

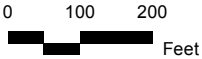


Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- Spill Origin
- Other Soil Sample Location
- Spill Path
- 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 Recorders office or the courts. In addition, the representations of locations in this GIS cannot be substituted for actual legal surveys.



Project Number: 013-3287

Drawn By: SBS

Revision Date: 11/28/2016

**AC McLaughlin 56X
Spill Response**
Chevron USA, Inc
Rio Blanco County, Colorado
SSW/SWSE S14 T2N R103W



Entrada Consulting Group
240 Mesa Avenue
Grand Junction, CO 81501
(970) 270-2986
www.entradainc.com

Figure

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Table 1
AC McLaughlin 56X
Soil Data Summary

SAMPLE SUMMARY	
Location Description	AC McLaughlin 56X Spill
Sample Type	Soil

LABORATORY DATA SUMMARY														
Sample ID	ACM 56X -SS1	ACM 56X -SS1	ACM 56X-SS2	ACM 56X-SS2	ACM 56X -SS3	ACM 56X -SS3	ACM 56X-SS4	ACM 56X-SS4	ACM 56X -SS5	ACM 56X -SS5	ACM60X-BG1	ACM56X-BG1	COGCC TABLE 910-1 CONCENTRATION LEVELS	UNITS
Depth	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0"-6"	0"-6"		
Sample Date	11/9/2016	10/19/2017	11/9/2016	10/19/2017	11/9/2016	10/19/2017	11/9/2016	10/19/2017	11/9/2016	10/19/2017	8/25/2015	10/19/2017		
Analytical Parameters														
TPH														
TPH Gasoline Range Organics	<3.5	NT	<3.5	NT	<3.6	NT	<3.8	NT	<3.5	NT	NT	NT	500	mg/kg
TPH Diesel Range Organics	38	NT	41	NT	89	NT	40	NT	35	NT	NT	NT		
BTEX														
Benzene	<0.041	NT	<0.042	NT	<0.043	NT	<0.045	NT	<0.042	NT	NT	NT	0.17	mg/kg
Toluene	<0.041	NT	<0.042	NT	<0.043	NT	<0.045	NT	<0.042	NT	NT	NT	85	mg/kg
Ethylbenzene	<0.041	NT	<0.042	NT	<0.043	NT	<0.045	NT	<0.042	NT	NT	NT	100	mg/kg
Total Xylene	<0.12	NT	<0.13	NT	<0.13	NT	<0.14	NT	<0.13	NT	NT	NT	175	mg/kg
Metals														
Arsenic	8.6	NT	7.9	NT	8.7	NT	8.4	NT	9.9	NT	8.1	8.9	0.39	mg/kg
Barium	260	NT	130	NT	130	NT	100	NT	140	NT	110	NT	15,000	mg/kg
Cadmium	<0.44	NT	<0.49	NT	<0.44	NT	<0.40	NT	<0.47	NT	<0.40	NT	70	mg/kg
Chromium	13	NT	12	NT	13	NT	12	NT	13	NT	13	NT	NA	mg/kg
Copper	15	NT	13	NT	15	NT	14	NT	14	NT	16	NT	3,100	mg/kg
Lead	20	NT	14	NT	15	NT	15	NT	15	NT	14	NT	400	mg/kg
Mercury	0.073	NT	0.029	NT	0.026	NT	0.022	NT	0.017	NT	0.03	NT	23	mg/kg
Nickel	19	NT	17	NT	20	NT	18	NT	19	NT	32	NT	1,600	mg/kg
Selenium	0.92	NT	<0.97	NT	<0.88	NT	<0.79	NT	1.200	NT	<4.0	NT	390	mg/kg
Silver	<0.44	NT	<0.49	NT	<0.44	NT	<0.40	NT	<0.47	NT	<0.40	NT	390	mg/kg
Zinc	81	NT	71	NT	79	NT	73	NT	78	NT	58	NT	23,000	mg/kg
SAR Metals Analysis														
Calcium	200	140	210	130	900	320	510	70	2000	150	50	NT	NA	mg/L
Magnesium	31	23	55	17	170	56	88	12	180	39	11	NT	NA	mg/L
Sodium	2200	130	3500	20	8100	17	3400	4.9	260	140	21	NT	NA	mg/L
Sodium Adsorption Ratio	38	2.7	55	0.43	65	0.23	37	0.14	1.5	2.6	0.68	NT	<12	ratio
Polynuclear Aromatic Hydrocarbons														
Acenaphthene	<0.0079	NT	<0.0077	NT	<0.0079	NT	<0.0081	NT	<0.0077	NT	NT	NT	1,000	mg/kg
Anthracene	<0.0079	NT	<0.0077	NT	<0.0079	NT	<0.0081	NT	<0.0077	NT	NT	NT	1,000	mg/kg
Benzo(a)anthracene	<0.0079	NT	<0.0077	NT	0.022	NT	<0.0081	NT	<0.0077	NT	NT	NT	0.22	mg/kg
Benzo(a)pyrene	<0.0079	NT	<0.0077	NT	0.063	NT	<0.0081	NT	<0.0077	NT	NT	NT	0.022	mg/kg
Benzo(b)fluoranthene	<0.0079	NT	<0.0077	NT	0.060	NT	<0.0081	NT	<0.0077	NT	NT	NT	0.22	mg/kg
Benzo(k)fluoranthene	<0.0079	NT	<0.0077	NT	0.026	NT	<0.0081	NT	<0.0077	NT	NT	NT	2.2	mg/kg
Chrysene	<0.0079	NT	<0.0077	NT	0.017	NT	<0.0081	NT	<0.0077	NT	NT	NT	22	mg/kg
Dibenzo(a,h)anthracene	<0.0079	NT	<0.0077	NT	<0.0079	NT	<0.0081	NT	<0.0077	NT	NT	NT	0.022	mg/kg
Fluoranthene	<0.0079	NT	<0.0077	NT	0.026	NT	<0.0081	NT	<0.0077	NT	NT	NT	1,000	mg/kg
Fluorene	<0.0079	NT	<0.0077	NT	<0.0079	NT	<0.0081	NT	<0.0077	NT	NT	NT	1,000	mg/kg
Indeno(1,2,3-cd)pyrene	<0.0079	NT	<0.0077	NT	0.080	NT	<0.0081	NT	<0.0077	NT	NT	NT	0.22	mg/kg
Napthalene	<0.0079	NT	<0.0077	NT	<0.0079	NT	<0.0081	NT	<0.0077	NT	NT	NT	23	mg/kg
Pyrene	0.011	NT	<0.0077	NT	0.029	NT	<0.0081	NT	<0.0077	NT	NT	NT	1,000	mg/kg
General Chemistry														
Chromium, Hexavalent	1.2	NT	<1.2	NT	<1.1	NT	<1.2	NT	<1.2	NT	<1.0	NT	23	mg/kg
Chromium, Trivalent	13	NT	12	NT	13	NT	11	NT	13	NT	12	NT	120,000	mg/kg
Specific Conductivity	20	1.6	26	1.0	52	2.3	32	0.51	15	1.7	0.50	NT	<4 or 2 x the background	mmhos/cm
pH	8.4	NT	8.7	NT	8.1	NT	8.2	NT	7.7	NT	8.5	NT	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



29-Nov-2016

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

Re: **AC McLaughlin 56X Spill**

Work Order: **1611911**

Dear Tim,

ALS Environmental received 5 samples on 12-Nov-2016 10:00 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 30.

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

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: AC McLaughlin 56X Spill
Work Order: 1611911

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>
1611911-01	ACM 56X-SS1	Soil		11/9/2016 11:45	11/12/2016 10:00	<input type="checkbox"/>
1611911-02	ACM 56X-SS2	Soil		11/9/2016 12:00	11/12/2016 10:00	<input type="checkbox"/>
1611911-03	ACM 56X-SS3	Soil		11/9/2016 12:40	11/12/2016 10:00	<input type="checkbox"/>
1611911-04	ACM 56X-SS4	Soil		11/9/2016 12:50	11/12/2016 10:00	<input type="checkbox"/>
1611911-05	ACM 56X-SS5	Soil		11/9/2016 13:00	11/12/2016 10:00	<input type="checkbox"/>

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
WorkOrder: 1611911

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: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS1
Collection Date: 11/9/2016 11:45 AM

