

Table 1
AC McLaughlin 3AX Spill
Soil Data Summary

SAMPLE SUMMARY					
Location Description		Chevron AC McLaughlin 3AX Spill			
Sample Type		Soil			

LABORATORY DATA SUMMARY					
Sample ID		AC McLaughlin 3AX Directly Below Hole	AC McLaughlin 3AX Background	COGCC TABLE 910-1 CONCENTRATION LEVELS	UNITS
Depth		3'	0-6"		
Sample Date		4/11/2018	4/11/2018		
Analytical Parameters					
TPH					
TPH Gasoline Range Organics		<3.3	NT	500	mg/kg
TPH Diesel Range Organics		7.2	NT		
BTEX					
Benzene		<0.0068	NT	0.17	mg/kg
Toluene		<0.011	NT	85	mg/kg
Ethylbenzene		<0.0084	NT	100	mg/kg
Total Xylene		<0.034	NT	175	mg/kg
Metals					
Arsenic		NT	5.7	0.39	mg/kg
Barium		NT	97	15,000	mg/kg
Cadmium		NT	<0.054	70	mg/kg
Chromium		NT	9	NA	mg/kg
Copper		NT	14	3,100	mg/kg
Lead		NT	11.0	400	mg/kg
Mercury		NT	0.0072 J	23	mg/kg
Nickel		NT	12	1,600	mg/kg
Selenium		NT	4.0	390	mg/kg
Silver		NT	<0.070	390	mg/kg
Zinc		NT	57	23,000	mg/kg
SAR Metals Analysis					
Calcium		NT	420	NA	mg/L
Magnesium		NT	170	NA	mg/L
Sodium		NT	270	NA	mg/L
Sodium Adsorption Ratio		NT	2.8	<12	ratio
Polynuclear Aromatic Hyrdrocarbons					
Acenaphthene		<0.0034	NT	1,000	mg/kg
Anthracene		<0.0018	NT	1,000	mg/kg
Benzo(a)anthracene		<0.0030	NT	0.22	mg/kg
Benzo(a)pyrene		<0.0012	NT	0.022	mg/kg
Benzo(b)fluoranthene		<0.0019	NT	0.22	mg/kg
Benzo(k)fluoranthene		<0.0025	NT	2.2	mg/kg
Chrysene		<0.0019	NT	22	mg/kg
Dibenzo(a,h)anthracene		<0.0016	NT	0.022	mg/kg
Fluoranthene		<0.0014	NT	1,000	mg/kg
Fluorene		<0.0016	NT	1,000	mg/kg
Indeno(1,2,3-cd)pyrene		<0.0015	NT	0.22	mg/kg
Napthalene		<0.0091	NT	23	mg/kg
Pyrene		<0.0018	NT	1,000	mg/kg
General Chemistry					
Chromium, Hexavalent		NT	<0.43	23	mg/kg
Chromium, Trivalent		NT	9.3	120,000	mg/kg
Specific Conductivity		NT	5.1	<4 or 2 x the background	mmhos/cm
pH		NT	8.25	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



25-May-2018

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

Re: **AC McLaughlin 3AX Spill**

Work Order: **18051339**

Dear Tim,

ALS Environmental received 2 samples on 18-May-2018 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 24.

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

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Olsson Associates
Project: AC McLaughlin 3AX Spill
Work Order: 18051339

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>
18051339-01	AC McLaughlin 3AX Directly Below Hole	Soil		4/11/2018 12:00	5/18/2018 09:30	<input type="checkbox"/>
18051339-02	AC McLaughlin 3AX Background	Soil		4/11/2018 12:05	5/18/2018 09:30	<input type="checkbox"/>

Client: Olsson Associates
Project: AC McLaughlin 3AX Spill
Work Order: 18051339

Case Narrative

Samples analyzed out of hold time due to being received after expiration date. Results should be considered estimated.

Batch 118817, Method DRLVI_8015_S, Sample 18051339-01A: Low DRO surrogate recovery due to sample matrix effects confirmed by re-extraction.

<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	
s.u.	Standard Units

ALS Group, USA

Date: 25-May-18

Client: Olsson Associates
Project: AC McLaughlin 3AX Spill
Sample ID: AC McLaughlin 3AX Directly Below Hole
Collection Date: 4/11/2018 12:00 PM

