October 22, 2018

Michael Hooper
Alaska Department of Environmental Conservation
610 University Ave
Fairbanks, AK 99709-3643

Re: 2018 Groundwater Sampling at the Carrs-Foodland Site in Fairbanks, AK. ADEC File 102.38.02.

Dear Mr. Hooper,

This letter report was prepared by SLR International Corporation (SLR) on behalf of the Bachner Company, Inc. to present the 2018 groundwater monitoring results at the former Carrs-Foodland Site in Fairbanks, Alaska (Site). The Site is listed in the Alaska Department of Environmental Conservation Contaminated Sites Database under Hazard ID 1397 (file 102.38.02). The Site is reportedly impacted by historical release(s) from a former 500 gallon underground heating oil tank (former Bakery UST) removed in 1991 (Shannon and Wilson 2002). The tank was located next to the Foodland Building, and is the current location of monitoring well MW-3. ADEC requested that groundwater is sampled at the source area (MW-3) and at least one downgradient well on an annual basis until a stable and decreasing trend can be established for DRO concentrations or until the result are less than the DRO groundwater cleanup level in 18 AAC 75.345 Table C (ADEC 2017b).

2018 Groundwater Sampling Activities

The work was performed in accordance with the ADEC approved Work Plan for the project (SLR 2018), which followed the ADEC field sampling guidance (ADEC 2017a). Per the Work Plan, two wells were sampled:

- Monitoring well MW-3 on north side of the Foodland Building where the UST was reportedly located; and.
- Monitoring well MW-34A, which is approximately 200 feet northwest and hydrologically downgradient of the MW-3 (Figure 1). MW-34A (formerly called TB124A) is the shallowest well in a downgradient well cluster. This well is known to be impacted by a chlorinated solvent plume from a former laundromat located upgradient from the Carrs-Foodland Site, referred to as the Gaffney Road East Coin King Site (ADEC Hazard ID 2573), (Athna 2014).

An SLR scientist, Mr. Austin Johnston, who is a qualified environmental professional as defined by 18 AAC 75.333 collected the samples for laboratory analysis. The sampling was completed on September 20 and 21, 2018. Groundwater sampling forms documenting the sampling of the

wells are included in Appendix E of this report. A photograph log is also included documenting the site conditions during the sampling event (Appendix A).

Groundwater samples were collected using low-flow sampling methodology. The low-flow sampling method consists of purging the well at a low flow rate (between 0.05 and 0.5 liters per minute [L/min]), while maintaining a drawdown of less than 0.3 feet, if possible. During the purging, up to six water quality parameters are measured (temperature, pH, conductivity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity) at three to five minute intervals. Purging is considered complete once water drawdown and water quality parameters are considered stable. Water quality parameters are considered stable when three consecutive discrete readings of at least three parameters (or four if temperature is used) are within the following criteria:

- Temperature (°C), plus minus (±) 3 percent (minimum of ± 0.2 °C);
- pH, ± 0.1 standard units;
- Specific conductance, ± 3 percent;
- Oxidation-reduction potential, ± 10 millivolts;
- Dissolved oxygen, ± 10 percent; and
- Turbidity, ± 10 percent, or below 10 nephelometric turbidity units.

The three MW-34 wells were gauged with a water level tape prior to purging to verify which of the three was the shallow well. Purging and sampling was completed with a down-hole pump with an adjustable flow rate. The two monitoring wells sustained near constant water levels during purging, at flow rates of around 0.4 L/min and attained stable parameters. The water quality parameters were measured using a YSI 556 multi-parameter instrument. Water quality parameters were measured at periodic intervals, allowing for at least one volume of the YSI flow-through cell to be fully replaced between readings. After stability was attained, samples for laboratory analysis were collected. A primary and duplicate sample was collected from MW-3, and a primary sample from the downgradient MW-34A well. The purge water was containerized in a 10-gallon drum. After receipt of laboratory results, the purge water was transported to NRC Alaska in Fairbanks for subsequent transportation to the designated disposal facility (Clean Harbors Argonate LLC, Aroganate, Utah. USEPA ID Number UT961552177).

Sampling Handing and Laboratory Analysis

Upon collection groundwater samples were labeled and placed into a chilled cooler with a trip blank. Samples were transported to the SGS North America (SGS) laboratory in Fairbanks under chain of custody (COC) procedures.

Groundwater samples were analyzed for the following:

- Diesel range organics (DRO) by Alaska Method AK102 (MW-3 and MW-34A);
- Volatile organic compounds (VOCs) by EPA Method 8260c (MW-3 and MW-34A); and
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270-SIM (MW-3 only).

Analytical data was reviewed for consistency with the ADEC Technical Memorandum, Environmental Laboratory Data and Quality Assurance Requirements (ADEC 2009). Appendices B, C, and D contain a Data Quality Assessment (DQA), ADEC Laboratory Data Review Checklist, and the laboratory analytical data package. Based on the DQA, the data were considered to be of good quality and acceptable for use with the noted qualifications. No data were rejected, and no issues were noted with regards to the data package, except as discussed below:

- Naphthalene was analyzed by Methods SW8260C and SW8270D. The SW8260C naphthalene results for parent sample MW-3 and field duplicate MW-9 were 77 microgram per liter (µg/L) and 73.3 µg/L. The SW8270D naphthalene results for these samples were 30.7 µg/L and 22.9 µg/L, approximately 30% to 40% of the SW8260C reported values. For naphthalene by Method SW8270D, samples MW-3 and MW-9 at five-fold dilutions, the laboratory case narrative reported matrix interference, and the associated surrogate recovered slightly below acceptable limits (refer to the Surrogate Recovery section of the QAR). Due to these contributing factors, the SW8260C naphthalene results are considered to be more accurate representation of the true concentration.

Analytical Results and Discussion

The 2018 analytical results are provided in Table 1. Table 2 provides a summary of current and previous analytical results for MW-3 for selected parameters of interest. The results were screened against the current ADEC ground water cleanup levels (18 AAC 75.345, Table C, revised September 2018).

- In MW-3, groundwater cleanup levels were exceeded for DRO, ethylbenzene, 1,2,4-Trimethylbenzene, 1-Methylynaphthalente and naphthalene as shown on Table 1. The DRO and ethylbenzene were only slightly above their respective cleanup levels, while the other compounds exceed by more than twice the cleanup levels. The compound exhibiting the greatest exceedance of the cleanup level was naphthalene, with a detected concentration of up 77 ug/l versus a groundwater cleanup level of 1.7 ug/l. Chlorinated VOCs, perchloroethylene (PCE) and related daughter products including trichloroethylene (TCE) and vinyl chloride, were below detection limits

- In MW-34A, groundwater cleanup levels were exceeded for a single analyte, a chlorinated VOC, trichloroethylene (TCE). The analytes that exceeded groundwater cleanup level in MW-3 (noted above) were non-detectable, with the exception of DRO.

However, the detected DRO concentration was significantly lower in MW-34A (0.435J mg/L) than MW-3 (2.480 mg/L), and well below the groundwater cleanup level (1.5 mg/L).

Discussion

The 2018 sample results indicate that the petroleum hydrocarbon contamination attributed to the former Carrs Foodland UST site has not caused significant downgradient impacts as evidenced by the non-detectable or nearly non-detectable concentrations of fuel related analytes in the downgradient well MW-34A. This suggests the petroleum hydrocarbon plume which was likely present since at least 1991 (when the leaking UST was removed), is stable and not migrating.

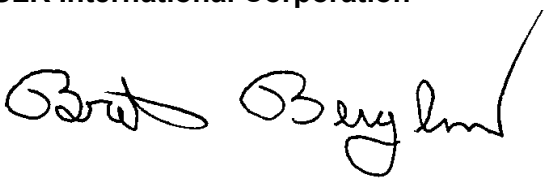
The presence of the TCE in MW-34A is attributed to a Gaffney Road site and not associated with the Former Carrs Foodland UST release. As noted, MW-3 had non-detectable chlorinated VOCs.

A comparison of the 2018 results in MW-3 with the cumulative historical results (Table 2) indicates contaminants of concern have been gradually decreasing over time, with occasional oscillations. This is particularly evident in the benzene, toluene, ethylbenzene and xylenes (BTEX) concentrations which have the longest data set. However, the DRO concentrations show a similar pattern since 2012.

Conclusions

The 2018 groundwater monitoring at the Carrs Foodland Site indicates that petroleum hydrocarbons concentration in the groundwater at the former UST location exceed ADEC groundwater cleanup levels but have decreased over time. The petroleum impacted groundwater plume does not appear to have migrated appreciably since the UST (source) was removed in 1991 and is considered stable. This is evidenced by the sample results in the nearest downgradient well (MW-34A).

Sincerely,
SLR International Corporation



Bret Berglund, C.P.G.
Principal Scientist/Project Manager

Cc: John Bachner, Bachner Company, Inc.

References:

Ahtna Engineering. 2014. SFY 2104 Gaffney East: Groundwater Monitoring and Limited Addition Characterization Report. October.

Alaska Department of Environmental Conservation (ADEC). 2009. Environmental Laboratory Data and Quality Assurance Requirements. Technical Memorandum. March. August.

ADEC. 2017a. Field Sampling Guidance. August.

ADEC. 2017b. Groundwater Monitoring-Former Carrs Foodland (file 102.38.027). Letter from Michael Hooper to J. Andrew Bachner. August 24.

Shannon and Wilson (S&W). 2002. Level 1 Environmental Site Assessment, Carrs/Safeway Foodland, Fairbanks Alaska. November 18.

SLR International Corporation (SLR). 2018. Work Plan for Sampling Groundwater at the Carrs-Foodland Site in Fairbanks, AK. August 7.

Attachments

Figure 1 Site Map
Table 1 2018 Groundwater Monitoring Results
Table 2 Cumulative Groundwater Sample Results for Select Analytes of Interest in Monitoring Well MW-3

Appendices

A Photograph Log
B Data Quality Assessment
C ADEC Laboratory Data Review Checklist
D SGS Laboratory Data Reports
E Groundwater Sampling Forms and YSI Calibration Log

Legend

- Approximate Monitoring Well Location
- Approximate Former Bakery UST

N

0 40 80 160 Feet

SLR

FORMER CARRS-FOODLAND
GROUNDWATER SAMPLING WORK PLAN
FAIRBANKS, ALASKA

Drawing
SITE MAP

Date	August 03, 2018	Scale	1 inch = 80 feet
File Name	F1 Site Map_Foodland_18.mxd	Project No.	105.00774.18001

Fig. No. 1

N:\Anchorage\CAD-GIS\PROJECTS\Bachner\2018\Foodland GW Sampling\mxd\F1 Site Map_Foodland_18.mxd