Work Order: 1611911
Lab ID: 1611911-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3541 / 11/18/16	Analyst: IT
DRO (C10-C28)	38		5.9	mg/Kg-dry	1	11/19/2016 01:23 AM
Surr: 4-Terphenyl-d14	58.4		39-133	%REC	1	11/19/2016 01:23 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 / 11/16/16	Analyst: IT
GRO (C6-C10)	ND		3.5	mg/Kg-dry	1	11/16/2016 06:05 PM
Surr: Toluene-d8	91.2		50-150	%REC	1	11/16/2016 06:05 PM
MERCURY BY CVAA						
			SW7471B		Prep: SW7471 / 11/25/16	Analyst: LR
Mercury	0.073		0.016	mg/Kg-dry	1	11/25/2016 09:22 PM
METALS ANALYSIS BY ICP						
			SW846 6010C		Prep: SW3050B / 11/17/16	Analyst: RH
Arsenic	8.6		0.44	mg/Kg-dry	1	11/17/2016 04:56 PM
Barium	260		0.44	mg/Kg-dry	1	11/17/2016 04:56 PM
Cadmium	ND		0.44	mg/Kg-dry	1	11/17/2016 04:56 PM
Chromium	13		0.44	mg/Kg-dry	1	11/17/2016 04:56 PM
Copper	15		0.44	mg/Kg-dry	1	11/17/2016 04:56 PM
Lead	20		0.44	mg/Kg-dry	1	11/17/2016 04:56 PM
Nickel	19		0.44	mg/Kg-dry	1	11/17/2016 04:56 PM
Selenium	0.92		0.89	mg/Kg-dry	1	11/17/2016 04:56 PM
Silver	ND		0.44	mg/Kg-dry	1	11/17/2016 04:56 PM
Zinc	81		0.89	mg/Kg-dry	1	11/17/2016 04:56 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Calcium	200		5.0	mg/L	10	11/18/2016 11:47 AM
Magnesium	31		2.0	mg/L	10	11/18/2016 11:47 AM
Sodium	2,200		2.0	mg/L	10	11/18/2016 11:47 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Exchangeable Sodium Percentage	36		0.010	none	1	11/17/2016
Sodium Adsorption Ratio	38		0.010	none	1	11/17/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3541 / 11/18/16	Analyst: RS
Acenaphthene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Anthracene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Benzo(a)anthracene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Benzo(a)pyrene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Benzo(b)fluoranthene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Benzo(k)fluoranthene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Chrysene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Dibenzo(a,h)anthracene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS1
Collection Date: 11/9/2016 11:45 AM

Work Order: 1611911
Lab ID: 1611911-01
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Fluorene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Indeno(1,2,3-cd)pyrene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Naphthalene	ND		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Pyrene	0.011		0.0079	mg/Kg-dry	1	11/19/2016 04:35 AM
Surr: 2-Fluorobiphenyl	87.7		12-100	%REC	1	11/19/2016 04:35 AM
Surr: 4-Terphenyl-d14	103		25-137	%REC	1	11/19/2016 04:35 AM
Surr: Nitrobenzene-d5	65.6		37-107	%REC	1	11/19/2016 04:35 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/16/16	Analyst: EMR	
Benzene	ND		0.041	mg/Kg-dry	1	11/20/2016 01:49 AM
Ethylbenzene	ND		0.041	mg/Kg-dry	1	11/20/2016 01:49 AM
m,p-Xylene	ND		0.083	mg/Kg-dry	1	11/20/2016 01:49 AM
o-Xylene	ND		0.041	mg/Kg-dry	1	11/20/2016 01:49 AM
Toluene	ND		0.041	mg/Kg-dry	1	11/20/2016 01:49 AM
Xylenes, Total	ND		0.12	mg/Kg-dry	1	11/20/2016 01:49 AM
Surr: 1,2-Dichloroethane-d4	97.2		70-130	%REC	1	11/20/2016 01:49 AM
Surr: 4-Bromofluorobenzene	98.2		70-130	%REC	1	11/20/2016 01:49 AM
Surr: Dibromofluoromethane	92.2		70-130	%REC	1	11/20/2016 01:49 AM
Surr: Toluene-d8	101		70-130	%REC	1	11/20/2016 01:49 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/18/16	Analyst: ED	
Electrical Conductivity @ Saturation	20		0.050	mmhos/cm @2	10	11/18/2016 03:10 PM
CHROMIUM, TRIVALENT			CALCULATION	Analyst: MB		
Chromium, Trivalent	13		0.59	mg/Kg-dry	1	11/21/2016 03:00 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/15/16	Analyst: MB	
Chromium, Hexavalent	ND		1.2	mg/Kg-dry	1	11/17/2016 10:30 AM
MOISTURE			SW3550C	Analyst: EDL		
Moisture	16		0.050	% of sample	1	11/14/2016 06:51 PM
PH			SW9045D	Prep: EXTRACT / 11/14/16	Analyst: RZM	
pH	8.4		s.u.	1		11/14/2016 04:05 PM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS2
Collection Date: 11/9/2016 12:00 PM

Work Order: 1611911
Lab ID: 1611911-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3541 / 11/18/16	Analyst: IT
DRO (C10-C28)	41		5.7	mg/Kg-dry	1	11/19/2016 01:53 AM
<i>Surr: 4-Terphenyl-d14</i>	<i>67.1</i>		<i>39-133</i>	<i>%REC</i>	<i>1</i>	11/19/2016 01:53 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 / 11/16/16	Analyst: IT
GRO (C6-C10)	ND		3.5	mg/Kg-dry	1	11/16/2016 06:30 PM
<i>Surr: Toluene-d8</i>	<i>98.2</i>		<i>50-150</i>	<i>%REC</i>	<i>1</i>	11/16/2016 06:30 PM
MERCURY BY CVAA						
			SW7471B		Prep: SW7471 / 11/25/16	Analyst: LR
Mercury	0.029		0.016	mg/Kg-dry	1	11/25/2016 09:24 PM
METALS ANALYSIS BY ICP						
			SW846 6010C		Prep: SW3050B / 11/17/16	Analyst: RH
Arsenic	7.9		0.49	mg/Kg-dry	1	11/17/2016 05:01 PM
Barium	130		0.49	mg/Kg-dry	1	11/17/2016 05:01 PM
Cadmium	ND		0.49	mg/Kg-dry	1	11/17/2016 05:01 PM
Chromium	12		0.49	mg/Kg-dry	1	11/17/2016 05:01 PM
Copper	13		0.49	mg/Kg-dry	1	11/17/2016 05:01 PM
Lead	14		0.49	mg/Kg-dry	1	11/17/2016 05:01 PM
Nickel	17		0.49	mg/Kg-dry	1	11/17/2016 05:01 PM
Selenium	ND		0.97	mg/Kg-dry	1	11/17/2016 05:01 PM
Silver	ND		0.49	mg/Kg-dry	1	11/17/2016 05:01 PM
Zinc	71		0.97	mg/Kg-dry	1	11/17/2016 05:01 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Calcium	210		5.0	mg/L	10	11/18/2016 11:53 AM
Magnesium	55		2.0	mg/L	10	11/18/2016 11:53 AM
Sodium	3,500		2.0	mg/L	10	11/18/2016 11:53 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Exchangeable Sodium Percentage	45		0.010	none	1	11/17/2016
Sodium Adsorption Ratio	55		0.010	none	1	11/17/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3541 / 11/18/16	Analyst: RS
Acenaphthene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Anthracene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Benzo(a)anthracene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Benzo(a)pyrene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Benzo(b)fluoranthene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Benzo(k)fluoranthene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Chrysene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Dibenzo(a,h)anthracene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS2
Collection Date: 11/9/2016 12:00 PM

Work Order: 1611911
Lab ID: 1611911-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Fluorene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Indeno(1,2,3-cd)pyrene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Naphthalene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Pyrene	ND		0.0077	mg/Kg-dry	1	11/19/2016 04:58 AM
Surr: 2-Fluorobiphenyl	85.5		12-100	%REC	1	11/19/2016 04:58 AM
Surr: 4-Terphenyl-d14	103		25-137	%REC	1	11/19/2016 04:58 AM
Surr: Nitrobenzene-d5	66.4		37-107	%REC	1	11/19/2016 04:58 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/16/16		Analyst: EMR
Benzene	ND		0.042	mg/Kg-dry	1	11/20/2016 02:10 AM
Ethylbenzene	ND		0.042	mg/Kg-dry	1	11/20/2016 02:10 AM
m,p-Xylene	ND		0.085	mg/Kg-dry	1	11/20/2016 02:10 AM
o-Xylene	ND		0.042	mg/Kg-dry	1	11/20/2016 02:10 AM
Toluene	ND		0.042	mg/Kg-dry	1	11/20/2016 02:10 AM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	11/20/2016 02:10 AM
Surr: 1,2-Dichloroethane-d4	94.4		70-130	%REC	1	11/20/2016 02:10 AM
Surr: 4-Bromofluorobenzene	99.7		70-130	%REC	1	11/20/2016 02:10 AM
Surr: Dibromofluoromethane	89.8		70-130	%REC	1	11/20/2016 02:10 AM
Surr: Toluene-d8	99.8		70-130	%REC	1	11/20/2016 02:10 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/18/16		Analyst: ED
Electrical Conductivity @ Saturation	26		0.050	mmhos/cm @2	10	11/18/2016 03:10 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	12		0.60	mg/Kg-dry	1	11/21/2016 03:00 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/15/16		Analyst: MB
Chromium, Hexavalent	ND		1.2	mg/Kg-dry	1	11/17/2016 10:30 AM
MOISTURE			SW3550C			Analyst: EDL
Moisture	17		0.050	% of sample	1	11/14/2016 06:51 PM
PH			SW9045D	Prep: EXTRACT / 11/14/16		Analyst: RZM
pH	8.7		s.u.		1	11/14/2016 04:05 PM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates

Project: AC McLaughlin 56X Spill

Sample ID: ACM 56X-SS3

Collection Date: 11/9/2016 12:40 PM

Work Order: 1611911

Lab ID: 1611911-03

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	89		SW8015M		Prep: SW3541 / 11/18/16	Analyst: IT
			5.9	mg/Kg-dry	1	11/18/2016 09:57 PM
Surr: 4-Terphenyl-d14	74.9		39-133	%REC	1	11/18/2016 09:57 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		SW8015D		Prep: SW5035 / 11/16/16	Analyst: IT
			3.6	mg/Kg-dry	1	11/16/2016 06:54 PM
Surr: Toluene-d8	96.2		50-150	%REC	1	11/16/2016 06:54 PM
MERCURY BY CVAA						
Mercury	0.026		SW7471B		Prep: SW7471 / 11/25/16	Analyst: LR
			0.016	mg/Kg-dry	1	11/25/2016 09:27 PM
METALS ANALYSIS BY ICP						
Arsenic	8.7		SW846 6010C		Prep: SW3050B / 11/17/16	Analyst: RH
			0.44	mg/Kg-dry	1	11/17/2016 05:07 PM
Barium	130		0.44	mg/Kg-dry	1	11/17/2016 05:07 PM
Cadmium	ND		0.44	mg/Kg-dry	1	11/17/2016 05:07 PM
Chromium	13		0.44	mg/Kg-dry	1	11/17/2016 05:07 PM
Copper	15		0.44	mg/Kg-dry	1	11/17/2016 05:07 PM
Lead	15		0.44	mg/Kg-dry	1	11/17/2016 05:07 PM
Nickel	20		0.44	mg/Kg-dry	1	11/17/2016 05:07 PM
Selenium	ND		0.88	mg/Kg-dry	1	11/17/2016 05:07 PM
Silver	ND		0.44	mg/Kg-dry	1	11/17/2016 05:07 PM
Zinc	79		0.88	mg/Kg-dry	1	11/17/2016 05:07 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Calcium	900		5.0	mg/L	10	11/18/2016 02:35 PM
Magnesium	170		2.0	mg/L	10	11/18/2016 02:35 PM
Sodium	8,100		20	mg/L	100	11/21/2016 02:25 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Exchangeable Sodium Percentage	49		0.010	none	1	11/17/2016
Sodium Adsorption Ratio	65		0.010	none	1	11/17/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3541 / 11/18/16	Analyst: RS
Acenaphthene	ND		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Anthracene	ND		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Benzo(a)anthracene	0.022		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Benzo(a)pyrene	0.063		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Benzo(b)fluoranthene	0.060		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Benzo(k)fluoranthene	0.026		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Chrysene	0.017		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Dibenzo(a,h)anthracene	ND		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS3
Collection Date: 11/9/2016 12:40 PM

Work Order: 1611911
Lab ID: 1611911-03
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	0.026		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Fluorene	ND		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Indeno(1,2,3-cd)pyrene	0.080		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Naphthalene	ND		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Pyrene	0.029		0.0079	mg/Kg-dry	1	11/19/2016 02:40 AM
Surr: 2-Fluorobiphenyl	82.6		12-100	%REC	1	11/19/2016 02:40 AM
Surr: 4-Terphenyl-d14	97.5		25-137	%REC	1	11/19/2016 02:40 AM
Surr: Nitrobenzene-d5	65.2		37-107	%REC	1	11/19/2016 02:40 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/16/16		
Benzene	ND		0.043	mg/Kg-dry	1	11/20/2016 02:31 AM
Ethylbenzene	ND		0.043	mg/Kg-dry	1	11/20/2016 02:31 AM
m,p-Xylene	ND		0.086	mg/Kg-dry	1	11/20/2016 02:31 AM
o-Xylene	ND		0.043	mg/Kg-dry	1	11/20/2016 02:31 AM
Toluene	ND		0.043	mg/Kg-dry	1	11/20/2016 02:31 AM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	11/20/2016 02:31 AM
Surr: 1,2-Dichloroethane-d4	95.8		70-130	%REC	1	11/20/2016 02:31 AM
Surr: 4-Bromofluorobenzene	98.8		70-130	%REC	1	11/20/2016 02:31 AM
Surr: Dibromofluoromethane	89.7		70-130	%REC	1	11/20/2016 02:31 AM
Surr: Toluene-d8	100		70-130	%REC	1	11/20/2016 02:31 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/18/16		
Electrical Conductivity @ Saturation	52		0.050	mmhos/cm @2	10	11/18/2016 03:10 PM
CHROMIUM, TRIVALENT			CALCULATION	Analyst: MB		
Chromium, Trivalent	13		0.61	mg/Kg-dry	1	11/21/2016 03:00 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/15/16		
Chromium, Hexavalent	ND		1.1	mg/Kg-dry	1	11/17/2016 10:30 AM
MOISTURE			SW3550C	Analyst: EDL		
Moisture	18		0.050	% of sample	1	11/14/2016 06:51 PM
PH			SW9045D	Prep: EXTRACT / 11/14/16		
pH	8.1		s.u.		1	11/14/2016 04:05 PM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS4
Collection Date: 11/9/2016 12:50 PM

Work Order: 1611911
Lab ID: 1611911-04
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3541 / 11/18/16	Analyst: IT
DRO (C10-C28)	40		6.1	mg/Kg-dry	1	11/19/2016 02:22 AM
<i>Surr: 4-Terphenyl-d14</i>	<i>64.8</i>		<i>39-133</i>	<i>%REC</i>	1	11/19/2016 02:22 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 / 11/16/16	Analyst: IT
GRO (C6-C10)	ND		3.8	mg/Kg-dry	1	11/16/2016 07:19 PM
<i>Surr: Toluene-d8</i>	<i>102</i>		<i>50-150</i>	<i>%REC</i>	1	11/16/2016 07:19 PM
MERCURY BY CVAA						
			SW7471B		Prep: SW7471 / 11/25/16	Analyst: LR
Mercury	0.022		0.016	mg/Kg-dry	1	11/25/2016 09:29 PM
METALS ANALYSIS BY ICP						
			SW846 6010C		Prep: SW3050B / 11/17/16	Analyst: RH
Arsenic	8.4		0.40	mg/Kg-dry	1	11/17/2016 05:12 PM
Barium	100		0.40	mg/Kg-dry	1	11/17/2016 05:12 PM
Cadmium	ND		0.40	mg/Kg-dry	1	11/17/2016 05:12 PM
Chromium	12		0.40	mg/Kg-dry	1	11/17/2016 05:12 PM
Copper	14		0.40	mg/Kg-dry	1	11/17/2016 05:12 PM
Lead	15		0.40	mg/Kg-dry	1	11/17/2016 05:12 PM
Nickel	18		0.40	mg/Kg-dry	1	11/17/2016 05:12 PM
Selenium	ND		0.79	mg/Kg-dry	1	11/18/2016 11:15 AM
Silver	ND		0.40	mg/Kg-dry	1	11/17/2016 05:12 PM
Zinc	73		0.79	mg/Kg-dry	1	11/17/2016 05:12 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Calcium	330		5.0	mg/L	10	11/18/2016 02:40 PM
Magnesium	59		2.0	mg/L	10	11/18/2016 02:40 PM
Sodium	2,000		2.0	mg/L	10	11/18/2016 02:40 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Exchangeable Sodium Percentage	28		0.010	none	1	11/17/2016
Sodium Adsorption Ratio	27		0.010	none	1	11/17/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3541 / 11/18/16	Analyst: RS
Acenaphthene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Anthracene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Benzo(a)anthracene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Benzo(a)pyrene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Benzo(b)fluoranthene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Benzo(k)fluoranthene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Chrysene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Dibenzo(a,h)anthracene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS4
Collection Date: 11/9/2016 12:50 PM

Work Order: 1611911
Lab ID: 1611911-04
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Fluorene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Indeno(1,2,3-cd)pyrene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Naphthalene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Pyrene	ND		0.0081	mg/Kg-dry	1	11/19/2016 05:21 AM
Surr: 2-Fluorobiphenyl	92.9		12-100	%REC	1	11/19/2016 05:21 AM
Surr: 4-Terphenyl-d14	104		25-137	%REC	1	11/19/2016 05:21 AM
Surr: Nitrobenzene-d5	71.3		37-107	%REC	1	11/19/2016 05:21 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/16/16 Analyst: EMR		
Benzene	ND		0.045	mg/Kg-dry	1	11/20/2016 02:51 AM
Ethylbenzene	ND		0.045	mg/Kg-dry	1	11/20/2016 02:51 AM
m,p-Xylene	ND		0.090	mg/Kg-dry	1	11/20/2016 02:51 AM
o-Xylene	ND		0.045	mg/Kg-dry	1	11/20/2016 02:51 AM
Toluene	ND		0.045	mg/Kg-dry	1	11/20/2016 02:51 AM
Xylenes, Total	ND		0.14	mg/Kg-dry	1	11/20/2016 02:51 AM
Surr: 1,2-Dichloroethane-d4	94.6		70-130	%REC	1	11/20/2016 02:51 AM
Surr: 4-Bromofluorobenzene	101		70-130	%REC	1	11/20/2016 02:51 AM
Surr: Dibromofluoromethane	90.4		70-130	%REC	1	11/20/2016 02:51 AM
Surr: Toluene-d8	101		70-130	%REC	1	11/20/2016 02:51 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/18/16 Analyst: ED		
Electrical Conductivity @ Saturation	32		0.050	mmhos/cm @2	10	11/18/2016 03:10 PM
CHROMIUM, TRIVALENT			CALCULATION	Analyst: MB		
Chromium, Trivalent	11		0.62	mg/Kg-dry	1	11/21/2016 03:00 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/15/16 Analyst: MB		
Chromium, Hexavalent	ND		1.2	mg/Kg-dry	1	11/17/2016 10:30 AM
MOISTURE			SW3550C	Analyst: EDL		
Moisture	20		0.050	% of sample	1	11/14/2016 06:51 PM
PH			SW9045D	Prep: EXTRACT / 11/14/16 Analyst: RZM		
pH	8.2		s.u.		1	11/14/2016 04:05 PM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS5
Collection Date: 11/9/2016 01:00 PM