Work Order: 18051339
Lab ID: 18051339-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015C		Prep: SW3546 / 5/24/18		Analyst: MEB
DRO (C10-C28)	7.2	H	3.3	5.7	mg/Kg-dry	1	5/24/2018 23:22
Surr: 4-Terphenyl-d14	13.5	S		34-130	%REC	1	5/24/2018 23:22
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 5/21/18		Analyst: MEB
GRO (C6-C10)	U	H	2.8	6.6	mg/Kg-dry	1	5/23/2018 06:28
Surr: Toluene-d8	100			71-123	%REC	1	5/23/2018 06:28
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 5/21/18		Analyst: RM
Acenaphthene	U	H	0.0034	0.049	mg/Kg-dry	1	5/21/2018 18:19
Anthracene	U	H	0.0018	0.049	mg/Kg-dry	1	5/21/2018 18:19
Benzo(a)anthracene	U	H	0.0030	0.049	mg/Kg-dry	1	5/21/2018 18:19
Benzo(a)pyrene	U	H	0.0012	0.049	mg/Kg-dry	1	5/21/2018 18:19
Benzo(b)fluoranthene	U	H	0.0019	0.049	mg/Kg-dry	1	5/21/2018 18:19
Benzo(k)fluoranthene	U	H	0.0025	0.049	mg/Kg-dry	1	5/21/2018 18:19
Chrysene	U	H	0.0019	0.049	mg/Kg-dry	1	5/21/2018 18:19
Dibenzo(a,h)anthracene	U	H	0.0016	0.049	mg/Kg-dry	1	5/21/2018 18:19
Fluoranthene	U	H	0.0014	0.049	mg/Kg-dry	1	5/21/2018 18:19
Fluorene	U	H	0.0016	0.049	mg/Kg-dry	1	5/21/2018 18:19
Indeno(1,2,3-cd)pyrene	U	H	0.0015	0.049	mg/Kg-dry	1	5/21/2018 18:19
Naphthalene	U	H	0.0091	0.049	mg/Kg-dry	1	5/21/2018 18:19
Pyrene	U	H	0.0018	0.049	mg/Kg-dry	1	5/21/2018 18:19
Surr: 2-Fluorobiphenyl	60.2			20-140	%REC	1	5/21/2018 18:19
Surr: 4-Terphenyl-d14	27.4			22-172	%REC	1	5/21/2018 18:19
Surr: Nitrobenzene-d5	42.4			28-140	%REC	1	5/21/2018 18:19
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260C		Prep: SW5035 / 5/21/18		Analyst: EMR
Benzene	U	H	0.0068	0.040	mg/Kg-dry	1	5/22/2018 06:32
Ethylbenzene	U	H	0.0084	0.040	mg/Kg-dry	1	5/22/2018 06:32
m,p-Xylene	U	H	0.019	0.080	mg/Kg-dry	1	5/22/2018 06:32
o-Xylene	U	H	0.015	0.040	mg/Kg-dry	1	5/22/2018 06:32
Toluene	U	H	0.011	0.040	mg/Kg-dry	1	5/22/2018 06:32
Xylenes, Total	U	H	0.034	0.12	mg/Kg-dry	1	5/22/2018 06:32
Surr: 1,2-Dichloroethane-d4	97.3			70-130	%REC	1	5/22/2018 06:32
Surr: 4-Bromofluorobenzene	97.1			70-130	%REC	1	5/22/2018 06:32
Surr: Dibromofluoromethane	90.2			70-130	%REC	1	5/22/2018 06:32
Surr: Toluene-d8	96.8			70-130	%REC	1	5/22/2018 06:32
MOISTURE							
			Method: SW3550C				Analyst: BTG
Moisture	14	H	0.025	0.050	% of sample	1	5/22/2018 13:48

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

ALS Group, USA

Date: 25-May-18

Client: Olsson Associates
Project: AC McLaughlin 3AX Spill
Sample ID: AC McLaughlin 3AX Background
Collection Date: 4/11/2018 12:05 PM

Work Order: 18051339
Lab ID: 18051339-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 5/21/18		Analyst: RSH
Mercury	0.0072	JH	0.0026	0.026	mg/Kg-dry	1	5/21/2018 13:08
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 5/22/18		Analyst: RH
Arsenic	5.7		0.15	0.56	mg/Kg-dry	1	5/23/2018 07:50
Barium	97		0.23	0.56	mg/Kg-dry	1	5/23/2018 07:50
Cadmium	U		0.054	1.1	mg/Kg-dry	1	5/23/2018 07:50
Chromium	9.3		0.032	0.56	mg/Kg-dry	1	5/23/2018 07:50
Copper	14		0.25	1.1	mg/Kg-dry	1	5/23/2018 07:50
Lead	11		0.12	0.56	mg/Kg-dry	1	5/23/2018 07:50
Nickel	12		0.23	0.56	mg/Kg-dry	1	5/23/2018 07:50
Selenium	4.0		0.32	1.1	mg/Kg-dry	1	5/23/2018 07:50
Silver	U		0.070	0.56	mg/Kg-dry	1	5/23/2018 07:50
Zinc	57		0.090	1.1	mg/Kg-dry	1	5/23/2018 07:50
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 5/24/18		Analyst: JF
Calcium	420		0.86	5.0	mg/L	10	5/24/2018 15:04
Magnesium	170		0.068	2.0	mg/L	10	5/24/2018 15:04
Sodium	270		0.34	2.0	mg/L	10	5/24/2018 15:04
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 5/24/18		Analyst: RH
Sodium Adsorption Ratio	2.8		0.010	0.010	none	1	5/24/2018
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 5/24/18		Analyst: ED
Electrical Conductivity @ Saturation	5.1		0.011	0.10	mmhos/cm @25°	20	5/24/2018 17:10
CHROMIUM, TRIVALENT							
			Method: CALCULATION				Analyst: JB
Chromium, Trivalent	9.3		0.43	1.4	mg/Kg-dry	1	5/23/2018 08:40
CHROMIUM, HEXAVALENT							
			Method: SW7196A		Prep: SW3060A / 5/21/18		Analyst: RP
Chromium, Hexavalent	U	H	0.43	1.4	mg/Kg-dry	1	5/22/2018 13:30
MOISTURE							
			Method: SW3550C				Analyst: BTG
Moisture	28	H	0.025	0.050	% of sample	1	5/22/2018 13:48
PH							
			Method: SW9045D		Prep: EXTRACT / 5/22/18		Analyst: RZM
pH	8.25	H	0.10	0.100	s.u.	1	5/23/2018 10:55