Table 1 - 2018 Groundwater Monitoring Results
Former Carrs Foodland Site

Compound (units in µg/L, except for DRO which is in mg/L).	Screening Criteria	Sample Locations[2]			Trip Blank
	18 AAC 75, Table C, Groundwater Cleanup Level[1]	Primary: MW-3 20-Sep-18 1189788001	Duplicate: MW-9 20-Sep-18 1189788002	MW-34A 21-Sep-18 1189788003	Trip Blank 20-Sep-18 1189788004
		Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]
Fuels (AK102)					
Diesel Range Organics	1.5	**24.8**	**20.7**	0.435 J	--
Volatile Organic Compounds (SW8260C)					
1,1,1,2-Tetrachloroethane	5.7	[0.25] U	[0.25] U	[0.25] U	[0.25] U
1,1,1-Trichloroethane	8000	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,1,2,2-Tetrachloroethane	0.76	[0.25] U	[0.25] U	[0.25] U	[0.25] U
1,1,2-Trichloroethane	0.41	[0.2] U	[0.2] U	[0.2] U	[0.2] U
1,1-Dichloroethane	28	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,1-Dichloroethene	280	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,1-Dichloropropene	--	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,2,3-Trichlorobenzene	7	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,2,3-Trichloropropane	0.0075	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,2,4-Trichlorobenzene	4	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,2,4-Trimethylbenzene	56	**111**	**105**	[0.5] U	[0.5] U
1,2-Dibromo-3-chloropropane	--	[5] U	[5] U	[5] U	[5] U
1,2-Dibromoethane	0.075	[0.0375] U	[0.0375] U	[0.0375] U	[0.0375] U
1,2-Dichlorobenzene	300	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,2-Dichloroethane	1.7	[0.25] U	[0.25] U	[0.25] U	[0.25] U
1,2-Dichloropropane	8.2	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,3,5-Trimethylbenzene	60	46.5	44.4	[0.5] U	[0.5] U
1,3-Dichlorobenzene	300	[0.5] U	[0.5] U	[0.5] U	[0.5] U
1,3-Dichloropropane	--	[0.25] U	[0.25] U	[0.25] U	[0.25] U
1,4-Dichlorobenzene	4.8	[0.25] U	[0.25] U	[0.25] U	[0.25] U
2,2-Dichloropropane	--	[0.5] U	[0.5] U	[0.5] U	[0.5] U
2-Butanone (MEK)	5600	4.5 J	4.67 J	[5] U	[5] U
2-Chlorotoluene	--	[0.5] U	[0.5] U	[0.5] U	[0.5] U
2-Hexanone	38	[5] U	[5] U	[5] U	[5] U
4-Chlorotoluene	--	[0.5] U	[0.5] U	[0.5] U	[0.5] U
4-Isopropyltoluene	--	15.4	14.7	[0.5] U	[0.5] U
4-Methyl-2-pentanone (MIBK)	6300	[5] U	[5] U	[5] U	[5] U
Benzene	4.6	0.41	0.39 J	[0.2] U	[0.2] U
Bromobenzene	62	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Bromochloromethane	--	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Bromodichloromethane	1.3	[0.25] U	[0.25] U	[0.25] U	[0.25] U
Bromoform	33	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Bromomethane	7.5	[2.5] U	[2.5] U	[2.5] U	[2.5] U
Carbon disulfide	810	[5] U	[5] U	[5] U	[5] U
Carbon tetrachloride	4.6	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Chlorobenzene	78	[0.25] U	[0.25] U	[0.25] U	[0.25] U
Chloroethane	21000	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Chloroform	2.2	[0.5] U	[0.5] U	0.83 J	[0.5] U
Chloromethane	190	[0.5] U	[0.5] U	[0.5] U	[0.5] U
cis-1,2-Dichloroethene	36	[0.5] U	[0.5] U	2.71	[0.5] U
cis-1,3-Dichloropropene	4.7	[0.25] U	[0.25] U	[0.25] U	[0.25] U
Dibromochloromethane	8.7	[0.25] U	[0.25] U	[0.25] U	[0.25] U
Dibromomethane	8.3	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Dichlorodifluoromethane	200	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Ethylbenzene	15	**15.9**	14.9	[0.5] U	[0.5] U
Freon-113	550	[5] U	[5] U	[5] U	[5] U
Hexachlorobutadiene	1.4	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Isopropylbenzene (Cumene)	450	5.36	5.09	[0.5] U	[0.5] U
Methylene chloride	110	[2.5] U	[2.5] U	[2.5] U	[2.5] U
Methyl-t-butyl ether	140	[5] U	[5] U	[5] U	[5] U
Naphthalene	1.7	**77**	**73.3**	[0.5] U	[0.5] U
n-Butylbenzene	1000	[0.5] U	[0.5] U	[0.5] U	[0.5] U
n-Propylbenzene	660	10.1	9.45	[0.5] U	[0.5] U
o-Xylene	190	24.2	22.8	[0.5] U	[0.5] U
P & M -Xylene	190	46.8	44.2	[1] U	[1] U
sec-Butylbenzene	2000	2.77	2.59	[0.5] U	[0.5] U
Styrene	1200	[0.5] U	[0.5] U	[0.5] U	[0.5] U
tert-Butylbenzene	690	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Tetrachloroethene	41	[0.5] U	[0.5] U	1.03	[0.5] U
Toluene	1100	[0.5] U	[0.5] U	[0.5] U	[0.5] U
trans-1,2-Dichloroethene	360	[0.5] U	[0.5] U	6.04	[0.5] U
trans-1,3-Dichloropropene	4.7	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Trichloroethene	2.8	[0.5] U	[0.5] U	**11**	[0.5] U
Trichlorofluoromethane	5200	[0.5] U	[0.5] U	[0.5] U	[0.5] U
Vinyl acetate	410	[5] U	[5] U	[5] U	[5] U
Vinyl chloride	0.19	[0.075] U	[0.075] U	[0.075] U	[0.075] U
Xylenes (total)[4]	190	71	66.9	[1.0] U	[1.0] U
PAH SIM (SW8270D LV)					
1-Methylnaphthalene	11	**37.2 Q-**	**27.4 Q-**	--	--
2-Methylnaphthalene	36	32.7 Q-	24 Q-	--	--
Acenaphthene	530	0.871 Q-	0.714 Q-	--	--
Acenaphthylene	260	[0.024] UJ	[0.024] UJ	--	--
Anthracene	43	[0.024] UJ	[0.024] UJ	--	--
Benzo(a)Anthracene	0.3	[0.024] U	[0.024] U	--	--
Benzo[a]pyrene	0.25	[0.0096] U	[0.0096] U	--	--

Table 1 - 2018 Groundwater Monitoring Results
Former Carrs Foodland Site

Compound (units in µg/L, except for DRO which is in mg/L).	Screening Criteria	Sample Locations[2]			Trip Blank
	18 AAC 75, Table C, Groundwater Cleanup Level[1]	Primary: MW-3 20-Sep-18 1189788001	Duplicate: MW-9 20-Sep-18 1189788002	MW-34A 21-Sep-18 1189788003	Trip Blank 20-Sep-18 1189788004
		Conc.[3]	Conc.[3]	Conc.[3]	Conc.[3]
Benzo[b]Fluoranthene	2.5	[0.024] U	[0.024] U	--	--
Benzo[g,h,i]perylene	0.26	[0.024] U	[0.024] U	--	--
Benzo[k]fluoranthene	0.8	[0.024] U	[0.024] U	--	--
Chrysene	2.0	[0.024] U	[0.024] U	--	--
Dibenzo[a,h]anthracene	0.25	[0.0096] U	[0.0096] U	--	--
Fluoranthene	260	[0.024] U	[0.024] U	--	--
Fluorene	290	1.78 Q-	1.43 Q-	--	--
Indeno[1,2,3-c,d] pyrene	0.19	[0.024] U	[0.024] U	--	--
Naphthalene	1.7	**30.7 Q-**	**22.9 Q-**	--	--
Phenanthrene	170	1.21 Q-	1.03 Q-	--	--
Pyrene	120	[0.024] U	[0.024] U	--	--

Notes:

Bold and yellow values indicate an exceedance of Method Two Groundwater Cleanup Levels (footnote 1).

[0.0005] - Orange values indicate undetectable results with LODs above applicable ADEC screening criteria.

1 ADEC Method Two Groundwater Cleanup Levels , 18 AAC 75.345, Table C (September 29, 2018).

2 The field sample identification number, date collected, and laboratory sample identification number are provided.

3 Detected results are listed in µg/L in this column, except for DRO which is in mg/L. For non-detect analytes, the highest LOD is shown in [brackets].

4 Total values were the summation of detected compounds only. The highest LOD was listed for non-detect compounds.

Data Flags

U	Undetectable, LOD is listed in brackets to the right.
J	Estimated value because the level is below the laboratory LOQ, but above the DL.
UJ	Undetectable result with an estimated LOD.
Q	Estimated value due to one or more quality control failures. Where applicable a "+" or "-" was appended to indicate a high or low bias.

Abbreviations

--	Not applicable or screening criteria does not exist for this compound
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska method
DL	detection limit
LOD	limit of detection
LOQ	limit of quantitation
LV	low volume
µg/L	micrograms per liter
mg/L	milligrams per liter
PAH	polycyclic aromatic hydrocarbons
SIM	selective ion monitoring

Table 2: Cumulative Groundwater Sample Results for Select Analytes of Interest in Monitoring Well MW-3
Former Carrs Foodland Site

Analyte		DRO	Benzene	Toluene	Ethylbenzene	Xylenes	1,2,4-Trimethylbenzene	PCE	TCE	Naphthalene[3]	Reference
Groundwater Cleanup Level[4] (µg/L except for DRO)		1.5 (mg/L)	4.6	1100	15	190	56	41	2.8	1.7	
Well ID	Sample Date	Result[1,2] (µg/L)									
MW-3	Jan-94	--	35	1	52	180	--	--	--	--	1
MW-3	Apr-94	--	38	2	51	230	--	--	--	--	1
MW-3	Jul-94	--	8	<1	42	140	--	--	--	--	1
MW-3	Oct-94	--	28	2	44	250	--	--	--	--	1
MW-3	Jan-95	--	32	1	62	260	--	--	--	--	1
MW-3	Oct-95	--	10	1	40	124	--	--	--	--	1
MW-3	11/20/2002	11.8	3.7	<2	32	121	--	--	--	--	1
MW-3	9/4/2009	13.6	1.62	ND	27	108	--	--	--	--	2
MW-3	9/1/2012	96.3	3.12	1.92	15.8	83.2	--	--	--	--	3
MW-3	10/16/2013	66.4	2.61	0.82	20.1	82.7	--	--	--	--	4
MW-3	9/20/2018	24.8	0.41	ND	15.9	71	111	ND	ND	77	5

Abbreviations

	Exceeds screening criteria
DRO	Diesel range organics
µg/L	micrograms per liter
mg/L	milligrams per liter
--	Sample not analyzed for this compound.
ND	Analyte not detected
PCE	tetrachloroethylene
TCE	trichloroethylene

Notes

1-If a duplicate sample was collected, the higher of the two values is listed.

2-All results reported in µg/L except for DRO which is reported in mg/L.

3-Naphthalene was analyzed by methods SW8260C and SW8270D LV.The higher of the two values is listed.

4-ADEC Method Two Groundwater Cleanup Levels, 18 AAC 75.345, Table C (September 29, 2018). All units in µg/L except for DRO which is in mg/L.

References

1- Shannon & Wilson, Inc., 2002. Level 1 Environmental Site Assessment, Carrs/Safeway Foodland, Fairbanks, Alaska. November 18.

2- SGS North America, Inc. (SGS), 2009. Laboratory Report of Analysis. September 17.

3- SLR International Corp, 2012. Bachner/Foodland Site Transmittal of Validated Data. October 4.

4- SGS , 2013. Laboratory Report of Analysis. Report Number 1138619. October 29.

5- SGS, 2018. Laboratory Report of Analysis. Report Number 1189788. October 2.

Appendix A

Photograph Log

Photo 1: Location of monitoring well MW-3.

Photo 2: Monitoring well MW-3 during purging.

Photo 3: Location of monitoring well MW-34A.

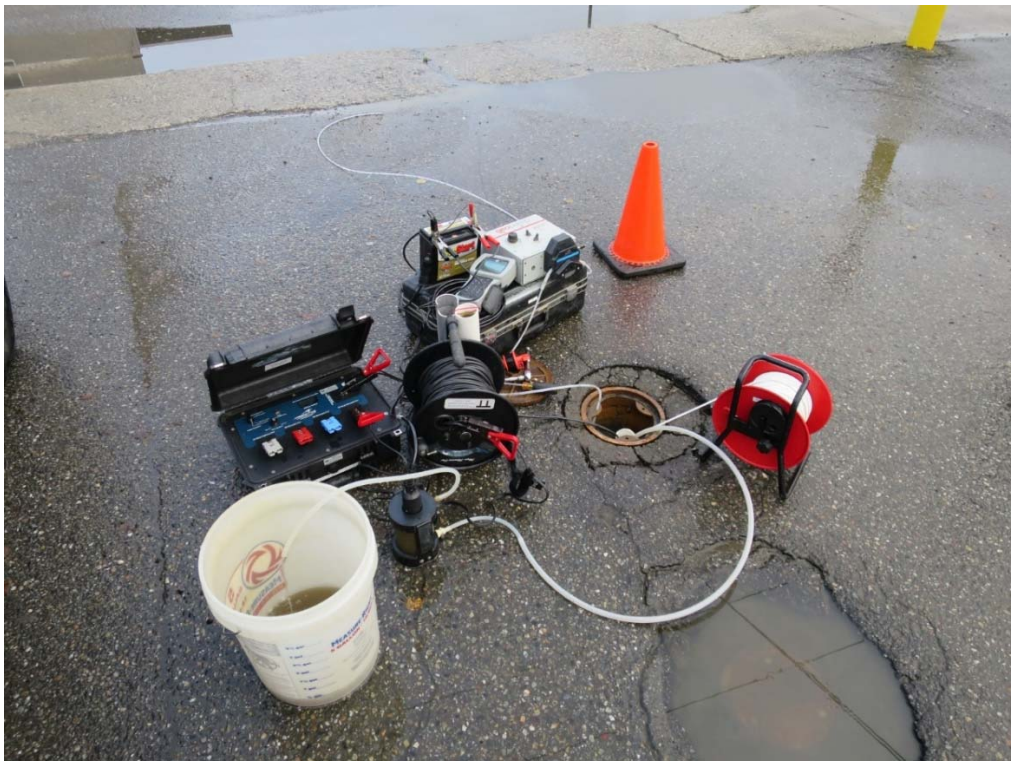


Photo 4: Monitoring well MW-34A during purging and runoff water removal.

Appendix B

Data Quality Assessment

LABORATORY DATA
QUALITY ASSURANCE REVIEW
BACHNER

2018 GROUNDWATER MONITORING
AT THE FORMER CARRS-FOODLAND SITE
IN FAIRBANKS, AK

OCTOBER 2018

Prepared by: Nicholas Wells
Reviewed by: Jennifer McLean

SLR Project Number: 105.00774.18001
ADEC Number: 102.38.027
ADEC Hazard ID: 1397

SLR International Corporation
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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
AK	Alaska
ADEC	Alaska Department of Environmental Conservation
BTEX	benzene, toluene, ethylbenzene, xylenes
°C	degrees Celsius
CCV	continuing calibration verification
COC	chain of custody
DL	detection limit
DRO	diesel range organics
EDD	electronic data deliverable
GRO	gasoline range organics
GW	groundwater
LCL	lower control limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
LV	low volume
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
NFG	National Functional Guidelines
PAH	polynuclear aromatic hydrocarbons
PARCCS	precision, accuracy, representativeness, comparability, completeness, and sensitivity
QA	quality assurance
QAR	quality assurance review
QC	quality control
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
SLR	SLR International Corporation
SGS	SGS North America, Inc.
UCL	upper control limit
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds

This report summarizes a review of analytical data for samples collected on September 20, 2018 and September 21, 2018 in support of the groundwater monitoring activities at the former Carrs-Foodland site in Fairbanks, Alaska. Samples were collected by SLR International Corporation (SLR). SGS North America, Inc (SGS) provided analytical support to the project. SGS maintains a current Alaska Department of Environmental Conservation (ADEC) Contaminated Sites approval number (UST-005) for analytical methods of interest, as applicable. Table 1 provides a summary of the work order, sample receipt, analytical methods, and analytes.

Table 1 Sample Summary

SDG	Date Collected	Date Received by Laboratory	Temp. Blank	Matrix	Analytical Method	Analyte	Trip Blank[1]
1189788	9/20/2018, 9/21/2018	9/22/2018	1.0°C	GW	SW8260C AK102 LV SW8270D LV	VOCs DRO PAH SIM	Required NA NA

Notes:
1 – This type of sample requires a trip blank to be included in the cooler, with the trip blank noted on the chain of custody.

Acronyms:
°C – degrees Celsius
DRO – diesel range organics
GW – groundwater
PAH – polynuclear aromatic hydrocarbons
SDG – sample delivery group
SIM – selective ion monitoring
VOCs – volatile organic compounds

The laboratory final report was presented as a Level II deliverable and included documentation of the delivery group chain-of-custody (COC) and sample receipt condition. A Microsoft Access compatible electronic data deliverable (EDD) was also provided. The PDF laboratory report is provided electronically as Appendix D.

Quality Assurance Program

A quality assurance (QA) program was followed for this project that addressed project administration, sampling, quality control (QC), and data review. SLR adhered to required and established sampling and COC protocols. The selected laboratory maintains an internal quality assurance program and standard operating procedures.

The analytical data was reviewed for consistency with any project-specific requirements in the Work Plan (SLR 2018), ADEC Technical Memorandum *Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling* (ADEC 2017a), National Functional Guidelines (NFG, United States Environmental Protection Agency [USEPA] 2014), analytical method criteria, and laboratory criteria. An ADEC Laboratory Data Review Checklist was completed for the SDG and is included as Appendix C. A review for any anomalies to the project requirements for precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS) are noted in this QAR, and any data qualifications discussed.

The data review included the following, as applicable:

- Reviewing COC records for completeness, signatures, and dates;
- Identifying any sample receipt or preservation anomalies that could impact data quality;
- Verifying that QC blanks (e.g., field blanks, equipment blanks, trip blanks, etc.) were properly prepared, identified, and analyzed;
- Evaluating whether laboratory reporting limits met project goals; Reviewing calibration verification recoveries, to include confirming that the laboratory did not identify that any Calibration Verification (CCV) recoveries or other calibration related criteria were outside applicable acceptance limits;
- Verifying that surrogate analyses were within recovery acceptance limits;
- Verifying that Laboratory Control Samples (LCS) and Laboratory Control Sample Duplicates (LCSD), and Matrix Spike (MS) and Matrix Spike Duplicate (MSD), were within recovery acceptance limits;
- Evaluating the result relative percent difference (RPD) between primary and duplicate field samples, LCS/LCSD, MS/MSD, and laboratory duplicates; and
- Providing an overall assessment of laboratory data quality and qualifying sample results if necessary.

Data Qualifications

As part of this QAR, qualifiers were applied to datum as determined necessary based on specified criteria or professional judgement. In all cases, the basis for qualification and the applied data flag are discussed in this QAR. Table 2 provides a list of potential qualifiers (i.e., flags). These data flags were appended to the data as appropriate.

Table 2 Data Qualifiers

Lab Qualifier (Flag)	NFG Qualifier (Flag)	Equivalent Project Qualifier (Flag)[1,2]	Definition
U	U	**U**	The analyte was analyzed for, but was not detected above the limit of detection (LOD). This qualifier is appended by the laboratory.
J	NJ	**J**	The analyte has been "tentatively" or "presumptively" identified as present and the associated numerical value is the estimated concentration in the sample between the limit of quantitation (LOQ) and the Detection Limit (DL). This qualifier is appended by the laboratory.
--	J	**Q**	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample, due to one or more laboratory quality control criteria failures (e.g., LCS recovery, surrogate spike recovery) or a matrix effect. Where applicable, a "+" or "-" was appended to indicate a high or low bias, respectively.
--	UJ	**UJ**	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
--	R	R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
--	--	B	Blank contamination: The analyte was positively identified in the blank (e.g., trip blank and/or method blank) associated with the sample and the concentration reported for the sample was less than five times that of the blank (ten times for metals and common laboratory contaminants methylene chloride and acetone). Where applicable, "U" was appended prior to the "B" to indicate the blank detection is greater than the sample detection and the result is likely a false positive.

Notes:
1 - Flags were appended to the data where applicable. The table presents laboratory, NFG and project equivalent qualifiers.
2 - Only flags in **bold** were applicable and appended to data for this project.

A discussion of the project data quality relative to PARCCS goals and summary of any anomalies or failures requiring data qualifiers follows.

Data Validation

Data Packages

The data package was checked for transcription errors, omissions, or other anomalies. No issues were noted with regards to the data package, except as noted below.

- Naphthalene was analyzed by Methods SW8260C and SW8270D. The SW8260C naphthalene results for parent sample MW-3 and field duplicate MW-9 were 77 µg/L and 73.3 µg/L. The SW8270D naphthalene results for these samples were 30.7 µg/L and 22.9 µg/L, approximately 30% to 40% of the SW8260C reported values. For naphthalene by Method SW8270D, samples MW-3 and MW-9 at five-fold dilutions, the laboratory case narrative reported matrix interference, and the associated surrogate recovered slightly below acceptable limits (refer to the Surrogate Recovery section of this QAR for discussion). Due to these contributing factors, the SW8260C naphthalene results are considered to be more accurate quantitations of the true concentration.

Sample Receipt

The sample receipt documentation was checked for anomalies. No issues were noted with regards to the receipt of samples, except as noted below.

- The trip blank was not noted on the COC. One trip blank was included in the cooler, and the trip blank accompanied the sample containers and samples at all times during transit from and to the laboratory and in the field. The laboratory assigned the trip blank the ID of “Trip Blank” with a collection date and time of 9/20/18 at 17:45, which matches that of the earliest sample collected. The trip blank was analyzed appropriately, for VOCs by SW8260C, the same method and analytes as the other samples on the SDG. Data was not impacted.

Holding Times and Preservation

Samples were appropriately preserved and were submitted to SGS. Sample analyses were conducted within holding time criteria. No issues were noted with regards to sample preservation.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the appropriate frequencies. Analytes were not detected at or above the limit of detection (LOD) in any method blanks.

Trip Blanks

One trip blank was analyzed for VOCs by Method SW8260C. Analytes were not detected at or above the LOD in the trip blank.

Reporting Limits
For non-detectable results, LODs were compared to applicable regulatory criteria for the site. LODs were compared to 18 Alaska Administrative Code (AAC) 75.345 Table C, *Groundwater Cleanup Levels* (ADEC, 2018). Except as noted below, all analytes with results of non-detect had LODs at or below applicable regulatory criteria.

The LODs for 1,2,3-trichloropropane by Method SW8260C did not meet ADEC cleanup levels. This was due to typical laboratory methodology limitations. For this compound it is not possible to state with certainty the absence of target analyte below the reported LOD, but above the ADEC cleanup level. 1,2,3-trichloropropane data is limited in usability for that purpose. Data usability was considered minimally impacted. All data was usable without qualification.

Calibration Verifications
CCVs were analyzed at the appropriate frequencies. CCV data was included only in the EDD, not in the case narrative. All CCV recoveries were within acceptable limits as reviewed in the EDD.

Internal Standards
No internal standards were noted in the case narrative as being outside of acceptance limits. Internal standard performance was not otherwise presented in the report or in the electronic data deliverable. Internal standards criteria were considered met.

Surrogate Recovery Results
Surrogate analysis was performed at the required frequencies. All surrogate recoveries were within analytical method and SGS percent recovery acceptance limits, except as noted below.

- For PAH SIM by Method 8270D, the 2-methylnaphthalene-d10 surrogate recovered at 46% in sample MW-3, 39% in sample MW-9, 45% in the MS, and 46% in the MSD. These limits met the NFG (NFG, 2014) limits of 30%-130%, but did not meet the more stringent laboratory limits of 47%-106%. The primary samples were noted by the laboratory as having matrix interference and were analyzed at five-fold dilutions, both of which likely contributed to the low surrogate recoveries. Target analytes associated with this surrogate are 1-methylnaphthalene, 2-methylnaphthalene, acenaphthalene, acenaphthylene, anthracene, flourene, naphthalene, and phenanthrene. Impacted analytes for samples MW-3 and MW-9 were qualified with a “Q-“ for detectable results and a “UJ” for undetectable results. With the exception of 2-methylnaphthalene, all affected results were well above or well below ADEC cleanup criteria; therefore data usability was not affected. The 2-methylnaphthalene results for samples MW-3 and MW-9 were limited in usability, as the detections of 32.7 Q- µg/L and 24.0 Q- µg/L, were just below the ADEC cleanup level of 36 µg/L, with a low bias indicated. This data is usable for determining the approximate quantity of analyte present, but it is not possible to state with certainty that 2-methylnaphthalene levels in sample MW-3 and duplicate MW-9 were below ADEC cleanup levels. The 1-methylnaphthalene and naphthalene results for these samples were well above the ADEC cleanup criteria, establishing definitive ADEC clean up level exceedances for PAH SIM target analytes. Overall, data was considered minimally impacted, and all data was usable as qualified.

Laboratory Control Samples and Laboratory Control Duplicate Samples done
LCS and LCSDs were analyzed at the appropriate frequencies. All LCS and LCSD recoveries and RPDs were within acceptable limits.

Matrix Spike and Matrix Spike Duplicate Samples
MS and MSDs were analyzed at the appropriate frequencies. All MS/MSD RPDs were within acceptable limits, establishing batch precision. Several MS/MSD recoveries exceeded allowable limits for a non-project specific parent sample. All LCS recoveries were within acceptable limits, establishing batch accuracy; therefore, only the non-project parent sample was considered affected. All project data was considered usable without qualification.

Field Duplicates
The field duplicate sample frequency is presented in Table 3. Parent sample and field duplicates are presented in Table 4. For all methods and analytes, the duplicate frequency satisfied the requirement of one per 10 samples or less per matrix and analyte. Field duplicates were submitted blind to the laboratory.

All parent sample/field duplicate RPDs were within the ADEC required 30% for waters, except as noted in Table 5. Parent sample/duplicate results were qualified as shown in the table. Only the parent sample/field duplicate pair were analyzed for PAH SIM, so no other affected samples were affected.

2-Methylnaphthalene results for samples MW-3 and MW-9 were already qualified "Q-" as discussed in the surrogate recovery section. It was considered inappropriate to additionally qualify these samples as estimated with unknown bias due to the low bias already indicated by surrogate recovery.

Laboratory precision for 2-methylnaphthalene was established by the acceptable MS/MSD RPD, thus the impact of the field precision failure to data was considered minimal. All data was usable as qualified in Table 5.

Parent sample/field duplicate pairs with both results below the LOQ were considered acceptable without qualification.

Table 3 Field Duplicate Count

Number of Primary	Number of Field Duplicates	Method	Analytes
2	1	AK 102 LV	DRO
2	1	SW8260C	VOCs
1	1	SW8270D LV	PAH SIM

Table 4 Parent Samples and Field Duplicates

Matrix	Parent Sample	Field Duplicate	Method	Analytes
Groundwater	MW-3	MW-9	SW8260C AK102 LV SW8270D LV	VOCs DRO PAH SIM

Table 5 Field Duplicate RPD Exceedances

Method	Analyte	Primary: MW-3 Result (µg/L)	Duplicate: MW-9 Result (µg/L)	RPD (%)	Flag	ADEC Cleanup Level (µg /L)[1]
SW8270D LV	2-Methylnaphthalene	32.7	24	31	Q-[2]	36

Bold indicates an exceedance of ADEC criteria.
Notes:
1 – Limits shown are 18 AAC 75, Table C (ADEC, 2018).
2 – Refer to the Surrogate Recovery section of this QAR.

Laboratory Duplicate Samples

No laboratory duplicates were analyzed in association with these samples.

Overall Assessment

This data were considered of good quality acceptable for use with the noted qualifications. No data were rejected.

Precision, Accuracy, Representativeness, Comparability, Completeness, and Sensitivity Summary

- Precision: Precision goals were met, except as noted in the Field Duplicates section.
- Accuracy: Accuracy goals were met, except as noted in the Surrogate Recovery section.
- Representativeness: Representativeness goals were met. The samples were collected from usual locations.
- Comparability: Comparability goals were met. The same laboratory and methods were used.
- Completeness: Completeness goals were met. The data were 100% complete with respect to analysis.
- Sensitivity: Sensitivity goals were met, except as noted in the Reporting Limits section.

References

ADEC (Alaska Department of Environmental Conservation), 2017a. Technical Memorandum *Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling.* March.

ADEC. 2018. 18 AAC (Alaska Administrative Code) 75, *Oil and Other Hazardous Substances Pollution Control.* September 29.

SLR International Corporation (SLR). 2018. *Work Plan for Sampling Groundwater at the Carrs-Foodland Site in Fairbanks, AK.* August 7.

U.S. Environmental Protection Agency (USEPA). 2014. *National Functional Guidelines for Superfund Organic Methods Data Review.* August.

Appendix C

ADEC Laboratory Data Review Checklist

Laboratory Data Review Checklist

Completed by:

Nicholas Wells

Title:

Staff Engineer

Date:

October 8, 2018

CS Report Name:

2018 Groundwater Monitoring at the Former Carrs-Foodland Site

Report Date:

October 2, 2018

Consultant Firm:

SLR International Corporation

Laboratory Name:

SGS North America, Inc

Laboratory Report Number:

1189788

ADEC File Number:

102.38.027

Hazard Identification Number:

1397

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 is ADEC CS approved, approval number UST-005, and performed all analysis.

   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:

   All analyses performed at SGS North America, Inc.

2. Chain of Custody (COC)

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

   ☑ Yes ☐ No Comments:

   b. Correct analyses requested?

   ☑ Yes ☐ No Comments:

3. Laboratory Sample Receipt Documentation

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

   ☑ Yes ☐ No Comments:

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

   ☑ Yes ☐ No Comments:

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

   ☑ Yes ☐ No Comments:

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

   The trip blank was not noted on the COC. One trip blank was included in the cooler, and the trip blank accompanied the sample containers and samples at all times during transit from and to the laboratory and in the field. The laboratory assigned the trip blank the ID of "Trip Blank" with a collection date and time of 9/20/18 at 17:45, which matches that of the earliest sample collected.

☐ Yes ☒ No Comments:

e. Data quality or usability affected?

Comments:

The trip blank was analyzed appropriately, for VOCs by SW8260C, the same method and analytes as the other samples on the SDG. Data was not impacted.

4. Case Narrative

a. Present and understandable?

☒ Yes ☐ No Comments:

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

☒ Yes ☐ No Comments:

c. Were all corrective actions documented?

☒ Yes ☐ No Comments:

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

Comments:

No impact.

5. Samples Results

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

☒ Yes ☐ No Comments:

Naphthalene was analyzed by Methods SW8260C and SW8270D. The SW8260C naphthalene results for parent sample MW-3 and field duplicate MW-9 were 77 µg/L and 73.3 µg/L. The SW8270D naphthalene results for these samples were 30.7 µg/L and 22.9 µg/L, approximately 30% to 40% of the SW8260C reported values. For naphthalene by Method SW8270D, samples MW-3 and MW-9 at five-fold dilutions, the laboratory case narrative reported matrix interference, and the associated surrogate recovered slightly below acceptable limits (refer to the Surrogate Recovery section of this QAR for discussion). Due to these contributing factors, the SW8260C naphthalene results are considered to be more accurate quantitations of the true concentration.

b. All applicable holding times met?

☒ Yes ☐ No Comments:

c. All soils reported on a dry weight basis?

☒ Yes ☐ No Comments:

No soils analyzed.

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

☐ Yes ☒ No Comments:

Except as noted below, yes.
The LODs for 1,2,3-trichloropropane by Method SW8260C did not meet ADEC cleanup levels. This was due to typical laboratory methodology limitations.

e. Data quality or usability affected?

Comments:

For this compound it is not possible to state with certainty the absence of target analyte below the laboratory LOD, but above the ADEC cleanup level. 1,2,3-trichloropropane data is limited in usability for that purpose.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

☒ Yes ☐ No Comments:

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

☒ Yes ☐ No Comments:

iii. If above LOQ, what samples are affected?

Comments:

Not applicable.

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

☒ Yes ☐ No Comments:

Not applicable.

v. Data quality or usability affected?

Comments:

No impact.

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:

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

☑ Yes ☐ No Comments:

No inorganics were analyzed.

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:

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:

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

Comments:

Not applicable.

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

☑ Yes ☐ No Comments:

Not applicable.

vii. Data quality or usability affected?

Comments:

No impact.

c. Surrogates – Organics Only

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

☑ Yes ☐ No Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

☐ Yes ☒ No Comments:

For PAH SIM by Method 8270D, 2-Methylnaphthalene-d10 surrogate recovered at 46% in sample MW-3, 39% in sample MW-9, 45% in the MS, and 46% in the MSD. These limits met the NFG (NFG, 2014) limits of 30%-130%, but did not meet the more stringent laboratory limits of 47%-106%. The primary samples were noted by the laboratory as having matrix interference.

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

☒ Yes ☐ No Comments:

Impacted analytes for samples MW-3 and MW-9 were qualified with a "Q-" for detectable results and a "UJ" for undetectable results.

iv. Data quality or usability affected?

Comments:

With the exception of 2-methylnaphthalene, all affected results were well above or well below ADEC cleanup criteria; therefore data usability was not affected. The 2-methylnaphthalene results for samples MW-3 and MW-9 were limited in usability, as the detections of 32.7 Q- µg/L and 24.0 Q- µg/L, were just below the ADEC cleanup level of 36 µg/L, with a low bias indicated. This data is usable for determining the approximate quantity of analyte present, but it is not possible to state with certainty that 2-methylnaphthalene levels in sample MW-3 and duplicate MW-9 were below ADEC cleanup levels. The 1-methylnaphthalene and naphthalene results for these samples were well above the ADEC cleanup criteria, establishing definitive ADEC clean up level exceedances for PAH SIM target analytes. Overall, data was considered minimally impacted, and all data was usable as qualified.

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

i. One trip blank reported per matrix, analysis and cooler?

☒ Yes ☐ No Comments:

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:

Only one cooler was used for this SDG. The trip blank was not noted on the COC. One trip blank was included in the cooler, and the trip blank accompanied sample containers and samples at all times during transit from and to the laboratory and in the field. The laboratory assigned the trip blank the ID of "Trip Blank" with a collection date and time of 9/20/18 at 17:45, which matches that of the earliest sample collected. The trip blank was analyzed appropriately, for VOCs by SW8260C, the same method and analytes as the other samples on the SDG. Data was not impacted.

iii. All results less than LOQ?

☐ Yes ☐ No Comments:

Yes

iv. If above LOQ, what samples are affected?

Comments:

Not applicable.

v. Data quality or usability affected?

Comments:

No impact.

e. Field Duplicate

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

☑ Yes ☐ No Comments:

ii. Submitted blind to lab?

☑ Yes ☐ No Comments:

Sample MW-9 was a duplicate of primary sample MW-3.

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:

Except as noted below, yes. 2-Methylnaphthalene slightly exceeded the recommended RPD limit with an RPD of 31%.

iv. Data quality or usability affected?

Comments:

2-Methylnaphthalene results for samples MW-3 and MW-9 were already qualified "Q-" as discussed in 6.c.ii through iv. It was considered inappropriate to additionally qualify these samples as estimated with unknown bias due to the low bias (Q- qualifier) already indicated by surrogate recovery. Laboratory precision for 2-methylnaphthalene was established by the acceptable MS/MSD RPD, thus the impact of the field precision failure to data was considered minimal. Only these 3 samples were analyzed for PAH SIM, so no other data was affected.

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

☐ Yes ☐ No ☒ Not Applicable

i. All results less than LOQ?

☒ Yes ☐ No Comments:

Not applicable.

ii. If above LOQ, what samples are affected?

Comments:

Not Applicable.

iii. Data quality or usability affected?

Comments:

No impact.

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

a. Defined and appropriate?

☒ Yes ☐ No Comments:

Appendix D

SGS Laboratory Data Reports

Laboratory Report of Analysis

To: SLR Alaska-Anchorage
2700 Gambell Street, Suite 200
Anchorage, AK 99503
907-222-1112

Report Number: **1189788**

Client Project: **105.00774.18001 Carrs Foodland**

Dear Bret Berglund,

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

If there are any questions about the report or services performed during this project, please call Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1189788**
Project Name/Site: **105.00774.18001 Carrs Foodland**
Project Contact: **Bret Berglund**

Refer to sample receipt form for information on sample condition.

MW-3 (1189788001) PS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria due to matrix interference.

MW-9 (1189788002) PS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria due to matrix interference.

1185436002-H(1477494MS) (1477495) MS

8270D SIM - PAH MS recovery for several analytes does not meet QC criteria. Refer to the LCS for accuracy requirements.
8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria.Confirmed in BMS/BMSD.

1185442004(1478594MS) (1478595) MS

8260C - MS recoveries for 1,1,2-trichloroethane, 2-chlorotoluene, and n-butylbenzene do not meet QC criteria. These analytes were not detected in the parent sample.

1185436002-H(1477494MSD) (1477496) MSD

8270D SIM - PAH MSD recovery for several analytes does not meet QC criteria. Refer to the LCS for accuracy requirements.
8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria.Confirmed in BMS/BMSD.

1185442004(1478594MSD) (1478596) MSD

8260C - MSD recoveries for 1,1,2-trichloroethane, 2-chlorotoluene, and n-butylbenzene do not meet QC criteria. These analytes were not detected in the parent sample.

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

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

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.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW-3	1189788001	09/20/2018	09/22/2018	Water (Surface, Eff., Ground)
MW-9	1189788002	09/20/2018	09/22/2018	Water (Surface, Eff., Ground)
MW-34A	1189788003	09/21/2018	09/22/2018	Water (Surface, Eff., Ground)
Trip Blank	1189788004	09/20/2018	09/22/2018	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
AK102	DRO Low Volume (W)
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MW-3**
Lab Sample ID: 1189788001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	37.2	ug/L
	2-Methylnaphthalene	32.7	ug/L
	Acenaphthene	0.871	ug/L
	Fluorene	1.78	ug/L
	Naphthalene	30.7	ug/L
	Phenanthrene	1.21	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	24.8	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	111	ug/L
	1,3,5-Trimethylbenzene	46.5	ug/L
	2-Butanone (MEK)	4.50J	ug/L
	4-Isopropyltoluene	15.4	ug/L
	Benzene	0.410	ug/L
	Ethylbenzene	15.9	ug/L
	Isopropylbenzene (Cumene)	5.36	ug/L
	Naphthalene	77.0	ug/L
	n-Propylbenzene	10.1	ug/L
	o-Xylene	24.2	ug/L
	P & M -Xylene	46.8	ug/L
	sec-Butylbenzene	2.77	ug/L
	Xylenes (total)	71.0	ug/L

Client Sample ID: **MW-9**
Lab Sample ID: 1189788002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	27.4	ug/L
	2-Methylnaphthalene	24.0	ug/L
	Acenaphthene	0.714	ug/L
	Fluorene	1.43	ug/L
	Naphthalene	22.9	ug/L
	Phenanthrene	1.03	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	20.7	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	105	ug/L
	1,3,5-Trimethylbenzene	44.4	ug/L
	2-Butanone (MEK)	4.67J	ug/L
	4-Isopropyltoluene	14.7	ug/L
	Benzene	0.390J	ug/L
	Ethylbenzene	14.9	ug/L
	Isopropylbenzene (Cumene)	5.09	ug/L
	Naphthalene	73.3	ug/L
	n-Propylbenzene	9.45	ug/L
	o-Xylene	22.8	ug/L
	P & M -Xylene	44.2	ug/L
	sec-Butylbenzene	2.59	ug/L
	Xylenes (total)	66.9	ug/L

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Detectable Results Summary

Client Sample ID: **MW-34A**
Lab Sample ID: 1189788003

Semivolatile Organic Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	0.435J	mg/L
Chloroform	0.830J	ug/L
cis-1,2-Dichloroethene	2.71	ug/L
Tetrachloroethene	1.03	ug/L
trans-1,2-Dichloroethene	6.04	ug/L
Trichloroethene	11.0	ug/L

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Results of **MW-3**

Client Sample ID: **MW-3**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788001
Lab Project ID: 1189788

Collection Date: 09/20/18 17:45
Received Date: 09/22/18 11:45
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	37.2		0.240	0.0721	ug/L	5		10/01/18 17:10
2-Methylnaphthalene	32.7		0.240	0.0721	ug/L	5		10/01/18 17:10
Acenaphthene	0.871		0.0481	0.0144	ug/L	1		09/28/18 15:58
Acenaphthylene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Anthracene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Benzo(a)Anthracene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Benzo[a]pyrene	0.00960 U		0.0192	0.00596	ug/L	1		09/28/18 15:58
Benzo[b]Fluoranthene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Benzo[g,h,i]perylene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Benzo[k]fluoranthene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Chrysene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Dibenzo[a,h]anthracene	0.00960 U		0.0192	0.00596	ug/L	1		09/28/18 15:58
Fluoranthene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Fluorene	1.78		0.0481	0.0144	ug/L	1		09/28/18 15:58
Indeno[1,2,3-c,d] pyrene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Naphthalene	30.7		0.481	0.149	ug/L	5		10/01/18 17:10
Phenanthrene	1.21		0.0481	0.0144	ug/L	1		09/28/18 15:58
Pyrene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 15:58
Surrogates								
2-Methylnaphthalene-d10 (surr)	45.8	*	47-106		%	1		09/28/18 15:58
Fluoranthene-d10 (surr)	38		24-116		%	1		09/28/18 15:58

Batch Information

Analytical Batch: XMS11111
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/28/18 15:58
Container ID: 1189788001-F

Prep Batch: XXX40558
Prep Method: SW3520C
Prep Date/Time: 09/24/18 08:45
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS11116
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 10/01/18 17:10
Container ID: 1189788001-F

Prep Batch: XXX40558
Prep Method: SW3520C
Prep Date/Time: 09/24/18 08:45
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2018 12:15:15PM

J flagging is activated

Results of **MW-3**

Client Sample ID: **MW-3**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788001
Lab Project ID: 1189788

Collection Date: 09/20/18 17:45
Received Date: 09/22/18 11:45
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	24.8		0.577	0.173	mg/L	1		09/25/18 13:15
Surrogates								
5a Androstane (surr)	78.8		50-150		%	1		09/25/18 13:15

Batch Information

Analytical Batch: XFC14646
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/25/18 13:15
Container ID: 1189788001-D

Prep Batch: XXX40554
Prep Method: SW3520C
Prep Date/Time: 09/23/18 08:57
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2018 12:15:15PM

J flagging is activated

Results of **MW-3**

Client Sample ID: **MW-3**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788001
Lab Project ID: 1189788

Collection Date: 09/20/18 17:45
Received Date: 09/22/18 11:45
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		09/26/18 18:37
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:37
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/26/18 18:37
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,2,4-Trimethylbenzene	111		1.00	0.310	ug/L	1		09/26/18 18:37
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:37
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/26/18 18:37
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:37
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,3,5-Trimethylbenzene	46.5		1.00	0.310	ug/L	1		09/26/18 18:37
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:37
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:37
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
2-Butanone (MEK)	4.50	J	10.0	3.10	ug/L	1		09/26/18 18:37
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:37
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
4-Isopropyltoluene	15.4		1.00	0.310	ug/L	1		09/26/18 18:37
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:37
Benzene	0.410		0.400	0.120	ug/L	1		09/26/18 18:37
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:37
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/26/18 18:37
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:37
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:37
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37

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Results of **MW-3**

Client Sample ID: **MW-3**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788001
Lab Project ID: 1189788

Collection Date: 09/20/18 17:45
Received Date: 09/22/18 11:45
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		09/26/18 18:37
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:37
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:37
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Ethylbenzene	15.9		1.00	0.310	ug/L	1		09/26/18 18:37
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:37
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Isopropylbenzene (Cumene)	5.36		1.00	0.310	ug/L	1		09/26/18 18:37
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/26/18 18:37
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:37
Naphthalene	77.0		1.00	0.310	ug/L	1		09/26/18 18:37
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
n-Propylbenzene	10.1		1.00	0.310	ug/L	1		09/26/18 18:37
o-Xylene	24.2		1.00	0.310	ug/L	1		09/26/18 18:37
P & M -Xylene	46.8		2.00	0.620	ug/L	1		09/26/18 18:37
sec-Butylbenzene	2.77		1.00	0.310	ug/L	1		09/26/18 18:37
Styrene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Toluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:37
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:37
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/26/18 18:37
Xylenes (total)	71.0		3.00	1.00	ug/L	1		09/26/18 18:37
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		09/26/18 18:37
4-Bromofluorobenzene (surr)	104		85-114		%	1		09/26/18 18:37
Toluene-d8 (surr)	105		89-112		%	1		09/26/18 18:37

Print Date: 10/02/2018 12:15:15PM

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Results of **MW-3**

Client Sample ID: **MW-3**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788001
Lab Project ID: 1189788

Collection Date: 09/20/18 17:45
Received Date: 09/22/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18372
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/26/18 18:37
Container ID: 1189788001-A

Prep Batch: VXX33208
Prep Method: SW5030B
Prep Date/Time: 09/26/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788002
Lab Project ID: 1189788

Collection Date: 09/20/18 18:15
Received Date: 09/22/18 11:45
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	27.4		0.240	0.0721	ug/L	5		10/01/18 17:31
2-Methylnaphthalene	24.0		0.240	0.0721	ug/L	5		10/01/18 17:31
Acenaphthene	0.714		0.0481	0.0144	ug/L	1		09/28/18 16:19
Acenaphthylene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Anthracene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Benzo(a)Anthracene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Benzo[a]pyrene	0.00960 U		0.0192	0.00596	ug/L	1		09/28/18 16:19
Benzo[b]Fluoranthene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Benzo[g,h,i]perylene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Benzo[k]fluoranthene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Chrysene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Dibenzo[a,h]anthracene	0.00960 U		0.0192	0.00596	ug/L	1		09/28/18 16:19
Fluoranthene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Fluorene	1.43		0.0481	0.0144	ug/L	1		09/28/18 16:19
Indeno[1,2,3-c,d] pyrene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Naphthalene	22.9		0.481	0.149	ug/L	5		10/01/18 17:31
Phenanthrene	1.03		0.0481	0.0144	ug/L	1		09/28/18 16:19
Pyrene	0.0240 U		0.0481	0.0144	ug/L	1		09/28/18 16:19
Surrogates								
2-Methylnaphthalene-d10 (surr)	39.1	*	47-106		%	1		09/28/18 16:19
Fluoranthene-d10 (surr)	27.7		24-116		%	1		09/28/18 16:19

Batch Information

Analytical Batch: XMS11111
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 09/28/18 16:19
Container ID: 1189788002-F

Prep Batch: XXX40558
Prep Method: SW3520C
Prep Date/Time: 09/24/18 08:45
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS11116
Analytical Method: 8270D SIM LV (PAH)
Analyst: BMZ
Analytical Date/Time: 10/01/18 17:31
Container ID: 1189788002-F

Prep Batch: XXX40558
Prep Method: SW3520C
Prep Date/Time: 09/24/18 08:45
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2018 12:15:15PM

J flagging is activated

Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788002
Lab Project ID: 1189788

Collection Date: 09/20/18 18:15
Received Date: 09/22/18 11:45
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	20.7		0.566	0.170	mg/L	1		09/25/18 13:25
Surrogates								
5a Androstane (surr)	92.7		50-150		%	1		09/25/18 13:25

Batch Information

Analytical Batch: XFC14646
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/25/18 13:25
Container ID: 1189788002-D

Prep Batch: XXX40554
Prep Method: SW3520C
Prep Date/Time: 09/23/18 08:57
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2018 12:15:15PM

J flagging is activated

Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788002
Lab Project ID: 1189788

Collection Date: 09/20/18 18:15
Received Date: 09/22/18 11:45
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		09/26/18 18:55
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:55
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/26/18 18:55
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,2,4-Trimethylbenzene	105		1.00	0.310	ug/L	1		09/26/18 18:55
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:55
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/26/18 18:55
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:55
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,3,5-Trimethylbenzene	44.4		1.00	0.310	ug/L	1		09/26/18 18:55
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:55
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:55
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
2-Butanone (MEK)	4.67	J	10.0	3.10	ug/L	1		09/26/18 18:55
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:55
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
4-Isopropyltoluene	14.7		1.00	0.310	ug/L	1		09/26/18 18:55
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:55
Benzene	0.390	J	0.400	0.120	ug/L	1		09/26/18 18:55
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:55
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/26/18 18:55
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:55
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:55
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55

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Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788002
Lab Project ID: 1189788

Collection Date: 09/20/18 18:15
Received Date: 09/22/18 11:45
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		09/26/18 18:55
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:55
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 18:55
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Ethylbenzene	14.9		1.00	0.310	ug/L	1		09/26/18 18:55
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:55
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Isopropylbenzene (Cumene)	5.09		1.00	0.310	ug/L	1		09/26/18 18:55
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/26/18 18:55
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:55
Naphthalene	73.3		1.00	0.310	ug/L	1		09/26/18 18:55
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
n-Propylbenzene	9.45		1.00	0.310	ug/L	1		09/26/18 18:55
o-Xylene	22.8		1.00	0.310	ug/L	1		09/26/18 18:55
P & M -Xylene	44.2		2.00	0.620	ug/L	1		09/26/18 18:55
sec-Butylbenzene	2.59		1.00	0.310	ug/L	1		09/26/18 18:55
Styrene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Toluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 18:55
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/26/18 18:55
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/26/18 18:55
Xylenes (total)	66.9		3.00	1.00	ug/L	1		09/26/18 18:55
Surrogates								
1,2-Dichloroethane-D4 (surr)	100		81-118		%	1		09/26/18 18:55
4-Bromofluorobenzene (surr)	108		85-114		%	1		09/26/18 18:55
Toluene-d8 (surr)	105		89-112		%	1		09/26/18 18:55

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Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788002
Lab Project ID: 1189788

Collection Date: 09/20/18 18:15
Received Date: 09/22/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18372
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/26/18 18:55
Container ID: 1189788002-A

Prep Batch: VXX33208
Prep Method: SW5030B
Prep Date/Time: 09/26/18 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 **MW-34A**

Client Sample ID: **MW-34A**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788003
Lab Project ID: 1189788

Collection Date: 09/21/18 11:00
Received Date: 09/22/18 11:45
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	0.435	J	0.577	0.173	mg/L	1		09/25/18 13:36
Surrogates								
5a Androstane (surr)	83.9		50-150		%	1		09/25/18 13:36

Batch Information

Analytical Batch: XFC14646
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/25/18 13:36
Container ID: 1189788003-D

Prep Batch: XXX40554
Prep Method: SW3520C
Prep Date/Time: 09/23/18 08:57
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2018 12:15:15PM

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Results of **MW-34A**

Client Sample ID: **MW-34A**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788003
Lab Project ID: 1189788

Collection Date: 09/21/18 11:00
Received Date: 09/22/18 11:45
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		09/26/18 19:12
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 19:12
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/26/18 19:12
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/27/18 19:03
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/26/18 19:12
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/26/18 19:12
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 19:12
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/26/18 19:12
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/26/18 19:12
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/26/18 19:12
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/26/18 19:12
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/26/18 19:12
Benzene	0.200	U	0.400	0.120	ug/L	1		09/26/18 19:12
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 19:12
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/26/18 19:12
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/26/18 19:12
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/26/18 19:12
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12

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Results of **MW-34A**

Client Sample ID: **MW-34A**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788003
Lab Project ID: 1189788

Collection Date: 09/21/18 11:00
Received Date: 09/22/18 11:45
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	0.830	J	1.00	0.310	ug/L	1		09/26/18 19:12
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
cis-1,2-Dichloroethene	2.71		1.00	0.310	ug/L	1		09/26/18 19:12
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/26/18 19:12
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 19:12
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/26/18 19:12
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/26/18 19:12
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/26/18 19:12
Naphthalene	0.500	U	1.00	0.310	ug/L	1		09/27/18 19:03
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/26/18 19:12
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Styrene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Tetrachloroethene	1.03		1.00	0.310	ug/L	1		09/26/18 19:12
Toluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
trans-1,2-Dichloroethene	6.04		1.00	0.310	ug/L	1		09/26/18 19:12
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Trichloroethene	11.0		1.00	0.310	ug/L	1		09/26/18 19:12
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 19:12
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/26/18 19:12
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/26/18 19:12
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/26/18 19:12
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		09/26/18 19:12
4-Bromofluorobenzene (surr)	104		85-114		%	1		09/26/18 19:12
Toluene-d8 (surr)	103		89-112		%	1		09/26/18 19:12

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Results of **MW-34A**

Client Sample ID: **MW-34A**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788003
Lab Project ID: 1189788

Collection Date: 09/21/18 11:00
Received Date: 09/22/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18378
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/27/18 19:03
Container ID: 1189788003-A

Prep Batch: VXX33216
Prep Method: SW5030B
Prep Date/Time: 09/27/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS18372
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/26/18 19:12
Container ID: 1189788003-A

Prep Batch: VXX33208
Prep Method: SW5030B
Prep Date/Time: 09/26/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788004
Lab Project ID: 1189788

Collection Date: 09/20/18 17:45
Received Date: 09/22/18 11:45
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		09/26/18 12:55
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 12:55
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/26/18 12:55
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/26/18 12:55
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/26/18 12:55
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 12:55
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/26/18 12:55
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/26/18 12:55
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/26/18 12:55
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/26/18 12:55
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/26/18 12:55
Benzene	0.200	U	0.400	0.120	ug/L	1		09/26/18 12:55
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 12:55
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/26/18 12:55
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/26/18 12:55
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/26/18 12:55
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55

Print Date: 10/02/2018 12:15:15PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788004
Lab Project ID: 1189788

Collection Date: 09/20/18 17:45
Received Date: 09/22/18 11:45
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		09/26/18 12:55
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/26/18 12:55
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/26/18 12:55
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/26/18 12:55
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/26/18 12:55
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/26/18 12:55
Naphthalene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/26/18 12:55
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Styrene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Toluene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/26/18 12:55
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/26/18 12:55
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/26/18 12:55
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/26/18 12:55
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		09/26/18 12:55
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/26/18 12:55
Toluene-d8 (surr)	103		89-112		%	1		09/26/18 12:55

Print Date: 10/02/2018 12:15:15PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **105.00774.18001 Carrs Foodland**
Lab Sample ID: 1189788004
Lab Project ID: 1189788

Collection Date: 09/20/18 17:45
Received Date: 09/22/18 11:45
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18372
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 09/26/18 12:55
Container ID: 1189788004-A

Prep Batch: VXX33208
Prep Method: SW5030B
Prep Date/Time: 09/26/18 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1786833 [VXX/33208]
Blank Lab ID: 1478591

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1189788001, 1189788002, 1189788003, 1189788004

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 1786833 [VXX/33208]
Blank Lab ID: 1478591

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1189788001, 1189788002, 1189788003, 1189788004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	103	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	104	89-112		%

Method Blank

Blank ID: MB for HBN 1786833 [VXX/33208]
Blank Lab ID: 1478591

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1189788001, 1189788002, 1189788003, 1189788004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS18372
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 9/26/2018 9:02:00AM

Prep Batch: VXX33208
Prep Method: SW5030B
Prep Date/Time: 9/26/2018 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1189788 [VXX33208]
Blank Spike Lab ID: 1478592
Date Analyzed: 09/26/2018 09:19

Spike Duplicate ID: LCSD for HBN 1189788 [VXX33208]
Spike Duplicate Lab ID: 1478593
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002, 1189788003, 1189788004

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	28.9	96	30	28.7	96	(78-124)	0.38	(< 20)
1,1,1-Trichloroethane	30	28.7	96	30	28.6	95	(74-131)	0.42	(< 20)
1,1,2,2-Tetrachloroethane	30	31.3	104	30	31.8	106	(71-121)	1.80	(< 20)
1,1,2-Trichloroethane	30	30.3	101	30	30.8	103	(80-119)	1.60	(< 20)
1,1-Dichloroethane	30	28.8	96	30	29.1	97	(77-125)	1.20	(< 20)
1,1-Dichloroethene	30	29.4	98	30	28.8	96	(71-131)	2.10	(< 20)
1,1-Dichloropropene	30	30.0	100	30	29.8	99	(79-125)	0.74	(< 20)
1,2,3-Trichlorobenzene	30	28.4	95	30	23.5	79	(69-129)	18.50	(< 20)
1,2,3-Trichloropropane	30	30.8	103	30	30.6	102	(73-122)	0.72	(< 20)
1,2,4-Trichlorobenzene	30	30.5	102	30	27.4	91	(69-130)	10.70	(< 20)
1,2,4-Trimethylbenzene	30	31.9	106	30	32.6	109	(79-124)	2.10	(< 20)
1,2-Dibromo-3-chloropropane	30	27.7	93	30	25.9	86	(62-128)	6.90	(< 20)
1,2-Dibromoethane	30	30.3	101	30	30.5	102	(77-121)	0.46	(< 20)
1,2-Dichlorobenzene	30	31.7	106	30	31.5	105	(80-119)	0.57	(< 20)
1,2-Dichloroethane	30	27.8	93	30	27.8	93	(73-128)	0.04	(< 20)
1,2-Dichloropropane	30	29.3	98	30	29.0	97	(78-122)	0.96	(< 20)
1,3,5-Trimethylbenzene	30	31.7	106	30	32.0	107	(75-124)	0.97	(< 20)
1,3-Dichlorobenzene	30	32.2	107	30	32.3	108	(80-119)	0.16	(< 20)
1,3-Dichloropropane	30	30.8	103	30	31.0	103	(80-119)	0.74	(< 20)
1,4-Dichlorobenzene	30	31.9	106	30	32.1	107	(79-118)	0.59	(< 20)
2,2-Dichloropropane	30	27.5	92	30	27.5	92	(60-139)	0.07	(< 20)
2-Butanone (MEK)	90	84.3	94	90	79.8	89	(56-143)	5.40	(< 20)
2-Chlorotoluene	30	32.3	108	30	33.0	110	(79-122)	2.20	(< 20)
2-Hexanone	90	89.4	99	90	86.6	96	(57-139)	3.20	(< 20)
4-Chlorotoluene	30	32.1	107	30	32.5	108	(78-122)	1.30	(< 20)
4-Isopropyltoluene	30	32.1	107	30	32.2	107	(77-127)	0.44	(< 20)
4-Methyl-2-pentanone (MIBK)	90	88.2	98	90	86.2	96	(67-130)	2.20	(< 20)
Benzene	30	30.1	100	30	29.9	100	(79-120)	0.57	(< 20)
Bromobenzene	30	31.1	104	30	31.7	106	(80-120)	2.00	(< 20)
Bromochloromethane	30	30.0	100	30	30.1	100	(78-123)	0.03	(< 20)
Bromodichloromethane	30	29.2	97	30	29.1	97	(79-125)	0.24	(< 20)
Bromoform	30	28.1	94	30	28.4	95	(66-130)	0.99	(< 20)
Bromomethane	30	29.6	99	30	29.8	99	(53-141)	0.88	(< 20)
Carbon disulfide	45	43.6	97	45	43.0	96	(64-133)	1.50	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1189788 [VXX33208]
Blank Spike Lab ID: 1478592
Date Analyzed: 09/26/2018 09:19

Spike Duplicate ID: LCSD for HBN 1189788 [VXX33208]
Spike Duplicate Lab ID: 1478593
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002, 1189788003, 1189788004

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	27.8	93	30	28.0	93	(72-136)	0.79	(< 20)
Chlorobenzene	30	30.4	101	30	29.8	99	(82-118)	2.10	(< 20)
Chloroethane	30	31.3	104	30	30.3	101	(60-138)	3.20	(< 20)
Chloroform	30	29.3	98	30	29.2	97	(79-124)	0.24	(< 20)
Chloromethane	30	28.4	95	30	32.0	107	(50-139)	11.90	(< 20)
cis-1,2-Dichloroethene	30	29.9	100	30	30.1	100	(78-123)	0.77	(< 20)
cis-1,3-Dichloropropene	30	27.9	93	30	28.0	93	(75-124)	0.47	(< 20)
Dibromochloromethane	30	29.4	98	30	29.5	98	(74-126)	0.44	(< 20)
Dibromomethane	30	29.2	97	30	29.5	98	(79-123)	1.20	(< 20)
Dichlorodifluoromethane	30	29.8	100	30	30.1	100	(32-152)	0.80	(< 20)
Ethylbenzene	30	30.9	103	30	30.5	102	(79-121)	1.50	(< 20)
Freon-113	45	45.9	102	45	44.4	99	(70-136)	3.30	(< 20)
Hexachlorobutadiene	30	27.9	93	30	27.4	91	(66-134)	1.70	(< 20)
Isopropylbenzene (Cumene)	30	31.7	106	30	30.9	103	(72-131)	2.40	(< 20)
Methylene chloride	30	29.6	99	30	29.9	100	(74-124)	1.20	(< 20)
Methyl-t-butyl ether	45	41.9	93	45	42.2	94	(71-124)	0.93	(< 20)
Naphthalene	30	30.0	100	30	24.9	83	(61-128)	18.50	(< 20)
n-Butylbenzene	30	32.5	108	30	33.4	111	(75-128)	2.80	(< 20)
n-Propylbenzene	30	33.0	110	30	32.9	110	(76-126)	0.24	(< 20)
o-Xylene	30	30.6	102	30	30.2	101	(78-122)	1.20	(< 20)
P & M -Xylene	60	61.8	103	60	61.0	102	(80-121)	1.30	(< 20)
sec-Butylbenzene	30	32.5	108	30	32.8	109	(77-126)	0.98	(< 20)
Styrene	30	31.2	104	30	31.0	103	(78-123)	0.93	(< 20)
tert-Butylbenzene	30	31.9	106	30	32.3	108	(78-124)	1.20	(< 20)
Tetrachloroethene	30	30.8	103	30	30.4	101	(74-129)	1.30	(< 20)
Toluene	30	29.6	99	30	29.6	99	(80-121)	0.20	(< 20)
trans-1,2-Dichloroethene	30	29.4	98	30	29.6	99	(75-124)	0.92	(< 20)
trans-1,3-Dichloropropene	30	28.3	94	30	28.9	97	(73-127)	2.30	(< 20)
Trichloroethene	30	30.2	101	30	29.7	99	(79-123)	1.70	(< 20)
Trichlorofluoromethane	30	28.8	96	30	28.1	94	(65-141)	2.40	(< 20)
Vinyl acetate	30	26.1	87	30	26.7	89	(54-146)	2.20	(< 20)
Vinyl chloride	30	29.5	98	30	30.5	102	(58-137)	3.30	(< 20)
Xylenes (total)	90	92.4	103	90	91.2	101	(79-121)	1.30	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1189788 [VXX33208]
Blank Spike Lab ID: 1478592
Date Analyzed: 09/26/2018 09:19

Spike Duplicate ID: LCSD for HBN 1189788 [VXX33208]
Spike Duplicate Lab ID: 1478593
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002, 1189788003, 1189788004

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	98.7	99	30	97.8	98	(81-118)	0.92	
4-Bromofluorobenzene (surr)	30	99.8	100	30	103	103	(85-114)	3.20	
Toluene-d8 (surr)	30	102	102	30	102	102	(89-112)	0.62	

Batch Information

Analytical Batch: **VMS18372**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX33208**
Prep Method: **SW5030B**
Prep Date/Time: **09/26/2018 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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

Matrix Spike Summary

Original Sample ID: 1478594
MS Sample ID: 1478595 MS
MSD Sample ID: 1478596 MSD

Analysis Date: 09/26/2018 14:04
Analysis Date: 09/26/2018 11:30
Analysis Date: 09/26/2018 11:47
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002, 1189788003, 1189788004

Results by **SW8260C**

		Matrix Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.250U	30.0	29.4	98	30.0	29.3	98	78-124	0.38	(< 20)
1,1,1-Trichloroethane	0.500U	30.0	29.5	98	30.0	29.2	98	74-131	0.89	(< 20)
1,1,2,2-Tetrachloroethane	0.250U	30.0	33	110	30.0	32.9	110	71-121	0.30	(< 20)
1,1,2-Trichloroethane	0.200U	30.0	37.6	125 *	30.0	38.2	127 *	80-119	1.50	(< 20)
1,1-Dichloroethane	0.500U	30.0	29.9	100	30.0	29.8	100	77-125	0.27	(< 20)
1,1-Dichloroethene	0.500U	30.0	29.2	97	30.0	28.6	95	71-131	2.30	(< 20)
1,1-Dichloropropene	0.500U	30.0	30.9	103	30.0	30.7	102	79-125	0.58	(< 20)
1,2,3-Trichlorobenzene	0.500U	30.0	33	110	30.0	33.7	112	69-129	2.20	(< 20)
1,2,3-Trichloropropane	0.500U	30.0	31.7	106	30.0	31.1	104	73-122	1.90	(< 20)
1,2,4-Trichlorobenzene	0.500U	30.0	35.3	118	30.0	35.4	118	69-130	0.31	(< 20)
1,2,4-Trimethylbenzene	66.8	30.0	96.8	100	30.0	99.6	109	79-124	2.80	(< 20)
1,2-Dibromo-3-chloropropane	5.00U	30.0	33.5	112	30.0	33.1	110	62-128	1.20	(< 20)
1,2-Dibromoethane	0.0375U	30.0	31	103	30.0	31.4	105	77-121	1.30	(< 20)
1,2-Dichlorobenzene	0.500U	30.0	32.9	110	30.0	33.1	110	80-119	0.58	(< 20)
1,2-Dichloroethane	0.250U	30.0	27.7	92	30.0	27.8	93	73-128	0.18	(< 20)
1,2-Dichloropropane	0.500U	30.0	29.7	99	30.0	29.9	100	78-122	0.67	(< 20)
1,3,5-Trimethylbenzene	20.1	30.0	53.1	110	30.0	53.8	112	75-124	1.40	(< 20)
1,3-Dichlorobenzene	0.500U	30.0	33.7	112	30.0	33.8	113	80-119	0.21	(< 20)
1,3-Dichloropropane	0.250U	30.0	31.3	104	30.0	31.8	106	80-119	1.40	(< 20)
1,4-Dichlorobenzene	0.250U	30.0	33.4	111	30.0	33.8	113	79-118	1.20	(< 20)
2,2-Dichloropropane	0.500U	30.0	29.3	98	30.0	28.9	96	60-139	1.20	(< 20)
2-Butanone (MEK)	5.00U	90.0	87.8	98	90.0	86.4	96	56-143	1.50	(< 20)
2-Chlorotoluene	0.500U	30.0	43.5	145 *	30.0	43.1	144 *	79-122	0.99	(< 20)
2-Hexanone	5.00U	90.0	95.5	106	90.0	93.9	104	57-139	1.70	(< 20)
4-Chlorotoluene	0.500U	30.0	33.5	112	30.0	33.8	113	78-122	0.89	(< 20)
4-Isopropyltoluene	20.6	30.0	56.1	118	30.0	57.0	121	77-127	1.60	(< 20)
4-Methyl-2-pentanone (MIBK)	5.00U	90.0	91.2	101	90.0	90.3	100	67-130	0.91	(< 20)
Benzene	0.200U	30.0	30.7	102	30.0	30.6	102	79-120	0.39	(< 20)
Bromobenzene	0.500U	30.0	32.6	109	30.0	33.0	110	80-120	1.10	(< 20)
Bromochloromethane	0.500U	30.0	30.2	101	30.0	30.3	101	78-123	0.36	(< 20)
Bromodichloromethane	0.250U	30.0	29.2	97	30.0	29.3	98	79-125	0.24	(< 20)
Bromoform	0.500U	30.0	28.1	94	30.0	28.1	94	66-130	0.07	(< 20)
Bromomethane	2.50U	30.0	29.5	98	30.0	29.1	97	53-141	1.40	(< 20)
Carbon disulfide	5.00U	45.0	43.8	97	45.0	42.8	95	64-133	2.20	(< 20)
Carbon tetrachloride	0.500U	30.0	28.7	96	30.0	28.5	95	72-136	0.66	(< 20)
Chlorobenzene	0.250U	30.0	30.6	102	30.0	30.5	102	82-118	0.39	(< 20)
Chloroethane	0.500U	30.0	30	100	30.0	29.3	98	60-138	2.40	(< 20)

Print Date: 10/02/2018 12:15:19PM

Matrix Spike Summary

Original Sample ID: 1478594
MS Sample ID: 1478595 MS
MSD Sample ID: 1478596 MSD

Analysis Date: 09/26/2018 14:04
Analysis Date: 09/26/2018 11:30
Analysis Date: 09/26/2018 11:47
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002, 1189788003, 1189788004

Results by **SW8260C**

		Matrix Spike (ug/L)				Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Chloroform	0.500U	30.0	29.7	99		30.0	29.7	99		79-124	0.03	(< 20)
Chloromethane	0.500U	30.0	33.6	112		30.0	34.1	114		50-139	1.60	(< 20)
cis-1,2-Dichloroethene	0.500U	30.0	30.5	102		30.0	30.3	101		78-123	0.69	(< 20)
cis-1,3-Dichloropropene	0.250U	30.0	28.3	94		30.0	28.7	96		75-124	1.30	(< 20)
Dibromochloromethane	0.250U	30.0	29.9	100		30.0	30.1	100		74-126	0.70	(< 20)
Dibromomethane	0.500U	30.0	29	97		30.0	29.1	97		79-123	0.24	(< 20)
Dichlorodifluoromethane	0.500U	30.0	29.2	97		30.0	28.6	95		32-152	2.10	(< 20)
Ethylbenzene	10.8	30.0	41.8	103		30.0	42.0	104		79-121	0.36	(< 20)
Freon-113	5.00U	45.0	45	100		45.0	43.9	98		70-136	2.30	(< 20)
Hexachlorobutadiene	0.500U	30.0	34.3	114		30.0	35.5	118		66-134	3.50	(< 20)
Isopropylbenzene (Cumene)	10.4	30.0	42.5	107		30.0	42.9	108		72-131	1.00	(< 20)
Methylene chloride	2.50U	30.0	29.7	99		30.0	30.1	100		74-124	1.40	(< 20)
Methyl-t-butyl ether	5.00U	45.0	42.7	95		45.0	43.4	97		71-124	1.60	(< 20)
Naphthalene	36.9	30.0	69.7	109		30.0	70.9	113		61-128	1.60	(< 20)
n-Butylbenzene	0.500U	30.0	43.3	144	*	30.0	44.0	147	*	75-128	1.70	(< 20)
n-Propylbenzene	16.5	30.0	50.8	114		30.0	52.0	118		76-126	2.40	(< 20)
o-Xylene	27.5	30.0	57.2	99		30.0	58.5	104		78-122	2.30	(< 20)
P & M -Xylene	18.1	60.0	80	103		60.0	81.1	105		80-121	1.40	(< 20)
sec-Butylbenzene	5.09	30.0	40	117		30.0	40.7	119		77-126	1.50	(< 20)
Styrene	0.500U	30.0	32	107		30.0	32.3	108		78-123	0.99	(< 20)
tert-Butylbenzene	0.710J	30.0	34.7	113		30.0	34.9	114		78-124	0.60	(< 20)
Tetrachloroethene	0.500U	30.0	31.5	105		30.0	31.2	104		74-129	0.86	(< 20)
Toluene	0.310J	30.0	30.7	101		30.0	30.5	101		80-121	0.65	(< 20)
trans-1,2-Dichloroethene	0.500U	30.0	30.4	101		30.0	30.5	102		75-124	0.33	(< 20)
trans-1,3-Dichloropropene	0.500U	30.0	29	97		30.0	29.7	99		73-127	2.20	(< 20)
Trichloroethene	0.500U	30.0	30.6	102		30.0	30.4	101		79-123	0.59	(< 20)
Trichlorofluoromethane	0.500U	30.0	27.9	93		30.0	27.2	91		65-141	2.70	(< 20)
Vinyl acetate	5.00U	30.0	26.8	89		30.0	27.2	91		54-146	1.20	(< 20)
Vinyl chloride	0.0750U	30.0	30.4	101		30.0	29.7	99		58-137	2.50	(< 20)
Xylenes (total)	45.6	90.0	137	102		90.0	140	104		79-121	1.70	(< 20)
Surrogates												
1,2-Dichloroethane-D4 (surr)		30.0	29	97		30.0	29.2	97		81-118	0.52	
4-Bromofluorobenzene (surr)		30.0	31.3	104		30.0	32.0	107		85-114	2.20	
Toluene-d8 (surr)		30.0	30.7	102		30.0	30.7	102		89-112	0.03	

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Matrix Spike Summary

Original Sample ID: 1478594
MS Sample ID: 1478595 MS
MSD Sample ID: 1478596 MSD

Analysis Date:
Analysis Date: 09/26/2018 11:30
Analysis Date: 09/26/2018 11:47
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002, 1189788003, 1189788004

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS18372
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 9/26/2018 11:30:00AM

Prep Batch: VXX33208
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 9/26/2018 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 10/02/2018 12:15:19PM

Method Blank

Blank ID: MB for HBN 1786918 [VXX/33216]
Blank Lab ID: 1478997

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1189788003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	103	89-112		%

Batch Information

Analytical Batch: VMS18378
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: FDR
Analytical Date/Time: 9/27/2018 1:29:00PM

Prep Batch: VXX33216
Prep Method: SW5030B
Prep Date/Time: 9/27/2018 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 1189788 [VXX33216]
Blank Spike Lab ID: 1478998
Date Analyzed: 09/27/2018 13:46

Spike Duplicate ID: LCSD for HBN 1189788 [VXX33216]
Spike Duplicate Lab ID: 1478999
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2,4-Trimethylbenzene	30	32.1	107	30	32.7	109	(79-124)	1.70	(< 20)
Naphthalene	30	28.9	96	30	29.3	98	(61-128)	1.30	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	98.1	98	30	96.9	97	(81-118)	1.30	
4-Bromofluorobenzene (surr)	30	99.9	100	30	103	103	(85-114)	3.30	
Toluene-d8 (surr)	30	102	102	30	103	103	(89-112)	0.20	

Batch Information

Analytical Batch: **VMS18378**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **FDR**

Prep Batch: **VXX33216**
Prep Method: **SW5030B**
Prep Date/Time: **09/27/2018 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 1786566 [XXX/40554]
Blank Lab ID: 1477465

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1189788001, 1189788002, 1189788003

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	79.2	60-120		%

Batch Information

Analytical Batch: XFC14646
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: CMS
Analytical Date/Time: 9/25/2018 12:12:00PM

Prep Batch: XXX40554
Prep Method: SW3520C
Prep Date/Time: 9/23/2018 8:57:29AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1189788 [XXX40554]
Blank Spike Lab ID: 1477466
Date Analyzed: 09/25/2018 12:22

Spike Duplicate ID: LCSD for HBN 1189788 [XXX40554]
Spike Duplicate Lab ID: 1477467
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002, 1189788003

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	20.2	101	20	20.4	102	(75-125)	0.69	(< 20)
Surrogates									
5a Androstane (surr)	0.4	94.9	95	0.4	99.1	99	(60-120)	4.30	

Batch Information

Analytical Batch: **XFC14646**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **CMS**

Prep Batch: **XXX40554**
Prep Method: **SW3520C**
Prep Date/Time: **09/23/2018 08:57**
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 1786572 [XXX/40558]
Blank Lab ID: 1477481

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1189788001, 1189788002

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)	70.9	47-106		%
Fluoranthene-d10 (surr)	70	24-116		%

Batch Information

Analytical Batch: XMS11111
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/28/2018 12:14:00PM

Prep Batch: XXX40558
Prep Method: SW3520C
Prep Date/Time: 9/24/2018 8:45:48AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/02/2018 12:15:27PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1189788 [XXX40558]
Blank Spike Lab ID: 1477482
Date Analyzed: 09/28/2018 12:34

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002

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

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	2	1.27	63	(41-115)
2-Methylnaphthalene	2	1.20	60	(39-114)
Acenaphthene	2	1.40	70	(48-114)
Acenaphthylene	2	1.25	63	(35-121)
Anthracene	2	1.36	68	(53-119)
Benzo(a)Anthracene	2	1.33	66	(59-120)
Benzo[a]pyrene	2	1.37	68	(53-120)
Benzo[b]Fluoranthene	2	1.49	74	(53-126)
Benzo[g,h,i]perylene	2	1.31	66	(44-128)
Benzo[k]fluoranthene	2	1.51	76	(54-125)
Chrysene	2	1.44	72	(57-120)
Dibenzo[a,h]anthracene	2	1.25	62	(44-131)
Fluoranthene	2	1.27	63	(58-120)
Fluorene	2	1.34	67	(50-118)
Indeno[1,2,3-c,d] pyrene	2	1.37	69	(48-130)
Naphthalene	2	1.17	59	(43-114)
Phenanthrene	2	1.28	64	(53-115)
Pyrene	2	1.31	65	(53-121)
Surrogates				
2-Methylnaphthalene-d10 (surr)	2	63.8	64	(47-106)
Fluoranthene-d10 (surr)	2	66.2	66	(24-116)

Batch Information

Analytical Batch: **XMS11111**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSD**

Prep Batch: **XXX40558**
Prep Method: **SW3520C**
Prep Date/Time: **09/24/2018 08:45**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 10/02/2018 12:15:29PM

Matrix Spike Summary

Original Sample ID: 1477494
MS Sample ID: 1477495 MS
MSD Sample ID: 1477496 MSD

Analysis Date: 09/28/2018 14:16
Analysis Date: 09/28/2018 14:37
Analysis Date: 09/28/2018 14:57
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1189788001, 1189788002

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	0.00650U	0.552	.244	44		0.549	0.245	45		41-115	0.35	(< 20)
2-Methylnaphthalene	0.00650U	0.552	.233	42		0.549	0.231	42		39-114	0.78	(< 20)
Acenaphthene	0.00650U	0.552	.255	46	*	0.549	0.254	46	*	48-114	0.34	(< 20)
Acenaphthylene	0.00650U	0.552	.237	43		0.549	0.237	43		35-121	0.19	(< 20)
Anthracene	0.0227	0.552	.238	39	*	0.549	0.228	37	*	53-119	4.20	(< 20)
Benzo(a)Anthracene	0.168	0.552	.136	-6	*	0.549	0.134	-6	*	59-120	1.80	(< 20)
Benzo[a]pyrene	0.215	0.552	.0762	-25	*	0.549	0.0757	-25	*	53-120	0.64	(< 20)
Benzo[b]Fluoranthene	0.326	0.552	.0867	-43	*	0.549	0.0849	-44	*	53-126	2.00	(< 20)
Benzo[g,h,i]perylene	0.181	0.552	.0483	-24	*	0.549	0.0480	-24	*	44-128	0.62	(< 20)
Benzo[k]fluoranthene	0.101	0.552	.0833	-3	*	0.549	0.0800	-4	*	54-125	4.10	(< 20)
Chrysene	0.211	0.552	.151	-11	*	0.549	0.146	-12	*	57-120	3.40	(< 20)
Dibenzo[a,h]anthracene	0.0373	0.552	.0509	3	*	0.549	0.0506	2	*	44-131	0.57	(< 20)
Fluoranthene	0.389	0.552	.199	-34	*	0.549	0.197	-35	*	58-120	1.10	(< 20)
Fluorene	0.0101J	0.552	.247	43	*	0.549	0.246	43	*	50-118	0.50	(< 20)
Indeno[1,2,3-c,d] pyrene	0.156	0.552	.0491	-19	*	0.549	0.0497	-19	*	48-130	1.20	(< 20)
Naphthalene	0.0130U	0.552	.222	40	*	0.549	0.225	41	*	43-114	1.80	(< 20)
Phenanthrene	0.145	0.552	.24	17	*	0.549	0.236	17	*	53-115	1.40	(< 20)
Pyrene	0.310	0.552	.204	-19	*	0.549	0.199	-20	*	53-121	2.50	(< 20)
Surrogates												
2-Methylnaphthalene-d10 (surr)		0.552	.246	45	*	0.549	0.250	46	*	47-106	1.80	
Fluoranthene-d10 (surr)		0.552	.209	38		0.549	0.209	38		24-116	0.03	

Batch Information

Analytical Batch: XMS11111
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/28/2018 2:37:00PM

Prep Batch: XXX40558
Prep Method: 3520 Liq/Liq Ext for 8270 PAH SIM LV
Prep Date/Time: 9/24/2018 8:45:48AM
Prep Initial Wt./Vol.: 905.00mL
Prep Extract Vol: 1.00mL

Print Date: 10/02/2018 12:15:30PM

SGS **1189788**

SGS North America Inc.
CHAIN OF CUSTODY RECORD

REVIEWED ACT

Locations Nationwide

Alaska	Maryland
New Jersey	New York
North Carolina	Indiana
West Virgina	Kentucky

www.us.sgs.com

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

Section 1

CLIENT: SLR

CONTACT: Bret Berglund PHONE NO: 907-222-1112

PROJECT NAME: Carrs Foodland PROJECT/ PWSID/ PERMIT#: 00774 105.~~00704~~.18001

REPORTS TO: Bret Berglund E-MAIL: bberglund@slrconsulting.com

INVOICE TO: SLR QUOTE #: P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incremental Soils	Preservative: HCl	HCl	4°C						REMARKS/ LOC ID
							DRO	VOC 8260c	PAH 8270-SIM						
(1) A-G	MW-3	9/20/18	1745	GW	7	G	X	X	X						
(2) A-G	MW-9	9/20/18	1815	GW	7	G	X	X	X						
(3) A-E	MW-34A	9/21/18	1100	GW	5	G	X	X							
(4) A-C															

Section 5

Relinquished By:	Date	Time	Received By:	Date	Time
(1) Austin Johnson	9/21/18	1300		9/21/18	1300
(2)	9/21/18	1400			
(3)					
(4)	9/22/18	1145	Received For Laboratory By: ACT ABQ		

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

standard

Temp Blank °C: 0.1 °C

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301 ANC: 10035

[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

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

1-F, 1-B

SGS

1189788

FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

Review Criteria:	Condition:	Comments/Actions Taken
Were **custody seals** intact? Note # & location, if applicable.	(Yes) No N/A	□*Exemption permitted if sampler hand carries/delivers.*
COC accompanied samples?	(Yes) No N/A	
Temperature blank compliant* (i.e., 0-6°C)	(Yes) No	□*Exemption permitted if chilled & collected <8hrs ago*
If >6°C, were samples collected <8 hours ago?	Yes No (N/A)	
If <0°C, were all sample containers ice free?	Yes No (N/A)	
Cooler ID:_____@ 0.1°C w/Therm. ID:_____		
Cooler ID:_____@_____w/Therm. ID:_____		
Cooler ID:_____@_____w/Therm. ID:_____		
Cooler ID:_____@_____w/Therm. ID:_____		
Cooler ID:_____@_____w/Therm. ID:_____		
If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**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 ( ). Please check one.		***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery Method: (Client) (hand carried) Other:_____	Tracking/AB# : Or see attached Or (N/A)	
→For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
Were samples in **good condition** (no leaks/cracks/breakage)?	(Yes) No N/A	***Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.***
Packing material used (specify all that apply): (Bubble) Wrap		
Separate plastic bags Vermiculite Other:_____		
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged	Yes No (N/A)	
accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A)	

Additional notes (if applicable):

Profile #:

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

e-Sample Receipt Form

SGS Workorder #: **1189788**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		n/a Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	yes	1-front, 1-back
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 @ 1.0 °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?	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):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1189788001-A	HCL to pH < 2	OK			
1189788001-B	HCL to pH < 2	OK			
1189788001-C	HCL to pH < 2	OK			
1189788001-D	HCL to pH < 2	OK			
1189788001-E	HCL to pH < 2	OK			
1189788001-F	No Preservative Required	OK			
1189788001-G	No Preservative Required	OK			
1189788002-A	HCL to pH < 2	OK			
1189788002-B	HCL to pH < 2	OK			
1189788002-C	HCL to pH < 2	OK			
1189788002-D	HCL to pH < 2	OK			
1189788002-E	HCL to pH < 2	OK			
1189788002-F	No Preservative Required	OK			
1189788002-G	No Preservative Required	OK			
1189788003-A	HCL to pH < 2	OK			
1189788003-B	HCL to pH < 2	OK			
1189788003-C	HCL to pH < 2	OK			
1189788003-D	HCL to pH < 2	OK			
1189788003-E	HCL to pH < 2	OK			
1189788004-A	HCL to pH < 2	OK			
1189788004-B	HCL to pH < 2	OK			
1189788004-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.

Appendix E

Groundwater Sampling Forms and YSI Calibration Log

Groundwater Sampling Form

Site/Client Name: Carrs Foodland / Bachner	**Well ID:** MW-3
Project # : 105.00774.18001	Sample ID: MW-3
Sampled By: A. Johnson	Sample Time: 1745 Sample Date: 9/20/18
Weather Conditions: Rain, 45°F	Duplicate ID: MW-9 @ 1815
Sampling Method: ☒ Low Flow ☒ Other –	MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No

Well Information

Well Type: ☒ Permanent ☐ Temporary	Well Diameter 2 in.	Screen Interval: – ft BGS to – ft BGS
Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes)		Stickup ☒ Yes ☒ No; If yes, 2.18 ft above ground

Gauging/Purging Information

Depth to Water (ft BTOC): 15.56	Tubing/Pump Depth (ft. BTOC): 18.0
Total Depth (ft BTOC): 22.10	Purge Start Time (24-hr) 1722
Depth to Product (ft. BTOC) NA	Purge End Time (24-hr) 1741
Product Thickness (ft) –	Total Purge Time (min) 19

LOW FLOW: **Max Draw Down** = (Tubing Depth – Top of Screen Depth)___ X 0.25 = ___(ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.;

Min. purge volume if required: purge volume (gal) = volume of water/ft ___(gal/ft) X Water column thickness ___(ft) X # of casing volumes ___ = ___gal

Well Diameter – gal/ft	1" – 0.041 gal/ft	2" – 0.163 gal/ft	4" – 0.653 gal/ft	6" – 1.469 gal/ft

Water Quality Parameters

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

Time (24-hr)	Flow Rate (liter/ minute)	Purge Volume (gal)	Temp (°C) (± 3 %)	Specific Conductance (µS/cm°) (± 3%)	DO (mg/L) (± 10%)	pH (± 0.1)	ORP (mV) (± 10mV)	Turbidity (NTU) (± 10%, or <5 NTU)	DTW (ft BTOC)	Drawdown (ft) (Max 0.3 ft)
1727	0.38	0.5	8.40	1898	0.61	6.20	33.8	–	15.57	0.01
1732	|	1.0	8.56	1893	0.30	6.23	20.3	–	15.57	0.01
1735	|	1.3	8.62	1887	0.28	6.26	5.8	–	15.58	0.02
1738	|	1.6	8.61	1882	0.29	6.27	0.7	–	15.58	0.02
1741	|	1.9	8.63	1873	0.30	6.27	-3.4	–	15.57	0.01
Parameter Stable (Check applicable)			✓	✓	✓	✓	✓			✓

Sample Color: light brown	**Sample Odor:** fuel	**Sheen:** light

Analytical Sampling

Analyses	Check Applicable	Comments
DRO	✓	
VOC 8260c	✓	
PAH 8270 - SIM	✓	

Notes:

Equipment: Pump Type monsoon Tubing (Type/Length) 3/8" teflon lined Bailer Type –

Water Level Meter Solinst Multi-Parameter Meter (Make/SN#) YSI 556

Turbidity Meter (Make/SN#) – Filter Lot # –

Purge Water Handling: ☐ Discharged to surface ☒ Containerized ☐ Treated (how?)___

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

Groundwater Sampling Form

Site/Client Name: Carrs Foodland / Bachner	**Well ID:** MW-34A
Project # : 105.00774.18001	Sample ID: MW-34A
Sampled By: A. Johnson	Sample Time: 1100 Sample Date: 9/21/18
Weather Conditions: light rain, 45°F	Duplicate ID: —
Sampling Method: ☒ Low Flow ☒ Other —	MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No

Well Information

Well Type: ☒ Permanent ☐ Temporary	Well Diameter 2 in.	Screen Interval: — ft BGS to — ft BGS
Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes)		Stickup ☐ Yes ☒ No; If yes, — ft above ground

Gauging/Purging Information

Depth to Water (ft BTOC): 11.92	Tubing/Pump Depth (ft. BTOC): 14.0
Total Depth (ft BTOC): 18.10	Purge Start Time (24-hr) 1036
Depth to Product (ft. BTOC) NA	Purge End Time (24-hr) 1055
Product Thickness (ft) —	Total Purge Time (min) 19

LOW FLOW: **Max Draw Down** = (Tubing Depth – Top of Screen Depth) — X 0.25 = — (ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.;

Min. purge volume if required: purge volume (gal) = volume of water/ft — (gal/ft) X Water column thickness — (ft) X # of casing volumes — = — gal

Well Diameter – gal/ft	1" – 0.041 gal/ft	2" – 0.163 gal/ft	4" – 0.653 gal/ft	6" – 1.469 gal/ft

Water Quality Parameters

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

Time (24-hr)	Flow Rate (liter/ minute)	Purge Volume (gal)	Temp (°C) (± 3 %)	Specific Conductance (µS/cm°) (± 3%)	DO (mg/L) (± 10%)	pH (± 0.1)	ORP (mV) (± 10mV)	Turbidity (NTU) (± 10%, or <5 NTU)	DTW (ft BTOC)	Drawdown (ft) (Max 0.3 ft)
1041	0.38	0.5	5.66	348	0.37	5.93	142.2	—	11.96	0.04
1046	|	1.0	5.40	399	0.26	6.06	128.0	—	11.97	0.05
1049	|	1.3	5.33	428	0.22	6.12	113.4	—	11.96	0.04
1052	|	1.6	5.29	432	0.22	6.16	109.8	—	11.96	0.04
1055	|	1.9	5.24	437	0.21	6.19	105.2	—	11.95	0.03
Parameter Stable (Check applicable)			√	√	√	√	√	√		√

Sample Color: light brown **Sample Odor:** none **Sheen:** none

Analytical Sampling

Analyses	Check Applicable	Comments
DRO	√	
VOC 8260c	√	

Notes:

Equipment: Pump Type monsoon Tubing (Type/Length) 3/8" teflon lined Bailer Type —

Water Level Meter Solinst Multi-Parameter Meter (Make/SN#) YSI 556

Turbidity Meter (Make/SN#) — Filter Lot # —

Purge Water Handling: ☐ Discharged to surface ☒ Containerized ☐ Treated (how?)

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

Water Parameter Meter Calibration Log

SLR

Date: 9/19/18 Time: 0930 Calibration By: A. Johnson

Meter Manufacturer and Identification #: YSI 556 07J100651

Parameter	Standard	True Value	Lot #	Date Opened	Expiration Date	PreCalibration Reading	Reading After Calibration	Calibration Acceptance Criteria
pH	7.00	7.04	VO1	6/20/18	12/2019	7.13	7.04	± 0.10
	4.00	4.00	VS1	~~6/20/20~~ 7/14/17	9/2018	4.08	4.00	± 0.10
	10.00	10.18	VQ1	6/20/18	10/2019	10.14	10.17	± 0.10
Sp Cond (mS/cm)	1.413	1.413	VS1	6/20/18	9/2018	1.322	1.414	± 10%
ORP (mV)	240	240.0	1422	7/7/17	4/2022	230.9	240.0	---
DO*	H2O	baro 760.7	—	—	—	89.4	100.2	± 2%

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Date: 9/20/18 Time: 1020 Calibration By: A. Johnson

Meter Manufacturer and Identification #: YSI 556 07J100651

Parameter	Standard	True Value	Lot #	Date Opened	Expiration Date	PreCalibration Reading	Reading After Calibration	Calibration Acceptance Criteria
pH	7.00	7.01	VT1	7/10/18	7/2019	7.24	7.01	± 0.10
	4.00	4.00	VS1	7/10/17	9/2018	4.02	4.00	± 0.10
	10.00	10.06	VS1	7/10/18	8/2019	10.05	10.06	± 0.10
Sp Cond (mS/cm)	1.413	1.413	VS1	6/20/18	9/2018	1.288	1.412	± 10%
ORP (mV)	240	240.0	1422	7/7/17	4/2022	228.2	240.1	---
DO*	H_2O	baro 755.8	—	—	—	103.6	99.5	± 2%

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Date: 9/21/18 Time: 0915 Calibration By: A. Johnson

Meter Manufacturer and Identification #: YSI 556 07J100651

Parameter	Standard	True Value	Lot #	Date Opened	Expiration Date	PreCalibration Reading	Reading After Calibration	Calibration Acceptance Criteria
pH	7.00	7.01	VT1	7/10/18	7/2019	7.04	7.01	± 0.10
	4.00	4.00	VS1	7/10/17	9/2018	4.05	4.00	± 0.10
	10.00	10.06	VS1	7/10/18	8/2019	10.19	10.08	± 0.10
Sp Cond (mS/cm)	1.413	1.413	VS1	6/20/18	9/2018	1.520	1.413	± 10%
ORP (mV)	240	240.0	1422	7/7/17	4/2022	237.1	240.0	---
DO*	H_2O	baro 751.3	—	—	—	99.6	98.9	± 2%

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table