Work Order: 1611911
Lab ID: 1611911-05
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3541 / 11/18/16	Analyst: IT
DRO (C10-C28)	35		5.7	mg/Kg-dry	1	11/19/2016 02:52 AM
<i>Surr: 4-Terphenyl-d14</i>	76.5		39-133	%REC	1	11/19/2016 02:52 AM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 / 11/16/16	Analyst: IT
GRO (C6-C10)	ND		3.5	mg/Kg-dry	1	11/16/2016 07:44 PM
<i>Surr: Toluene-d8</i>	88.8		50-150	%REC	1	11/16/2016 07:44 PM
MERCURY BY CVAA						
			SW7471B		Prep: SW7471 / 11/25/16	Analyst: LR
Mercury	0.017		0.015	mg/Kg-dry	1	11/25/2016 09:32 PM
METALS ANALYSIS BY ICP						
			SW846 6010C		Prep: SW3050B / 11/17/16	Analyst: RH
Arsenic	9.9		0.47	mg/Kg-dry	1	11/17/2016 05:17 PM
Barium	140		0.47	mg/Kg-dry	1	11/17/2016 05:17 PM
Cadmium	ND		0.47	mg/Kg-dry	1	11/17/2016 05:17 PM
Chromium	13		0.47	mg/Kg-dry	1	11/17/2016 05:17 PM
Copper	14		0.47	mg/Kg-dry	1	11/17/2016 05:17 PM
Lead	15		0.47	mg/Kg-dry	1	11/17/2016 05:17 PM
Nickel	19		0.47	mg/Kg-dry	1	11/17/2016 05:17 PM
Selenium	1.2		0.94	mg/Kg-dry	1	11/17/2016 05:17 PM
Silver	ND		0.47	mg/Kg-dry	1	11/17/2016 05:17 PM
Zinc	78		0.94	mg/Kg-dry	1	11/17/2016 05:17 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Calcium	2,000		5.0	mg/L	10	11/18/2016 02:46 PM
Magnesium	180		2.0	mg/L	10	11/18/2016 02:46 PM
Sodium	260		2.0	mg/L	10	11/18/2016 02:46 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 11/18/16	Analyst: RH
Exchangeable Sodium Percentage	0.92		0.010	none	1	11/17/2016
Sodium Adsorption Ratio	1.5		0.010	none	1	11/17/2016
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3541 / 11/18/16	Analyst: RS
Acenaphthene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Anthracene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Benzo(a)anthracene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Benzo(a)pyrene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Benzo(b)fluoranthene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Benzo(k)fluoranthene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Chrysene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Dibenzo(a,h)anthracene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM

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

ALS Group, USA

Date: 29-Nov-16

Client: Olsson Associates
Project: AC McLaughlin 56X Spill
Sample ID: ACM 56X-SS5
Collection Date: 11/9/2016 01:00 PM

Work Order: 1611911
Lab ID: 1611911-05
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Fluorene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Indeno(1,2,3-cd)pyrene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Naphthalene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Pyrene	ND		0.0077	mg/Kg-dry	1	11/19/2016 05:44 AM
Surr: 2-Fluorobiphenyl	87.4		12-100	%REC	1	11/19/2016 05:44 AM
Surr: 4-Terphenyl-d14	101		25-137	%REC	1	11/19/2016 05:44 AM
Surr: Nitrobenzene-d5	64.4		37-107	%REC	1	11/19/2016 05:44 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 11/16/16 Analyst: EMR		
Benzene	ND		0.042	mg/Kg-dry	1	11/20/2016 03:12 AM
Ethylbenzene	ND		0.042	mg/Kg-dry	1	11/20/2016 03:12 AM
m,p-Xylene	ND		0.085	mg/Kg-dry	1	11/20/2016 03:12 AM
o-Xylene	ND		0.042	mg/Kg-dry	1	11/20/2016 03:12 AM
Toluene	ND		0.042	mg/Kg-dry	1	11/20/2016 03:12 AM
Xylenes, Total	ND		0.13	mg/Kg-dry	1	11/20/2016 03:12 AM
Surr: 1,2-Dichloroethane-d4	96.4		70-130	%REC	1	11/20/2016 03:12 AM
Surr: 4-Bromofluorobenzene	98.6		70-130	%REC	1	11/20/2016 03:12 AM
Surr: Dibromofluoromethane	90.0		70-130	%REC	1	11/20/2016 03:12 AM
Surr: Toluene-d8	102		70-130	%REC	1	11/20/2016 03:12 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 11/18/16 Analyst: ED		
Electrical Conductivity @ Saturation	15		0.050	mmhos/cm @2	10	11/18/2016 03:10 PM
CHROMIUM, TRIVALENT			CALCULATION	Analyst: MB		
Chromium, Trivalent	13		0.60	mg/Kg-dry	1	11/21/2016 03:00 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 11/15/16 Analyst: MB		
Chromium, Hexavalent	ND		1.2	mg/Kg-dry	1	11/17/2016 10:30 AM
MOISTURE			SW3550C	Analyst: EDL		
Moisture	17		0.050	% of sample	1	11/14/2016 06:51 PM
PH			SW9045D	Prep: EXTRACT / 11/14/16 Analyst: RZM		
pH	7.7			s.u.	1	11/14/2016 04:05 PM

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

Client: Olsson Associates

Work Order: 1611911

Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: 94766

Instrument ID GC8

Method: SW8015M

MBLK		Sample ID: DBLKS1-94766-94766				Units: mg/Kg		Analysis Date: 11/18/2016 07:59 PM		
Client ID:		Run ID: GC8_161118A				SeqNo: 4164678		Prep Date: 11/18/2016		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

2.464

0

3.33

0

74

39-133

0

LCS		Sample ID: DLCSS1-94766-94766				Units: mg/Kg		Analysis Date: 11/18/2016 08:28 PM		
Client ID:		Run ID: GC8_161118A				SeqNo: 4164679		Prep Date: 11/18/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

258.9

5.0

333

0

77.7

61-109

0

Surr: 4-Terphenyl-d14

1.876

0

3.33

0

56.3

39-133

0

MS		Sample ID: 1611911-03A MS				Units: mg/Kg		Analysis Date: 11/18/2016 08:58 PM		
Client ID: ACM 56X-SS3		Run ID: GC8_161118A				SeqNo: 4164680		Prep Date: 11/18/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

297

4.9

324.9

72.63

69.1

48-110

0

Surr: 4-Terphenyl-d14

1.86

0

3.249

0

57.2

39-133

0

MSD		Sample ID: 1611911-03A MSD				Units: mg/Kg		Analysis Date: 11/18/2016 09:27 PM		
Client ID: ACM 56X-SS3		Run ID: GC8_161118A				SeqNo: 4164681		Prep Date: 11/18/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

284

4.9

324.1

72.63

65.2

48-110

297

4.47

30

Surr: 4-Terphenyl-d14

1.891

0

3.241

0

58.3

39-133

1.86

1.66

30

The following samples were analyzed in this batch:

1611911-01A

1611911-02A

1611911-03A

1611911-04A

1611911-05A

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

Client: Olsson Associates
 Work Order: 1611911
 Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **94638** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-94638-94638				Units: µg/Kg-dry		Analysis Date: 11/16/2016 12:41 PM		
Client ID:		Run ID: GC9_161116A				SeqNo: 4158717		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

GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	4462	0	5000	0	89.2	50-150	0			

LCS		Sample ID: LCS-94638-94638				Units: µg/Kg-dry		Analysis Date: 11/16/2016 12:16 PM		
Client ID:		Run ID: GC9_161116A				SeqNo: 4158716		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

GRO (C6-C10)	480200	2,500	500000	0	96	70-130	0			
Surr: Toluene-d8	4858	0	5000	0	97.2	50-150	0			

MS		Sample ID: 1611909-01A MS				Units: µg/Kg-dry		Analysis Date: 11/16/2016 03:35 PM		
Client ID:		Run ID: GC9_161116A				SeqNo: 4158724		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

GRO (C6-C10)	601100	2,800	561600	0	107	70-130	0			
Surr: Toluene-d8	6123	0	5616	0	109	50-150	0			

MSD		Sample ID: 1611909-01A MSD				Units: µg/Kg-dry		Analysis Date: 11/16/2016 04:00 PM		
Client ID:		Run ID: GC9_161116A				SeqNo: 4158725		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