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

Client: Olsson Associates

Work Order: 18051339

Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: 118595

Instrument ID GC8

Method: SW8015C

MBLK		Sample ID: DBLKS1-118595-118595				Units: mg/Kg		Analysis Date: 5/23/2018 01:26 PM		
Client ID:		Run ID: GC8_180523A				SeqNo: 5048857		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

U 5.0

Surr: 4-Terphenyl-d14

2.267 0 3.33 0 68.1 34-130 0

LCS		Sample ID: DLCSS1-118595-118595				Units: mg/Kg		Analysis Date: 5/23/2018 01:55 PM		
Client ID:		Run ID: GC8_180523A				SeqNo: 5048858		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

332.2 5.0 333 0 99.7 65-122 0

Surr: 4-Terphenyl-d14

2.667 0 3.33 0 80.1 34-130 0

MS		Sample ID: 18051243-12B MS				Units: mg/Kg		Analysis Date: 5/23/2018 05:47 PM		
Client ID:		Run ID: GC8_180523A				SeqNo: 5050784		Prep Date: 5/21/2018		DF: 50
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

661.2 240 324.2 410.8 77.2 65-122 0

Surr: 4-Terphenyl-d14

2.434 0 3.242 0 75.1 34-130 0

MSD		Sample ID: 18051243-12B MSD				Units: mg/Kg		Analysis Date: 5/23/2018 06:17 PM		
Client ID:		Run ID: GC8_180523A				SeqNo: 5050785		Prep Date: 5/21/2018		DF: 50
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

661.2 240 325.4 410.8 77 65-122 661.2 0.00464 30

Surr: 4-Terphenyl-d14

3.257 0 3.254 0 100 34-130 2.434 28.9 30

The following samples were analyzed in this batch:

18051339-01A

Client: Olsson Associates
 Work Order: 18051339
 Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118817** Instrument ID **GC8** Method: **SW8015C**

MBLK		Sample ID: DBLKS1-118817-118817				Units: mg/Kg		Analysis Date: 5/24/2018 08:56 PM		
Client ID:		Run ID: GC8_180524B				SeqNo: 5054980		Prep Date: 5/24/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	U	5.0								
Surr: 4-Terphenyl-d14	2.7	0	3.33	0	81.1	34-130	0			

LCS		Sample ID: DLCSS1-118817-118817				Units: mg/Kg		Analysis Date: 5/24/2018 09:25 PM		
Client ID:		Run ID: GC8_180524B				SeqNo: 5054981		Prep Date: 5/24/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	376.3	5.0	333	0	113	65-122	0			
Surr: 4-Terphenyl-d14	2.667	0	3.33	0	80.1	34-130	0			

LCSD		Sample ID: DLCSDS1-118817-118817				Units: mg/Kg		Analysis Date: 5/24/2018 09:54 PM		
Client ID:		Run ID: GC8_180524B				SeqNo: 5054982		Prep Date: 5/24/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	366	5.0	333	0	110	65-122	376.3	2.79	30	
Surr: 4-Terphenyl-d14	2.683	0	3.33	0	80.6	34-130	2.667	0.623	30	

The following samples were analyzed in this batch:

18051339-01A

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

Client: Olsson Associates
 Work Order: 18051339
 Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118632** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-118632-118632				Units: µg/Kg-dry		Analysis Date: 5/21/2018 06:22 PM		
Client ID:		Run ID: GC9_180521A				SeqNo: 5046369		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	5164	0	5000	0	103	71-123	0			

LCS		Sample ID: LCS-118632-118632				Units: µg/Kg-dry		Analysis Date: 5/21/2018 04:53 PM		
Client ID:		Run ID: GC9_180521A				SeqNo: 5046367		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	406000	5,000	500000	0	81.2	71-123	0			
Surr: Toluene-d8	5742	0	5000	0	115	71-123	0			

MS		Sample ID: 18051308-01A MS				Units: µg/Kg-dry		Analysis Date: 5/21/2018 08:49 PM		
Client ID:		Run ID: GC9_180521A				SeqNo: 5046374		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	432800	5,100	505800	0	85.6	71-123	0			
Surr: Toluene-d8	5540	0	5058	0	110	71-123	0			

MSD		Sample ID: 18051308-01A MSD				Units: µg/Kg-dry		Analysis Date: 5/21/2018 09:18 PM		
Client ID:		Run ID: GC9_180521A				SeqNo: 5046375		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	429600	5,100	505800	0	84.9	71-123	432800	0.735	30	
Surr: Toluene-d8	5388	0	5058	0	107	71-123	5540	2.79	30	

The following samples were analyzed in this batch:

18051339-01A

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

Client: Olsson Associates
 Work Order: 18051339
 Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118636** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-118636-118636				Units: mg/Kg		Analysis Date: 5/21/2018 12:11 PM		
Client ID:		Run ID: HG1_180521A				SeqNo: 5043599		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-118636-118636				Units: mg/Kg		Analysis Date: 5/21/2018 12:13 PM		
Client ID:		Run ID: HG1_180521A				SeqNo: 5043600		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1617 0.020 0.1665 0 97.1 80-120 0

MS		Sample ID: 18051300-01AMS				Units: mg/Kg		Analysis Date: 5/21/2018 12:18 PM		
Client ID:		Run ID: HG1_180521A				SeqNo: 5043602		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1445 0.016 0.1368 0.001314 105 75-125 0

MSD		Sample ID: 18051300-01AMSD				Units: mg/Kg		Analysis Date: 5/21/2018 12:21 PM		
Client ID:		Run ID: HG1_180521A				SeqNo: 5043603		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1416 0.016 0.1367 0.001314 103 75-125 0.1445 2.05 35

The following samples were analyzed in this batch:

18051339-02A

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

Client: Olsson Associates
Work Order: 18051339
Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118672** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: MBLK-118672-118672				Units: mg/Kg		Analysis Date: 5/23/2018 07:00 AM				
Client ID:		Run ID: ICP2_180522A		SeqNo: 5047089		Prep Date: 5/22/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.01895	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	U	0.50								

LCS Sample ID: LCS-118672-118672				Units: mg/Kg		Analysis Date: 5/23/2018 07:07 AM				
Client ID:		Run ID: ICP2_180522A		SeqNo: 5047091		Prep Date: 5/22/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.795	0.25	5	0	95.9	80-120	0			
Barium	5.173	0.25	5	0	103	80-120	0			
Cadmium	5.012	0.50	5	0	100	80-120	0			
Chromium	5.289	0.25	5	0	106	80-120	0			
Copper	5.015	0.50	5	0	100	80-120	0			
Lead	5.13	0.25	5	0	103	80-120	0			
Nickel	5.193	0.25	5	0	104	80-120	0			
Selenium	4.58	0.50	5	0	91.6	80-120	0			
Silver	4.88	0.25	5	0	97.6	80-120	0			
Zinc	4.96	0.50	5	0	99.2	80-120	0			

MS Sample ID: 18051288-08BMS				Units: mg/Kg		Analysis Date: 5/23/2018 07:38 AM				
Client ID:		Run ID: ICP2_180522A		SeqNo: 5047102		Prep Date: 5/22/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	8.339	0.41	8.13	0.9481	90.9	75-125	0			
Barium	20.27	0.41	8.13	12.5	95.6	75-125	0			
Cadmium	7.759	0.81	8.13	0	95.4	75-125	0			
Chromium	10.78	0.41	8.13	2.569	101	75-125	0			
Copper	10.42	0.81	8.13	2.229	101	75-125	0			
Lead	14.47	0.41	8.13	6.912	93	75-125	0			
Nickel	9.796	0.41	8.13	1.84	97.9	75-125	0			
Selenium	9.6	0.81	8.13	2.269	90.2	75-125	0			
Silver	7.951	0.41	8.13	-0.05057	98.4	75-125	0			
Zinc	24.13	0.81	8.13	14.96	113	75-125	0			

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

Client: Olsson Associates
Work Order: 18051339
Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118672** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 18051288-08BMSD				Units: mg/Kg		Analysis Date: 5/23/2018 07:44 AM		
Client ID:		Run ID: ICP2_180522A				SeqNo: 5047104		Prep Date: 5/22/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	8.193	0.40	8.091	0.9481	89.5	75-125	8.339	1.77	20	
Barium	19.51	0.40	8.091	12.5	86.6	75-125	20.27	3.84	20	
Cadmium	7.589	0.81	8.091	0	93.8	75-125	7.759	2.22	20	
Chromium	10.95	0.40	8.091	2.569	104	75-125	10.78	1.6	20	
Copper	10.2	0.81	8.091	2.229	98.5	75-125	10.42	2.13	20	
Lead	13.52	0.40	8.091	6.912	81.7	75-125	14.47	6.81	20	
Nickel	9.643	0.40	8.091	1.84	96.4	75-125	9.796	1.58	20	
Selenium	9.423	0.81	8.091	2.269	88.4	75-125	9.6	1.86	20	
Silver	7.783	0.40	8.091	-0.05057	96.8	75-125	7.951	2.14	20	
Zinc	21.81	0.81	8.091	14.96	84.7	75-125	24.13	10.1	20	

The following samples were analyzed in this batch:

18051339-02A

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

Client: Olsson Associates
Work Order: 18051339
Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118813** Instrument ID **ICPMS3** Method: **SW6020A**

DUP				Sample ID: 18051330-01ADUP				Units: mg/L			Analysis Date: 5/24/2018 02:52 PM			
Client ID:				Run ID: ICPMS3_180524A				SeqNo: 5053478			Prep Date: 5/24/2018		DF: 10	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Magnesium		207.3	2.0	0	0	0	0-0	208.9	0.763					

DUP				Sample ID: 18051330-01ADUP				Units: mg/L			Analysis Date: 5/24/2018 03:31 PM			
Client ID:				Run ID: ICPMS3_180524A				SeqNo: 5053501			Prep Date: 5/24/2018		DF: 100	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Calcium		3083	50	0	0	0	0-0	2876	6.95					
Sodium		8491	20	0	0	0	0-0	7808	8.39					

The following samples were analyzed in this batch:

18051339-02A

Batch ID: **118813** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP				Sample ID: 18051330-01ADUP				Units: none			Analysis Date: 5/24/2018			
Client ID:				Run ID: SAR_180524A				SeqNo: 5055434			Prep Date: 5/24/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Sodium Adsorption Ratio	39.95	0.010	0	0	0		38.18	4.55	50					

The following samples were analyzed in this batch:

18051339-02A

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

Client: Olsson Associates
 Work Order: 18051339
 Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118610** Instrument ID **SVMS6** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-118610-118610				Units: µg/Kg		Analysis Date: 5/21/2018 05:07 PM		
Client ID:		Run ID: SVMS6_180521A				SeqNo: 5046446		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	42								
Anthracene	U	42								
Benzo(a)anthracene	U	42								
Benzo(a)pyrene	U	42								
Benzo(b)fluoranthene	U	42								
Benzo(k)fluoranthene	U	42								
Chrysene	U	42								
Dibenzo(a,h)anthracene	U	42								
Fluoranthene	U	42								
Fluorene	U	42								
Indeno(1,2,3-cd)pyrene	U	42								
Naphthalene	U	42								
Pyrene	U	42								
Surr: 2-Fluorobiphenyl	2387	0	3333	0	71.6	20-140	0			
Surr: 4-Terphenyl-d14	3438	0	3333	0	103	22-172	0			
Surr: Nitrobenzene-d5	3079	0	3333	0	92.4	28-140	0			

LCS		Sample ID: SLCSS1-118610-118610				Units: µg/Kg		Analysis Date: 5/21/2018 05:22 PM		
Client ID:		Run ID: SVMS6_180521A				SeqNo: 5046447		Prep Date: 5/21/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	798.4	42	1333	0	59.9	40-140	0			
Anthracene	880.1	42	1333	0	66	40-140	0			
Benzo(a)anthracene	833	42	1333	0	62.5	40-140	0			
Benzo(a)pyrene	896.3	42	1333	0	67.2	40-140	0			
Benzo(b)fluoranthene	835.9	42	1333	0	62.7	40-140	0			
Benzo(k)fluoranthene	970.6	42	1333	0	72.8	40-140	0			
Chrysene	985.1	42	1333	0	73.9	40-140	0			
Dibenzo(a,h)anthracene	821.7	42	1333	0	61.6	40-140	0			
Fluoranthene	885.2	42	1333	0	66.4	40-140	0			
Fluorene	823.3	42	1333	0	61.8	40-140	0			
Indeno(1,2,3-cd)pyrene	905.2	42	1333	0	67.9	40-140	0			
Naphthalene	901.6	42	1333	0	67.6	40-140	0			
Pyrene	1034	42	1333	0	77.6	40-140	0			
Surr: 2-Fluorobiphenyl	2291	0	3333	0	68.7	20-140	0			
Surr: 4-Terphenyl-d14	3151	0	3333	0	94.5	22-172	0			
Surr: Nitrobenzene-d5	2737	0	3333	0	82.1	28-140	0			

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

Client: Olsson Associates
 Work Order: 18051339
 Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118610** Instrument ID **SVMS6** Method: **SW846 8270D**

MS				Sample ID: 18051341-01A MS			Units: µg/Kg		Analysis Date: 5/21/2018 05:36 PM	
Client ID:				Run ID: SVMS6_180521A			SeqNo: 5046448		Prep Date: 5/21/2018	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	939.3	41	1325	0	70.9	40-140	0			
Anthracene	1035	41	1325	0	78.1	40-140	0			
Benzo(a)anthracene	904.7	41	1325	0	68.3	40-140	0			
Benzo(a)pyrene	729.5	41	1325	0	55.1	40-140	0			
Benzo(b)fluoranthene	844.8	41	1325	0	63.8	40-140	0			
Benzo(k)fluoranthene	999	41	1325	0	75.4	40-140	0			
Chrysene	1067	41	1325	0	80.6	40-140	0			
Dibenzo(a,h)anthracene	1112	41	1325	0	84	40-140	0			
Fluoranthene	1166	41	1325	0	88	40-140	0			
Fluorene	928.8	41	1325	0	70.1	40-140	0			
Indeno(1,2,3-cd)pyrene	1156	41	1325	0	87.3	40-140	0			
Naphthalene	1244	41	1325	0	93.9	40-140	0			
Pyrene	1289	41	1325	0	97.3	40-140	0			
Surr: 2-Fluorobiphenyl	2485	0	3312	0	75	20-140	0			
Surr: 4-Terphenyl-d14	2704	0	3312	0	81.6	22-172	0			
Surr: Nitrobenzene-d5	3196	0	3312	0	96.5	28-140	0			

MSD				Sample ID: 18051341-01A MSD			Units: µg/Kg		Analysis Date: 5/21/2018 05:50 PM	
Client ID:				Run ID: SVMS6_180521A			SeqNo: 5046449		Prep Date: 5/21/2018	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	921.6	40	1291	0	71.4	40-140	939.3	1.9	30	
Anthracene	1052	40	1291	0	81.5	40-140	1035	1.63	30	
Benzo(a)anthracene	895.4	40	1291	0	69.4	40-140	904.7	1.03	30	
Benzo(a)pyrene	828.4	40	1291	0	64.2	40-140	729.5	12.7	30	
Benzo(b)fluoranthene	839.3	40	1291	0	65	40-140	844.8	0.658	30	
Benzo(k)fluoranthene	1015	40	1291	0	78.6	40-140	999	1.58	30	
Chrysene	1058	40	1291	0	81.9	40-140	1067	0.893	30	
Dibenzo(a,h)anthracene	1127	40	1291	0	87.3	40-140	1112	1.33	30	
Fluoranthene	941	40	1291	0	72.9	40-140	1166	21.3	30	
Fluorene	924.7	40	1291	0	71.6	40-140	928.8	0.442	30	
Indeno(1,2,3-cd)pyrene	1141	40	1291	0	88.3	40-140	1156	1.36	30	
Naphthalene	1194	40	1291	0	92.4	40-140	1244	4.15	30	
Pyrene	1200	40	1291	0	92.9	40-140	1289	7.15	30	
Surr: 2-Fluorobiphenyl	2467	0	3228	0	76.4	20-140	2485	0.7	0	
Surr: 4-Terphenyl-d14	2954	0	3228	0	91.5	22-172	2704	8.82	0	
Surr: Nitrobenzene-d5	2743	0	3228	0	85	28-140	3196	15.3	0	

The following samples were analyzed in this batch:

18051339-01A

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

Client: Olsson Associates
 Work Order: 18051339
 Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: MBLK-118631-118631				Units: µg/Kg-dry			Analysis Date: 5/22/2018 09:49 PM			
Client ID:		Run ID: VMS8_180522B		SeqNo: 5047657		Prep Date: 5/21/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	909.5	0	1000	0	91	70-130	0			
Surr: 4-Bromofluorobenzene	930	0	1000	0	93	70-130	0			
Surr: Dibromofluoromethane	886.5	0	1000	0	88.6	70-130	0			
Surr: Toluene-d8	953	0	1000	0	95.3	70-130	0			

MBLK Sample ID: MBLK-118631-118631				Units: µg/Kg-dry			Analysis Date: 5/23/2018 12:39 PM			
Client ID:		Run ID: VMS9_180523A		SeqNo: 5049644		Prep Date: 5/21/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30	0	0	0	0-0	0			
Ethylbenzene	U	30	0	0	0	0-0	0			
m,p-Xylene	U	60	0	0	0	0-0	0			
o-Xylene	U	30	0	0	0	0-0	0			
Toluene	U	30	0	0	0	0-0	0			
Xylenes, Total	U	90	0	0	0	0-0	0			
Surr: 1,2-Dichloroethane-d4	953	0	1000	0	95.3	70-130	0			
Surr: 4-Bromofluorobenzene	914	0	1000	0	91.4	70-130	0			
Surr: Dibromofluoromethane	829.5	0	1000	0	83	70-130	0			
Surr: Toluene-d8	947	0	1000	0	94.7	70-130	0			

LCS Sample ID: LCS-118631-118631				Units: µg/Kg-dry			Analysis Date: 5/22/2018 09:01 PM			
Client ID:		Run ID: VMS8_180522B		SeqNo: 5047656		Prep Date: 5/21/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	997.5	30	1000	0	99.8	75-125	0			
Ethylbenzene	1007	30	1000	0	101	75-125	0			
m,p-Xylene	1999	60	2000	0	100	80-125	0			
o-Xylene	996.5	30	1000	0	99.6	75-125	0			
Toluene	1024	30	1000	0	102	70-125	0			
Xylenes, Total	2996	90	3000	0	99.8	75-125	0			
Surr: 1,2-Dichloroethane-d4	898.5	0	1000	0	89.8	70-130	0			
Surr: 4-Bromofluorobenzene	936.5	0	1000	0	93.6	70-130	0			
Surr: Dibromofluoromethane	971.5	0	1000	0	97.2	70-130	0			
Surr: Toluene-d8	954.5	0	1000	0	95.4	70-130	0			

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

Client: Olsson Associates
 Work Order: 18051339
 Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS8** Method: **SW8260C**

LCS				Sample ID: LCS-118631-118631				Units: µg/Kg-dry		Analysis Date: 5/23/2018 11:26 AM	
Client ID:			Run ID: VMS9_180523A			SeqNo: 5049637		Prep Date: 5/21/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1057	30	1000	0	106	75-125	0				
Ethylbenzene	1084	30	1000	0	108	75-125	0				
m,p-Xylene	2209	60	2000	0	110	80-125	0				
o-Xylene	1100	30	1000	0	110	75-125	0				
Toluene	1050	30	1000	0	105	70-125	0				
Xylenes, Total	3310	90	3000	0	110	75-125	0				
Surr: 1,2-Dichloroethane-d4	1004	0	1000	0	100	70-130	0				
Surr: 4-Bromofluorobenzene	1040	0	1000	0	104	70-130	0				
Surr: Dibromofluoromethane	947	0	1000	0	94.7	70-130	0				
Surr: Toluene-d8	994.5	0	1000	0	99.4	70-130	0				

MS				Sample ID: 18051308-01A MS				Units: µg/Kg-dry		Analysis Date: 5/23/2018 09:58 PM	
Client ID:			Run ID: VMS9_180523A			SeqNo: 5049650		Prep Date: 5/21/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	998	30	1012	0	98.6	75-125	0				
Ethylbenzene	1064	30	1012	0	105	75-125	0				
m,p-Xylene	2138	61	2023	24.79	104	80-125	0				
o-Xylene	1092	30	1012	0	108	75-125	0				
Toluene	1054	30	1012	0	104	70-125	0				
Xylenes, Total	3230	91	3035	25	106	75-125	0				
Surr: 1,2-Dichloroethane-d4	909.5	0	1012	0	89.9	70-130	0				
Surr: 4-Bromofluorobenzene	1031	0	1012	0	102	70-130	0				
Surr: Dibromofluoromethane	913.5	0	1012	0	90.3	70-130	0				
Surr: Toluene-d8	1005	0	1012	0	99.3	70-130	0				

MSD				Sample ID: 18051308-01A MSD			Units: µg/Kg-dry		Analysis Date: 5/23/2018 10:23 PM		
Client ID:		Run ID: VMS9_180523A			SeqNo: 5049656		Prep Date: 5/21/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	949.5	30	1012	0	93.8	75-125	998	4.99	30		
Ethylbenzene	1044	30	1012	0	103	75-125	1064	1.92	30		
m,p-Xylene	2064	61	2023	24.79	101	80-125	2138	3.54	30		
o-Xylene	1068	30	1012	0	106	75-125	1092	2.2	30		
Toluene	1014	30	1012	0	100	70-125	1054	3.91	30		
Xylenes, Total	3132	91	3035	25	102	75-125	3230	3.09	30		
Surr: 1,2-Dichloroethane-d4	883.2	0	1012	0	87.3	70-130	909.5	2.93	30		
Surr: 4-Bromofluorobenzene	1047	0	1012	0	104	70-130	1031	1.51	30		
Surr: Dibromofluoromethane	877.1	0	1012	0	86.7	70-130	913.5	4.07	30		
Surr: Toluene-d8	1019	0	1012	0	101	70-130	1005	1.4	30		

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

Client: Olsson Associates
Work Order: 18051339
Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118631** Instrument ID **VMS8** Method: **SW8260C**

The following samples were analyzed in this batch:

18051339- 01A

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

Client: Olsson Associates
 Work Order: 18051339
 Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118678** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-118678-118678				Units: mg/Kg		Analysis Date: 5/22/2018 01:30 PM		
Client ID:		Run ID: WETCHEM_180522G		SeqNo: 5045683		Prep Date: 5/21/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

LCS		Sample ID: LCS-118678-118678				Units: mg/Kg		Analysis Date: 5/22/2018 01:30 PM		
Client ID:		Run ID: WETCHEM_180522G		SeqNo: 5045684		Prep Date: 5/21/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.433 0.96 4.808 0 92.2 80-120 0

MS		Sample ID: 18051270-01A MS				Units: mg/Kg		Analysis Date: 5/22/2018 01:30 PM		
Client ID:		Run ID: WETCHEM_180522G		SeqNo: 5045687		Prep Date: 5/21/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3.58 1.0 5 0.09 69.8 75-125 0 S

MS		Sample ID: 18051270-01A MSI				Units: mg/Kg		Analysis Date: 5/22/2018 01:30 PM		
Client ID:		Run ID: WETCHEM_180522G		SeqNo: 5045689		Prep Date: 5/21/2018		DF: 100		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1649 100 1657 0.09 99.5 75-125 0

MSD		Sample ID: 18051270-01A MSD				Units: mg/Kg		Analysis Date: 5/22/2018 01:30 PM		
Client ID:		Run ID: WETCHEM_180522G		SeqNo: 5045688		Prep Date: 5/21/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3.19 1.0 5 0.09 62 75-125 3.58 11.5 20 S

The following samples were analyzed in this batch:

18051339-02A

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

Client: Olsson Associates
Work Order: 18051339
Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118723** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-118723-118723					Units: s.u.		Analysis Date: 5/23/2018 10:55 AM		
Client ID:		Run ID: WETCHEM_180523E					SeqNo: 5047817		Prep Date: 5/22/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH	3.97	0.10	4	0	99.2	90-110	0			
----	------	------	---	---	------	--------	---	--	--	--

DUP		Sample ID: 18051270-07A DUP				Units: s.u.		Analysis Date: 5/23/2018 10:55 AM		
Client ID:		Run ID: WETCHEM_180523E				SeqNo: 5047828		Prep Date: 5/22/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH	6.93	0.10	0	0	0	0-0	7.13	2.84	20	
----	------	------	---	---	---	-----	------	------	----	--

DUP		Sample ID: 18051341-01A DUP					Units: s.u.		Analysis Date: 5/23/2018 10:55 AM		
Client ID:			Run ID: WETCHEM_180523E			SeqNo: 5047836		Prep Date: 5/22/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

pH	7.99	0.10	0	0	0	0-0	8.03	0.499	20	
----	------	------	---	---	---	-----	------	-------	----	--

The following samples were analyzed in this batch:

18051339-02A

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

Client: Olsson Associates
Work Order: 18051339
Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **118813** Instrument ID **Titration 1** Method: **USDA H60 Metho**

DUP		Sample ID: 18051330-01ADUP				Units: mmhos/cm @25°		Analysis Date: 5/24/2018 05:10 PM		
Client ID:		Run ID: TITRATOR 1_180524G			SeqNo: 5053926		Prep Date: 5/24/2018		DF: 20	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	56.82	0.10	0	0	0		48.84	15.1	50	

The following samples were analyzed in this batch:

18051339-02A

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

Client: Olsson Associates
Work Order: 18051339
Project: AC McLaughlin 3AX Spill

QC BATCH REPORT

Batch ID: **R236420** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R236420				Units: % of sample		Analysis Date: 5/22/2018 01:48 PM		
Client ID:		Run ID: MOIST_180522B				SeqNo: 5047616		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-R236420				Units: % of sample		Analysis Date: 5/22/2018 01:48 PM		
Client ID:		Run ID: MOIST_180522B				SeqNo: 5047615		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: 18051327-01A DUP				Units: % of sample		Analysis Date: 5/22/2018 01:48 PM		
Client ID:		Run ID: MOIST_180522B				SeqNo: 5047607		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 4.87 0.050 0 0 0 0-0 4.86 0.206 10

DUP		Sample ID: 18051327-03A DUP				Units: % of sample		Analysis Date: 5/22/2018 01:48 PM		
Client ID:		Run ID: MOIST_180522B				SeqNo: 5047610		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 4.75 0.050 0 0 0 0-0 4.96 4.33 10

The following samples were analyzed in this batch:

18051339-01A	18051339-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Environmental

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

Customer Information		Project Information					Parameter/Method Request for Analysis												
Purchase Order		Project Name	AC McLaughlin 3AX Spill					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.	Dana Mack					D Electrical Conductivity											
Address	760 Horizon Drive, Ste. 102	Address						E Sodium Adsorption Ratio											
City/State/Zip	Grand Junction, CO 81506	City/State/Zip						F pH											
Phone	970.263.7800	Phone						G Metals (See Attached List) CO Table 910											
Fax	970.263.7456	Fax						H Arsenic Only											
e-Mail Address	tdobransky@entradainc.com	e-Mail Address	dmack@olssonassociates.com					I											
							J												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	AC McLaughlin 3AX Directly Below Hole	04/11/18	1200	Soil	8	1	X	X	X										
2	AC McLaughlin 3AX Background	04/11/18	1205	Soil	8	1				X	X	X	X						
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Results Due Date:	
Chevron		FedEx		<input type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input checked="" type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour			
Relinquished by:	Date: 5/17/18	Time: 1000	Received by:	Notes: Chevron Pricing Applies - Per Bruce Schlatter			
Relinquished by:	Date: 5-17-18	Time: 1830	Received by (Laboratory):	Cooler Temp. 4.2°C			
Logged by (Laboratory):	Date: 5/19/18	Time: 0945	Checked by (Laboratory):	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 <input type="checkbox"/> 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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Sample Receipt Checklist

Client Name: **OLSSON**

Date/Time Received: **18-May-18 09:30**

Work Order: **18051339**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

19-May-18
Date

Reviewed by: Chad Whelton
eSignature

20-May-18
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>4.2/4.2 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>5/19/2018 9:50:11 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: