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Legend

- Spill Origin
- Other Soil Sample Location
- Spill Area

DISCLAIMER : This Geographic Information System (GIS) and its components are designed as a source of reference for answering inquiries, for planning and for modeling. GIS is not intended, nor does it replace legal description information in the chain of title and other information contained in official government records such as the County Clerk and Records office or the courts. In addition, the representations of locations in this GIS cannot be substituted for actual legal surveys.



Project Number: 018-065	Union Pacific 25-34 Spill Response Chevron USA, Inc Rio Blanco County, Colorado NWNW S34 T2N R102W		330 Grand Ave., Suite C Grand Junction, CO 81501 P: 970.549.1015	Figure
Drawn By: TPD				1
Revision Date: 11/14/2016				

F:\Projects\013-3287(Chevron - Rangely Environmental)\2016\Spills\GIS\Spill Response Maps.mxd

Table 1
UP 25-34 Spill
Soil Data Summary

SAMPLE SUMMARY	
Location Description	Chevron UP 25-34 Spill
Sample Type	Soil

LABORATORY DATA SUMMARY									
Sample ID	UP2534-SS1	UP2534-SS1	UP2534-SS1	UP2534-SS2	UP2534-SS2	UP2534-SS3	UP2534-BG1	COGCC TABLE 910-1 CONCENTRATION LEVELS	UNITS
Depth	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"		
Sample Date	11/2/2016	7/20/2018	4/1/2021	11/2/2016	4/1/2021	11/2/2016	11/2/2016		
Analytical Parameters									
TPH									
TPH Gasoline Range Organics	<3.7	NT	NT	<3.5	NT	<3.1	NT	500	mg/kg
TPH Diesel Range Organics	36	NT	NT	26	NT	110	NT		
BTEX									
Benzene	<0.044	NT	NT	<0.041	NT	<0.037	NT	0.17	mg/kg
Toluene	<0.044	NT	NT	<0.041	NT	<0.037	NT	85	mg/kg
Ethylbenzene	<0.044	NT	NT	<0.041	NT	<0.037	NT	100	mg/kg
Total Xylene	<0.13	NT	NT	<0.12	NT	<0.11	NT	175	mg/kg
Metals									
Arsenic	8.5	NT	NT	8.9	NT	8.4	8.5	0.39	mg/kg
Barium	140	NT	NT	430	NT	230	170	15,000	mg/kg
Cadmium	<0.47	NT	NT	<0.49	NT	<0.42	<0.45	70	mg/kg
Chromium	14	NT	NT	15	NT	16	13	NA	mg/kg
Copper	18	NT	NT	20	NT	17	17	3,100	mg/kg
Lead	21	NT	NT	32	NT	22	20	400	mg/kg
Mercury	0.039	NT	NT	0.040	NT	0.028	0.041	23	mg/kg
Nickel	25	NT	NT	25	NT	23	24	1,600	mg/kg
Selenium	<0.94	NT	NT	<0.98	NT	1.2	1.300	390	mg/kg
Silver	<0.47	NT	NT	<0.49	NT	<0.42	<0.45	390	mg/kg
Zinc	110	NT	NT	110	NT	98	100	23,000	mg/kg
SAR Metals Analysis									
Calcium	420	2000	70	650	160	560	590	NA	mg/L
Magnesium	180	76	9.5	100	28	41	35	NA	mg/L
Sodium	5000	550	13	1300	12	310	31	NA	mg/L
Sodium Adsorption Ratio	51	3.3	0.39	12	0.23	3.4	0.34	<12	ratio
Polynuclear Aromatic Hydrocarbons									
Acenaphthene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	1,000	mg/kg
Anthracene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	1,000	mg/kg
Benzo(a)anthracene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	0.22	mg/kg
Benzo(a)pyrene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	0.022	mg/kg
Benzo(b)fluoranthene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	0.22	mg/kg
Benzo(k)fluoranthene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	2.2	mg/kg
Chrysene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	22	mg/kg
Dibenzo(a,h)anthracene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	0.022	mg/kg
Fluoranthene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	1,000	mg/kg
Fluorene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	1,000	mg/kg
Indeno(1,2,3-cd)pyrene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	0.22	mg/kg
Napthalene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	23	mg/kg
Pyrene	<0.0083	NT	NT	<0.0077	NT	<0.0073	NT	1,000	mg/kg
General Chemistry									
Chromium, Hexavalent	<1.2	NT	NT	<1.2	NT	<1.1	<1.1	23	mg/kg
Chromium, Trivalent	14	NT	NT	15	NT	16	13	120,000	mg/kg
Specific Conductivity	32	14	0.49	14	1.0	6.8	5.1	<4 or 2 x the background	mmhos/cm
pH	8.4	NT	NT	7.0	NT	7.2	7.5	6-9	su

mg/kg - milligrams per kilogram
mg/L - milligrams per liter
J - indicates an estimated value
mmhos/cm - millimhos per centimeter
mv - millivolts
su - standard units
NA - not applicable
NT - parameter was not tested

Over COGCC Table 910-1 concentration levels but under BACKGROUND level.

Over COGCC Table 910-1 concentration levels and not within BACKGROUND level.

Over COGCC Table 910-1 concentration levels



17-Nov-2016

Tim Dobransky
Olsson Associates
760 Horizon Drive
Suite 102
Grand Junction, CO 81506

Re: **UP 25-34 Spill**

Work Order: **1611395**

Dear Tim,

ALS Environmental received 4 samples on 04-Nov-2016 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 32.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager



Certificate No: MN 998501

Report of Laboratory Analysis

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185

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Environmental 

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Olsson Associates
Project: UP 25-34 Spill
Work Order: 1611395

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1611395-01	UP25-34-SS1	Soil		11/2/2016 11:50	11/4/2016 09:30	<input type="checkbox"/>
1611395-02	UP25-34-SS2	Soil		11/2/2016 12:10	11/4/2016 09:30	<input type="checkbox"/>
1611395-03	UP25-34-SS3	Soil		11/2/2016 12:20	11/4/2016 09:30	<input type="checkbox"/>
1611395-04	UP25-34-BG1	Soil		11/2/2016 12:30	11/4/2016 09:30	<input type="checkbox"/>

Client: Olsson Associates
Project: UP 25-34 Spill
WorkOrder: 1611395

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

ALS Group, USA

Date: 17-Nov-16

Client: Olsson Associates
Project: UP 25-34 Spill
Sample ID: UP25-34-SS1
Collection Date: 11/2/2016 11:50 AM

Work Order: 1611395
Lab ID: 1611395-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3546 / 11/11/16	Analyst: IT
DRO (C10-C28)	36		6.2	mg/Kg-dry	1	11/12/2016 01:29 AM
<i>Surr: 4-Terphenyl-d14</i>	<i>54.5</i>		<i>39-133</i>	<i>%REC</i>	1	11/12/2016 01:29 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 / 11/14/16	Analyst: IT
GRO (C6-C10)	ND		3.7	mg/Kg-dry	1	11/14/2016 02:31 PM
<i>Surr: Toluene-d8</i>	<i>90.1</i>		<i>50-150</i>	<i>%REC</i>	1	11/14/2016 02:31 PM
MERCURY BY CVAA						
			SW7471B		Prep: SW7471 / 11/16/16	Analyst: LR
Mercury	0.039		0.016	mg/Kg-dry	1	11/16/2016 07:37 PM
METALS ANALYSIS BY ICP						
			SW846 6010C		Prep: SW3050B / 11/10/16	Analyst: RH
Arsenic	8.5		0.47	mg/Kg-dry	1	11/12/2016 01:00 PM
Barium	140		0.47	mg/Kg-dry	1	11/12/2016 01:00 PM
Cadmium	ND		0.47	mg/Kg-dry	1	11/12/2016 01:00 PM
Chromium	14		0.47	mg/Kg-dry	1	11/12/2016 01:00 PM
Copper	18		0.47	mg/Kg-dry	1	11/12/2016 01:00 PM
Lead	21		0.47	mg/Kg-dry	1	11/12/2016 01:00 PM
Nickel	25		0.47	mg/Kg-dry	1	11/12/2016 01:00 PM
Selenium	ND		0.94	mg/Kg-dry	1	11/14/2016 04:48 PM
Silver	ND		0.47	mg/Kg-dry	1	11/12/2016 01:00 PM
Zinc	110		0.94	mg/Kg-dry	1	11/12/2016 01:00 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/9/16	Analyst: RH
Calcium	420		5.0	mg/L	10	11/10/2016 01:48 AM
Magnesium	180		2.0	mg/L	10	11/10/2016 01:48 AM
Sodium	5,000		20	mg/L	100	11/10/2016 06:26 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/9/16	Analyst: RH
Sodium Adsorption Ratio	51		0.010	none	1	11/9/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3546 / 11/11/16	Analyst: RS
Acenaphthene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Anthracene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Benzo(a)anthracene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Benzo(a)pyrene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Benzo(b)fluoranthene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Benzo(k)fluoranthene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Chrysene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Dibenzo(a,h)anthracene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Fluoranthene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Nov-16

Client: Olsson Associates
Project: UP 25-34 Spill
Sample ID: UP25-34-SS1
Collection Date: 11/2/2016 11:50 AM

Work Order: 1611395
Lab ID: 1611395-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Indeno(1,2,3-cd)pyrene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Naphthalene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Pyrene	ND		0.0083	mg/Kg-dry	1	11/11/2016 11:26 PM
Surr: 2-Fluorobiphenyl	91.4		12-100	%REC	1	11/11/2016 11:26 PM
Surr: 4-Terphenyl-d14	112		25-137	%REC	1	11/11/2016 11:26 PM
Surr: Nitrobenzene-d5	67.8		37-107	%REC	1	11/11/2016 11:26 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/13/16 Analyst: LSY		
Benzene	ND		0.044	mg/Kg-dry	1	11/13/2016 06:09 PM
Ethylbenzene	ND		0.044	mg/Kg-dry	1	11/13/2016 06:09 PM
m,p-Xylene	ND		0.088	mg/Kg-dry	1	11/13/2016 06:09 PM
o-Xylene	ND		0.044	mg/Kg-dry	1	11/13/2016 06:09 PM
Toluene	ND		0.044	mg/Kg-dry	1	11/13/2016 06:09 PM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	11/13/2016 06:09 PM
Surr: 1,2-Dichloroethane-d4	106		70-130	%REC	1	11/13/2016 06:09 PM
Surr: 4-Bromofluorobenzene	98.0		70-130	%REC	1	11/13/2016 06:09 PM
Surr: Dibromofluoromethane	87.4		70-130	%REC	1	11/13/2016 06:09 PM
Surr: Toluene-d8	102		70-130	%REC	1	11/13/2016 06:09 PM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/9/16 Analyst: JB		
Electrical Conductivity @ Saturation	32		0.25	mmhos/cm @2	50	11/9/2016 04:00 PM
CHROMIUM, TRIVALENT			CALCULATION	Analyst: JB		
Chromium, Trivalent	14		0.62	mg/Kg-dry	1	11/14/2016 03:10 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/11/16 Analyst: MB		
Chromium, Hexavalent	ND		1.2	mg/Kg-dry	1	11/14/2016 12:10 PM
MOISTURE			SW3550C	Analyst: EDL		
Moisture	19		0.050	% of sample	1	11/10/2016 03:04 PM
PH			SW9045D	Prep: EXTRACT / 11/7/16 Analyst: RZM		
pH	8.4			s.u.	1	11/8/2016 09:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Nov-16

Client: Olsson Associates

Project: UP 25-34 Spill

Sample ID: UP25-34-SS2

Collection Date: 11/2/2016 12:10 PM

Work Order: 1611395

Lab ID: 1611395-02

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3546 / 11/11/16	Analyst: IT
DRO (C10-C28)	26		5.8	mg/Kg-dry	1	11/12/2016 01:59 AM
Surr: 4-Terphenyl-d14	55.9		39-133	%REC	1	11/12/2016 01:59 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 / 11/14/16	Analyst: IT
GRO (C6-C10)	ND		3.5	mg/Kg-dry	1	11/14/2016 02:56 PM
Surr: Toluene-d8	97.1		50-150	%REC	1	11/14/2016 02:56 PM
MERCURY BY CVAA						
			SW7471B		Prep: SW7471 / 11/16/16	Analyst: LR
Mercury	0.040		0.016	mg/Kg-dry	1	11/16/2016 07:40 PM
METALS ANALYSIS BY ICP						
			SW846 6010C		Prep: SW3050B / 11/10/16	Analyst: RH
Arsenic	8.9		0.49	mg/Kg-dry	1	11/12/2016 01:06 PM
Barium	430		0.49	mg/Kg-dry	1	11/12/2016 01:06 PM
Cadmium	ND		0.49	mg/Kg-dry	1	11/12/2016 01:06 PM
Chromium	15		0.49	mg/Kg-dry	1	11/12/2016 01:06 PM
Copper	20		0.49	mg/Kg-dry	1	11/12/2016 01:06 PM
Lead	32		0.49	mg/Kg-dry	1	11/12/2016 01:06 PM
Nickel	25		0.49	mg/Kg-dry	1	11/12/2016 01:06 PM
Selenium	ND		0.98	mg/Kg-dry	1	11/12/2016 01:06 PM
Silver	ND		0.49	mg/Kg-dry	1	11/12/2016 01:06 PM
Zinc	110		0.98	mg/Kg-dry	1	11/12/2016 01:06 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/9/16	Analyst: RH
Calcium	650		5.0	mg/L	10	11/10/2016 01:53 AM
Magnesium	100		2.0	mg/L	10	11/10/2016 01:53 AM
Sodium	1,300		2.0	mg/L	10	11/10/2016 01:53 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/9/16	Analyst: RH
Sodium Adsorption Ratio	12		0.010	none	1	11/9/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3546 / 11/11/16	Analyst: RS
Acenaphthene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Anthracene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Benzo(a)anthracene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Benzo(a)pyrene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Benzo(b)fluoranthene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Benzo(k)fluoranthene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Chrysene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Dibenzo(a,h)anthracene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Fluoranthene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Nov-16

Client: Olsson Associates
Project: UP 25-34 Spill
Sample ID: UP25-34-SS2
Collection Date: 11/2/2016 12:10 PM

Work Order: 1611395
Lab ID: 1611395-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Indeno(1,2,3-cd)pyrene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Naphthalene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Pyrene	ND		0.0077	mg/Kg-dry	1	11/11/2016 11:45 PM
Surr: 2-Fluorobiphenyl	80.8		12-100	%REC	1	11/11/2016 11:45 PM
Surr: 4-Terphenyl-d14	98.7		25-137	%REC	1	11/11/2016 11:45 PM
Surr: Nitrobenzene-d5	61.9		37-107	%REC	1	11/11/2016 11:45 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/13/16		Analyst: LSY
Benzene	ND		0.041	mg/Kg-dry	1	11/13/2016 05:45 PM
Ethylbenzene	ND		0.041	mg/Kg-dry	1	11/13/2016 05:45 PM
m,p-Xylene	ND		0.083	mg/Kg-dry	1	11/13/2016 05:45 PM
o-Xylene	ND		0.041	mg/Kg-dry	1	11/13/2016 05:45 PM
Toluene	ND		0.041	mg/Kg-dry	1	11/13/2016 05:45 PM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	11/13/2016 05:45 PM
Surr: 1,2-Dichloroethane-d4	106		70-130	%REC	1	11/13/2016 05:45 PM
Surr: 4-Bromofluorobenzene	99.0		70-130	%REC	1	11/13/2016 05:45 PM
Surr: Dibromofluoromethane	87.6		70-130	%REC	1	11/13/2016 05:45 PM
Surr: Toluene-d8	101		70-130	%REC	1	11/13/2016 05:45 PM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/9/16		Analyst: JB
Electrical Conductivity @ Saturation	14		0.25	mmhos/cm @2	50	11/9/2016 04:00 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JB
Chromium, Trivalent	15		0.59	mg/Kg-dry	1	11/14/2016 03:10 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/11/16		Analyst: MB
Chromium, Hexavalent	ND		1.2	mg/Kg-dry	1	11/14/2016 12:10 PM
MOISTURE			SW3550C			Analyst: EDL
Moisture	16		0.050	% of sample	1	11/11/2016 01:52 PM
PH			SW9045D	Prep: EXTRACT / 11/7/16		Analyst: RZM
pH	7.0			s.u.	1	11/8/2016 09:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Nov-16

Client: Olsson Associates

Project: UP 25-34 Spill

Sample ID: UP25-34-SS3

Collection Date: 11/2/2016 12:20 PM

Work Order: 1611395

Lab ID: 1611395-03

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3546 / 11/11/16	Analyst: IT
DRO (C10-C28)	110		55	mg/Kg-dry	10	11/12/2016 02:28 AM
Surr: 4-Terphenyl-d14	87.5		39-133	%REC	10	11/12/2016 02:28 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 / 11/14/16	Analyst: IT
GRO (C6-C10)	ND		3.1	mg/Kg-dry	1	11/14/2016 03:21 PM
Surr: Toluene-d8	98.1		50-150	%REC	1	11/14/2016 03:21 PM
MERCURY BY CVAA						
			SW7471B		Prep: SW7471 / 11/16/16	Analyst: LR
Mercury	0.028		0.016	mg/Kg-dry	1	11/16/2016 07:42 PM
METALS ANALYSIS BY ICP						
			SW846 6010C		Prep: SW3050B / 11/10/16	Analyst: RH
Arsenic	8.4		0.42	mg/Kg-dry	1	11/12/2016 01:18 PM
Barium	230		0.42	mg/Kg-dry	1	11/12/2016 01:18 PM
Cadmium	ND		0.42	mg/Kg-dry	1	11/12/2016 01:18 PM
Chromium	16		0.42	mg/Kg-dry	1	11/12/2016 01:18 PM
Copper	17		0.42	mg/Kg-dry	1	11/12/2016 01:18 PM
Lead	22		0.42	mg/Kg-dry	1	11/12/2016 01:18 PM
Nickel	23		0.42	mg/Kg-dry	1	11/12/2016 01:18 PM
Selenium	1.2		0.83	mg/Kg-dry	1	11/14/2016 05:26 PM
Silver	ND		0.42	mg/Kg-dry	1	11/12/2016 01:18 PM
Zinc	98		0.83	mg/Kg-dry	1	11/12/2016 01:18 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/9/16	Analyst: RH
Calcium	560		5.0	mg/L	10	11/10/2016 01:59 AM
Magnesium	41		2.0	mg/L	10	11/10/2016 01:59 AM
Sodium	310		2.0	mg/L	10	11/10/2016 01:59 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/9/16	Analyst: RH
Sodium Adsorption Ratio	3.4		0.010	none	1	11/9/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3546 / 11/11/16	Analyst: RS
Acenaphthene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Anthracene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Benzo(a)anthracene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Benzo(a)pyrene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Benzo(b)fluoranthene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Benzo(k)fluoranthene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Chrysene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Dibenzo(a,h)anthracene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Fluoranthene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Nov-16

Client: Olsson Associates

Project: UP 25-34 Spill

Sample ID: UP25-34-SS3

Collection Date: 11/2/2016 12:20 PM

Work Order: 1611395

Lab ID: 1611395-03

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Indeno(1,2,3-cd)pyrene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Naphthalene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Pyrene	ND		0.0073	mg/Kg-dry	1	11/12/2016 12:05 AM
Surr: 2-Fluorobiphenyl	84.6		12-100	%REC	1	11/12/2016 12:05 AM
Surr: 4-Terphenyl-d14	90.7		25-137	%REC	1	11/12/2016 12:05 AM
Surr: Nitrobenzene-d5	59.3		37-107	%REC	1	11/12/2016 12:05 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/13/16	Analyst: LSY	
Benzene	ND		0.037	mg/Kg-dry	1	11/13/2016 05:20 PM
Ethylbenzene	ND		0.037	mg/Kg-dry	1	11/13/2016 05:20 PM
m,p-Xylene	ND		0.075	mg/Kg-dry	1	11/13/2016 05:20 PM
o-Xylene	ND		0.037	mg/Kg-dry	1	11/13/2016 05:20 PM
Toluene	ND		0.037	mg/Kg-dry	1	11/13/2016 05:20 PM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	11/13/2016 05:20 PM
Surr: 1,2-Dichloroethane-d4	107		70-130	%REC	1	11/13/2016 05:20 PM
Surr: 4-Bromofluorobenzene	98.2		70-130	%REC	1	11/13/2016 05:20 PM
Surr: Dibromofluoromethane	87.8		70-130	%REC	1	11/13/2016 05:20 PM
Surr: Toluene-d8	101		70-130	%REC	1	11/13/2016 05:20 PM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/9/16	Analyst: JB	
Electrical Conductivity @ Saturation	6.8		0.25	mmhos/cm @2	50	11/9/2016 04:00 PM
CHROMIUM, TRIVALENT			CALCULATION	Analyst: JB		
Chromium, Trivalent	16		0.56	mg/Kg-dry	1	11/14/2016 03:10 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/11/16	Analyst: MB	
Chromium, Hexavalent	ND		1.1	mg/Kg-dry	1	11/14/2016 12:10 PM
MOISTURE			SW3550C	Analyst: EDL		
Moisture	11		0.050	% of sample	1	11/10/2016 03:04 PM
PH			SW9045D	Prep: EXTRACT / 11/7/16	Analyst: RZM	
pH	7.2			s.u.	1	11/8/2016 09:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Nov-16

Client: Olsson Associates

Project: UP 25-34 Spill

Sample ID: UP25-34-BG1

Collection Date: 11/2/2016 12:30 PM

Work Order: 1611395

Lab ID: 1611395-04

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	8.2		SW8015M		Prep: SW3546 / 11/14/16	Analyst: IT
<i>Surr: 4-Terphenyl-d14</i>	56.9		5.5	mg/Kg-dry	1	11/14/2016 11:32 PM
			39-133	%REC	1	11/14/2016 11:32 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		SW8015D		Prep: SW5035 / 11/14/16	Analyst: IT
<i>Surr: Toluene-d8</i>	90.8		3.1	mg/Kg-dry	1	11/14/2016 03:46 PM
			50-150	%REC	1	11/14/2016 03:46 PM
MERCURY BY CVAA						
Mercury	0.041		SW7471B		Prep: SW7471 / 11/16/16	Analyst: LR
			0.016	mg/Kg-dry	1	11/16/2016 07:45 PM
METALS ANALYSIS BY ICP						
Arsenic	8.5		SW846 6010C		Prep: SW3050B / 11/10/16	Analyst: RH
Barium	170		0.45	mg/Kg-dry	1	11/12/2016 01:23 PM
Cadmium	ND		0.45	mg/Kg-dry	1	11/12/2016 01:23 PM
Chromium	13		0.45	mg/Kg-dry	1	11/12/2016 01:23 PM
Copper	17		0.45	mg/Kg-dry	1	11/12/2016 01:23 PM
Lead	20		0.45	mg/Kg-dry	1	11/12/2016 01:23 PM
Nickel	24		0.45	mg/Kg-dry	1	11/12/2016 01:23 PM
Selenium	1.3		0.90	mg/Kg-dry	1	11/12/2016 01:23 PM
Silver	ND		0.45	mg/Kg-dry	1	11/12/2016 01:23 PM
Zinc	100		0.90	mg/Kg-dry	1	11/12/2016 01:23 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/9/16	Analyst: RH
Calcium	590		5.0	mg/L	10	11/10/2016 02:04 AM
Magnesium	35		2.0	mg/L	10	11/10/2016 02:04 AM
Sodium	31		2.0	mg/L	10	11/10/2016 02:04 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/9/16	Analyst: RH
Sodium Adsorption Ratio	0.34		0.010	none	1	11/9/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3546 / 11/14/16	Analyst: JF
Acenaphthene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Anthracene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Benzo(a)anthracene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Benzo(a)pyrene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Benzo(b)fluoranthene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Benzo(k)fluoranthene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Chrysene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Dibenzo(a,h)anthracene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Fluoranthene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 17-Nov-16

Client: Olsson Associates
Project: UP 25-34 Spill
Sample ID: UP25-34-BG1
Collection Date: 11/2/2016 12:30 PM

Work Order: 1611395
Lab ID: 1611395-04
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Indeno(1,2,3-cd)pyrene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Naphthalene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Pyrene	ND		0.0074	mg/Kg-dry	1	11/14/2016 10:09 PM
Surr: 2-Fluorobiphenyl	71.6		12-100	%REC	1	11/14/2016 10:09 PM
Surr: 4-Terphenyl-d14	72.9		25-137	%REC	1	11/14/2016 10:09 PM
Surr: Nitrobenzene-d5	54.5		37-107	%REC	1	11/14/2016 10:09 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/13/16		Analyst: LSY
Benzene	ND		0.037	mg/Kg-dry	1	11/13/2016 04:56 PM
Ethylbenzene	ND		0.037	mg/Kg-dry	1	11/13/2016 04:56 PM
m,p-Xylene	ND		0.075	mg/Kg-dry	1	11/13/2016 04:56 PM
o-Xylene	ND		0.037	mg/Kg-dry	1	11/13/2016 04:56 PM
Toluene	ND		0.037	mg/Kg-dry	1	11/13/2016 04:56 PM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	11/13/2016 04:56 PM
Surr: 1,2-Dichloroethane-d4	111		70-130	%REC	1	11/13/2016 04:56 PM
Surr: 4-Bromofluorobenzene	99.0		70-130	%REC	1	11/13/2016 04:56 PM
Surr: Dibromofluoromethane	91.4		70-130	%REC	1	11/13/2016 04:56 PM
Surr: Toluene-d8	101		70-130	%REC	1	11/13/2016 04:56 PM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/9/16		Analyst: JB
Electrical Conductivity @ Saturation	5.1		0.25	mmhos/cm @2	50	11/9/2016 04:00 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JB
Chromium, Trivalent	13		0.56	mg/Kg-dry	1	11/14/2016 03:10 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/11/16		Analyst: MB
Chromium, Hexavalent	ND		1.1	mg/Kg-dry	1	11/14/2016 12:10 PM
MOISTURE			SW3550C			Analyst: EDL
Moisture	11		0.050	% of sample	1	11/10/2016 03:04 PM
PH			SW9045D	Prep: EXTRACT / 11/7/16		Analyst: RZM
pH	7.5			s.u.	1	11/8/2016 09:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94410** Instrument ID **GC8** Method: **SW8015M**

MBLK		Sample ID: DBLKS1-94410-94410				Units: mg/Kg		Analysis Date: 11/11/2016 05:39 PM		
Client ID:		Run ID: GC8_161111B				SeqNo: 4150501		Prep Date: 11/11/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	ND	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.139	0	3.33	0	64.2	39-133	0			

LCS		Sample ID: DLCSS1-94410-94410				Units: mg/Kg		Analysis Date: 11/11/2016 06:08 PM		
Client ID:		Run ID: GC8_161111B				SeqNo: 4150502		Prep Date: 11/11/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	253.5	5.0	333	0	76.1	61-109	0			
<i>Surr: 4-Terphenyl-d14</i>	1.88	0	3.33	0	56.5	39-133	0			

MS		Sample ID: 1611542-09B MS				Units: mg/Kg		Analysis Date: 11/11/2016 06:38 PM		
Client ID:		Run ID: GC8_161111B				SeqNo: 4150503		Prep Date: 11/11/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	250.2	4.8	318.7	17.34	73.1	48-110	0			
<i>Surr: 4-Terphenyl-d14</i>	1.841	0	3.187	0	57.8	39-133	0			

MSD		Sample ID: 1611542-09B MSD				Units: mg/Kg		Analysis Date: 11/11/2016 07:07 PM		
Client ID:		Run ID: GC8_161111B				SeqNo: 4150504		Prep Date: 11/11/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	278.4	5.0	332.1	17.34	78.6	48-110	250.2	10.6	30	
<i>Surr: 4-Terphenyl-d14</i>	1.874	0	3.321	0	56.4	39-133	1.841	1.77	30	

The following samples were analyzed in this batch:

1611395-01B	1611395-02B	1611395-03B
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Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94467** Instrument ID **GC8** Method: **SW8015M**

MBLK		Sample ID: DBLKS1-94467-94467				Units: mg/Kg		Analysis Date: 11/14/2016 06:08 PM		
Client ID:		Run ID: GC8_161114A				SeqNo: 4153414		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	ND	5.0								
Surr: 4-Terphenyl-d14	2.017	0	3.33	0	60.6	39-133	0			

LCS		Sample ID: DLCSS1-94467-94467				Units: mg/Kg		Analysis Date: 11/14/2016 06:37 PM		
Client ID:		Run ID: GC8_161114A				SeqNo: 4153415		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	236.3	5.0	333	0	71	61-109	0			
Surr: 4-Terphenyl-d14	1.493	0	3.33	0	44.8	39-133	0			

MS		Sample ID: 1611679-03A MS				Units: mg/Kg		Analysis Date: 11/14/2016 07:07 PM		
Client ID:		Run ID: GC8_161114A				SeqNo: 4153416		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	778.9	4.9	326.7	364.3	127	48-110	0			S
Surr: 4-Terphenyl-d14	1.913	0	3.267	0	58.6	39-133	0			

MSD		Sample ID: 1611679-03A MSD				Units: mg/Kg		Analysis Date: 11/14/2016 07:36 PM		
Client ID:		Run ID: GC8_161114A				SeqNo: 4153417		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	793.8	4.9	329.5	364.3	130	48-110	778.9	1.9	30	S
Surr: 4-Terphenyl-d14	2.136	0	3.295	0	64.8	39-133	1.913	11	30	

The following samples were analyzed in this batch:

1611395-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94465** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-94465-94465				Units: µg/Kg-dry		Analysis Date: 11/14/2016 02:06 PM		
Client ID:		Run ID: GC9_161114A				SeqNo: 4153485		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	4265	0	5000	0	85.3	50-150	0			

MBLK		Sample ID: MBLK-94465-94465				Units: µg/Kg-dry		Analysis Date: 11/15/2016 01:11 A		
Client ID:		Run ID: GC9_161114B				SeqNo: 4153536		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	ND	2,500								
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LCS		Sample ID: LCS-94465-94465				Units: µg/Kg-dry		Analysis Date: 11/14/2016 01:42 PM		
Client ID:		Run ID: GC9_161114A				SeqNo: 4153481		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	473500	2,500	500000	0	94.7	70-130	0			
Surr: Toluene-d8	5004	0	5000	0	100	50-150	0			

LCS		Sample ID: LCS-94465-94465				Units: µg/Kg-dry		Analysis Date: 11/15/2016 12:44 PM		
Client ID:		Run ID: GC9_161114B				SeqNo: 4153542		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	10090	2,500	10000	0	101	80-120	0			
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LCSD		Sample ID: LCSD-94465-94465				Units: µg/Kg-dry		Analysis Date: 11/15/2016 03:22 A		
Client ID:		Run ID: GC9_161114B				SeqNo: 4153541		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	11560	2,500	10000	0	116	80-120	10090	13.6	20	
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MS		Sample ID: 1611395-02A MS				Units: µg/Kg-dry		Analysis Date: 11/14/2016 05:01 PM		
Client ID: UP25-34-SS2		Run ID: GC9_161114A				SeqNo: 4153497		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	707000	3,500	690500	0	102	70-130	0			
Surr: Toluene-d8	7761	0	6905	0	112	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94465** Instrument ID **GC9** Method: **SW8015D**

MSD		Sample ID: 1611395-02A MSD				Units: µg/Kg-dry		Analysis Date: 11/14/2016 05:26 PM		
Client ID: UP25-34-SS2		Run ID: GC9_161114A				SeqNo: 4153499		Prep Date: 11/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	757900	3,500	690500	0	110	70-130	707000	6.95	30	
<i>Surr: Toluene-d8</i>	<i>7439</i>	<i>0</i>	<i>6905</i>	<i>0</i>	<i>108</i>	<i>50-150</i>	<i>7761</i>	<i>4.23</i>	<i>30</i>	

The following samples were analyzed in this batch:

1611395-01A	1611395-02A	1611395-03A
1611395-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94594** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-94594-94594				Units: mg/Kg		Analysis Date: 11/16/2016 07:27 PM		
Client ID:		Run ID: HG1_161116A				SeqNo: 4157908		Prep Date: 11/16/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury ND 0.020

LCS		Sample ID: LCS-94594-94594				Units: mg/Kg		Analysis Date: 11/16/2016 07:30 PM		
Client ID:		Run ID: HG1_161116A				SeqNo: 4157909		Prep Date: 11/16/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1725 0.020 0.1665 0 104 80-120 0

MS		Sample ID: 1611649-09BMS				Units: mg/Kg		Analysis Date: 11/16/2016 08:21 PM		
Client ID:		Run ID: HG1_161116A				SeqNo: 4157929		Prep Date: 11/16/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1345 0.014 0.1148 0.01987 99.8 75-125 0

MSD		Sample ID: 1611649-09BMSD				Units: mg/Kg		Analysis Date: 11/16/2016 08:23 PM		
Client ID:		Run ID: HG1_161116A				SeqNo: 4157930		Prep Date: 11/16/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1277 0.014 0.115 0.01987 93.8 75-125 0.1345 5.15 35

The following samples were analyzed in this batch:

1611395-01B	1611395-02B	1611395-03B
1611395-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94292** Instrument ID **ICP2** Method: **SW846 6010C**

DUP		Sample ID: 1611387-02CDUP				Units: mg/L		Analysis Date: 11/10/2016 12:41 A		
Client ID:		Run ID: ICP2_161109A				SeqNo: 4144324		Prep Date: 11/9/2016		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	250.3	5.0	0	0	0	0-0	0			
Magnesium	53.03	2.0	0	0	0	0-0	0			
Sodium	1312	2.0	0	0	0	0-0	0			

The following samples were analyzed in this batch:

1611395-01C	1611395-02C	1611395-03C
1611395-04C		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: 94370 Instrument ID ICP2 Method: SW846 6010C

MBLK Sample ID: MBLK-94370-94370				Units: mg/Kg		Analysis Date: 11/12/2016 11:42 A				
Client ID:		Run ID: ICP2_161112A		SeqNo: 4149601		Prep Date: 11/10/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	0.02655	0.50								J
Chromium	ND	0.25								
Copper	ND	0.50								
Lead	ND	0.25								
Nickel	ND	0.25								
Selenium	ND	0.50								
Silver	ND	0.25								
Zinc	0.09281	0.50								J

LCS Sample ID: LCS-94370-94370				Units: mg/Kg		Analysis Date: 11/12/2016 11:48 A				
Client ID:		Run ID: ICP2_161112A		SeqNo: 4149602		Prep Date: 11/10/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.282	0.25	5	0	106	80-120	0			
Barium	4.893	0.25	5	0	97.9	80-120	0			
Cadmium	5.198	0.50	5	0	104	80-120	0			
Chromium	5.178	0.25	5	0	104	80-120	0			
Copper	4.961	0.50	5	0	99.2	80-120	0			
Lead	5.149	0.25	5	0	103	80-120	0			
Nickel	5.084	0.25	5	0	102	80-120	0			
Selenium	4.961	0.50	5	0	99.2	80-120	0			
Silver	4.66	0.25	5	0	93.2	80-120	0			
Zinc	5.121	0.50	5	0	102	80-120	0			

MS Sample ID: 1611649-09BMS				Units: mg/Kg		Analysis Date: 11/12/2016 02:30 PM				
Client ID:		Run ID: ICP2_161112A		SeqNo: 4149630		Prep Date: 11/10/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	11.83	0.36	7.123	4.281	106	75-125	0			
Barium	91.03	0.36	7.123	74.94	226	75-125	0			SO
Cadmium	7.466	0.71	7.123	0.02343	104	75-125	0			
Chromium	18.59	0.36	7.123	11.09	105	75-125	0			
Copper	16.99	0.71	7.123	9.865	100	75-125	0			
Lead	13.54	0.36	7.123	6.012	106	75-125	0			
Nickel	22.24	0.36	7.123	13.63	121	75-125	0			
Selenium	6.351	0.71	7.123	-0.2548	92.7	75-125	0			
Silver	6.436	0.36	7.123	-0.1836	92.9	75-125	0			
Zinc	35.98	0.71	7.123	26.43	134	75-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94370** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 1611649-09BMSD				Units: mg/Kg		Analysis Date: 11/12/2016 02:35 PM		
Client ID:		Run ID: ICP2_161112A				SeqNo: 4149631		Prep Date: 11/10/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.35	0.35	7.092	4.281	114	75-125	11.83	4.28	20	
Barium	97.93	0.35	7.092	74.94	324	75-125	91.03	7.31	20	SO
Cadmium	7.693	0.71	7.092	0.02343	108	75-125	7.466	2.99	20	
Chromium	19.02	0.35	7.092	11.09	112	75-125	18.59	2.29	20	
Copper	16.87	0.71	7.092	9.865	98.8	75-125	16.99	0.726	20	
Lead	15.66	0.35	7.092	6.012	136	75-125	13.54	14.5	20	S
Nickel	23.17	0.35	7.092	13.63	135	75-125	22.24	4.1	20	S
Selenium	6.452	0.71	7.092	-0.2548	94.6	75-125	6.351	1.58	20	
Silver	6.346	0.35	7.092	-0.1836	92.1	75-125	6.436	1.41	20	
Zinc	36.68	0.71	7.092	26.43	144	75-125	35.98	1.93	20	S

The following samples were analyzed in this batch:

1611395-01B	1611395-02B	1611395-03B
1611395-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: 94409 Instrument ID SVMS5 Method: SW846 8270D

MBLK		Sample ID: SBLKS1-94409-94409				Units: µg/Kg		Analysis Date: 11/13/2016 12:45 PM		
Client ID:		Run ID: SVMS5_161113A				SeqNo: 4150862		Prep Date: 11/11/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	6.7								
Anthracene	ND	6.7								
Benzo(a)anthracene	ND	6.7								
Benzo(a)pyrene	ND	6.7								
Benzo(b)fluoranthene	ND	6.7								
Benzo(k)fluoranthene	ND	6.7								
Chrysene	ND	6.7								
Dibenzo(a,h)anthracene	ND	6.7								
Fluoranthene	ND	6.7								
Fluorene	ND	6.7								
Indeno(1,2,3-cd)pyrene	ND	6.7								
Naphthalene	ND	6.7								
Pyrene	ND	6.7								
Surr: 2-Fluorobiphenyl	2733	0	3333	0	82	12-100	0			
Surr: 4-Terphenyl-d14	2845	0	3333	0	85.3	25-137	0			
Surr: Nitrobenzene-d5	2095	0	3333	0	62.9	37-107	0			

LCS		Sample ID: SLCSS1-94409-94409				Units: µg/Kg		Analysis Date: 11/13/2016 01:08 PM		
Client ID:		Run ID: SVMS5_161113A				SeqNo: 4150864		Prep Date: 11/11/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1027	6.7	1333	0	77.1	45-110	0			
Anthracene	1101	6.7	1333	0	82.6	55-105	0			
Benzo(a)anthracene	1148	6.7	1333	0	86.1	50-110	0			
Benzo(a)pyrene	1091	6.7	1333	0	81.8	50-110	0			
Benzo(b)fluoranthene	1045	6.7	1333	0	78.4	45-115	0			
Benzo(k)fluoranthene	1144	6.7	1333	0	85.8	45-115	0			
Chrysene	1127	6.7	1333	0	84.6	55-110	0			
Dibenzo(a,h)anthracene	1212	6.7	1333	0	90.9	40-125	0			
Fluoranthene	1052	6.7	1333	0	78.9	55-115	0			
Fluorene	1080	6.7	1333	0	81	50-110	0			
Indeno(1,2,3-cd)pyrene	1073	6.7	1333	0	80.5	40-120	0			
Naphthalene	845.3	6.7	1333	0	63.4	40-105	0			
Pyrene	1263	6.7	1333	0	94.7	45-125	0			
Surr: 2-Fluorobiphenyl	2799	0	3333	0	84	12-100	0			
Surr: 4-Terphenyl-d14	2879	0	3333	0	86.4	25-137	0			
Surr: Nitrobenzene-d5	2109	0	3333	0	63.3	37-107	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: 94409 Instrument ID SVMS5 Method: SW846 8270D

MS				Sample ID: 1611393-04A MS			Units: µg/Kg		Analysis Date: 11/13/2016 02:05 PM		
Client ID:			Run ID: SVMS5_161113A			SeqNo: 4150867		Prep Date: 11/11/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	963.6	6.6	1320	0	73	45-110	0				
Anthracene	1026	6.6	1320	0	77.7	55-105	0				
Benzo(a)anthracene	1063	6.6	1320	0	80.6	50-110	0				
Benzo(a)pyrene	996.6	6.6	1320	0	75.5	50-110	0				
Benzo(b)fluoranthene	987.4	6.6	1320	0	74.8	45-115	0				
Benzo(k)fluoranthene	1056	6.6	1320	0	80	45-115	0				
Chrysene	1038	6.6	1320	0	78.6	55-110	0				
Dibenzo(a,h)anthracene	1105	6.6	1320	0	83.7	40-125	0				
Fluoranthene	1008	6.6	1320	0	76.4	55-115	0				
Fluorene	1029	6.6	1320	0	78	50-110	0				
Indeno(1,2,3-cd)pyrene	980.1	6.6	1320	0	74.3	40-120	0				
Naphthalene	844.2	6.6	1320	0	64	40-105	0				
Pyrene	1107	6.6	1320	0	83.9	45-125	0				
Surr: 2-Fluorobiphenyl	2650	0	3300	0	80.3	12-100	0				
Surr: 4-Terphenyl-d14	2597	0	3300	0	78.7	25-137	0				
Surr: Nitrobenzene-d5	2089	0	3300	0	63.3	37-107	0				

MSD				Sample ID: 1611393-04A MSD			Units: µg/Kg		Analysis Date: 11/13/2016 02:28 PM		
Client ID:			Run ID: SVMS5_161113A			SeqNo: 4150868		Prep Date: 11/11/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	953.1	6.7	1331	0	71.6	45-110	963.6	1.1	30		
Anthracene	1020	6.7	1331	0	76.6	55-105	1026	0.591	30		
Benzo(a)anthracene	1063	6.7	1331	0	79.9	50-110	1063	0.0377	30		
Benzo(a)pyrene	996.3	6.7	1331	0	74.9	50-110	996.6	0.0295	30		
Benzo(b)fluoranthene	975.7	6.7	1331	0	73.3	45-115	987.4	1.19	30		
Benzo(k)fluoranthene	1072	6.7	1331	0	80.5	45-115	1056	1.46	30		
Chrysene	1018	6.7	1331	0	76.5	55-110	1038	1.94	30		
Dibenzo(a,h)anthracene	1070	6.7	1331	0	80.4	40-125	1105	3.25	30		
Fluoranthene	977	6.7	1331	0	73.4	55-115	1008	3.11	30		
Fluorene	1045	6.7	1331	0	78.5	50-110	1029	1.54	30		
Indeno(1,2,3-cd)pyrene	959.1	6.7	1331	0	72.1	40-120	980.1	2.17	30		
Naphthalene	833.3	6.7	1331	0	62.6	40-105	844.2	1.3	30		
Pyrene	1274	6.7	1331	0	95.7	45-125	1107	14	30		
Surr: 2-Fluorobiphenyl	2557	0	3327	0	76.8	12-100	2650	3.57	40		
Surr: 4-Terphenyl-d14	2970	0	3327	0	89.2	25-137	2597	13.4	40		
Surr: Nitrobenzene-d5	2091	0	3327	0	62.8	37-107	2089	0.0739	40		

The following samples were analyzed in this batch:

1611395-01B 1611395-02B 1611395-03B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: 94466 Instrument ID SVMS5 Method: SW846 8270D

MBLK				Sample ID: SBLKS1-94466-94466			Units: µg/Kg		Analysis Date: 11/14/2016 05:42 PM		
Client ID:			Run ID: SVMS5_161114A			SeqNo: 4153728		Prep Date: 11/14/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	ND	6.7									
Anthracene	ND	6.7									
Benzo(a)anthracene	ND	6.7									
Benzo(a)pyrene	ND	6.7									
Benzo(b)fluoranthene	ND	6.7									
Benzo(k)fluoranthene	ND	6.7									
Chrysene	ND	6.7									
Dibenzo(a,h)anthracene	ND	6.7									
Fluoranthene	ND	6.7									
Fluorene	ND	6.7									
Indeno(1,2,3-cd)pyrene	ND	6.7									
Naphthalene	ND	6.7									
Pyrene	ND	6.7									
Surr: 2-Fluorobiphenyl	2783	0	3333	0	83.5	12-100	0				
Surr: 4-Terphenyl-d14	2792	0	3333	0	83.8	25-137	0				
Surr: Nitrobenzene-d5	2093	0	3333	0	62.8	37-107	0				

LCS				Sample ID: SLCSS1-94466-94466			Units: µg/Kg		Analysis Date: 11/14/2016 06:05 PM		
Client ID:			Run ID: SVMS5_161114A			SeqNo: 4153729		Prep Date: 11/14/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	986.7	6.7	1333	0	74	45-110	0				
Anthracene	1107	6.7	1333	0	83.1	55-105	0				
Benzo(a)anthracene	1151	6.7	1333	0	86.3	50-110	0				
Benzo(a)pyrene	1078	6.7	1333	0	80.9	50-110	0				
Benzo(b)fluoranthene	1034	6.7	1333	0	77.6	45-115	0				
Benzo(k)fluoranthene	1107	6.7	1333	0	83.1	45-115	0				
Chrysene	1116	6.7	1333	0	83.7	55-110	0				
Dibenzo(a,h)anthracene	1175	6.7	1333	0	88.2	40-125	0				
Fluoranthene	1098	6.7	1333	0	82.4	55-115	0				
Fluorene	1069	6.7	1333	0	80.2	50-110	0				
Indeno(1,2,3-cd)pyrene	1057	6.7	1333	0	79.3	40-120	0				
Naphthalene	858.7	6.7	1333	0	64.4	40-105	0				
Pyrene	1186	6.7	1333	0	89	45-125	0				
Surr: 2-Fluorobiphenyl	2645	0	3333	0	79.4	12-100	0				
Surr: 4-Terphenyl-d14	2697	0	3333	0	80.9	25-137	0				
Surr: Nitrobenzene-d5	2045	0	3333	0	61.4	37-107	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: 94466 Instrument ID SVMS5 Method: SW846 8270D

MS				Sample ID: 1611649-09B MS				Units: µg/Kg		Analysis Date: 11/14/2016 09:01 PM	
Client ID:			Run ID: SVMS5_161114A			SeqNo: 4153730		Prep Date: 11/14/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1017	6.4	1279	0	79.5	45-110	0				
Anthracene	1073	6.4	1279	0	83.9	55-105	0				
Benzo(a)anthracene	1093	6.4	1279	0	85.5	50-110	0				
Benzo(a)pyrene	1077	6.4	1279	0	84.2	50-110	0				
Benzo(b)fluoranthene	999.2	6.4	1279	0	78.1	45-115	0				
Benzo(k)fluoranthene	1089	6.4	1279	0	85.2	45-115	0				
Chrysene	1093	6.4	1279	0	85.5	55-110	0				
Dibenzo(a,h)anthracene	1147	6.4	1279	0	89.7	40-125	0				
Fluoranthene	1043	6.4	1279	0	81.6	55-115	0				
Fluorene	1078	6.4	1279	0	84.3	50-110	0				
Indeno(1,2,3-cd)pyrene	1015	6.4	1279	0	79.4	40-120	0				
Naphthalene	871.9	6.4	1279	0	68.2	40-105	0				
Pyrene	1158	6.4	1279	0	90.6	45-125	0				
Surr: 2-Fluorobiphenyl	2735	0	3198	0	85.5	12-100	0				
Surr: 4-Terphenyl-d14	2599	0	3198	0	81.3	25-137	0				
Surr: Nitrobenzene-d5	2145	0	3198	0	67.1	37-107	0				

MSD				Sample ID: 1611649-09B MSD				Units: µg/Kg		Analysis Date: 11/14/2016 09:24 PM	
Client ID:			Run ID: SVMS5_161114A			SeqNo: 4153731		Prep Date: 11/14/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1063	6.6	1325	0	80.2	45-110	1017	4.43	30		
Anthracene	1139	6.6	1325	0	85.9	55-105	1073	5.91	30		
Benzo(a)anthracene	1184	6.6	1325	0	89.3	50-110	1093	7.96	30		
Benzo(a)pyrene	1115	6.6	1325	0	84.1	50-110	1077	3.44	30		
Benzo(b)fluoranthene	1046	6.6	1325	0	78.9	45-115	999.2	4.57	30		
Benzo(k)fluoranthene	1149	6.6	1325	0	86.7	45-115	1089	5.36	30		
Chrysene	1157	6.6	1325	0	87.3	55-110	1093	5.7	30		
Dibenzo(a,h)anthracene	1202	6.6	1325	0	90.7	40-125	1147	4.66	30		
Fluoranthene	1129	6.6	1325	0	85.2	55-115	1043	7.93	30		
Fluorene	1137	6.6	1325	0	85.8	50-110	1078	5.26	30		
Indeno(1,2,3-cd)pyrene	1079	6.6	1325	0	81.4	40-120	1015	6.1	30		
Naphthalene	880.9	6.6	1325	0	66.5	40-105	871.9	1.03	30		
Pyrene	1241	6.6	1325	0	93.7	45-125	1158	6.92	30		
Surr: 2-Fluorobiphenyl	2825	0	3314	0	85.2	12-100	2735	3.23	40		
Surr: 4-Terphenyl-d14	2833	0	3314	0	85.5	25-137	2599	8.61	40		
Surr: Nitrobenzene-d5	2174	0	3314	0	65.6	37-107	2145	1.35	40		

The following samples were analyzed in this batch: 1611395-04B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94464** Instrument ID **VMS7** Method: **SW8260B**

MBLK Sample ID: MBLK-94464-94464				Units: µg/Kg-dry			Analysis Date: 11/13/2016 11:15 A			
Client ID:		Run ID: VMS7_161113A		SeqNo: 4150461		Prep Date: 11/13/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30								
Ethylbenzene	ND	30								
m,p-Xylene	ND	60								
o-Xylene	ND	30								
Toluene	ND	30								
Xylenes, Total	ND	90								
Surr: 1,2-Dichloroethane-d4	980	0	1000	0	98	70-130	0			
Surr: 4-Bromofluorobenzene	963	0	1000	0	96.3	70-130	0			
Surr: Dibromofluoromethane	922	0	1000	0	92.2	70-130	0			
Surr: Toluene-d8	1008	0	1000	0	101	70-130	0			

LCS Sample ID: LCS-94464-94464				Units: µg/Kg-dry			Analysis Date: 11/13/2016 10:12 A			
Client ID:		Run ID: VMS7_161113A		SeqNo: 4150460		Prep Date: 11/13/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1070	30	1000	0	107	75-125	0			
Ethylbenzene	1048	30	1000	0	105	75-125	0			
m,p-Xylene	2118	60	2000	0	106	80-125	0			
o-Xylene	1055	30	1000	0	106	75-125	0			
Toluene	1046	30	1000	0	105	70-125	0			
Xylenes, Total	3174	90	3000	0	106	75-125	0			
Surr: 1,2-Dichloroethane-d4	979	0	1000	0	97.9	70-130	0			
Surr: 4-Bromofluorobenzene	1006	0	1000	0	101	70-130	0			
Surr: Dibromofluoromethane	991	0	1000	0	99.1	70-130	0			
Surr: Toluene-d8	988	0	1000	0	98.8	70-130	0			

MS Sample ID: 1611395-02A MS				Units: µg/Kg-dry			Analysis Date: 11/13/2016 07:48 PM			
Client ID: UP25-34-SS2		Run ID: VMS9_161113A		SeqNo: 4149968		Prep Date: 11/13/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1441	41	1381	0	104	75-125	0			
Ethylbenzene	1464	41	1381	0	106	75-125	0			
m,p-Xylene	2975	83	2762	0	108	80-125	0			
o-Xylene	1470	41	1381	0	106	75-125	0			
Toluene	1442	41	1381	0	104	70-125	0			
Xylenes, Total	4445	120	4143	0	107	75-125	0			
Surr: 1,2-Dichloroethane-d4	1445	0	1381	0	105	70-130	0			
Surr: 4-Bromofluorobenzene	1414	0	1381	0	102	70-130	0			
Surr: Dibromofluoromethane	1284	0	1381	0	93	70-130	0			
Surr: Toluene-d8	1366	0	1381	0	98.9	70-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 1611395
 Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94464** Instrument ID **VMS7** Method: **SW8260B**

MSD				Sample ID: 1611395-02A MSD			Units: µg/Kg-dry		Analysis Date: 11/13/2016 08:12 PM	
Client ID: UP25-34-SS2			Run ID: VMS9_161113A			SeqNo: 4149969		Prep Date: 11/13/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1473	41	1381	0	107	75-125	1441	2.18	30	
Ethylbenzene	1474	41	1381	0	107	75-125	1464	0.705	30	
m,p-Xylene	2939	83	2762	0	106	80-125	2975	1.24	30	
o-Xylene	1483	41	1381	0	107	75-125	1470	0.888	30	
Toluene	1392	41	1381	0	101	70-125	1442	3.56	30	
Xylenes, Total	4422	120	4143	0	107	75-125	4445	0.53	30	
Surr: 1,2-Dichloroethane-d4	1481	0	1381	0	107	70-130	1445	2.45	30	
Surr: 4-Bromofluorobenzene	1456	0	1381	0	105	70-130	1414	2.93	30	
Surr: Dibromofluoromethane	1351	0	1381	0	97.8	70-130	1284	5.14	30	
Surr: Toluene-d8	1380	0	1381	0	99.9	70-130	1366	1.01	30	

The following samples were analyzed in this batch:

1611395-01A	1611395-02A	1611395-03A
1611395-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94179** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-94179-94179					Units: s.u.		Analysis Date: 11/8/2016 09:40 AM		
Client ID:		Run ID: WETCHEM_161108J				SeqNo: 4140785		Prep Date: 11/7/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH	3.95	0	4	0	98.8	90-110	0			
----	------	---	---	---	------	--------	---	--	--	--

DUP		Sample ID: 1611393-01B DUP				Units: s.u.		Analysis Date: 11/8/2016 09:40 AM		
Client ID:		Run ID: WETCHEM_161108J				SeqNo: 4140792		Prep Date: 11/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	7.56	0	0	0	0	0-0	7.09	6.42	20	
----	------	---	---	---	---	-----	------	------	----	--

DUP				Sample ID: 1611395-01B DUP				Units: s.u.			Analysis Date: 11/8/2016 09:40 AM			
Client ID: UP25-34-SS1				Run ID: WETCHEM_161108J				SeqNo: 4140797			Prep Date: 11/7/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

pH	8.19	0	0	0	0	0-0	8.35	1.93	20	
----	------	---	---	---	---	-----	------	------	----	--

The following samples were analyzed in this batch:

1611395-01B	1611395-02B	1611395-03B
1611395-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94292** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP		Sample ID: 1611387-02C DUP				Units: mmhos/cm @25°		Analysis Date: 11/9/2016 04:00 PM		
Client ID:		Run ID: WETCHEM_1611090				SeqNo: 4143384		Prep Date: 11/9/2016		DF: 50
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	12.3	0.25	0	0	0		11.45	7.16	50	

The following samples were analyzed in this batch:

1611395-01C	1611395-02C	1611395-03C
1611395-04C		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **94508** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-94508-94508				Units: mg/Kg		Analysis Date: 11/14/2016 12:10 PM		
Client ID:		Run ID: WETCHEM_161114D		SeqNo: 4150792		Prep Date: 11/11/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 1.0

LCS		Sample ID: LCS-94508-94508				Units: mg/Kg		Analysis Date: 11/14/2016 12:10 PM		
Client ID:		Run ID: WETCHEM_161114D		SeqNo: 4150791		Prep Date: 11/11/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.93 1.0 5 0 98.6 80-120 0

MS		Sample ID: 1611395-04B MS				Units: mg/Kg		Analysis Date: 11/14/2016 12:10 PM		
Client ID: UP25-34-BG1		Run ID: WETCHEM_161114D		SeqNo: 4150782		Prep Date: 11/11/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.343 1.0 5.051 0.01961 85.6 75-125 0

MS		Sample ID: 1611395-04B MSI				Units: mg/Kg		Analysis Date: 11/14/2016 12:10 PM		
Client ID: UP25-34-BG1		Run ID: WETCHEM_161114D		SeqNo: 4150784		Prep Date: 11/11/2016		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1739 100 1770 0.01961 98.3 75-125 0

MSD		Sample ID: 1611395-04B MSD				Units: mg/Kg		Analysis Date: 11/14/2016 12:10 PM		
Client ID: UP25-34-BG1		Run ID: WETCHEM_161114D		SeqNo: 4150783		Prep Date: 11/11/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.388 1.0 5.102 0.01961 85.6 75-125 4.343 1.02 20

The following samples were analyzed in this batch:

1611395-01B	1611395-02B	1611395-03B
1611395-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **R200355** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R200355				Units: % of sample			Analysis Date: 11/10/2016 03:04 PM		
Client ID:		Run ID: MOIST_161110B				SeqNo: 4147221			Prep Date:		
									DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture ND 0.050

LCS		Sample ID: LCS-R200355				Units: % of sample			Analysis Date: 11/10/2016 03:04 PM		
Client ID:		Run ID: MOIST_161110B				SeqNo: 4147220			Prep Date:		
									DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1611395-01B DUP				Units: % of sample			Analysis Date: 11/10/2016 03:04 PM		
Client ID: UP25-34-SS1		Run ID: MOIST_161110B				SeqNo: 4147191			Prep Date:		
									DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 16.78 0.050 0 0 0 19.34 14.2 20

The following samples were analyzed in this batch:

1611395-01B	1611395-02B	1611395-03B
1611395-04B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
Work Order: 1611395
Project: UP 25-34 Spill

QC BATCH REPORT

Batch ID: **R200508** Instrument ID **MOIST** Method: **SW3550C**

MBLK				Sample ID: WBLKS-R200508				Units: % of sample			Analysis Date: 11/11/2016 01:52 PM			
Client ID:				Run ID: MOIST_161111A				SeqNo: 4150168			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Moisture	0.03	0.050								J				

LCS				Sample ID: LCS-R200508				Units: % of sample			Analysis Date: 11/11/2016 01:52 PM			
Client ID:				Run ID: MOIST_161111A				SeqNo: 4150167			Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Moisture		100	0.050	100	0	100	99.5-100.5	0						

DUP				Sample ID: 1611399-05A DUP				Units: % of sample			Analysis Date: 11/11/2016 01:52 PM			
Client ID:				Run ID: MOIST_161111A				SeqNo: 4150138			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Moisture	20.29	0.050	0	0	0		19.63	3.31	20					

DUP		Sample ID: 1611649-19B DUP					Units: % of sample		Analysis Date: 11/11/2016 01:52 PM		
Client ID:			Run ID: MOIST_161111A			SeqNo: 4150144		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Moisture	18.51	0.050	0	0	0		18.63	0.646	20		

The following samples were analyzed in this batch:

1611395-02B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Chain of Custody Form

Page 1 of 1

COC ID: 123456

☐ Cincinnati, OH
+1 513 733 5336

☐ Everett, WA
+1 425 356 2600

☐ Fort Collins, CO
+1 970 490 1311

☒ Holland, MI
+1 616 399 6070

☐ Houston, TX
+1 281 530 5656

☐ Middletown, PA
+1 717 944 3541

☐ Salt Lake City, UT
+1 801 266 7700

☐ Spring City, PA
+1 610 948 4903

☐ York, PA
+1 717 505 5280

ALS Project Manager: _____ Work Order #: 1611395

Customer Information		Project Information						Parameter/Method Request for Analysis										
Purchase Order		Project Name	UP 25-34 Spill					A TPH (GRO & DRO)										
Work Order		Project Number	013.3287.300.300004					B BTEX										
Company Name	Olsson Associates	Bill To Company	Olsson Associates					C PAH (See Attached List) CO Table 910										
Send Report To	Tim Dobransky	Invoice Attn	Tim Dobransky					D Electrical Conductivity										
Address	760 Horizon Drive, Ste. 102	Address	760 Horizon Drive, Ste. 102					E Sodium Adsorption Ratio										
City/State/Zip	Grand Junction, CO 81506	City/State/Zip	Grand Junction, CO 81506					F pH										
Phone	970.263.7800	Phone	970.263.7800					G Metals (See Attached List) CO Table 910										
Fax	970.263.7456	Fax	970.263.7456					H Arsenic Only										
E-Mail Address	tdobransky@olssonassociates.com	E-Mail Address						I										
								J										
No.	Sample Description	Date	Time	Matrix	Pres.	# Batches	A	B	C	D	E	F	G	H	I	J	Hold	
1	UP25-34-SS1	11/02/16	1150	Soil	8	3	X	X	X	X	X	X	X					
2	UP25-34-SS2	11/02/16	1210	Soil	8	3	X	X	X	X	X	X	X					
3	UP25-34-SS3	11/02/16	1220	Soil	8	3	X	X	X	X	X	X	X					
4	UP25-34-BG1	11/02/16	1230	Soil	8	3	X	X	X	X	X	X	X					
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		

Sampler(s): Please Print & Sign: Jason McLarty		Shipment Method: FedEx	Required Turnaround Time: <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour	Reanalyze Due Date:
Relinquished by: 	Date: 11/3/16	Time:	Received by: 	Notes: Chevron Pricing Applies - Per Bruce Schlatter
Relinquished by: W/H	Date: 11/3/16	Time: 1730	Received by (Laboratory): 	Cooler Temp: 3.6°C
Logged by (Laboratory): KE	Date: 11/4/16	Time: 1735	Checked by (Laboratory): 	QC Package: (Check Box Below)
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NAOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035				Level II: Standard QC
				Level III: Std QC + Raw Data
				Level IV: SW846 CLP-Like
				Other:

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Sample Receipt Checklist

Client Name: **OLSSON**

Date/Time Received: **04-Nov-16 09:30**

Work Order: **1611395**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

04-Nov-16
Date

Reviewed by: Chad Whelton
eSignature

06-Nov-16
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>3.6/3.6 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/4/2016 5:40:20 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



09-Aug-2018

Tim Dobransky
Olsson Associates
760 Horizon Drive
Suite 102
Grand Junction, CO 81506

Re: **UP 25-34 Spill Resampling**

Work Order: **18071599**

Dear Tim,

ALS Environmental received 1 sample on 25-Jul-2018 03:00 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 7.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Olsson Associates
Project: UP 25-34 Spill Resampling
Work Order: 18071599

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
18071599-01	UP25-34-SS1	Soil		7/20/2018 12:10	7/25/2018 15:00	<input type="checkbox"/>

Client: Olsson Associates
Project: UP 25-34 Spill Resampling
WorkOrder: 18071599

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	

ALS Group, USA**Date:** 09-Aug-18

Client: Olsson Associates
Project: UP 25-34 Spill Resampling
Sample ID: UP25-34-SS1
Collection Date: 7/20/2018 12:10 PM

Work Order: 18071599
Lab ID: 18071599-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
SOLUBLE CATIONS FOR SAR			Method: SW6020A		Prep: USDA Method 20B / 8/2/18		Analyst: STP
Calcium	2,000		8.6	50	mg/L	100	8/3/2018 14:26
Magnesium	76		0.068	2.0	mg/L	10	8/2/2018 17:51
Sodium	550		0.34	2.0	mg/L	10	8/2/2018 17:51
SODIUM ADSORPTION RATIO			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 8/2/18		Analyst: STP
Sodium Adsorption Ratio	3.3		0.010	0.010	none	1	8/2/2018
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 8/2/18		Analyst: JB
Electrical Conductivity @ Saturation	14		0.011	0.10	mmhos/cm @25°	20	8/6/2018 13:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Olsson Associates
Work Order: 18071599
Project: UP 25-34 Spill Resampling

QC BATCH REPORT

Batch ID: **122211** Instrument ID **ICPMS3** Method: **SW6020A**

DUP		Sample ID: 18071603-01ADUP				Units: mg/L		Analysis Date: 8/2/2018 06:03 PM		
Client ID:		Run ID: ICPMS3_180802A				SeqNo: 5182929		Prep Date: 8/2/2018		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	174.3	5.0	0	0	0	0-0	193	10.2		
Magnesium	19.81	2.0	0	0	0	0-0	21.78	9.48		
Sodium	7.59	2.0	0	0	0	0-0	7.915	4.19		

The following samples were analyzed in this batch:

18071599-01A

Batch ID: **122211** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 18071603-01ADUP				Units: none		Analysis Date: 8/2/2018		
Client ID:		Run ID: SAR_180802A				SeqNo: 5184080		Prep Date: 8/2/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.1453	0.010	0	0	0		0			

The following samples were analyzed in this batch:

18071599-01A

Batch ID: **122211** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP		Sample ID: 18071603-01A DUP				Units: mmhos/cm @25°		Analysis Date: 8/6/2018 01:15 PM		
Client ID:		Run ID: WETCHEM_180806D				SeqNo: 5186415		Prep Date: 8/2/2018		DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	1.048	0.10	0	0	0		1.104	5.2	50	

The following samples were analyzed in this batch:

18071599-01A



Environmental

Chain of Custody Form

Page 1 of 1

COC ID: 123456

☐ Cincinnati, OH
+1 513 733 5336

☒ Holland, MI
+1 616 399 6070

☐ Salt Lake City, UT
+1 801 266 7700

☐ Everett, WA
+1 425 356 2600

☐ Houston, TX
+1 281 530 5656

☐ Spring City, PA
+1 610 948 4903

☐ Fort Collins, CO
+1 970 490 1511

☐ Middletown, PA
+1 717 944 5541

☐ York, PA
+1 717 505 5280

ALS Project Manager:

Work Order #:

18071599

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order		Project Name	UP 25-34 Spill Resampling	A TPH (GRO & DRO)												
Work Order		Project Number	013.3287.300.300004	B BTEX												
Company Name	Olsson Associates	Bill To Company	Olsson Associates	C PAH (See Attached List) CO Table 910												
Send Report To	Tim Dobransky	Invoice Attn.	Dana Mack	D Electrical Conductivity												
Address		Address	760 Horizon Drive, Ste. 102	E Sodium Adsorption Ratio												
				F pH												
City/State/Zip		City/State/Zip	Grand Junction, CO 81506	G Metals (See Attached List) CO Table 910												
Phone		Phone	970.263.7800	H Arsenic Only												
Fax		Fax	970.263.7456	I												
e-Mail Address	tdobransky@entradamc.com	e-Mail Address		J												

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	UP25-34-SS1	07/20/18	1210	Soil	8	1				X	X						
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	

Sampler(s): Please Print & Sign Tim Dobransky		Shipment Method: FedEx		Required Turnaround Time: <input checked="" type="checkbox"/> STD 10 WK <input type="checkbox"/> 5 WK Days <input type="checkbox"/> 2 WK Days <input type="checkbox"/> 24 Hour		Results Due Date:	
Relinquished by:	Date: 7/27/18	Time: 1715	Received by:		Notes: Chevron Pricing Applies - Per Bruce Schlatter		
Relinquished by:	Date: 7/25/18	Time: 1500	Received by (Laboratory):		Cooler Temp.	QC Package: (Check Box Below)	
Logged by (Laboratory):	Date: 7/25/18	Time: 1645	Checked by (Laboratory):		80.2 3.0°C	<input checked="" type="checkbox"/> Level II: Standard QC	
						<input type="checkbox"/> Level III: Std QC + Raw	
						<input type="checkbox"/> Level IV: SW846 CLP-	
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other					8-4 degree		
					Other:		

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Sample Receipt Checklist

Client Name: **OLSSON**

Date/Time Received: **25-Jul-18 15:00**

Work Order: **18071599**

Received by: **DS**

Checklist completed by Diane Shaw 25-Jul-18
eSignature Date

Reviewed by: Chad Whelton 26-Jul-18
eSignature Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>5.0/5.0 c</u> <u>SR2</u>		
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>7/25/2018 4:51:17 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



12-Apr-2021

Tim Dobransky
Entrada Consulting Group
240 Mesa Ave.
Grand Junction, CO 81501

Re: **UP 25-34 Spill Resampling**

Work Order: **21040277**

Dear Tim,

ALS Environmental received 2 samples on 03-Apr-2021 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 8.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Entrada Consulting Group
Project: UP 25-34 Spill Resampling
Work Order: 21040277

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
21040277-01	UP2534-SS1	Soil		4/1/2021 11:20	4/3/2021 09:30	<input type="checkbox"/>
21040277-02	UP2534-SS2	Soil		4/1/2021 11:25	4/3/2021 09:30	<input type="checkbox"/>

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	

ALS Group, USA

Date: 12-Apr-21

Client: Entrada Consulting Group
Project: UP 25-34 Spill Resampling
Sample ID: UP2534-SS1
Collection Date: 4/1/2021 11:20 AM

Work Order: 21040277
Lab ID: 21040277-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
SOLUBLE CATIONS FOR SAR			Method: SW6020B		Prep: USDA Method 20B / 4/9/21		Analyst: STP
Calcium	70		2.5	5.0	mg/L	10	4/9/2021 20:01
Magnesium	9.5		0.50	2.0	mg/L	10	4/9/2021 20:01
Sodium	13		1.8	2.0	mg/L	10	4/9/2021 20:01
SODIUM ADSORPTION RATIO			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 4/9/21		Analyst: STP
Sodium Adsorption Ratio	0.39		0.010	0.010	none	1	4/9/2021
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 4/9/21		Analyst: QTN
Electrical Conductivity @ Saturation	0.49		0.011	0.10	mmhos/cm @25°	20	4/9/2021 16:14

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 12-Apr-21

Client: Entrada Consulting Group
Project: UP 25-34 Spill Resampling
Sample ID: UP2534-SS2
Collection Date: 4/1/2021 11:25 AM

Work Order: 21040277
Lab ID: 21040277-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
SOLUBLE CATIONS FOR SAR			Method: SW6020B		Prep: USDA Method 20B / 4/9/21		Analyst: STP
Calcium	160		2.5	5.0	mg/L	10	4/9/2021 20:03
Magnesium	28		0.50	2.0	mg/L	10	4/9/2021 20:03
Sodium	12		1.8	2.0	mg/L	10	4/9/2021 20:03
SODIUM ADSORPTION RATIO			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 4/9/21		Analyst: STP
Sodium Adsorption Ratio	0.23		0.010	0.010	none	1	4/9/2021
ELECTRICAL CONDUCTIVITY (SAR)			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 4/9/21		Analyst: QTN
Electrical Conductivity @ Saturation	1.0		0.011	0.10	mmhos/cm @25°	20	4/9/2021 16:14

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Entrada Consulting Group
Work Order: 21040277
Project: UP 25-34 Spill Resampling

QC BATCH REPORT

Batch ID: **174855** Instrument ID **ICPMS3** Method: **SW6020B**

DUP				Sample ID: 21040228-02ADUP				Units: mg/L		Analysis Date: 4/9/2021 07:37 PM		
Client ID:			Run ID: ICPMS3_210409A			SeqNo: 7293859		Prep Date: 4/9/2021		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Calcium	92.16	5.0	0	0	0	0-0	78.98	15.4				
Magnesium	5.391	2.0	0	0	0	0-0	4.74	12.9				
Sodium	14.62	2.0	0	0	0	0-0	13.59	7.29				

The following samples were analyzed in this batch:

21040277-01A 21040277-02A

Batch ID: **174855** Instrument ID **SAR** Method: **USDA H60 Method**

DUP				Sample ID: 21040228-02ADUP				Units: none		Analysis Date: 4/9/2021		
Client ID:			Run ID: SAR_210409A			SeqNo: 7295216		Prep Date: 4/9/2021		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Sodium Adsorption Ratio	0.4006	0.010	0	0	0		0.4018	0.309	50			

The following samples were analyzed in this batch:

21040277-01A 21040277-02A

Batch ID: **174855** Instrument ID **WETCHEM** Method: **USDA H60 Method**

DUP				Sample ID: 21040228-02A DUP				Units: mmhos/cm @25°		Analysis Date: 4/9/2021 04:14 PM	
Client ID:			Run ID: WETCHEM_210409N			SeqNo: 7292095		Prep Date: 4/9/2021		DF: 20	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Electrical Conductivity @ Saturation	0.648	0.10	0	0	0		0.57	12.8	50	H	

The following samples were analyzed in this batch:

21040277-01A 21040277-02A



Chain of Custody Form

Page 1 of 1

COC ID: 123456

- | | | |
|--|--|--|
| <input type="checkbox"/> Cincinnati, OH
+1 513 733 5336 | <input checked="" type="checkbox"/> Holland, MI
+1 616 399 6070 | <input type="checkbox"/> Salt Lake City, UT
+1 801 266 7700 |
| <input type="checkbox"/> Everett, WA
+1 425 356 2600 | <input type="checkbox"/> Houston, TX
+1 281 530 5656 | <input type="checkbox"/> Spring City, PA
+1 610 948 4903 |
| <input type="checkbox"/> Fort Collins, CO
+1 970 490 1511 | <input type="checkbox"/> Middletown, PA
+1 717 944 5541 | <input type="checkbox"/> York, PA
+1 717 505 5280 |

Customer Information		Project Information		Parameter/Method Request for Analysis													
Purchase Order		Project Name		A TPH (GRO & DRO)													
Work Order		Project Number		B BTEX													
Company Name		Bill To Company		C PAH (See Attached List) CO Table 910													
Send Report To		Invoice Attn		D Electrical Conductivity													
Address		Address		E Sodium Adsorption Ratio													
				F pH													
City/State/Zip		City/State/Zip		G Metals (See Attached List) CO Table 910													
Phone		Phone		H Arsenic Only													
Fax		Fax		I													
e-Mail Address		e-Mail Address		J													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	UP2534-SS1	04/01/21	1120	Soil	8	1				X	X						
2	UP2534-SS2	04/01/21	1125	Soil	8	1				X	X						
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	

Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Results Due Date:	
Tim Dobransky		FedEx		<input type="checkbox"/> STD 10 Wk <input type="checkbox"/> 5 Wk Days <input checked="" type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour			
Relinquished by:		Date:	Time:	Received by:		Notes:	
[Signature]		4/2/21	8:30	[Signature]		3 Day Rush	
Relinquished by:		Date:	Time:	Received by (Laboratory):		QC Package: (Check Box Below)	
[Signature]		4/2/21	09:15	[Signature]		<input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw <input type="checkbox"/> Level IV: SW846 CLP- <input type="checkbox"/> Other:	
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		Other:	
BFS		4/15/21	09:15	[Signature]			
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degree							

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Sample Receipt Checklist

Client Name: **ENTRADA**

Date/Time Received: **03-Apr-21 09:30**

Work Order: **21040277**

Received by: **DS**

Checklist completed by **Diane Shaw**

05-Apr-21

Reviewed by: **Chad Whelton**

05-Apr-21

eSignature

Date

eSignature

Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☒ No ☐ Not Present ☐

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Container/Temp Blank temperature in compliance? Yes ☒ No ☐

Sample(s) received on ice? Yes ☒ No ☐

Temperature(s)/Thermometer(s): **4.2/4.2 c** **IR1**

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: **4/5/2021 9:28:35 AM**

Water - VOA vials have zero headspace? Yes ☐ No ☐ No VOA vials submitted ☒

Water - pH acceptable upon receipt? Yes ☐ No ☐ N/A ☒

pH adjusted? Yes ☐ No ☐ N/A ☒

pH adjusted by: **-**

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: