 WEATHER: Sunny 57° 9:56

PROJECT NAME: ARRC Terminal Reserve **SITE LOCATION:** Whitney Road **SAMPLER:** LK/LEG
PROJECT NO.: 17-1782 **WELL NUMBER:** MWE11 **COMPANY:** RSE
CONTACT #: 278-1023

WATER COLUMN INFORMATION

A) TOTAL DEPTH OF WELL (FT):	18.91
B) DEPTH TO WATER FROM TOC (FT):	11.82
C) COLUMN OF WATER IN WELL (FT): *row "A" value minus row "B" value	7.09

WELL LOCATION MAP AND SURVEY

middle of reserve area along Whitney Road: see map

PURGE INFORMATION

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

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

D) GALLONS PER FOOT OF 2-INCH SCREEN:	0.17
E) COLUMN OF WATER IN WELL (FT): *value from row "C" in previous section	7.09
F) VOLUME OF WATER IN WELL (GAL): *row "D" value multiplied by row "E" value	1.20
TOTAL VOLUME REMOVED (GAL):	3.60

12.71 second measurement

WATER OBSERVATIONS

Slightly turbid, brownish some white debris (most likely from new PVC cutting + installation)

WATER LEVEL AND FIELD PARAMETERS

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

TIME	DTW	DRAW-DOWN (-) / RECHARGE (+)	GALLONS REMOVED	TEMP. (°C)	pH (pH Units)	CONDUCTIVITY (mS/cm)	SP. CONDUCTANCE (mS/cm)	SALINITY (ppt)	TURBIDITY (NTU)	O_2 (mg/L)	REDOX (mV)
10:05			1.20	11.28	6.50	0.618	456	0.30		64.5	14.4
10:07			1.20	11.08	6.86	0.620	456	0.30		36.5	5.0
10:10			1.20	11.03	6.91	0.619	454	0.30		35.7	3.2

Odor or Sheen Observed?
Notes:

SAMPLE INFORMATION (Also See Lab COC)

SAMPLE ID	DATE:	TIME	SAMPLER
MWE11	9/14/18	10:30	LK

SAMPLE ID: MWE11
FIELD DUPLICATE: No
EQUIPMENT BLANK: No
TRIP BLANK: Yes

LAB ANALYSIS REQUESTED:
DRO, RRO, GRO, VOCs, PAH SIMs, Metals

COMMENTS:

Attachment H:

Non-Hazardous Waste Manifest

*** IN CASE OF EMERGENCY CALL 800-899-4672 *** 131764-PARK

NON-HAZARDOUS WASTE MANIFEST

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Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. AKD981767403

Manifest Document No. 131764A

2. Page 1 of 1

3. Generator's Name and Mailing Address
ALASKA RAILROAD CORPORATION
P O BOX 107500
ANCHORAGE, AK 99501
907-265-2435

ALASKA RAILROAD CORPORATION
327 WEST SHIP CREEK
ANCHORAGE, AK 99501

4. Generator's Phone ( )

5. Transporter 1 Company Name 6. US EPA ID Number A. State Transporter's ID B. Transporter 1 Phone

7. Transporter 2 Company Name 8. US EPA ID Number C. State Transporter's ID D. Transporter 2 Phone

9. Designated Facility Name and Site Address
NRC ALASKA LLC
2020 VIKING DRIVE
ANCHORAGE, AK 99501

10. US EPA ID Number
AKR000004184

E. State Facility's ID

F. Facility's Phone 907-258-1558

GENERATOR

	11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
HM a.	Material Not Regulated by DOT		DF		P
b.					
c.					
d.					

G. Additional Descriptions of Materials Listed Above
EA0302 IDW DECON WATER/GROUNDWATER

H. Handling Codes for Wastes Listed Above
D19992

15. Special Handling Instructions and Additional Information
Shipper's Certification: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date (Month / Day / Year)
Lloyd Hamsik		

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)
Roy C Tisdale JR	Roy C Tisdale JR	10 / 26 / 18

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date (Month / Day / Year)

NON-HAZARDOUS WASTE

To Reorder Call - Pro's Choice Printing - 888-801-1515 - Item #WM 500