GRO (C6-C10)	576800	2,800	561600	0	103	70-130	601100	4.13	30	
Surr: Toluene-d8	5811	0	5616	0	103	50-150	6123	5.23	30	

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
Work Order: 1611911
Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **95031** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-95031-95031				Units: mg/Kg		Analysis Date: 11/25/2016 08:40 PM			
Client ID:		Run ID: HG1_161125A				SeqNo: 4171878		Prep Date: 11/25/2016		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-95031-95031				Units: mg/Kg		Analysis Date: 11/25/2016 08:42 PM		
Client ID:		Run ID: HG1_161125A			SeqNo: 4171879		Prep Date: 11/25/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1792 0.020 0.1665 0 108 80-120 0

MS		Sample ID: 16111329-03BMS					Units: mg/Kg		Analysis Date: 11/25/2016 09:06 PM	
Client ID:			Run ID: HG1_161125A			SeqNo: 4171886		Prep Date: 11/25/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1109 0.012 0.1041 0.001312 105 75-125 0

MSD		Sample ID: 16111329-03BMSD				Units: mg/Kg		Analysis Date: 11/25/2016 09:09 PM		
Client ID:		Run ID: HG1_161125A			SeqNo: 4171887		Prep Date: 11/25/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1183 0.013 0.1046 0.001312 112 75-125 0.1109 6.44 35

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
 Work Order: 1611911
 Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: 94709 Instrument ID ICP2 Method: SW846 6010C

MBLK		Sample ID: MBLK-94709-94709				Units: mg/Kg		Analysis Date: 11/17/2016 04:34 PM		
Client ID:		Run ID: ICP2_161117A				SeqNo: 4160234		Prep Date: 11/17/2016		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	ND	0.50								
Chromium	0.02024	0.25								J
Copper	ND	0.50								
Lead	ND	0.25								
Nickel	ND	0.25								
Selenium	ND	0.50								
Silver	ND	0.25								
Zinc	0.04456	0.50								J

LCS		Sample ID: LCS-94709-94709				Units: mg/Kg		Analysis Date: 11/17/2016 04:40 PM		
Client ID:		Run ID: ICP2_161117A				SeqNo: 4160235		Prep Date: 11/17/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.794	0.25	5	0	95.9	80-120	0			
Barium	4.878	0.25	5	0	97.6	80-120	0			
Cadmium	4.862	0.50	5	0	97.2	80-120	0			
Chromium	4.984	0.25	5	0	99.7	80-120	0			
Copper	4.901	0.50	5	0	98	80-120	0			
Lead	4.742	0.25	5	0	94.8	80-120	0			
Nickel	4.78	0.25	5	0	95.6	80-120	0			
Selenium	4.549	0.50	5	0	91	80-120	0			
Silver	4.633	0.25	5	0	92.7	80-120	0			
Zinc	4.774	0.50	5	0	95.5	80-120	0			

MS		Sample ID: 1611924-03AMS				Units: mg/Kg		Analysis Date: 11/17/2016 06:17 PM		
Client ID:		Run ID: ICP2_161117A				SeqNo: 4160260		Prep Date: 11/17/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	15.76	0.36	7.194	8.447	102	75-125	0			
Barium	134.6	0.36	7.194	129.6	69.1	75-125	0			SO
Cadmium	7.35	0.72	7.194	0.1309	100	75-125	0			
Chromium	19.61	0.36	7.194	10.13	132	75-125	0			S
Copper	19.08	0.72	7.194	12.67	89.2	75-125	0			
Lead	19.88	0.36	7.194	14.16	79.5	75-125	0			
Nickel	22.91	0.36	7.194	16.67	86.7	75-125	0			
Selenium	7.347	0.72	7.194	0.3255	97.6	75-125	0			
Silver	6.7	0.36	7.194	-0.04133	93.7	75-125	0			
Zinc	76.63	0.72	7.194	70.54	84.7	75-125	0			O

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

Client: Olsson Associates
Work Order: 1611911
Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **94709** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 1611924-03AMSD				Units: mg/Kg		Analysis Date: 11/17/2016 06:23 PM		
Client ID:		Run ID: ICP2_161117A				SeqNo: 4160261		Prep Date: 11/17/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	15.51	0.36	7.174	8.447	98.5	75-125	15.76	1.55	20	
Barium	142.5	0.36	7.174	129.6	180	75-125	134.6	5.74	20	SO
Cadmium	7.304	0.72	7.174	0.1309	100	75-125	7.35	0.629	20	
Chromium	19.77	0.36	7.174	10.13	134	75-125	19.61	0.829	20	S
Copper	19.14	0.72	7.174	12.67	90.2	75-125	19.08	0.284	20	
Lead	19.59	0.36	7.174	14.16	75.7	75-125	19.88	1.46	20	
Nickel	22.66	0.36	7.174	16.67	83.5	75-125	22.91	1.1	20	
Selenium	6.909	0.72	7.174	0.3255	91.8	75-125	7.347	6.14	20	
Silver	6.672	0.36	7.174	-0.04133	93.6	75-125	6.7	0.42	20	
Zinc	75.52	0.72	7.174	70.54	69.5	75-125	76.63	1.46	20	SO

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
Work Order: 1611911
Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **94782** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 1611911-02ADUP				Units: none		Analysis Date: 11/17/2016		
Client ID: ACM 56X-SS2		Run ID: SAR_161117A				SeqNo: 4161546		Prep Date: 11/18/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Exchangeable Sodium Percentage	37.79	0.010	0	0	0		44.58	16.5	50	
Sodium Adsorption Ratio	42.05	0.010	0	0	0		55.39	27.4	50	

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
 Work Order: 1611911
 Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: 94765 Instrument ID SVMS5 Method: SW846 8270D

MBLK		Sample ID: SBLKS1-94765-94765				Units: µg/Kg		Analysis Date: 11/18/2016 09:50 PM		
Client ID:		Run ID: SVMS5_161118A				SeqNo: 4162594		Prep Date: 11/18/2016		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	3421	0	3333	0	103	12-100	0			S
Surr: 4-Terphenyl-d14	3579	0	3333	0	107	25-137	0			
Surr: Nitrobenzene-d5	2579	0	3333	0	77.4	37-107	0			

LCS		Sample ID: SLCSS1-94765-94765				Units: µg/Kg		Analysis Date: 11/18/2016 10:13 PM		
Client ID:		Run ID: SVMS5_161118A				SeqNo: 4162595		Prep Date: 11/18/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1249	6.7	1333	0	93.7	45-110	0			
Anthracene	1257	6.7	1333	0	94.3	55-105	0			
Benzo(a)anthracene	1307	6.7	1333	0	98.1	50-110	0			
Benzo(a)pyrene	1181	6.7	1333	0	88.6	50-110	0			
Benzo(b)fluoranthene	1237	6.7	1333	0	92.8	45-115	0			
Benzo(k)fluoranthene	1258	6.7	1333	0	94.4	45-115	0			
Chrysene	1295	6.7	1333	0	97.2	55-110	0			
Dibenzo(a,h)anthracene	1181	6.7	1333	0	88.6	40-125	0			
Fluoranthene	1215	6.7	1333	0	91.2	55-115	0			
Fluorene	1272	6.7	1333	0	95.4	50-110	0			
Indeno(1,2,3-cd)pyrene	1140	6.7	1333	0	85.5	40-120	0			
Naphthalene	1103	6.7	1333	0	82.8	40-105	0			
Pyrene	1487	6.7	1333	0	112	45-125	0			
Surr: 2-Fluorobiphenyl	3357	0	3333	0	101	12-100	0			S
Surr: 4-Terphenyl-d14	3664	0	3333	0	110	25-137	0			
Surr: Nitrobenzene-d5	2748	0	3333	0	82.4	37-107	0			

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

Client: Olsson Associates
 Work Order: 1611911
 Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: 94765 Instrument ID SVMS5 Method: SW846 8270D

MS				Sample ID: 1611911-03A MS			Units: µg/Kg		Analysis Date: 11/19/2016 01:54 A	
Client ID: ACM 56X-SS3				Run ID: SVMS5_161118A			SeqNo: 4162598		Prep Date: 11/18/2016	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1063	6.5	1292	0	82.3	45-110	0			
Anthracene	1097	6.5	1292	5.176	84.5	55-105	0			
Benzo(a)anthracene	1122	6.5	1292	18.12	85.4	50-110	0			
Benzo(a)pyrene	1031	6.5	1292	51.76	75.8	50-110	0			
Benzo(b)fluoranthene	1010	6.5	1292	49.17	74.4	45-115	0			
Benzo(k)fluoranthene	1049	6.5	1292	21.35	79.5	45-115	0			
Chrysene	1112	6.5	1292	14.23	85	55-110	0			
Dibenzo(a,h)anthracene	1152	6.5	1292	0	89.2	40-125	0			
Fluoranthene	1064	6.5	1292	21.35	80.7	55-115	0			
Fluorene	1102	6.5	1292	0	85.3	50-110	0			
Indeno(1,2,3-cd)pyrene	1101	6.5	1292	65.35	80.1	40-120	0			
Naphthalene	905.4	6.5	1292	0	70.1	40-105	0			
Pyrene	1236	6.5	1292	23.94	93.8	45-125	0			
Surr: 2-Fluorobiphenyl	2787	0	3231	0	86.2	12-100	0			
Surr: 4-Terphenyl-d14	3064	0	3231	0	94.8	25-137	0			
Surr: Nitrobenzene-d5	2299	0	3231	0	71.2	37-107	0			

MSD				Sample ID: 1611911-03A MSD			Units: µg/Kg		Analysis Date: 11/19/2016 02:17 A	
Client ID: ACM 56X-SS3				Run ID: SVMS5_161118A			SeqNo: 4162599		Prep Date: 11/18/2016	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1061	6.5	1303	0	81.4	45-110	1063	0.169	30	
Anthracene	1089	6.5	1303	5.176	83.2	55-105	1097	0.674	30	
Benzo(a)anthracene	1117	6.5	1303	18.12	84.3	50-110	1122	0.406	30	
Benzo(a)pyrene	1033	6.5	1303	51.76	75.2	50-110	1031	0.115	30	
Benzo(b)fluoranthene	1036	6.5	1303	49.17	75.7	45-115	1010	2.52	30	
Benzo(k)fluoranthene	1009	6.5	1303	21.35	75.8	45-115	1049	3.86	30	
Chrysene	1118	6.5	1303	14.23	84.7	55-110	1112	0.52	30	
Dibenzo(a,h)anthracene	1113	6.5	1303	0	85.4	40-125	1152	3.43	30	
Fluoranthene	1041	6.5	1303	21.35	78.2	55-115	1064	2.21	30	
Fluorene	1124	6.5	1303	0	86.2	50-110	1102	1.98	30	
Indeno(1,2,3-cd)pyrene	1090	6.5	1303	65.35	78.6	40-120	1101	0.967	30	
Naphthalene	886.6	6.5	1303	0	68	40-105	905.4	2.1	30	
Pyrene	1242	6.5	1303	23.94	93.4	45-125	1236	0.451	30	
Surr: 2-Fluorobiphenyl	2774	0	3259	0	85.1	12-100	2787	0.461	40	
Surr: 4-Terphenyl-d14	3001	0	3259	0	92.1	25-137	3064	2.06	40	
Surr: Nitrobenzene-d5	2283	0	3259	0	70	37-107	2299	0.717	40	

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
 Work Order: 1611911
 Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: 94650 Instrument ID VMS9 Method: SW8260B

MBLK Sample ID: MBLK-94650-94650				Units: µg/Kg-dry			Analysis Date: 11/16/2016 01:20 PM			
Client ID:		Run ID: VMS9_161116A		SeqNo: 4158488		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
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	1022	0	1000	0	102	70-130	0			
Surr: 4-Bromofluorobenzene	950	0	1000	0	95	70-130	0			
Surr: Dibromofluoromethane	929	0	1000	0	92.9	70-130	0			
Surr: Toluene-d8	1004	0	1000	0	100	70-130	0			

LCS Sample ID: LCS-94650-94650				Units: µg/Kg-dry			Analysis Date: 11/16/2016 12:06 PM			
Client ID:		Run ID: VMS9_161116A		SeqNo: 4158487		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
Benzene	987.5	30	1000	0	98.8	75-125	0			
Ethylbenzene	1008	30	1000	0	101	75-125	0			
m,p-Xylene	2090	60	2000	0	104	80-125	0			
o-Xylene	1016	30	1000	0	102	75-125	0			
Toluene	993	30	1000	0	99.3	70-125	0			
Xylenes, Total	3106	90	3000	0	104	75-125	0			
Surr: 1,2-Dichloroethane-d4	996	0	1000	0	99.6	70-130	0			
Surr: 4-Bromofluorobenzene	993.5	0	1000	0	99.4	70-130	0			
Surr: Dibromofluoromethane	993	0	1000	0	99.3	70-130	0			
Surr: Toluene-d8	1002	0	1000	0	100	70-130	0			

MS Sample ID: 1611924-04A MS				Units: µg/Kg-dry			Analysis Date: 11/21/2016 02:45 A			
Client ID:		Run ID: VMS5_161120A		SeqNo: 4164708		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
Benzene	1616	45	1500	0	108	75-125	0			
Ethylbenzene	1655	45	1500	0	110	75-125	0			
m,p-Xylene	3302	90	3000	0	110	80-125	0			
o-Xylene	1622	45	1500	0	108	75-125	0			
Toluene	1648	45	1500	0	110	70-125	0			
Xylenes, Total	4923	140	4500	0	109	75-125	0			
Surr: 1,2-Dichloroethane-d4	1270	0	1500	0	84.6	70-130	0			
Surr: 4-Bromofluorobenzene	1416	0	1500	0	94.4	70-130	0			
Surr: Dibromofluoromethane	1444	0	1500	0	96.2	70-130	0			
Surr: Toluene-d8	1485	0	1500	0	99	70-130	0			

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

Client: Olsson Associates
 Work Order: 1611911
 Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **94650** Instrument ID **VMS9** Method: **SW8260B**

MSD				Sample ID: 1611924-04A MSD			Units: µg/Kg-dry		Analysis Date: 11/21/2016 03:11 A		
Client ID:		Run ID: VMS5_161120A			SeqNo: 4164709		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	
Benzene	1635	45	1500	0	109	75-125	1616	1.15	30		
Ethylbenzene	1707	45	1500	0	114	75-125	1655	3.08	30		
m,p-Xylene	3384	90	3000	0	113	80-125	3302	2.47	30		
o-Xylene	1649	45	1500	0	110	75-125	1622	1.7	30		
Toluene	1696	45	1500	0	113	70-125	1648	2.92	30		
Xylenes, Total	5033	140	4500	0	112	75-125	4923	2.21	30		
Surr: 1,2-Dichloroethane-d4	1264	0	1500	0	84.2	70-130	1270	0.474	30		
Surr: 4-Bromofluorobenzene	1416	0	1500	0	94.4	70-130	1416	0	30		
Surr: Dibromofluoromethane	1426	0	1500	0	95.1	70-130	1444	1.2	30		
Surr: Toluene-d8	1506	0	1500	0	100	70-130	1485	1.4	30		

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
Work Order: 1611911
Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **94502** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-94502-94502				Units: s.u.			Analysis Date: 11/14/2016 04:05 PM		
Client ID:				Run ID: WETCHEM_161114N				SeqNo: 4151908		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			
pH	3.95	0	4	0	98.8	90-110	0						

DUP				Sample ID: 1611728-01A DUP				Units: s.u.		Analysis Date: 11/14/2016 04:05 PM	
Client ID:			Run ID: WETCHEM_161114N			SeqNo: 4151915		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	
pH	7.7	0	0	0	0	0-0	7.73	0.389	20		

DUP				Sample ID: 1611924-01A DUP				Units: s.u.			Analysis Date: 11/14/2016 04:05 PM		
Client ID:				Run ID: WETCHEM_161114N				SeqNo: 4151927		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			
pH	7.67	0	0	0	0	0-0	7.75	1.04	20				

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
 Work Order: 1611911
 Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **94616** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-94616-94616				Units: mg/Kg		Analysis Date: 11/17/2016 10:30 A		
Client ID:		Run ID: WETCHEM_161117E		SeqNo: 4158686		Prep Date: 11/15/2016		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-94616-94616				Units: mg/Kg		Analysis Date: 11/17/2016 10:30 A		
Client ID:		Run ID: WETCHEM_161117E		SeqNo: 4158685		Prep Date: 11/15/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.3 1.0 5 0 86 80-120 0

MS		Sample ID: 1611924-03A MS				Units: mg/Kg		Analysis Date: 11/17/2016 10:30 A		
Client ID:		Run ID: WETCHEM_161117E		SeqNo: 4158680		Prep Date: 11/15/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3.42 1.0 5 0.0198 68 75-125 0 S

MS		Sample ID: 1611924-03A MSI				Units: mg/Kg		Analysis Date: 11/17/2016 10:30 A		
Client ID:		Run ID: WETCHEM_161117E		SeqNo: 4158682		Prep Date: 11/15/2016		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3036 100 3170 0.0198 95.8 75-125 0

MSD		Sample ID: 1611924-03A MSD				Units: mg/Kg		Analysis Date: 11/17/2016 10:30 A		
Client ID:		Run ID: WETCHEM_161117E		SeqNo: 4158681		Prep Date: 11/15/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3.67 1.0 5 0.0198 73 75-125 3.42 7.05 20 S

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
Work Order: 1611911
Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **94782** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP		Sample ID: 1611911-02ADUP				Units: mmhos/cm @25°		Analysis Date: 11/18/2016 03:10 PM		
Client ID: ACM 56X-SS2		Run ID: WETCHEM_161118M		SeqNo: 4162058		Prep Date: 11/18/2016		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	19.31	0.050	0	0	0		25.9	29.2	50	

DUP		Sample ID: 1611924-04A DUP				Units: mmhos/cm @25°		Analysis Date: 11/18/2016 03:10 PM		
Client ID:		Run ID: WETCHEM_161118M		SeqNo: 4162070		Prep Date: 11/18/2016		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	3.7	0.050	0	0	0		3.87	4.49	50	

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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

Client: Olsson Associates
Work Order: 1611911
Project: AC McLaughlin 56X Spill

QC BATCH REPORT

Batch ID: **R200613** Instrument ID **MOIST** Method: **SW3550C**

MBLK				Sample ID: WBLKS-R200613				Units: % of sample			Analysis Date: 11/14/2016 06:51 PM		
Client ID:				Run ID: MOIST_161114E				SeqNo: 4153211		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Moisture	0.04	0.050								J			

LCS		Sample ID: LCS-R200613				Units: % of sample		Analysis Date: 11/14/2016 06:51 PM		
Client ID:		Run ID: MOIST_161114E				SeqNo: 4153210		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: 1611911-04A DUP				Units: % of sample			Analysis Date: 11/14/2016 06:51 PM			
Client ID: ACM 56X-SS4				Run ID: MOIST_161114E				SeqNo: 4153200			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Moisture	21.01	0.050	0	0	0		19.72	6.33	20					

DUP				Sample ID: 1611914-03A DUP				Units: % of sample			Analysis Date: 11/14/2016 06:51 PM			
Client ID:				Run ID: MOIST_161114E				SeqNo: 4153205			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Moisture	19.71	0.050	0	0	0		19.91	1.01	20					

The following samples were analyzed in this batch:

1611911-01A	1611911-02A	1611911-03A
1611911-04A	1611911-05A	

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



Environmental

Chain of Custody Form

Page 1 of 1

COC ID: 123456

- | | | |
|--|--|--|
| <input type="checkbox"/> Cincinnati, OH
+1 513 733 5335 | <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
+1 717 503 5280 |

Customer Information		Project Information						Parameter/Method Request for Analysis											
Purchase Order		Project Name	AC McLaughlin 56X 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 810											
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 81508	City/State/Zip	Grand Junction, CO 81508					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@olssonconsulting.com	e-Mail Address						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	ACM 56X-SS1	11/09/16	1145	Soil	8	2	X	X	X	X	X	X	X						
2	ACM 56X-SS2	11/09/16	1200	Soil	8	2	X	X	X	X	X	X	X						
3	ACM 56X-SS3	11/09/16	1240	Soil	8	2	X	X	X	X	X	X	X						
4	ACM 56X-SS4	11/09/16	1250	Soil	8	2	X	X	X	X	X	X	X						
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			

Sampler(s): Please Print & Sign Jason McLarty <i>[Signature]</i>		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	Results Due Date:
Relinquished by: <i>[Signature]</i>	Date: 11/11/16	Time: 1000	Received by: <i>[Signature]</i>	Notes: Chevron Pricing Applies - Per Bruce Schlatter
Relinquished by: <i>[Signature]</i>	Date: 11/11/16	Time: 1720	Received by (Laboratory): <i>[Signature]</i> 11/12/16 1000	Cooler Temp: 4.4°C
Logged by (Laboratory): DES	Date: 11/14/16	Time: 0945	Checked by (Laboratory): <i>[Signature]</i>	QC Package: (Check Box Below) <input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like Other:
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035				

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

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ORIGIN ID: RILA (616) 288-1033
 NICK MARTINEZ
 ALS ENVIRONMENTAL PARACHUTE
 PARACHUTE SERVICE CENTER
 127 EAST 1ST ST
 PARACHUTE, CO 81635
 UNITED STATES US

SHIP DATE: 11NOV16
 ACTWGT: 63.00 LB
 CAD: 2264840/NET 3790
 DIMS: 13x20x14 IN
 BILL SENDER

TO **SAMPLE RECEIVING**
ALS ENVIRONMENTAL HOLLAND LAB
3352 128TH AVE

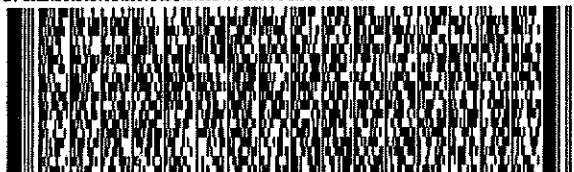
HOLLAND MI 49424

(616) 399-6070
 PO: PARACHUTE

REF: 1111163

DEPT:

544.130381/14EB



FedEx Express



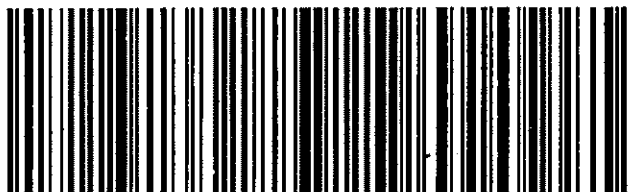
REL# 3785346

1 of 3
 TRK# 7776 9828 6257
 0201
 ## MASTER ##

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO HLMA

49424
MI-US GRR



After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number. Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value. Additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Damage whether direct, incidental, consequential, or special is covered from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, or limited to the greater of \$100 or the authorized declared value. Extraordinary value is \$1,000, e.g. jewelry, precious metals, and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see d

ALS Environmental
 3352 128th Avenue
 Holland, Michigan 49424
 Tel. +1 616 399 6070
 Fax. +1 616 399 6185

BODY SEAL	Seal Broken By:
	Date:
Time: 17:50	

SD

Ex Saturday Delivery

Sample Receipt Checklist

Client Name: **OLSSON**

Date/Time Received: **12-Nov-16 10:00**

Work Order: **1611911**

Received by: **DS**

Checklist completed by Diane Shaw 14-Nov-16
eSignature Date

Reviewed by: Chad Whelton 14-Nov-16
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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input 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>4.4/4.4 c</u> <u>SR2</u>		
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>11/14/2016 9:48:06 AM</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:



30-Oct-2017

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

Re: **ACM 56X Spill Resampling**

Work Order: **17101499**

Dear Tim,

ALS Environmental received 6 samples on 23-Oct-2017 09:00 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 14.

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

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: ACM 56X Spill Resampling
Work Order: 17101499

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>
17101499-01	ACM56X-SS1	Soil		10/19/2017 11:05	10/23/2017 09:00	<input type="checkbox"/>
17101499-02	ACM56X-SS2	Soil		10/19/2017 11:15	10/23/2017 09:00	<input type="checkbox"/>
17101499-03	ACM56X-SS3	Soil		10/19/2017 11:20	10/23/2017 09:00	<input type="checkbox"/>
17101499-04	ACM56X-SS4	Soil		10/19/2017 11:25	10/23/2017 09:00	<input type="checkbox"/>
17101499-05	ACM56X-SS5	Soil		10/19/2017 11:35	10/23/2017 09:00	<input type="checkbox"/>
17101499-06	ACM56X-BG1	Soil		10/19/2017 11:00	10/23/2017 09:00	<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
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	

ALS Group, USA**Date:** 30-Oct-17

Client: Olsson Associates
Project: ACM 56X Spill Resampling
Sample ID: ACM56X-SS1
Collection Date: 10/19/2017 11:05 AM

Work Order: 17101499
Lab ID: 17101499-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/27/17		Analyst: RH
Sodium Adsorption Ratio	2.7		0.010	0.010	none	1	10/27/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/27/17		Analyst: JF
Calcium	140		0.86	5.0	mg/L	10	10/27/2017 15:36
Magnesium	23		0.068	2.0	mg/L	10	10/27/2017 15:36
Sodium	130		0.34	2.0	mg/L	10	10/27/2017 15:36
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/27/17		Analyst: ED
Electrical Conductivity @ Saturation	1.6		0.011	0.10	mmhos/cm @25°	20	10/28/2017 17:10

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

ALS Group, USA**Date:** 30-Oct-17

Client: Olsson Associates
Project: ACM 56X Spill Resampling
Sample ID: ACM56X-SS2
Collection Date: 10/19/2017 11:15 AM

Work Order: 17101499
Lab ID: 17101499-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
SODIUM ADSORPTION RATIO				Method: USDA H60 METHOD 2	Prep: USDA Method 20B / 10/27/17		Analyst: RH
Sodium Adsorption Ratio	0.43		0.010	0.010	none	1	10/27/2017
SOLUBLE CATIONS FOR SAR				Method: SW6020A	Prep: USDA Method 20B / 10/27/17		Analyst: JF
Calcium	130		0.86	5.0	mg/L	10	10/27/2017 15:42
Magnesium	17		0.068	2.0	mg/L	10	10/27/2017 15:42
Sodium	20		0.34	2.0	mg/L	10	10/27/2017 15:42
ELECTRICAL CONDUCTIVITY (SAR)				Method: USDA H60 METHOD 2	Prep: USDA Method 20B / 10/27/17		Analyst: ED
Electrical Conductivity @ Saturation	1.0		0.011	0.10	mmhos/cm @25°	20	10/28/2017 17:10

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

ALS Group, USA**Date:** 30-Oct-17

Client: Olsson Associates
Project: ACM 56X Spill Resampling
Sample ID: ACM56X-SS3
Collection Date: 10/19/2017 11:20 AM

Work Order: 17101499
Lab ID: 17101499-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/27/17		Analyst: RH
Sodium Adsorption Ratio	0.23		0.010	0.010	none	1	10/27/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/27/17		Analyst: JF
Calcium	320		0.86	5.0	mg/L	10	10/27/2017 15:44
Magnesium	56		0.068	2.0	mg/L	10	10/27/2017 15:44
Sodium	17		0.34	2.0	mg/L	10	10/27/2017 15:44
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/27/17		Analyst: ED
Electrical Conductivity @ Saturation	2.3		0.011	0.10	mmhos/cm @25°	20	10/28/2017 17:10

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

ALS Group, USA**Date:** 30-Oct-17

Client: Olsson Associates
Project: ACM 56X Spill Resampling
Sample ID: ACM56X-SS4
Collection Date: 10/19/2017 11:25 AM

Work Order: 17101499
Lab ID: 17101499-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/27/17		Analyst: RH
Sodium Adsorption Ratio	0.14		0.010	0.010	none	1	10/27/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/27/17		Analyst: JF
Calcium	70		0.86	5.0	mg/L	10	10/27/2017 15:45
Magnesium	12		0.068	2.0	mg/L	10	10/27/2017 15:45
Sodium	4.9		0.34	2.0	mg/L	10	10/27/2017 15:45
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/27/17		Analyst: ED
Electrical Conductivity @ Saturation	0.51		0.011	0.10	mmhos/cm @25°	20	10/28/2017 17:10

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

ALS Group, USA**Date:** 30-Oct-17

Client: Olsson Associates
Project: ACM 56X Spill Resampling
Sample ID: ACM56X-SS5
Collection Date: 10/19/2017 11:35 AM

Work Order: 17101499
Lab ID: 17101499-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/27/17		Analyst: RH
Sodium Adsorption Ratio	2.6		0.010	0.010	none	1	10/27/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 10/27/17		Analyst: JF
Calcium	150		0.86	5.0	mg/L	10	10/27/2017 15:47
Magnesium	39		0.068	2.0	mg/L	10	10/27/2017 15:47
Sodium	140		0.34	2.0	mg/L	10	10/27/2017 15:47
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/27/17		Analyst: ED
Electrical Conductivity @ Saturation	1.7		0.011	0.10	mmhos/cm @25°	20	10/28/2017 17:10

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

ALS Group, USA

Date: 30-Oct-17

Client: Olsson Associates
Project: ACM 56X Spill Resampling
Sample ID: ACM56X-BG1
Collection Date: 10/19/2017 11:00 AM

Work Order: 17101499
Lab ID: 17101499-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP							
Arsenic	8.9		0.13	0.48	mg/Kg-dry	1	Analyst: HBA 10/26/2017 22:36
MOISTURE							
Moisture	28		0.025	0.050	% of sample	1	Analyst: MT 10/23/2017 16:29

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

Client: Olsson Associates

Work Order: 17101499

Project: ACM 56X Spill Resampling

QC BATCH REPORT

Batch ID: **109603**

Instrument ID **ICP2**

Method: **SW846 6010C**

MBLK		Sample ID: MBLK-109603-109603				Units: mg/Kg		Analysis Date: 10/26/2017 08:54 PM		
Client ID:		Run ID: ICP2_171026B				SeqNo: 4724816		Prep Date: 10/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic U 0.25

LCS		Sample ID: LCS-109603-109603				Units: mg/Kg		Analysis Date: 10/26/2017 09:01 PM		
Client ID:		Run ID: ICP2_171026B				SeqNo: 4724817		Prep Date: 10/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic 5.022 0.25 5 0 100 80-120 0

MS		Sample ID: 17101403-05AMS				Units: mg/Kg		Analysis Date: 10/26/2017 09:33 PM		
Client ID:		Run ID: ICP2_171026B				SeqNo: 4724822		Prep Date: 10/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic 15.61 0.37 7.44 6.712 120 75-125 0

MSD		Sample ID: 17101403-05AMSD				Units: mg/Kg		Analysis Date: 10/26/2017 09:39 PM		
Client ID:		Run ID: ICP2_171026B				SeqNo: 4724823		Prep Date: 10/26/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic 15.95 0.37 7.485 6.712 123 75-125 15.61 2.13 20

The following samples were analyzed in this batch:

17101499-06A

Client: Olsson Associates
 Work Order: 17101499
 Project: ACM 56X Spill Resampling

QC BATCH REPORT

Batch ID: **109683** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP		Sample ID: 17101506-01ADUP				Units: none		Analysis Date: 10/27/2017		
Client ID:		Run ID: SAR_171027A				SeqNo: 4729221		Prep Date: 10/27/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.3844	0.010	0	0	0		0.3682	4.29	50	

The following samples were analyzed in this batch:

17101499-01A	17101499-02A	17101499-03A
17101499-04A	17101499-05A	

Batch ID: **109683** Instrument ID **ICPMS3** Method: **SW6020A**

DUP		Sample ID: 17101506-01ADUP				Units: mg/L		Analysis Date: 10/27/2017 04:11 PM		
Client ID:		Run ID: ICPMS3_171027A				SeqNo: 4727270		Prep Date: 10/27/2017		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	194.8	5.0	0	0	0	0-0	197	1.08		
Magnesium	32.48	2.0	0	0	0	0-0	32.48	0.00702		
Sodium	22	2.0	0	0	0	0-0	21.16	3.87		

The following samples were analyzed in this batch:

17101499-01A	17101499-02A	17101499-03A
17101499-04A	17101499-05A	

Batch ID: **109683** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP		Sample ID: 17101506-01ADUP				Units: mmhos/cm @25°		Analysis Date: 10/28/2017 05:10 PM		
Client ID:		Run ID: WETCHEM_171028E				SeqNo: 4726791		Prep Date: 10/27/2017		DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	1.544	0.10	0	0	0		1.542	0.13	50	

The following samples were analyzed in this batch:

17101499-01A	17101499-02A	17101499-03A
17101499-04A	17101499-05A	

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

Client: Olsson Associates
 Work Order: 17101499
 Project: ACM 56X Spill Resampling

QC BATCH REPORT

Batch ID: **R222911** Instrument ID **MOIST** Method: **SW3550C**

MBLK				Sample ID: WBLKS-R222911				Units: % of sample			Analysis Date: 10/23/2017 04:29 PM				
Client ID:				Run ID: MOIST_171023D				SeqNo: 4717277			Prep Date:			DF: 1	
Analyte				Result		PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture U 0.050

LCS				Sample ID: LCS-R222911				Units: % of sample				Analysis Date: 10/23/2017 04:29 PM											
Client ID:				Run ID: MOIST_171023D				SeqNo: 4717276				Prep Date:				DF: 1							
Analyte				Result		PQL		SPK Val		SPK Ref Value		%REC		Control Limit		RPD Ref Value		%RPD		RPD Limit		Qual	

Moisture 99.99 0.050 100 0 100 99.5-100.5 0

DUP				Sample ID: 17101495-04A DUP				Units: % of sample			Analysis Date: 10/23/2017 04:29 PM					
Client ID:				Run ID: MOIST_171023D				SeqNo: 4717255			Prep Date:			DF: 1		
Analyte				Result		PQL	SPK Val	SPK Ref Value		%REC	Control Limit	RPD Ref Value		%RPD	RPD Limit	Qual

Moisture 8.98 0.050 0 0 0 0-0 9 0.222 5

DUP				Sample ID: 17101499-06A DUP				Units: % of sample			Analysis Date: 10/23/2017 04:29 PM			
Client ID: ACM56X-BG1				Run ID: MOIST_171023D				SeqNo: 4717267			Prep Date:		DF: 1	
Analyte				Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 27.41 0.050 0 0 0 0-0 27.86 1.63 5

The following samples were analyzed in this batch:

17101499-01A	17101499-02A	17101499-03A
17101499-04A	17101499-05A	17101499-06A

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 1511

☒ Holland, MI
+1 616 399 6070

☐ Houston, TX
+1 281 530 5656

☐ Middletown, PA
+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7700

☐ Spring City, PA
+1 610 948 4903

☐ York, PA
+1 717 505 5280

17101499

Customer Information			Project Information						Parameter/Method Request for Analysis										
Purchase Order			Project Name	ACM 56X Spill Resampling			A		TPH (GRO & DRO)										
Work Order			Project Number	013.3287.400.400004			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@centradale.com		e-Mail Address	tdobransky@centradale.com			I												
						J													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	ACM56X-SS1	10/19/17	1105	Soil	8	1				X	X								
2	ACM56X-SS2	10/19/17	1115	Soil	8	1				X	X								
3	ACM56X-SS3	10/19/17	1120	Soil	8	1				X	X								
4	ACM56X-SS4	10/19/17	1125	Soil	8	1				X	X								
5	ACM56X-SS5	10/19/17	1135	Soil	8	1				X									
6	ACM56X-BG1	10/19/17	1100	Soil	8	1								X					
7																			
8																			
9																			
10																			
Sampler(s): Please Print & Sign Tim Dobransky			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			Results Due Date:											
Relinquished by:		Date:	Time:	Received by:		Notes: Chevron Pricing Applies - Per Bruce Schlatter													
Relinquished by:		Date:	Time:	Received by (Laboratory):		QC Package: (Check Box Below)													
		10-23-17	0900	N. H. H. H. H.		<input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> 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: **23-Oct-17 09:00**

Work Order: **17101499**

Received by: **NCF**

Checklist completed by Nicole Fredericks
eSignature

23-Oct-17
Date

Reviewed by: Chad Whelton
eSignature

24-Oct-17
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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input 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>5.2/5.2</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>10/23/2017 11:24:12 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: