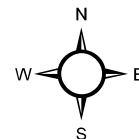


Legend

- Spill Origin
- Soil Sample Location
- ▨ Spill Path Area
- HIGHWAYS
- Spill Path

0 75 150 300 Feet

1 inch = 183 feet



PROJECT NO:	017-031
DRAWN BY:	TPD
DATE:	08/09/2018

LN HAGOOD A1
SPILL RESPONSE
CHEVRON USA, INC
RIO BLANCO COUNTY, COLORADO
SENE & NESE S23 T2N R103W



240 MESA AVENUE
GRAND JUNCTION, CO 81501
TEL 970.270.2986
www.entradainc.com

FIGURE

1

Table 1
LN Hagood A1
Soil Data Summary

SAMPLE SUMMARY																								
Location Description		LN Hagood A1																						
Sample Type		Soil																						
LABORATORY DATA SUMMARY																								
Sample ID	LNHA1-SS1	LNHA1-SS1	LNHA1-SS2	LNHA1-SS2	LNHA1-SS3	LNHA1-SS3	LNHA1-SS4	LNHA1-SS4	LNHA1-SS4	LNHA1-SS5	LNHA1-SS5	LNHA1-SS5	LNHA1-SS6	LNHA1-SS6	LNHA1-SS6	LNHA1-SS7	LNHA1-SS7	LNHA1-BG1	LNHA1-BG2	LNHA1-BG3	LNHA1-BG4	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"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"	0-6"			
Sample Date	3/25/2014	10/26/2017	3/25/2014	10/26/2017	3/25/2014	10/26/2017	3/25/2014	10/26/2017	7/20/2018	3/25/2014	10/26/2017	7/20/2018	3/25/2014	10/26/2017	7/20/2018	3/25/2014	10/26/2017	3/25/2014	3/25/2014	3/25/2014	3/25/2014			
Analytical Parameters																								
TPH																								
TPH Gasoline Range Organics		<3.0	<3.6	<3.1	NT	21	NT	35	<3.7	NT	<2.8	NT	NT	<2.8	NT	NT	<3.0	NT	NT	NT	NT	500	mg/kg	
TPH Diesel Range Organics		1000	48	78	NT	460	NT	2600	<3.3	NT	110	NT	NT	200	NT	NT	190	NT	NT	NT	NT			
BTEX																								
Benzene		<0.036	NT	<0.037	NT	<0.035	NT	<0.035	NT	NT	<0.034	NT	NT	<0.034	NT	NT	<0.036	NT	NT	NT	NT	0.17	mg/kg	
Toluene		<0.036	NT	<0.037	NT	<0.035	NT	<0.035	NT	NT	<0.034	NT	NT	<0.034	NT	NT	<0.036	NT	NT	NT	NT	85	mg/kg	
Ethylbenzene		0.056	NT	<0.037	NT	<0.035	NT	<0.035	NT	NT	<0.034	NT	NT	<0.034	NT	NT	<0.036	NT	NT	NT	NT	100	mg/kg	
Total Xylene		0.41	NT	<0.110	NT	<0.110	NT	0.13	NT	NT	<0.100	NT	NT	<0.100	NT	NT	<0.110	NT	NT	NT	NT	175	mg/kg	
Metals																								
Arsenic		6.2	NT	7.2	NT	6.7	NT	6.8	NT	NT	9.6	NT	NT	7	NT	NT	6	NT	6.4	NT	6.6	4.8	0.39	mg/kg
Barium		160	NT	200	NT	150	NT	200	NT	NT	180	NT	NT	200	NT	NT	220	NT	200	NT	NT	15,000	mg/kg	
Cadmium		<0.91	NT	<0.95	NT	<0.87	NT	<0.91	NT	NT	<0.89	NT	NT	<0.87	NT	NT	<0.95	NT	<0.86	NT	NT	70	mg/kg	
Chromium		14	NT	16	NT	13	NT	14	NT	NT	14	NT	NT	12	NT	NT	14	NT	16	NT	NT	NA	mg/kg	
Copper		16	NT	17	NT	15	NT	16	NT	NT	18	NT	NT	15	NT	NT	17	NT	17	NT	NT	3,100	mg/kg	
Lead		21	NT	20	NT	19	NT	21	NT	NT	21	NT	NT	19	NT	NT	25	NT	21	NT	NT	400	mg/kg	
Mercury		0.027	NT	0.018	NT	0.03	NT	0.039	NT	NT	0.033	NT	NT	0.024	NT	NT	0.07	NT	0.033	NT	NT	23	mg/kg	
Nickel		19	NT	19	NT	18	NT	20	NT	NT	22	NT	NT	17	NT	NT	18	NT	20	NT	NT	1,600	mg/kg	
Selenium		<2.3	NT	<2.4	NT	<2.2	NT	<2.3	NT	NT	2.3	NT	NT	<2.2	NT	NT	<2.4	NT	2.3	NT	NT	390	mg/kg	
Silver		<2.3	NT	<2.4	NT	<2.2	NT	<2.3	NT	NT	<2.2	NT	NT	<2.2	NT	NT	<2.4	NT	<2.1	NT	NT	390	mg/kg	
Zinc		80	NT	81	NT	76	NT	88	NT	NT	92	NT	NT	75	NT	NT	120	NT	81	NT	NT	23,000	mg/kg	
SAR Metals Analysis																								
Calcium		1100	160	180	470	450	320	680	1800	NT	790	NT	NT	1600	820	NT	1700	160	79	NT	NT	NT	NA	mg/L
Magnesium		89	24	82	48	69	49	110	110	NT	110	NT	NT	300	17	NT	270	27	22	NT	NT	NT	NA	mg/L
Sodium		1800	15	1400	98	1500	27	4700	52	NT	1100	NT	NT	4200	11	NT	5400	260	100	NT	NT	NT	NA	mg/L
Sodium Adsorption Ratic		14	0.29	22	1.2	18	2.1	44	0.32	NT	9.4	NT	NT	25	0.10	NT	33	1.9	2.7	NT	NT	NT	<12	ratio
Polynuclear Aromatic Hydrocarbons																								
Acenaphthene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	<0.0074	NT	NT	<0.0074	NT	NT	<0.0078	NT	NT	NT	NT	1,000	mg/kg	
Anthracene		0.21	NT	<0.0081	NT	0.096	NT	<0.150	NT	NT	<0.0074	NT	NT	<0.0074	NT	NT	<0.0078	NT	NT	NT	NT	1,000	mg/kg	
Benzo(a)anthracene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	<0.0074	NT	NT	<0.0074	NT	NT	<0.0078	NT	NT	NT	NT	0.22	mg/kg	
Benzo(a)pyrene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	<0.0074	NT	NT	0.016	NT	NT	<0.0078	NT	NT	NT	NT	0.022	mg/kg	
Benzo(b)fluoranthene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	<0.0074	NT	NT	<0.0074	NT	NT	<0.0078	NT	NT	NT	NT	0.22	mg/kg	
Benzo(k)fluoranthene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	<0.0074	NT	NT	<0.0074	NT	NT	<0.0078	NT	NT	NT	NT	2.2	mg/kg	
Chrysene		0.16	NT	<0.0081	NT	0.081	NT	0.400	NT	NT	<0.0074	NT	NT	0.047	NT	NT	0.078	NT	NT	NT	NT	22	mg/kg	
Dibenzo(a,h)anthracene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	<0.0074	NT	NT	<0.0074	NT	NT	<0.0078	NT	NT	NT	NT	0.022	mg/kg	
Fluoranthene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	<0.0074	NT	NT	0.019	NT	NT	0.054	NT	NT	NT	NT	1,000	mg/kg	
Fluorene		0.3	NT	<0.0081	NT	0.044	NT	<0.150	NT	NT	<0.0074	NT	NT	<0.0074	NT	NT	<0.0078	NT	NT	NT	NT	1,000	mg/kg	
Indeno(1,2,3-cd)pyrene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	<0.0074	NT	NT	<0.0074	NT	NT	<0.0078	NT	NT	NT	NT	0.22	mg/kg	
Napthalene		0.35	NT	<0.0081	NT	0.11	NT	0.45	NT	NT	<0.0074	NT	NT	0.04	NT	NT	0.025	NT	NT	NT	NT	23	mg/kg	
Pyrene		<0.0078	NT	<0.0081	NT	<0.0077	NT	<0.150	NT	NT	0.01	NT	NT	0.026	NT	NT	0.058	NT	NT	NT	NT	1,000	mg/kg	
General Chemistry																								
Chromium, Hexavalent		<0.60	NT	<0.61	NT	<0.57	NT	<0.59	NT	NT	<0.56	NT	NT	<0.56	NT	NT	<0.60	NT	<0.55	NT	NT	23	mg/kg	
Chromium, Trivalent		14	NT	16	NT	13	NT	14	NT	NT	14	NT	NT	12	NT	NT	16	NT	16	NT	NT	NT	120,000	mg/kg
Specific Conductivity		17	0.96	0.98	NT	12	2.1	30	10	2.1	12	9	2.0	37	4.5	2.0	40	1.9	1.3	NT	NT	<4 or 2 x the background	mmhos/cm	
pH		8.3	NT	9.0	NT	8.6	NT	8.4	NT	NT	8.6	NT	NT	8.6	NT	NT	8.3	NT	9.1	NT	NT	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



04-Apr-2014

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

Re: **Chevron WLN Hagood A1 Spill 3.25.14**

Work Order: **14031272**

Dear Tim,

ALS Environmental received 11 samples on 27-Mar-2014 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 NELAP standard requirements and QC 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 40.

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

Sincerely,

A handwritten signature in cursive script that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston
Project Manager



Certificate No: MN 532786

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | 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: Chevron WLN Hagood A1 Spill 3.25.14
Work Order: 14031272

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>
14031272-01	LNHA1-SS1	Soil		3/25/2014 11:05	3/27/2014 09:00	<input type="checkbox"/>
14031272-02	LNHA1-BG1	Soil		3/25/2014 11:15	3/27/2014 09:00	<input type="checkbox"/>
14031272-03	LNHA1-SS2	Soil		3/25/2014 11:20	3/27/2014 09:00	<input type="checkbox"/>
14031272-04	LNHA1-SS3	Soil		3/25/2014 11:35	3/27/2014 09:00	<input type="checkbox"/>
14031272-05	LNHA1-BG2	Soil		3/25/2014 11:40	3/27/2014 09:00	<input type="checkbox"/>
14031272-06	LNHA1-SS4	Soil		3/25/2014 11:50	3/27/2014 09:00	<input type="checkbox"/>
14031272-07	LNHA1-BG3	Soil		3/25/2014 12:00	3/27/2014 09:00	<input type="checkbox"/>
14031272-08	LNHA1-SS5	Soil		3/25/2014 12:10	3/27/2014 09:00	<input type="checkbox"/>
14031272-09	LNHA1-SS6	Soil		3/25/2014 12:20	3/27/2014 09:00	<input type="checkbox"/>
14031272-10	LNHA1-SS7	Soil		3/25/2014 12:35	3/27/2014 09:00	<input type="checkbox"/>
14031272-11	LNHA1-BG4	Soil		3/25/2014 12:40	3/27/2014 09:00	<input type="checkbox"/>

Client: Olsson Associates
Project: Chevron WLN Hagood A1 Spill 3.25.14
Work Order: 14031272

Case Narrative

Batch 56982 samples 14031272-01 and 14031272-06 DRO surrogate recoveries were high due to matrix interference. No data requires qualification.

Batch 56992 MS/MSD data for GRO is not related to this project's samples. No data requires qualification.

Batch 57017 MS/MSD data for Hexavalent Chromium is not related to this project's samples. No data requires qualification.

Batch 57074 MS/MSD data for Mercury is not related to this project's samples. No data requires qualification.

Batch 57075 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not 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
n	Not offered for accreditation
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

<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
µg/Kg-dry	Micrograms per Kilogram Dry Weight
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, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS1

Collection Date: 3/25/2014 11:05 AM

Work Order: 14031272

Lab ID: 14031272-01

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	1,000		SW8015M		Prep: SW3541 / 3/28/14	Analyst: IT
<i>Surr: 4-Terphenyl-d14</i>	256	S	39-115	%REC	2	3/28/2014 09:31 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		SW8015		Prep: SW5035 / 3/28/14	Analyst: IT
<i>Surr: Toluene-d8</i>	100		50-150	%REC	1	3/31/2014 02:04 PM
MERCURY BY CVAA						
Mercury	0.027		SW7471		Prep: SW7471 / 3/31/14	Analyst: LR
			0.016	mg/Kg-dry	1	4/2/2014 01:40 PM
METALS BY ICP-MS						
Arsenic	6.2		SW6020A		Prep: SW3050B / 4/1/14	Analyst: ML
			2.3	mg/Kg-dry	5	4/1/2014 01:00 PM
Barium	160		2.3	mg/Kg-dry	5	4/1/2014 01:00 PM
Cadmium	ND		0.91	mg/Kg-dry	5	4/1/2014 01:00 PM
Chromium	14		2.3	mg/Kg-dry	5	4/1/2014 01:00 PM
Copper	16		2.3	mg/Kg-dry	5	4/1/2014 01:00 PM
Lead	21		2.3	mg/Kg-dry	5	4/1/2014 01:00 PM
Nickel	19		2.3	mg/Kg-dry	5	4/1/2014 01:00 PM
Selenium	ND		2.3	mg/Kg-dry	5	4/1/2014 01:00 PM
Silver	ND		2.3	mg/Kg-dry	5	4/1/2014 01:00 PM
Zinc	80		4.5	mg/Kg-dry	5	4/1/2014 01:00 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Calcium	1,100		10	mg/L	20	4/2/2014 11:55 AM
Magnesium	89		4.0	mg/L	20	4/2/2014 11:55 AM
Sodium	1,800		4.0	mg/L	20	4/2/2014 11:55 AM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Sodium Adsorption Ratio	14		0.010	none	1	4/2/2014
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep: SW3541 / 3/28/14	Analyst: HL
Acenaphthene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Anthracene	210		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Benzo(a)anthracene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Benzo(a)pyrene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Benzo(b)fluoranthene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Benzo(k)fluoranthene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Chrysene	160		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Dibenzo(a,h)anthracene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Fluoranthene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Work Order: 14031272

Sample ID: LNHA1-SS1

Lab ID: 14031272-01

Collection Date: 3/25/2014 11:05 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	300		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Indeno(1,2,3-cd)pyrene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Naphthalene	350		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Pyrene	ND		7.8	µg/Kg-dry	1	3/31/2014 04:02 PM
Surr: 2-Fluorobiphenyl	93.0		12-100	%REC	1	3/31/2014 04:02 PM
Surr: 4-Terphenyl-d14	88.0		25-137	%REC	1	3/31/2014 04:02 PM
Surr: Nitrobenzene-d5	86.6		37-107	%REC	1	3/31/2014 04:02 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 3/28/14		Analyst: AK
Benzene	ND		36	µg/Kg-dry	1	3/29/2014 01:12 AM
Ethylbenzene	56		36	µg/Kg-dry	1	3/29/2014 01:12 AM
m,p-Xylene	280		72	µg/Kg-dry	1	3/29/2014 01:12 AM
o-Xylene	140		36	µg/Kg-dry	1	3/29/2014 01:12 AM
Toluene	ND		36	µg/Kg-dry	1	3/29/2014 01:12 AM
Xylenes, Total	410		110	µg/Kg-dry	1	3/29/2014 01:12 AM
Surr: 1,2-Dichloroethane-d4	101		70-130	%REC	1	3/29/2014 01:12 AM
Surr: 4-Bromofluorobenzene	103		70-130	%REC	1	3/29/2014 01:12 AM
Surr: Dibromofluoromethane	97.0		70-130	%REC	1	3/29/2014 01:12 AM
Surr: Toluene-d8	97.8		70-130	%REC	1	3/29/2014 01:12 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 4/2/14		Analyst: MELB
Electrical Conductivity @ Saturation	17		0.050	mmhos/cm @25	10	4/2/2014 03:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	14		0.60	mg/Kg-dry	1	4/2/2014 04:30 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 3/28/14		Analyst: MB
Chromium, Hexavalent	ND		0.60	mg/Kg-dry	1	3/31/2014 03:00 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	17		0.050	% of sample	1	3/28/2014 02:09 PM
PH			SW9045D	Prep: EXTRACT / 3/28/14		Analyst: AT
pH	8.3			s.u.	1	3/28/2014 04:28 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates
Project: Chevron WLN Hagood A1 Spill 3.25.14
Sample ID: LNHA1-BG1
Collection Date: 3/25/2014 11:15 AM

Work Order: 14031272
Lab ID: 14031272-02
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA						
Mercury	0.033		SW7471 0.016	mg/Kg-dry	Prep: SW7471 / 3/31/14 1	Analyst: LR 4/2/2014 01:43 PM
METALS BY ICP-MS						
Arsenic	6.4		SW6020A 2.1	mg/Kg-dry	Prep: SW3050B / 4/1/14 5	Analyst: ML 4/1/2014 01:24 PM
Barium	200		2.1	mg/Kg-dry	5	4/1/2014 01:24 PM
Cadmium	ND		0.86	mg/Kg-dry	5	4/1/2014 01:24 PM
Chromium	16		2.1	mg/Kg-dry	5	4/1/2014 01:24 PM
Copper	17		2.1	mg/Kg-dry	5	4/1/2014 01:24 PM
Lead	21		2.1	mg/Kg-dry	5	4/1/2014 01:24 PM
Nickel	20		2.1	mg/Kg-dry	5	4/1/2014 01:24 PM
Selenium	2.3		2.1	mg/Kg-dry	5	4/1/2014 01:24 PM
Silver	ND		2.1	mg/Kg-dry	5	4/1/2014 01:24 PM
Zinc	81		4.3	mg/Kg-dry	5	4/1/2014 01:24 PM
SOLUBLE CATIONS FOR SAR						
Calcium	79		SW6020A 10	mg/L	Prep: USDA Method 20B / 4/2/14 20	Analyst: ML 4/2/2014 12:01 PM
Magnesium	22		4.0	mg/L	20	4/2/2014 12:01 PM
Sodium	100		4.0	mg/L	20	4/2/2014 12:01 PM
SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	2.7		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 4/2/14 1	Analyst: ML 4/2/2014
ELECTRICAL CONDUCTIVITY (SAR)						
Electrical Conductivity @ Saturation	1.3		USDA H60 METHO 0.050	mmhos/cm @25	Prep: USDA Method 20B / 4/2/14 10	Analyst: MELB 4/2/2014 03:30 PM
CHROMIUM, TRIVALENT						
Chromium, Trivalent	16		CALCULATION 0.55	mg/Kg-dry	1	Analyst: JJG 4/2/2014 04:30 PM
CHROMIUM, HEXAVALENT						
Chromium, Hexavalent	ND		SW7196A 0.55	mg/Kg-dry	Prep: SW3060A / 3/28/14 1	Analyst: MB 3/31/2014 03:00 PM
MOISTURE						
Moisture	9.3		A2540 G 0.050	% of sample	1	Analyst: AT 3/28/2014 02:09 PM
PH						
pH	9.1		SW9045D	s.u.	Prep: EXTRACT / 3/28/14 1	Analyst: AT 3/28/2014 04:28 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS2

Collection Date: 3/25/2014 11:20 AM

Work Order: 14031272

Lab ID: 14031272-03

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	78		SW8015M		Prep: SW3541 / 3/28/14	Analyst: IT
<i>Surr: 4-Terphenyl-d14</i>	73.6		5.1	mg/Kg-dry	1	3/28/2014 10:01 PM
			39-115	%REC	1	3/28/2014 10:01 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		SW8015		Prep: SW5035 / 3/28/14	Analyst: IT
<i>Surr: Toluene-d8</i>	103		3.1	mg/Kg-dry	1	3/31/2014 02:30 PM
			50-150	%REC	1	3/31/2014 02:30 PM
MERCURY BY CVAA						
Mercury	0.018		SW7471		Prep: SW7471 / 3/31/14	Analyst: LR
			0.016	mg/Kg-dry	1	4/2/2014 01:45 PM
METALS BY ICP-MS						
Arsenic	7.2		SW6020A		Prep: SW3050B / 4/1/14	Analyst: ML
Barium	200		2.4	mg/Kg-dry	5	4/1/2014 01:30 PM
Cadmium	ND		2.4	mg/Kg-dry	5	4/1/2014 01:30 PM
Chromium	16		0.95	mg/Kg-dry	5	4/1/2014 01:30 PM
Copper	17		2.4	mg/Kg-dry	5	4/1/2014 01:30 PM
Lead	20		2.4	mg/Kg-dry	5	4/1/2014 01:30 PM
Nickel	19		2.4	mg/Kg-dry	5	4/1/2014 01:30 PM
Selenium	ND		2.4	mg/Kg-dry	5	4/1/2014 01:30 PM
Silver	ND		2.4	mg/Kg-dry	5	4/1/2014 01:30 PM
Zinc	81		4.7	mg/Kg-dry	5	4/1/2014 01:30 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Calcium	180		10	mg/L	20	4/2/2014 12:07 PM
Magnesium	82		4.0	mg/L	20	4/2/2014 12:07 PM
Sodium	1,400		4.0	mg/L	20	4/2/2014 12:07 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Sodium Adsorption Ratio	22		0.010	none	1	4/2/2014
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep: SW3541 / 3/28/14	Analyst: HL
Acenaphthene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Anthracene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Benzo(a)anthracene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Benzo(a)pyrene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Benzo(b)fluoranthene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Benzo(k)fluoranthene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Chrysene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Dibenzo(a,h)anthracene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Fluoranthene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS2

Collection Date: 3/25/2014 11:20 AM

Work Order: 14031272

Lab ID: 14031272-03

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Indeno(1,2,3-cd)pyrene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Naphthalene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Pyrene	ND		8.1	µg/Kg-dry	1	3/31/2014 04:35 PM
Surr: 2-Fluorobiphenyl	71.2		12-100	%REC	1	3/31/2014 04:35 PM
Surr: 4-Terphenyl-d14	84.3		25-137	%REC	1	3/31/2014 04:35 PM
Surr: Nitrobenzene-d5	64.8		37-107	%REC	1	3/31/2014 04:35 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 3/28/14		Analyst: AK
Benzene	ND		37	µg/Kg-dry	1	3/29/2014 01:36 AM
Ethylbenzene	ND		37	µg/Kg-dry	1	3/29/2014 01:36 AM
m,p-Xylene	ND		73	µg/Kg-dry	1	3/29/2014 01:36 AM
o-Xylene	ND		37	µg/Kg-dry	1	3/29/2014 01:36 AM
Toluene	ND		37	µg/Kg-dry	1	3/29/2014 01:36 AM
Xylenes, Total	ND		110	µg/Kg-dry	1	3/29/2014 01:36 AM
Surr: 1,2-Dichloroethane-d4	101		70-130	%REC	1	3/29/2014 01:36 AM
Surr: 4-Bromofluorobenzene	102		70-130	%REC	1	3/29/2014 01:36 AM
Surr: Dibromofluoromethane	99.3		70-130	%REC	1	3/29/2014 01:36 AM
Surr: Toluene-d8	97.7		70-130	%REC	1	3/29/2014 01:36 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 4/2/14		Analyst: MELB
Electrical Conductivity @ Saturation	0.98		0.050	mmhos/cm @25	10	4/2/2014 03:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	16		0.61	mg/Kg-dry	1	4/2/2014 04:30 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 3/28/14		Analyst: MB
Chromium, Hexavalent	ND		0.61	mg/Kg-dry	1	3/31/2014 03:00 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	18		0.050	% of sample	1	3/28/2014 02:09 PM
PH			SW9045D	Prep: EXTRACT / 3/28/14		Analyst: AT
pH	9.0			s.u.	1	3/28/2014 04:28 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS3

Collection Date: 3/25/2014 11:35 AM

Work Order: 14031272

Lab ID: 14031272-04

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	460		24	mg/Kg-dry	5	3/28/2014 11:01 PM
Surr: 4-Terphenyl-d14	105		39-115	%REC	5	3/28/2014 11:01 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	21		2.9	mg/Kg-dry	1	3/31/2014 02:56 PM
Surr: Toluene-d8	100		50-150	%REC	1	3/31/2014 02:56 PM
MERCURY BY CVAA						
Mercury	0.030		0.015	mg/Kg-dry	1	4/2/2014 01:47 PM
METALS BY ICP-MS						
Arsenic	6.7		2.2	mg/Kg-dry	5	4/1/2014 01:36 PM
Barium	150		2.2	mg/Kg-dry	5	4/1/2014 01:36 PM
Cadmium	ND		0.87	mg/Kg-dry	5	4/1/2014 01:36 PM
Chromium	13		2.2	mg/Kg-dry	5	4/1/2014 01:36 PM
Copper	15		2.2	mg/Kg-dry	5	4/1/2014 01:36 PM
Lead	19		2.2	mg/Kg-dry	5	4/1/2014 01:36 PM
Nickel	18		2.2	mg/Kg-dry	5	4/1/2014 01:36 PM
Selenium	ND		2.2	mg/Kg-dry	5	4/1/2014 01:36 PM
Silver	ND		2.2	mg/Kg-dry	5	4/1/2014 01:36 PM
Zinc	76		4.3	mg/Kg-dry	5	4/1/2014 01:36 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Calcium	450		10	mg/L	20	4/2/2014 12:14 PM
Magnesium	69		4.0	mg/L	20	4/2/2014 12:14 PM
Sodium	1,500		4.0	mg/L	20	4/2/2014 12:14 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Sodium Adsorption Ratio	18		0.010	none	1	4/2/2014
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep: SW3541 / 3/28/14	Analyst: HL
Acenaphthene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Anthracene	96		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Benzo(a)anthracene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Benzo(a)pyrene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Benzo(b)fluoranthene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Benzo(k)fluoranthene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Chrysene	81		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Dibenzo(a,h)anthracene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Fluoranthene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Work Order: 14031272

Sample ID: LNHA1-SS3

Lab ID: 14031272-04

Collection Date: 3/25/2014 11:35 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	44		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Indeno(1,2,3-cd)pyrene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Naphthalene	110		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Pyrene	ND		7.7	µg/Kg-dry	1	3/31/2014 05:09 PM
Surr: 2-Fluorobiphenyl	83.3		12-100	%REC	1	3/31/2014 05:09 PM
Surr: 4-Terphenyl-d14	86.8		25-137	%REC	1	3/31/2014 05:09 PM
Surr: Nitrobenzene-d5	69.0		37-107	%REC	1	3/31/2014 05:09 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 3/28/14		Analyst: BG
Benzene	ND		35	µg/Kg-dry	1	3/31/2014 09:58 PM
Ethylbenzene	ND		35	µg/Kg-dry	1	3/31/2014 09:58 PM
m,p-Xylene	ND		70	µg/Kg-dry	1	3/31/2014 09:58 PM
o-Xylene	37		35	µg/Kg-dry	1	3/31/2014 09:58 PM
Toluene	ND		35	µg/Kg-dry	1	3/31/2014 09:58 PM
Xylenes, Total	ND		110	µg/Kg-dry	1	3/31/2014 09:58 PM
Surr: 1,2-Dichloroethane-d4	99.1		70-130	%REC	1	3/31/2014 09:58 PM
Surr: 4-Bromofluorobenzene	94.6		70-130	%REC	1	3/31/2014 09:58 PM
Surr: Dibromofluoromethane	96.0		70-130	%REC	1	3/31/2014 09:58 PM
Surr: Toluene-d8	102		70-130	%REC	1	3/31/2014 09:58 PM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 4/2/14		Analyst: MELB
Electrical Conductivity @ Saturation	12		0.050	mmhos/cm @25	10	4/2/2014 03:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	13		0.59	mg/Kg-dry	1	4/2/2014 04:30 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 3/28/14		Analyst: MB
Chromium, Hexavalent	ND		0.57	mg/Kg-dry	1	3/31/2014 03:00 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	15		0.050	% of sample	1	3/28/2014 02:09 PM
PH			SW9045D	Prep: EXTRACT / 3/28/14		Analyst: AT
pH	8.6			s.u.	1	3/28/2014 04:28 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Work Order: 14031272

Sample ID: LNHA1-BG2

Lab ID: 14031272-05

Collection Date: 3/25/2014 11:40 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020A		Prep: SW3050B / 4/1/14	Analyst: ML
Arsenic	6.1		2.1	mg/Kg-dry	5	4/1/2014 01:42 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	8.0		0.050	% of sample	1	3/28/2014 02:09 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS4

Collection Date: 3/25/2014 11:50 AM

Work Order: 14031272

Lab ID: 14031272-06

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	2,600		24	mg/Kg-dry	5	3/28/2014 11:31 PM
Surr: 4-Terphenyl-d14	608	S	39-115	%REC	5	3/28/2014 11:31 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	35		2.9	mg/Kg-dry	1	3/31/2014 03:22 PM
Surr: Toluene-d8	108		50-150	%REC	1	3/31/2014 03:22 PM
MERCURY BY CVAA						
Mercury	0.039		0.017	mg/Kg-dry	1	4/2/2014 01:49 PM
METALS BY ICP-MS						
Arsenic	6.8		2.3	mg/Kg-dry	5	4/1/2014 01:48 PM
Barium	200		2.3	mg/Kg-dry	5	4/1/2014 01:48 PM
Cadmium	ND		0.91	mg/Kg-dry	5	4/1/2014 01:48 PM
Chromium	14		2.3	mg/Kg-dry	5	4/1/2014 01:48 PM
Copper	16		2.3	mg/Kg-dry	5	4/1/2014 01:48 PM
Lead	21		2.3	mg/Kg-dry	5	4/1/2014 01:48 PM
Nickel	20		2.3	mg/Kg-dry	5	4/1/2014 01:48 PM
Selenium	ND		2.3	mg/Kg-dry	5	4/1/2014 01:48 PM
Silver	ND		2.3	mg/Kg-dry	5	4/1/2014 01:48 PM
Zinc	88		4.5	mg/Kg-dry	5	4/1/2014 01:48 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Calcium	680		10	mg/L	20	4/2/2014 12:20 PM
Magnesium	110		4.0	mg/L	20	4/2/2014 12:20 PM
Sodium	4,700		40	mg/L	200	4/2/2014 01:34 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Sodium Adsorption Ratio	44		0.010	none	1	4/2/2014
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep: SW3541 / 3/28/14	Analyst: HL
Acenaphthene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Anthracene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Benzo(a)anthracene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Benzo(a)pyrene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Benzo(b)fluoranthene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Benzo(k)fluoranthene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Chrysene	400		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Dibenzo(a,h)anthracene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Fluoranthene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS4

Collection Date: 3/25/2014 11:50 AM

Work Order: 14031272

Lab ID: 14031272-06

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Indeno(1,2,3-cd)pyrene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Naphthalene	450		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Pyrene	ND		150	µg/Kg-dry	20	4/1/2014 01:24 PM
Surr: 2-Fluorobiphenyl	61.2		12-100	%REC	20	4/1/2014 01:24 PM
Surr: 4-Terphenyl-d14	69.6		25-137	%REC	20	4/1/2014 01:24 PM
Surr: Nitrobenzene-d5	49.2		37-107	%REC	20	4/1/2014 01:24 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 3/28/14	Analyst: BG	
Benzene	ND		35	µg/Kg-dry	1	3/31/2014 10:25 PM
Ethylbenzene	ND		35	µg/Kg-dry	1	3/31/2014 10:25 PM
m,p-Xylene	79		70	µg/Kg-dry	1	3/31/2014 10:25 PM
o-Xylene	53		35	µg/Kg-dry	1	3/31/2014 10:25 PM
Toluene	ND		35	µg/Kg-dry	1	3/31/2014 10:25 PM
Xylenes, Total	130		110	µg/Kg-dry	1	3/31/2014 10:25 PM
Surr: 1,2-Dichloroethane-d4	99.5		70-130	%REC	1	3/31/2014 10:25 PM
Surr: 4-Bromofluorobenzene	94.4		70-130	%REC	1	3/31/2014 10:25 PM
Surr: Dibromofluoromethane	91.7		70-130	%REC	1	3/31/2014 10:25 PM
Surr: Toluene-d8	104		70-130	%REC	1	3/31/2014 10:25 PM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 4/2/14	Analyst: MELB	
Electrical Conductivity @ Saturation	30		0.050	mmhos/cm @25	10	4/2/2014 03:30 PM
CHROMIUM, TRIVALENT			CALCULATION	Analyst: JJG		
Chromium, Trivalent	14		0.59	mg/Kg-dry	1	4/2/2014 04:30 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 3/28/14	Analyst: MB	
Chromium, Hexavalent	ND		0.59	mg/Kg-dry	1	3/31/2014 03:00 PM
MOISTURE			A2540 G	Analyst: AT		
Moisture	15		0.050	% of sample	1	3/28/2014 02:09 PM
PH			SW9045D	Prep: EXTRACT / 3/28/14	Analyst: AT	
pH	8.4			s.u.	1	3/28/2014 04:28 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Work Order: 14031272

Sample ID: LNHA1-BG3

Lab ID: 14031272-07

Collection Date: 3/25/2014 12:00 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020A		Prep: SW3050B / 4/1/14	Analyst: ML
Arsenic	6.6		2.1	mg/Kg-dry	5	4/1/2014 01:54 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	7.7		0.050	% of sample	1	3/28/2014 02:09 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates
Project: Chevron WLN Hagood A1 Spill 3.25.14
Sample ID: LNHA1-SS5
Collection Date: 3/25/2014 12:10 PM

Work Order: 14031272
Lab ID: 14031272-08
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3541 / 3/28/14	Analyst: IT
DRO (C10-C28)	110		4.6	mg/Kg-dry	1	3/29/2014 12:00 PM
Surr: 4-Terphenyl-d14	87.8		39-115	%REC	1	3/29/2014 12:00 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015		Prep: SW5035 / 3/28/14	Analyst: IT
GRO (C6-C10)	ND		2.8	mg/Kg-dry	1	3/31/2014 03:48 PM
Surr: Toluene-d8	101		50-150	%REC	1	3/31/2014 03:48 PM
MERCURY BY CVAA						
			SW7471		Prep: SW7471 / 3/31/14	Analyst: LR
Mercury	0.033		0.016	mg/Kg-dry	1	4/2/2014 01:52 PM
METALS BY ICP-MS						
			SW6020A		Prep: SW3050B / 4/1/14	Analyst: ML
Arsenic	9.6		2.2	mg/Kg-dry	5	4/1/2014 02:00 PM
Barium	180		2.2	mg/Kg-dry	5	4/1/2014 02:00 PM
Cadmium	ND		0.89	mg/Kg-dry	5	4/1/2014 02:00 PM
Chromium	14		2.2	mg/Kg-dry	5	4/1/2014 02:00 PM
Copper	18		2.2	mg/Kg-dry	5	4/1/2014 02:00 PM
Lead	21		2.2	mg/Kg-dry	5	4/1/2014 02:00 PM
Nickel	22		2.2	mg/Kg-dry	5	4/1/2014 02:00 PM
Selenium	2.3		2.2	mg/Kg-dry	5	4/1/2014 02:00 PM
Silver	ND		2.2	mg/Kg-dry	5	4/1/2014 02:00 PM
Zinc	92		4.5	mg/Kg-dry	5	4/1/2014 02:00 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Calcium	790		10	mg/L	20	4/2/2014 12:26 PM
Magnesium	110		4.0	mg/L	20	4/2/2014 12:26 PM
Sodium	1,100		4.0	mg/L	20	4/2/2014 12:26 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Sodium Adsorption Ratio	9.4		0.010	none	1	4/2/2014
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep: SW3541 / 3/28/14	Analyst: HL
Acenaphthene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Anthracene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Benzo(a)anthracene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Benzo(a)pyrene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Benzo(b)fluoranthene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Benzo(k)fluoranthene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Chrysene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Dibenzo(a,h)anthracene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Fluoranthene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS5

Collection Date: 3/25/2014 12:10 PM

Work Order: 14031272

Lab ID: 14031272-08

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Indeno(1,2,3-cd)pyrene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Naphthalene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Pyrene	10		7.4	µg/Kg-dry	1	3/31/2014 06:17 PM
Surr: 2-Fluorobiphenyl	72.6		12-100	%REC	1	3/31/2014 06:17 PM
Surr: 4-Terphenyl-d14	88.9		25-137	%REC	1	3/31/2014 06:17 PM
Surr: Nitrobenzene-d5	68.9		37-107	%REC	1	3/31/2014 06:17 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 3/28/14		Analyst: AK
Benzene	ND		34	µg/Kg-dry	1	3/29/2014 05:40 AM
Ethylbenzene	ND		34	µg/Kg-dry	1	3/29/2014 05:40 AM
m,p-Xylene	ND		68	µg/Kg-dry	1	3/29/2014 05:40 AM
o-Xylene	ND		34	µg/Kg-dry	1	3/29/2014 05:40 AM
Toluene	ND		34	µg/Kg-dry	1	3/29/2014 05:40 AM
Xylenes, Total	ND		100	µg/Kg-dry	1	3/29/2014 05:40 AM
Surr: 1,2-Dichloroethane-d4	97.4		70-130	%REC	1	3/29/2014 05:40 AM
Surr: 4-Bromofluorobenzene	100		70-130	%REC	1	3/29/2014 05:40 AM
Surr: Dibromofluoromethane	97.2		70-130	%REC	1	3/29/2014 05:40 AM
Surr: Toluene-d8	98.4		70-130	%REC	1	3/29/2014 05:40 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 4/2/14		Analyst: MELB
Electrical Conductivity @ Saturation	12		0.050	mmhos/cm @25	10	4/2/2014 03:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	14		0.56	mg/Kg-dry	1	4/2/2014 04:30 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 3/28/14		Analyst: MB
Chromium, Hexavalent	ND		0.56	mg/Kg-dry	1	3/31/2014 03:00 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	11		0.050	% of sample	1	3/28/2014 02:09 PM
PH			SW9045D	Prep: EXTRACT / 3/28/14		Analyst: AT
pH	8.6			s.u.	1	3/28/2014 04:28 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS6

Collection Date: 3/25/2014 12:20 PM

Work Order: 14031272

Lab ID: 14031272-09

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	200		19	mg/Kg-dry	4	Analyst: IT
Surr: 4-Terphenyl-d14	92.6		39-115	%REC	4	3/29/2014 12:30 PM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		2.8	mg/Kg-dry	1	Analyst: IT
Surr: Toluene-d8	101		50-150	%REC	1	3/31/2014 04:14 PM
MERCURY BY CVAA						
Mercury	0.024		0.016	mg/Kg-dry	1	Analyst: LR
METALS BY ICP-MS						
Arsenic	7.0		2.2	mg/Kg-dry	5	Analyst: ML
Barium	200		2.2	mg/Kg-dry	5	4/1/2014 02:06 PM
Cadmium	ND		0.87	mg/Kg-dry	5	4/1/2014 02:06 PM
Chromium	12		2.2	mg/Kg-dry	5	4/1/2014 02:06 PM
Copper	15		2.2	mg/Kg-dry	5	4/1/2014 02:06 PM
Lead	19		2.2	mg/Kg-dry	5	4/1/2014 02:06 PM
Nickel	17		2.2	mg/Kg-dry	5	4/1/2014 02:06 PM
Selenium	ND		2.2	mg/Kg-dry	5	4/1/2014 02:06 PM
Silver	ND		2.2	mg/Kg-dry	5	4/1/2014 02:06 PM
Zinc	75		4.4	mg/Kg-dry	5	4/1/2014 02:06 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Calcium	1,600		10	mg/L	20	4/2/2014 12:32 PM
Magnesium	300		4.0	mg/L	20	4/2/2014 12:32 PM
Sodium	4,200		40	mg/L	200	4/2/2014 01:40 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Sodium Adsorption Ratio	25		0.010	none	1	4/2/2014
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep: SW3541 / 3/28/14	Analyst: HL
Acenaphthene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Anthracene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Benzo(a)anthracene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Benzo(a)pyrene	16		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Benzo(b)fluoranthene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Benzo(k)fluoranthene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Chrysene	47		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Dibenzo(a,h)anthracene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Fluoranthene	19		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Work Order: 14031272

Sample ID: LNHA1-SS6

Lab ID: 14031272-09

Collection Date: 3/25/2014 12:20 PM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Indeno(1,2,3-cd)pyrene	ND		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Naphthalene	40		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Pyrene	26		7.4	µg/Kg-dry	1	3/31/2014 06:51 PM
Surr: 2-Fluorobiphenyl	67.0		12-100	%REC	1	3/31/2014 06:51 PM
Surr: 4-Terphenyl-d14	84.9		25-137	%REC	1	3/31/2014 06:51 PM
Surr: Nitrobenzene-d5	49.7		37-107	%REC	1	3/31/2014 06:51 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 3/28/14		Analyst: AK
Benzene	ND		34	µg/Kg-dry	1	3/29/2014 06:05 AM
Ethylbenzene	ND		34	µg/Kg-dry	1	3/29/2014 06:05 AM
m,p-Xylene	ND		68	µg/Kg-dry	1	3/29/2014 06:05 AM
o-Xylene	ND		34	µg/Kg-dry	1	3/29/2014 06:05 AM
Toluene	ND		34	µg/Kg-dry	1	3/29/2014 06:05 AM
Xylenes, Total	ND		100	µg/Kg-dry	1	3/29/2014 06:05 AM
Surr: 1,2-Dichloroethane-d4	99.6		70-130	%REC	1	3/29/2014 06:05 AM
Surr: 4-Bromofluorobenzene	102		70-130	%REC	1	3/29/2014 06:05 AM
Surr: Dibromofluoromethane	96.1		70-130	%REC	1	3/29/2014 06:05 AM
Surr: Toluene-d8	98.0		70-130	%REC	1	3/29/2014 06:05 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 4/2/14		Analyst: MELB
Electrical Conductivity @ Saturation	37		0.050	mmhos/cm @25	10	4/2/2014 03:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	12		0.57	mg/Kg-dry	1	4/2/2014 04:30 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 3/28/14		Analyst: MB
Chromium, Hexavalent	ND		0.56	mg/Kg-dry	1	3/31/2014 03:00 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	12		0.050	% of sample	1	3/28/2014 02:09 PM
PH			SW9045D	Prep: EXTRACT / 3/28/14		Analyst: AT
pH	8.6			s.u.	1	3/28/2014 04:28 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS7

Collection Date: 3/25/2014 12:35 PM

Work Order: 14031272

Lab ID: 14031272-10

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
DRO (C10-C28)	190		24	mg/Kg-dry	5	Analyst: IT
Surr: 4-Terphenyl-d14	77.2		39-115	%REC	5	3/29/2014 01:00 AM
GASOLINE RANGE ORGANICS BY GC-FID						
GRO (C6-C10)	ND		3.0	mg/Kg-dry	1	Analyst: IT
Surr: Toluene-d8	100		50-150	%REC	1	3/31/2014 04:40 PM
MERCURY BY CVAA						
Mercury	0.070		0.016	mg/Kg-dry	1	Analyst: LR
METALS BY ICP-MS						
Arsenic	6.0		2.4	mg/Kg-dry	5	Analyst: ML
Barium	220		2.4	mg/Kg-dry	5	4/1/2014 02:12 PM
Cadmium	ND		0.95	mg/Kg-dry	5	4/1/2014 02:12 PM
Chromium	14		2.4	mg/Kg-dry	5	4/1/2014 02:12 PM
Copper	17		2.4	mg/Kg-dry	5	4/1/2014 02:12 PM
Lead	25		2.4	mg/Kg-dry	5	4/1/2014 02:12 PM
Nickel	18		2.4	mg/Kg-dry	5	4/1/2014 02:12 PM
Selenium	ND		2.4	mg/Kg-dry	5	4/1/2014 02:12 PM
Silver	ND		2.4	mg/Kg-dry	5	4/1/2014 02:12 PM
Zinc	120		4.7	mg/Kg-dry	5	4/1/2014 02:12 PM
SOLUBLE CATIONS FOR SAR						
			SW6020A		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Calcium	1,700		10	mg/L	20	4/2/2014 12:45 PM
Magnesium	270		4.0	mg/L	20	4/2/2014 12:45 PM
Sodium	5,400		40	mg/L	200	4/2/2014 01:52 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 4/2/14	Analyst: ML
Sodium Adsorption Ratio	33		0.010	none	1	4/2/2014
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW8270		Prep: SW3541 / 3/28/14	Analyst: HL
Acenaphthene	ND		7.8	µg/Kg-dry	1	3/31/2014 07:25 PM
Anthracene	ND		7.8	µg/Kg-dry	1	3/31/2014 07:25 PM
Benzo(a)anthracene	ND		7.8	µg/Kg-dry	1	3/31/2014 07:25 PM
Benzo(a)pyrene	ND		78	µg/Kg-dry	10	4/1/2014 01:56 PM
Benzo(b)fluoranthene	ND		78	µg/Kg-dry	10	4/1/2014 01:56 PM
Benzo(k)fluoranthene	ND		78	µg/Kg-dry	10	4/1/2014 01:56 PM
Chrysene	78		7.8	µg/Kg-dry	1	3/31/2014 07:25 PM
Dibenzo(a,h)anthracene	ND		78	µg/Kg-dry	10	4/1/2014 01:56 PM
Fluoranthene	54		7.8	µg/Kg-dry	1	3/31/2014 07:25 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-SS7

Collection Date: 3/25/2014 12:35 PM

Work Order: 14031272

Lab ID: 14031272-10

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		7.8	µg/Kg-dry	1	3/31/2014 07:25 PM
Indeno(1,2,3-cd)pyrene	ND		78	µg/Kg-dry	10	4/1/2014 01:56 PM
Naphthalene	25		7.8	µg/Kg-dry	1	3/31/2014 07:25 PM
Pyrene	58		7.8	µg/Kg-dry	1	3/31/2014 07:25 PM
Surr: 2-Fluorobiphenyl	70.6		12-100	%REC	1	3/31/2014 07:25 PM
Surr: 4-Terphenyl-d14	89.2		25-137	%REC	1	3/31/2014 07:25 PM
Surr: Nitrobenzene-d5	57.3		37-107	%REC	1	3/31/2014 07:25 PM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 3/28/14		Analyst: AK
Benzene	ND		36	µg/Kg-dry	1	3/29/2014 02:01 AM
Ethylbenzene	ND		36	µg/Kg-dry	1	3/29/2014 02:01 AM
m,p-Xylene	ND		72	µg/Kg-dry	1	3/29/2014 02:01 AM
o-Xylene	ND		36	µg/Kg-dry	1	3/29/2014 02:01 AM
Toluene	ND		36	µg/Kg-dry	1	3/29/2014 02:01 AM
Xylenes, Total	ND		110	µg/Kg-dry	1	3/29/2014 02:01 AM
Surr: 1,2-Dichloroethane-d4	100		70-130	%REC	1	3/29/2014 02:01 AM
Surr: 4-Bromofluorobenzene	104		70-130	%REC	1	3/29/2014 02:01 AM
Surr: Dibromofluoromethane	97.0		70-130	%REC	1	3/29/2014 02:01 AM
Surr: Toluene-d8	97.6		70-130	%REC	1	3/29/2014 02:01 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 4/2/14		Analyst: MELB
Electrical Conductivity @ Saturation	40		0.050	mmhos/cm @25	10	4/2/2014 03:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: JJG
Chromium, Trivalent	14		0.60	mg/Kg-dry	1	4/2/2014 04:30 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 3/28/14		Analyst: MB
Chromium, Hexavalent	ND		0.60	mg/Kg-dry	1	3/31/2014 03:00 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	16		0.050	% of sample	1	3/28/2014 02:09 PM
PH			SW9045D	Prep: EXTRACT / 3/28/14		Analyst: AT
pH	8.3			s.u.	1	3/28/2014 04:28 PM

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

ALS Group USA, Corp

Date: 04-Apr-14

Client: Olsson Associates

Project: Chevron WLN Hagood A1 Spill 3.25.14

Sample ID: LNHA1-BG4

Collection Date: 3/25/2014 12:40 PM

Work Order: 14031272

Lab ID: 14031272-11

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS			SW6020A		Prep: SW3050B / 4/1/14	Analyst: ML
Arsenic	4.8		2.0	mg/Kg-dry	5	4/1/2014 02:18 PM
MOISTURE			A2540 G			Analyst: AT
Moisture	1.6		0.050	% of sample	1	3/28/2014 02:09 PM

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

Client: Olsson Associates

QC BATCH REPORT

Work Order: 14031272

Project: Chevron WLN Hagood A1 Spill 3.25.14

Batch ID: 56982

Instrument ID GC8

Method: SW8015M

MBLK		Sample ID: DBLKS1-56982-56982				Units: mg/Kg		Analysis Date: 3/28/2014 05:32 PM		
Client ID:		Run ID: GC8_140328A				SeqNo: 2691223		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	4.2								
Surr: 4-Terphenyl-d14	0.9657	0	1.667	0	57.9	39-115	0			

LCS		Sample ID: DLCSS1-56982-56982				Units: mg/Kg		Analysis Date: 3/28/2014 06:02 PM		
Client ID:		Run ID: GC8_140328A				SeqNo: 2691225		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	146.9	4.2	166.7	0	88.1	49-124	0			
Surr: 4-Terphenyl-d14	1.09	0	1.667	0	65.4	39-115	0			

MS		Sample ID: 14031270-02A MS				Units: mg/Kg		Analysis Date: 3/28/2014 06:32 PM		
Client ID:		Run ID: GC8_140328A				SeqNo: 2691227		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	292	8.2	326.9	30.07	80.1	49-130	0			
Surr: 4-Terphenyl-d14	2.165	0	3.269	0	66.2	39-115	0			

MSD		Sample ID: 14031270-02A MSD				Units: mg/Kg		Analysis Date: 3/28/2014 07:02 PM		
Client ID:		Run ID: GC8_140328A				SeqNo: 2691229		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	303	8.0	321.5	30.07	84.9	49-130	292	3.7	30	
Surr: 4-Terphenyl-d14	2.222	0	3.215	0	69.1	39-115	2.165	2.6	30	

The following samples were analyzed in this batch:

14031272-01A	14031272-03A	14031272-04A
14031272-06A	14031272-08A	14031272-09A
14031272-10A		

Client: Olsson Associates
 Work Order: 14031272
 Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **56992** Instrument ID **GC9** Method: **SW8015**

MBLK		Sample ID: MBLK-56992-56992					Units: µg/Kg		Analysis Date: 3/31/2014 11:33 AM		
Client ID:			Run ID: GC9_140331A			SeqNo: 2692235		Prep Date: 3/28/2014		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	5140	0	5000	0	103	50-150	0				

LCS				Sample ID: LCS-56992-56992				Units: µg/Kg			Analysis Date: 3/31/2014 09:51 AM			
Client ID:				Run ID: GC9_140331A				SeqNo: 2692232			Prep Date: 3/28/2014		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
GRO (C6-C10)		423400	2,500	500000	0	84.7	70-130	0						
Surr: Toluene-d8		4268	0	5000	0	85.4	50-150	0						

MS		Sample ID: 14031270-01A MS				Units: µg/Kg		Analysis Date: 3/31/2014 08:09 PM		
Client ID:		Run ID: GC9_140331A			SeqNo: 2692880		Prep Date: 3/28/2014		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	360300	2,500	500000	0	72.1	70-130	0			
Surr: Toluene-d8	4064	0	5000	0	81.3	50-150	0			

MSD				Sample ID: 14031270-01A MSD				Units: µg/Kg			Analysis Date: 3/31/2014 08:35 PM			
Client ID:				Run ID: GC9_140331A				SeqNo: 2692881			Prep Date: 3/28/2014		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
GRO (C6-C10)		349900	2,500	500000	0	70	70-130	360300	2.91	30	S			
Surr: Toluene-d8		4143	0	5000	0	82.9	50-150	4064	1.93	30				

The following samples were analyzed in this batch:

14031272-01A	14031272-03A	14031272-04A
14031272-06A	14031272-08A	14031272-09A
14031272-10A		

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

Client: Olsson Associates
 Work Order: 14031272
 Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **57074** Instrument ID **HG1** Method: **SW7471**

MBLK		Sample ID: MBLK-57074-57074				Units: mg/Kg		Analysis Date: 4/2/2014 01:11 PM		
Client ID:		Run ID: HG1_140402A				SeqNo: 2696299		Prep Date: 3/31/2014		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-57074-57074				Units: mg/Kg		Analysis Date: 4/2/2014 01:13 PM		
Client ID:		Run ID: HG1_140402A				SeqNo: 2696300		Prep Date: 3/31/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1585 0.020 0.1665 0 95.2 80-120 0

MS		Sample ID: 1403831-13CMS				Units: mg/Kg		Analysis Date: 4/2/2014 02:29 PM		
Client ID:		Run ID: HG1_140402A				SeqNo: 2696343		Prep Date: 3/31/2014		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.2707 0.029 0.1194 0.1937 64.5 75-125 0 S

MSD		Sample ID: 1403831-13CMSD				Units: mg/Kg		Analysis Date: 4/2/2014 02:31 PM		
Client ID:		Run ID: HG1_140402A				SeqNo: 2696344		Prep Date: 3/31/2014		DF: 2
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.4013 0.028 0.1178 0.1937 176 75-125 0.2707 38.9 35 SR

The following samples were analyzed in this batch:

14031272-01A	14031272-02A	14031272-03A
14031272-04A	14031272-06A	14031272-08A
14031272-09A	14031272-10A	

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **57029** Instrument ID **ICPMS1** Method: **SW6020A**

DUP		Sample ID: 14031272-09BDUP				Units: mg/L		Analysis Date: 4/2/2014 12:39 PM		
Client ID: LNHA1-SS6		Run ID: ICPMS1_140402A				SeqNo: 2696119		Prep Date: 4/2/2014		DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	1723	10	0	0	0	0-0	1505	13.5		
Magnesium	331.6	4.0	0	0	0	0-0	277.2	17.9		

DUP		Sample ID: 14031272-09BDUP				Units: mg/L		Analysis Date: 4/2/2014 01:46 PM		
Client ID: LNHA1-SS6		Run ID: ICPMS1_140402A				SeqNo: 2696130		Prep Date: 4/2/2014		DF: 200
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	4628	40	0	0	0	0-0	4152	10.8		

DUP		Sample ID: 14031272-09BDUP				Units: none		Analysis Date: 4/2/2014		
Client ID: LNHA1-SS6		Run ID: SAR_140402A				SeqNo: 2696220		Prep Date: 4/2/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	26.75	0.010	0	0	0		25.25	5.77	50	

The following samples were analyzed in this batch:

14031272-01B	14031272-02B	14031272-03B
14031272-04B	14031272-06B	14031272-08B
14031272-09B	14031272-10B	

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **57075** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK				Sample ID: MBLK-57075-57075				Units: mg/Kg		Analysis Date: 4/1/2014 12:24 PM	
Client ID:			Run ID: ICPMS1_140401A			SeqNo: 2694335		Prep Date: 4/1/2014		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	0.04204	0.25								J	
Cadmium	0.002743	0.10								J	
Chromium	ND	0.25									
Copper	ND	0.25									
Lead	ND	0.25									
Nickel	ND	0.25									
Selenium	ND	0.25									
Silver	0.00293	0.25								J	
Zinc	0.065	0.50								J	

LCS					Sample ID: LCS-57075-57075			Units: mg/Kg		Analysis Date: 4/1/2014 12:30 PM		
Client ID:			Run ID: ICPMS1_140401A			SeqNo: 2694338		Prep Date: 4/1/2014		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Arsenic	4.649	0.25	5	0	93	80-120	0					
Barium	4.831	0.25	5	0	96.6	80-120	0					
Cadmium	4.79	0.10	5	0	95.8	80-120	0					
Chromium	4.77	0.25	5	0	95.4	80-120	0					
Copper	4.796	0.25	5	0	95.9	80-120	0					
Lead	4.854	0.25	5	0	97.1	80-120	0					
Nickel	4.788	0.25	5	0	95.8	80-120	0					
Selenium	4.468	0.25	5	0	89.4	80-120	0					
Silver	4.71	0.25	5	0	94.2	80-120	0					
Zinc	4.682	0.50	5	0	93.6	80-120	0					

MS					Sample ID: 14031273-06BMS			Units: mg/Kg		Analysis Date: 4/1/2014 03:13 PM		
Client ID:			Run ID: ICPMS1_140401A			SeqNo: 2695119		Prep Date: 4/1/2014		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Arsenic	11.94	1.9	7.716	4.751	93.2	75-125	0					
Barium	162.2	1.9	7.716	125.5	476	75-125	0			SO		
Cadmium	8.098	0.77	7.716	0.4389	99.3	75-125	0					
Chromium	19.61	1.9	7.716	8.882	139	75-125	0			S		
Copper	17.35	1.9	7.716	10.14	93.5	75-125	0					
Lead	17.28	1.9	7.716	9.303	103	75-125	0					
Nickel	20.98	1.9	7.716	12.37	112	75-125	0					
Selenium	7.419	1.9	7.716	0.8329	85.4	75-125	0					
Silver	7.103	1.9	7.716	0.0713	91.1	75-125	0					
Zinc	60.46	3.9	7.716	50.16	133	75-125	0			SO		

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **57075** Instrument ID **ICPMS1** Method: **SW6020A**

MSD				Sample ID: 14031273-06BMSD			Units: mg/Kg		Analysis Date: 4/1/2014 03:18 PM		
Client ID:			Run ID: ICPMS1_140401A			SeqNo: 2695120		Prep Date: 4/1/2014		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	10.87	2.0	7.962	4.751	76.8	75-125	11.94	9.44	25	SO	
Barium	140.8	2.0	7.962	125.5	192	75-125	162.2	14.2	25		
Cadmium	7.695	0.80	7.962	0.4389	91.1	75-125	8.098	5.1	25		
Chromium	17.6	2.0	7.962	8.882	110	75-125	19.61	10.8	25	S	
Copper	15.97	2.0	7.962	10.14	73.2	75-125	17.35	8.3	25		
Lead	15.65	2.0	7.962	9.303	79.8	75-125	17.28	9.88	25		
Nickel	18.39	2.0	7.962	12.37	75.6	75-125	20.98	13.2	25	S	
Selenium	6.756	2.0	7.962	0.8329	74.4	75-125	7.419	9.36	25		
Silver	6.728	2.0	7.962	0.0713	83.6	75-125	7.103	5.42	25		
Zinc	53.14	4.0	7.962	50.16	37.5	75-125	60.46	12.9	25	SO	

The following samples were analyzed in this batch:

14031272-01A	14031272-02A	14031272-03A
14031272-04A	14031272-05A	14031272-06A
14031272-07A	14031272-08A	14031272-09A
14031272-10A	14031272-11A	

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

Client: Olsson Associates
 Work Order: 14031272
 Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **56981** Instrument ID **SVMS4** Method: **SW8270**

MBLK		Sample ID: SBLKS1-56981-56981				Units: µg/Kg		Analysis Date: 3/31/2014 01:16 PM		
Client ID:		Run ID: SVMS4_140331A				SeqNo: 2694009		Prep Date: 3/28/2014		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	1299	0	1667	0	77.9	12-100	0			
Surr: 4-Terphenyl-d14	1449	0	1667	0	86.9	25-137	0			
Surr: Nitrobenzene-d5	1271	0	1667	0	76.3	37-107	0			

LCS		Sample ID: SLCSS1-56981-56981				Units: µg/Kg		Analysis Date: 3/31/2014 10:02 AM		
Client ID:		Run ID: SVMS4_140331A				SeqNo: 2694003		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	540.7	6.7	666.7	0	81.1	45-110	0			
Anthracene	597	6.7	666.7	0	89.5	55-105	0			
Benzo(a)anthracene	634	6.7	666.7	0	95.1	50-110	0			
Benzo(a)pyrene	621.3	6.7	666.7	0	93.2	50-110	0			
Benzo(b)fluoranthene	621.7	6.7	666.7	0	93.2	45-115	0			
Benzo(k)fluoranthene	555	6.7	666.7	0	83.2	45-115	0			
Chrysene	562.3	6.7	666.7	0	84.3	55-110	0			
Dibenzo(a,h)anthracene	657.3	6.7	666.7	0	98.6	40-125	0			
Fluoranthene	678.3	6.7	666.7	0	102	55-115	0			
Fluorene	572.3	6.7	666.7	0	85.8	50-110	0			
Indeno(1,2,3-cd)pyrene	654.7	6.7	666.7	0	98.2	40-120	0			
Naphthalene	509	6.7	666.7	0	76.3	40-105	0			
Pyrene	600	6.7	666.7	0	90	45-125	0			
Surr: 2-Fluorobiphenyl	1436	0	1667	0	86.2	12-100	0			
Surr: 4-Terphenyl-d14	1591	0	1667	0	95.5	25-137	0			
Surr: Nitrobenzene-d5	1352	0	1667	0	81.1	37-107	0			

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

Client: Olsson Associates
 Work Order: 14031272
 Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **56981** Instrument ID **SVMS4** Method: **SW8270**

MS				Sample ID: 14031270-02A MS			Units: µg/Kg		Analysis Date: 3/31/2014 10:34 AM	
Client ID:				Run ID: SVMS4_140331A			SeqNo: 2694004		Prep Date: 3/28/2014	
							DF: 0.5			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1052	6.6	1316	0	79.9	45-110	0			
Anthracene	1170	6.6	1316	0	88.9	55-105	0			
Benzo(a)anthracene	1164	6.6	1316	0	88.4	50-110	0			
Benzo(a)pyrene	1119	6.6	1316	14.54	84	50-110	0			
Benzo(b)fluoranthene	1228	6.6	1316	26.11	91.3	45-115	0			
Benzo(k)fluoranthene	1060	6.6	1316	14.87	79.4	45-115	0			
Chrysene	1003	6.6	1316	24.46	74.3	55-110	0			
Dibenzo(a,h)anthracene	1212	6.6	1316	0	92.1	40-125	0			
Fluoranthene	1186	6.6	1316	47.59	86.5	55-115	0			
Fluorene	1195	6.6	1316	0	90.8	50-110	0			
Indeno(1,2,3-cd)pyrene	1211	6.6	1316	9.585	91.3	40-120	0			
Naphthalene	928.9	6.6	1316	0	70.6	40-105	0			
Pyrene	1014	6.6	1316	35.7	74.3	45-125	0			
Surr: 2-Fluorobiphenyl	2586	0	3290	0	78.6	12-100	0			
Surr: 4-Terphenyl-d14	3130	0	3290	0	95.1	25-137	0			
Surr: Nitrobenzene-d5	2366	0	3290	0	71.9	37-107	0			

MSD				Sample ID: 14031270-02A MSD			Units: µg/Kg		Analysis Date: 3/31/2014 11:06 AM	
Client ID:				Run ID: SVMS4_140331A			SeqNo: 2694005		Prep Date: 3/28/2014	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	946.8	13	1269	0	74.6	45-110	1052	10.5	30	
Anthracene	949.9	13	1269	0	74.8	55-105	1170	20.8	30	
Benzo(a)anthracene	982.9	13	1269	0	77.4	50-110	1164	16.9	30	
Benzo(a)pyrene	959.5	13	1269	14.54	74.5	50-110	1119	15.4	30	
Benzo(b)fluoranthene	923.3	13	1269	26.11	70.7	45-115	1228	28.3	30	
Benzo(k)fluoranthene	992.4	13	1269	14.87	77	45-115	1060	6.54	30	
Chrysene	918.8	13	1269	24.46	70.5	55-110	1003	8.72	30	
Dibenzo(a,h)anthracene	1001	13	1269	0	78.8	40-125	1212	19.1	30	
Fluoranthene	1113	13	1269	47.59	83.9	55-115	1186	6.36	30	
Fluorene	1020	13	1269	0	80.3	50-110	1195	15.8	30	
Indeno(1,2,3-cd)pyrene	1032	13	1269	9.585	80.5	40-120	1211	16	30	
Naphthalene	879.5	13	1269	0	69.3	40-105	928.9	5.47	30	
Pyrene	963.9	13	1269	35.7	73.1	45-125	1014	5.05	30	
Surr: 2-Fluorobiphenyl	2465	0	3173	0	77.7	12-100	2586	4.79	40	
Surr: 4-Terphenyl-d14	2585	0	3173	0	81.5	25-137	3130	19.1	40	
Surr: Nitrobenzene-d5	2402	0	3173	0	75.7	37-107	2366	1.54	40	

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **56981** Instrument ID **SVMS4** Method: **SW8270**

The following samples were analyzed in this batch:

14031272-01A	14031272-03A	14031272-04A
14031272-06A	14031272-08A	14031272-09A
14031272-10A		

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **56990** Instrument ID **VMS9** Method: **SW8260B**

MBLK				Sample ID: MBLK-56990-56990				Units: µg/Kg			Analysis Date: 3/28/2014 12:43 PM			
Client ID:				Run ID: VMS9_140328A				SeqNo: 2689777			Prep Date: 3/28/2014		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	1005	0	1000	0	100	70-130		0						
Surr: 4-Bromofluorobenzene	919	0	1000	0	91.9	70-130		0						
Surr: Dibromofluoromethane	967.5	0	1000	0	96.8	70-130		0						
Surr: Toluene-d8	1014	0	1000	0	101	70-130		0						

LCS				Sample ID: LCS-56990-56990			Units: µg/Kg		Analysis Date: 3/28/2014 11:05 AM		
Client ID:			Run ID: VMS9_140328A			SeqNo: 2689776		Prep Date: 3/28/2014		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1094	30	1000	0	109	75-125	0				
Ethylbenzene	1102	30	1000	0	110	75-125	0				
m,p-Xylene	2240	60	2000	0	112	80-125	0				
o-Xylene	1114	30	1000	0	111	75-125	0				
Toluene	1046	30	1000	0	105	70-125	0				
Xylenes, Total	3353	90	3000	0	112	75-125	0				
Surr: 1,2-Dichloroethane-d4	1026	0	1000	0	103	70-130	0				
Surr: 4-Bromofluorobenzene	1046	0	1000	0	105	70-130	0				
Surr: Dibromofluoromethane	1013	0	1000	0	101	70-130	0				
Surr: Toluene-d8	997.5	0	1000	0	99.8	70-130	0				

MS				Sample ID: 14031271-01A MS				Units: µg/Kg		Analysis Date: 3/31/2014 11:19 PM	
Client ID:			Run ID: VMS6_140331A			SeqNo: 2693743		Prep Date: 3/28/2014		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	1022	30	1000	14.5	101	75-125		0			
Ethylbenzene	1116	30	1000	18	110	75-125		0			
m,p-Xylene	2222	60	2000	40	109	80-125		0			
o-Xylene	1109	30	1000	22	109	75-125		0			
Toluene	1096	30	1000	20	108	70-125		0			
Xylenes, Total	3330	90	3000	62	109	75-125		0			
Surr: 1,2-Dichloroethane-d4	1013	0	1000	0	101	70-130		0			
Surr: 4-Bromofluorobenzene	966	0	1000	0	96.6	70-130		0			
Surr: Dibromofluoromethane	995.5	0	1000	0	99.6	70-130		0			
Surr: Toluene-d8	1048	0	1000	0	105	70-130		0			

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **56990** Instrument ID **VMS9** Method: **SW8260B**

MSD				Sample ID: 14031271-01A MSD			Units: µg/Kg		Analysis Date: 3/31/2014 11:46 PM		
Client ID:			Run ID: VMS6_140331A			SeqNo: 2693744		Prep Date: 3/28/2014		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	984.5	30	1000	14.5	97	75-125	1022	3.74	30		
Ethylbenzene	1059	30	1000	18	104	75-125	1116	5.29	30		
m,p-Xylene	2144	60	2000	40	105	80-125	2222	3.57	30		
o-Xylene	1056	30	1000	22	103	75-125	1109	4.9	30		
Toluene	1030	30	1000	20	101	70-125	1096	6.21	30		
Xylenes, Total	3200	90	3000	62	105	75-125	3330	4.01	30		
Surr: 1,2-Dichloroethane-d4	1012	0	1000	0	101	70-130	1013	0.0494	30		
Surr: 4-Bromofluorobenzene	949.5	0	1000	0	95	70-130	966	1.72	30		
Surr: Dibromofluoromethane	1008	0	1000	0	101	70-130	995.5	1.3	30		
Surr: Toluene-d8	1048	0	1000	0	105	70-130	1048	0.0477	30		

The following samples were analyzed in this batch:

14031272-01A	14031272-03A	14031272-04A
14031272-06A	14031272-08A	14031272-09A
14031272-10A		

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **57014** Instrument ID **WETCHEM** Method: **SW9045D**

LCS					Sample ID: LCS-57014-57014					Units: s.u.			Analysis Date: 3/28/2014 04:28 PM				
Client ID:					Run ID: WETCHEM_140328N					SeqNo: 2689916			Prep Date: 3/28/2014			DF: 1	
Analyte					Result		PQL	SPK Val	SPK Ref Value	%REC		Control Limit	RPD Ref Value		%RPD	RPD Limit	Qual
pH					3.91		0	4	0	97.8		90-110	0				

DUP					Sample ID: 14031270-01A DUP					Units: s.u.		Analysis Date: 3/28/2014 04:28 PM		
Client ID:			Run ID: WETCHEM_140328N			SeqNo: 2689918			Prep Date: 3/28/2014			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
pH	8.24	0	0	0	0	0-0	8.24	0	20					

DUP					Sample ID: 14031272-08A DUP			Units: s.u.		Analysis Date: 3/28/2014 04:28 PM		
Client ID: LNHA1-SS5				Run ID: WETCHEM_140328N			SeqNo: 2689929		Prep Date: 3/28/2014		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
pH	8.63	0	0	0	0	0-0	8.61	0.232	20			

The following samples were analyzed in this batch:

14031272-01A	14031272-02A	14031272-03A
14031272-04A	14031272-06A	14031272-08A
14031272-09A	14031272-10A	

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

Client: Olsson Associates
 Work Order: 14031272
 Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **57017** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-57017-57017				Units: mg/Kg		Analysis Date: 3/31/2014 03:00 PM		
Client ID:		Run ID: WETCHEM_140331P				SeqNo: 2692767		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 0.50

LCS		Sample ID: LCS-57017-57017				Units: mg/Kg		Analysis Date: 3/31/2014 03:00 PM		
Client ID:		Run ID: WETCHEM_140331P				SeqNo: 2692766		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.748 0.50 2 0 87.4 80-120 0

MS		Sample ID: 14031325-01B MS				Units: mg/Kg		Analysis Date: 3/31/2014 03:00 PM		
Client ID:		Run ID: WETCHEM_140331P				SeqNo: 2692756		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.161 0.50 2.008 0.2204 46.8 75-125 0 S

MS		Sample ID: 14031325-01B MSI				Units: mg/Kg		Analysis Date: 3/31/2014 03:00 PM		
Client ID:		Run ID: WETCHEM_140331P				SeqNo: 2692758		Prep Date: 3/28/2014		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1440 49 1596 0.2204 90.2 75-125 0

MSD		Sample ID: 14031325-01B MSD				Units: mg/Kg		Analysis Date: 3/31/2014 03:00 PM		
Client ID:		Run ID: WETCHEM_140331P				SeqNo: 2692757		Prep Date: 3/28/2014		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.266 0.50 2.016 0.2204 51.9 75-125 1.161 8.69 20 S

The following samples were analyzed in this batch:

14031272-01A	14031272-02A	14031272-03A
14031272-04A	14031272-06A	14031272-08A
14031272-09A	14031272-10A	

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **57029** Instrument ID **WETCHEM** Method: **USDA H60 Method**

DUP		Sample ID: 14031272-09B DUP				Units: mmhos/cm @25°C		Analysis Date: 4/2/2014 03:30 PM		
Client ID: LNHA1-SS6		Run ID: WETCHEM_140402P				SeqNo: 2696827		Prep Date: 4/2/2014		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	37.1	0.050	0	0	0		36.7	1.08	50	

The following samples were analyzed in this batch:

14031272-01B	14031272-02B	14031272-03B
14031272-04B	14031272-06B	14031272-08B
14031272-09B	14031272-10B	

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

Client: Olsson Associates
Work Order: 14031272
Project: Chevron WLN Hagood A1 Spill 3.25.14

QC BATCH REPORT

Batch ID: **R138066** Instrument ID **MOIST** Method: **A2540 G**

MBLK		Sample ID: WBLKS-R138066				Units: % of sample		Analysis Date: 3/28/2014 02:09 PM		
Client ID:		Run ID: MOIST_140328B				SeqNo: 2692116		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

LCS		Sample ID: LCS-R138066				Units: % of sample		Analysis Date: 3/28/2014 02:09 PM		
Client ID:		Run ID: MOIST_140328B				SeqNo: 2692115		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: 14031270-02A DUP				Units: % of sample		Analysis Date: 3/28/2014 02:09 PM		
Client ID:		Run ID: MOIST_140328B				SeqNo: 2692095		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 4.7 0.050 0 0 0 0-0 4.59 2.37 20

DUP		Sample ID: 14031271-03A DUP				Units: % of sample		Analysis Date: 3/28/2014 02:09 PM		
Client ID:		Run ID: MOIST_140328B				SeqNo: 2692099		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 4.24 0.050 0 0 0 0-0 4.37 3.02 20

The following samples were analyzed in this batch:

14031272-01A	14031272-02A	14031272-03A
14031272-04A	14031272-05A	14031272-06A
14031272-07A	14031272-08A	14031272-09A
14031272-10A	14031272-11A	

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

Customer Information		Project Information						Parameter/Method Request for Analysis											
Purchase Order		Project Name	Chevron WLN Hagood A1 Spill				A	TPH (GRO & DRO)											
Work Order		Project Number	013.3287.100.100004				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@oaconsulting.com	e-Mail Address					I												
							J												
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	LNHA1-SS1	03/25/14	1105	Soil	8	2	X	X	X	X	X	X	X						
	LNHA1-BG1	03/25/14	1115	Soil	8	2					X	X	X	X					
3	LNHA1-SS2	03/25/14	1120	Soil	8	2	X	X	X	X	X	X	X						
4	LNHA1-SS3	03/25/14	1135	Soil	8	2	X	X	X	X	X	X	X						
5	LNHA1-BG2	03/25/14	1140	Soil	8	1									X				
4	LNHA1-SS4	03/25/14	1150	Soil	8	2	X	X	X	X	X	X	X						
	LNHA1-BG3	03/25/14	1200	Soil	8	1									X				
	LNHA1-SS5	03/25/14	1210	Soil	8	2	X	X	X	X	X	X	X						
	LNHA1-SS6	03/25/14	1220	Soil	8	2	X	X	X	X	X	X	X						
	LNHA1-SS7	03/25/14	1235	Soil	8	2	X	X	X	X	X	X	X						
	LNHA1-BG4	03/25/14	1240	Soil	8	1									X				
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: 3/26/14	Time: 1645	Received by: FED EX				Notes: Chevron Pricing Applies - Per Bruce Schlatter												
Relinquished by: FED EX	Date: 3/27/14	Time: 0900	Received by (Laboratory): 				QC Package: (Check Box Below)												
Logged by (Laboratory): DES		Date: 3/27/14	Time: 1515	Shipped by (Laboratory): 				<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: **27-Mar-14 09:00**

Work Order: **14031272**

Received by: **DS**

Checklist completed by <u>Diane Shaw</u>	27-Mar-14	Reviewed by: <u>Ann Preston</u>	28-Mar-14
eSignature	Date	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>4.2 c</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>3/27/2014 3:28:29 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

**ALS Environmental**

10450 Stancliff Rd., Suite 210

Houston, Texas 77099

Tel. +1 281 530 5656

Fax. +1 281 530 5887

CUSTODY SEALDate: 3/26/14Name: T. DobieskiCompany: OATime: 1630

Seal Broken By:

Date:



17-Nov-2017

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

Re: **LN Hagood A1X Resampling**

Work Order: **17102063**

Dear Tim,

ALS Environmental received 8 samples on 31-Oct-2017 09:30 AM for the analyses presented in the following report.

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

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

The total number of pages in this report is 18.

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: LN Hagood A1X Resampling
Work Order: 17102063

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>
17102063-01	LNHA1-SS1	Soil		10/26/2017 08:15	10/31/2017 09:30	<input type="checkbox"/>
17102063-02	LNHA1-SS2	Soil		10/26/2017 08:20	10/31/2017 09:30	<input type="checkbox"/>
17102063-03	LNHA1-SS3	Soil		10/26/2017 08:25	10/31/2017 09:30	<input type="checkbox"/>
17102063-04	LNHA1-SS4	Soil		10/26/2017 08:30	10/31/2017 09:30	<input type="checkbox"/>
17102063-05	LNHA1-SS5	Soil		10/26/2017 08:35	10/31/2017 09:30	<input type="checkbox"/>
17102063-06	LNHA1-SS6	Soil		10/26/2017 08:40	10/31/2017 09:30	<input type="checkbox"/>
17102063-07	LNHA1-SS7	Soil		10/26/2017 08:45	10/31/2017 09:30	<input type="checkbox"/>
17102063-08	LNHA1-BG5	Soil		10/26/2017 08:50	10/31/2017 09:30	<input type="checkbox"/>

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
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: 17-Nov-17

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS1
Collection Date: 10/26/2017 08:15 AM

Work Order: 17102063
Lab ID: 17102063-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015C		Prep: SW3546 / 11/1/17		Analyst: KB
DRO (C10-C28)	48		3.8	6.6	mg/Kg-dry	1	11/2/2017 02:44
Surr: 4-Terphenyl-d14	77.6			34-130	%REC	1	11/2/2017 02:44
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 11/1/17		Analyst: KB
GRO (C6-C10)	U		3.6	8.7	mg/Kg-dry	1	11/4/2017 19:37
Surr: Toluene-d8	99.7			71-123	%REC	1	11/4/2017 19:37
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/10/17		Analyst: RH
Sodium Adsorption Ratio	0.29		0.010	0.010	none	1	11/10/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 11/10/17		Analyst: JF
Calcium	160		0.86	5.0	mg/L	10	11/10/2017 15:37
Magnesium	24		0.068	2.0	mg/L	10	11/10/2017 15:37
Sodium	15		0.34	2.0	mg/L	10	11/10/2017 15:37
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/10/17		Analyst: JB
Electrical Conductivity @ Saturation	0.96		0.011	0.10	mmhos/cm @25°	20	11/13/2017 09:00
MOISTURE							
			Method: SW3550C				Analyst: MT
Moisture	27		0.025	0.050	% of sample	1	11/2/2017 11:19

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

ALS Group, USA**Date:** 17-Nov-17

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS2
Collection Date: 10/26/2017 08:20 AM

Work Order: 17102063
Lab ID: 17102063-02
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 / 11/10/17		Analyst: RH
Sodium Adsorption Ratio	1.2		0.010	0.010	none	1	11/10/2017
SOLUBLE CATIONS FOR SAR			Method: SW6020A		Prep: USDA Method 20B / 11/10/17		Analyst: JF
Calcium	470		0.86	5.0	mg/L	10	11/10/2017 15:38
Magnesium	48		0.068	2.0	mg/L	10	11/10/2017 15:38
Sodium	98		0.34	2.0	mg/L	10	11/10/2017 15:38

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

ALS Group, USA

Date: 17-Nov-17

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS3
Collection Date: 10/26/2017 08:25 AM

Work Order: 17102063
Lab ID: 17102063-03
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 / 11/10/17		Analyst: RH
Sodium Adsorption Ratio	0.38		0.010	0.010	none	1	11/10/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 11/10/17		Analyst: JF
Calcium	320		0.86	5.0	mg/L	10	11/10/2017 15:41
Magnesium	49		0.068	2.0	mg/L	10	11/10/2017 15:41
Sodium	27		0.34	2.0	mg/L	10	11/10/2017 15:41
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/10/17		Analyst: JB
Electrical Conductivity @ Saturation	2.1		0.011	0.10	mmhos/cm @25°	20	11/13/2017 09:00

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

ALS Group, USA

Date: 17-Nov-17

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS4
Collection Date: 10/26/2017 08:30 AM

Work Order: 17102063
Lab ID: 17102063-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: SW8015C		Prep: SW3546 / 11/1/17		Analyst: KB
DRO (C10-C28)	U		3.7	6.3	mg/Kg-dry	1	11/2/2017 03:13
Surr: 4-Terphenyl-d14	69.1			34-130	%REC	1	11/2/2017 03:13
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: SW8015D		Prep: SW5035 / 11/1/17		Analyst: KB
GRO (C6-C10)	U		3.3	8.0	mg/Kg-dry	1	11/4/2017 19:07
Surr: Toluene-d8	94.8			71-123	%REC	1	11/4/2017 19:07
SODIUM ADSORPTION RATIO							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/10/17		Analyst: RH
Sodium Adsorption Ratio	0.32		0.010	0.010	none	1	11/10/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 11/10/17		Analyst: JF
Calcium	1,800		0.86	5.0	mg/L	10	11/10/2017 15:43
Magnesium	110		0.068	2.0	mg/L	10	11/10/2017 15:43
Sodium	52		0.34	2.0	mg/L	10	11/10/2017 15:43
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/10/17		Analyst: JB
Electrical Conductivity @ Saturation	10		0.011	0.10	mmhos/cm @25°	20	11/13/2017 09:00
MOISTURE							
			Method: SW3550C				Analyst: MT
Moisture	23		0.025	0.050	% of sample	1	11/2/2017 11:19

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

ALS Group, USA

Date: 17-Nov-17

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS5
Collection Date: 10/26/2017 08:35 AM

Work Order: 17102063
Lab ID: 17102063-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ELECTRICAL CONDUCTIVITY (SAR)							
				Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/10/17	Analyst: JB
Electrical Conductivity @ Saturation	9.1		0.011	0.10	mmhos/cm @25°	20	11/13/2017 09:00

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

ALS Group, USA**Date:** 17-Nov-17

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS6
Collection Date: 10/26/2017 08:40 AM

Work Order: 17102063
Lab ID: 17102063-06
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 / 11/10/17		Analyst: RH
Sodium Adsorption Ratio	0.10		0.010	0.010	none	1	11/10/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 11/10/17		Analyst: JF
Calcium	820		0.86	5.0	mg/L	10	11/10/2017 15:51
Magnesium	17		0.068	2.0	mg/L	10	11/10/2017 15:51
Sodium	11		0.34	2.0	mg/L	10	11/10/2017 15:51
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/10/17		Analyst: JB
Electrical Conductivity @ Saturation	4.5		0.011	0.10	mmhos/cm @25°	20	11/13/2017 09:00

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

ALS Group, USA**Date:** 17-Nov-17

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS7
Collection Date: 10/26/2017 08:45 AM

Work Order: 17102063
Lab ID: 17102063-07
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 / 11/10/17		Analyst: RH
Sodium Adsorption Ratio	5.0		0.010	0.010	none	1	11/10/2017
SOLUBLE CATIONS FOR SAR							
			Method: SW6020A		Prep: USDA Method 20B / 11/10/17		Analyst: JF
Calcium	160		0.86	5.0	mg/L	10	11/10/2017 15:52
Magnesium	27		0.068	2.0	mg/L	10	11/10/2017 15:52
Sodium	260		0.34	2.0	mg/L	10	11/10/2017 15:52
ELECTRICAL CONDUCTIVITY (SAR)							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 11/10/17		Analyst: JB
Electrical Conductivity @ Saturation	1.9		0.011	0.10	mmhos/cm @25°	20	11/13/2017 09:00

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

ALS Group, USA

Date: 17-Nov-17

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-BG5
Collection Date: 10/26/2017 08:50 AM

Work Order: 17102063
Lab ID: 17102063-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP							
Arsenic	6.7		0.13	0.49	mg/Kg-dry	1	11/3/2017 06:40
MOISTURE							
Moisture	24		0.025	0.050	% of sample	1	11/2/2017 11:19

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

Client: Olsson Associates

Work Order: 17102063

Project: LN Hagood A1X Resampling

QC BATCH REPORT

Batch ID: 109859

Instrument ID GC8

Method: SW8015C

MBLK		Sample ID: DBLKS1-109859-109859				Units: mg/Kg		Analysis Date: 11/1/2017 06:01 PM		
Client ID:		Run ID: GC8_171101A				SeqNo: 4735067		Prep Date: 11/1/2017		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

2.95 0 3.33 0 88.6 34-130 0

LCS		Sample ID: DLCSS1-109859-109859				Units: mg/Kg		Analysis Date: 11/1/2017 06:30 PM		
Client ID:		Run ID: GC8_171101A				SeqNo: 4735068		Prep Date: 11/1/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

357.1 5.0 333 0 107 65-122 0

Surr: 4-Terphenyl-d14

3.35 0 3.33 0 101 34-130 0

MS		Sample ID: 17102035-10A MS				Units: mg/Kg		Analysis Date: 11/1/2017 07:28 PM		
Client ID:		Run ID: GC8_171101A				SeqNo: 4735070		Prep Date: 11/1/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

339.9 4.8 319.2 0 107 65-122 0

Surr: 4-Terphenyl-d14

3.035 0 3.192 0 95.1 34-130 0

MSD		Sample ID: 17102035-10A MSD				Units: mg/Kg		Analysis Date: 11/1/2017 07:57 PM		
Client ID:		Run ID: GC8_171101A				SeqNo: 4735071		Prep Date: 11/1/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)

367 5.0 330.4 0 111 65-122 339.9 7.66 30

Surr: 4-Terphenyl-d14

3.06 0 3.304 0 92.6 34-130 3.035 0.805 30

The following samples were analyzed in this batch:

17102063-01B

17102063-04B

Client: Olsson Associates
 Work Order: 17102063
 Project: LN Hagood A1X Resampling

QC BATCH REPORT

Batch ID: **109883** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-109883-109883				Units: µg/Kg-dry		Analysis Date: 11/2/2017 04:18 AM		
Client ID:		Run ID: GC9_171101A				SeqNo: 4736490		Prep Date: 11/1/2017		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	4738	0	5000	0	94.8	71-123	0			

LCS		Sample ID: LCS-109883-109883				Units: µg/Kg-dry		Analysis Date: 11/2/2017 03:19 AM		
Client ID:		Run ID: GC9_171101A				SeqNo: 4736489		Prep Date: 11/1/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	426100	5,000	500000	0	85.2	71-123	0			
Surr: Toluene-d8	5653	0	5000	0	113	71-123	0			

MS		Sample ID: 17102035-03A MS				Units: µg/Kg-dry		Analysis Date: 11/2/2017 07:03 PM		
Client ID:		Run ID: GC9_171102B				SeqNo: 4738548		Prep Date: 11/1/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	543600	6,000	605000	0	89.8	71-123	0			
Surr: Toluene-d8	7004	0	6050	0	116	71-123	0			

MSD		Sample ID: 17102035-03A MSD				Units: µg/Kg-dry		Analysis Date: 11/2/2017 07:33 PM		
Client ID:		Run ID: GC9_171102B				SeqNo: 4738549		Prep Date: 11/1/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	504800	6,000	605000	0	83.4	71-123	543600	7.4	30	
Surr: Toluene-d8	6762	0	6050	0	112	71-123	7004	3.52	30	

The following samples were analyzed in this batch:

17102063-01B	17102063-04B
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates
 Work Order: 17102063
 Project: LN Hagood A1X Resampling

QC BATCH REPORT

Batch ID: **109970** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-109970-109970				Units: mg/Kg		Analysis Date: 11/3/2017 04:03 AM		
Client ID:		Run ID: ICP2_171102A				SeqNo: 4738204		Prep Date: 11/2/2017		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-109970-109970					Units: mg/Kg		Analysis Date: 11/3/2017 04:09 AM		
Client ID:			Run ID: ICP2_171102A			SeqNo: 4738205		Prep Date: 11/2/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Arsenic 5.237 0.25 5 0 105 80-120 0

MS		Sample ID: 17102049-05BMS				Units: mg/Kg		Analysis Date: 11/3/2017 04:54 AM		
Client ID:			Run ID: ICP2_171102A			SeqNo: 4738212		Prep Date: 11/2/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic 8.726 0.36 7.246 0.6091 112 75-125 0

MSD		Sample ID: 17102049-05BMSD				Units: mg/Kg		Analysis Date: 11/3/2017 05:18 AM		
Client ID:			Run ID: ICP2_171102A			SeqNo: 4738216		Prep Date: 11/2/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic 8.025 0.36 7.194 0.6091 103 75-125 8.726 8.38 20

The following samples were analyzed in this batch:

17102063-08A

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

Client: Olsson Associates
 Work Order: 17102063
 Project: LN Hagood A1X Resampling

QC BATCH REPORT

Batch ID: 110392 Instrument ID SAR Method: USDA H60 Metho

DUP	Sample ID: 17102063-02ADUP					Units: none		Analysis Date: 11/10/2017		
Client ID: LNHA1-SS2			Run ID: SAR_171110A			SeqNo: 4756507		Prep Date: 11/10/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	1.083	0.010	0	0	0		1.15	5.99	50	

The following samples were analyzed in this batch:

17102063-01A	17102063-02A	17102063-03A
17102063-04A	17102063-05A	17102063-06A
17102063-07A		

Batch ID: 110392 Instrument ID ICPMS3 Method: SW6020A

DUP	Sample ID: 17102063-02ADUP					Units: mg/L		Analysis Date: 11/10/2017 03:40 PM		
Client ID: LNHA1-SS2			Run ID: ICPMS3_171110A			SeqNo: 4754472		Prep Date: 11/10/2017		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	412.7	5.0	0	0	0	0-0	468.4	12.6		
Magnesium	42.07	2.0	0	0	0	0-0	48.28	13.7		
Sodium	86.37	2.0	0	0	0	0-0	97.78	12.4		

The following samples were analyzed in this batch:

17102063-01A	17102063-02A	17102063-03A
17102063-04A	17102063-05A	17102063-06A
17102063-07A		

Batch ID: 110392 Instrument ID WETCHEM Method: USDA H60 Metho

DUP	Sample ID: 17102063-02A DUP					Units: mmhos/cm @25°		Analysis Date: 11/13/2017 09:00 A		
Client ID: LNHA1-SS2			Run ID: WETCHEM_171113B			SeqNo: 4755073		Prep Date: 11/10/2017		DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	2.77	0.10	0	0	0		3.086	10.8	50	

The following samples were analyzed in this batch:

17102063-01A	17102063-02A	17102063-03A
17102063-04A	17102063-05A	17102063-06A
17102063-07A		

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

Client: Olsson Associates
 Work Order: 17102063
 Project: LN Hagood A1X Resampling

QC BATCH REPORT

Batch ID: **R223724** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R223724				Units: % of sample		Analysis Date: 11/2/2017 11:19 AM		
Client ID:		Run ID: MOIST_171102A				SeqNo: 4738316		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-R223724				Units: % of sample		Analysis Date: 11/2/2017 11:19 AM		
Client ID:		Run ID: MOIST_171102A				SeqNo: 4738315		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: 17102049-11B DUP				Units: % of sample		Analysis Date: 11/2/2017 11:19 AM		
Client ID:		Run ID: MOIST_171102A				SeqNo: 4738294		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 4.91 0.818 5

DUP		Sample ID: 17102049-12B DUP				Units: % of sample		Analysis Date: 11/2/2017 11:19 AM		
Client ID:		Run ID: MOIST_171102A				SeqNo: 4738296		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 10.82 0.050 0 0 0 0-0 11.84 9 5 R

The following samples were analyzed in this batch:

17102063-01B	17102063-04B	17102063-08A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Chain of Custody Form

Page 1 of 1

COC ID: 123456

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

Customer Information		Project Information		Parameter/Method Request for Analysis													
Purchase Order		Project Name	LN Hagood A1X Resampling	A TPH (GRO & DRO)													
Work Order		Project Number	013.3287.400.400004	B BTEX													
Company Name	Olsson Associates	Brought 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	780 Horizon Drive, Ste. 102	Address	780 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@olssonco.com	e-Mail Address	tdobransky@olssonco.com	I													
				J													
No.	Sample Description	Date	Time	Matrix	Pres.	# Batches	A	B	C	D	E	F	G	H	I	J	Hold
1	LNHA1-SS1	10/26/17	815	Soil	8	2	X			X	X						
2	LNHA1-SS2	10/26/17	820	Soil	8	1					X						
3	LNHA1-SS3	10/26/17	825	Soil	8	1				X	X						
4	LNHA1-SS4	10/26/17	830	Soil	8	2	X			X	X						
5	LNHA1-SS5	10/26/17	835	Soil	8	1				X							
6	LNHA1-SS6	10/26/17	840	Soil	8	1				X	X						
7	LNHA1-SS7	10/26/17	845	Soil	8	1				X	X						
8	LNHA1-BG5	10/26/17	850	Soil	8	1								X			
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: 10/30/17 Time: 1700	Received by:	Notes: Chevron Pricing Applies - Per Bruce Schlatter				
Relinquished by:	Date: 10-30-17 Time: 1830	Received by (Laboratory):	Cooler Temp. 4.2°				
Logged by (Laboratory):	Date: 10/31/17 Time: 1600	Checked by (Laboratory):	QC Package: (Check Box Below)				
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-8035		<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:					

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: **31-Oct-17 09:30**

Work Order: **17102063**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

31-Oct-17
Date

Reviewed by: Chad Whelton
eSignature

02-Nov-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 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>10/31/2017 4:11:34 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



09-Aug-2018

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

Re: **LN Hagood A1X Resampling**

Work Order: **18071597**

Dear Tim,

ALS Environmental received 3 samples on 25-Jul-2018 03:00 PM for the analyses presented in the following report.

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

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

The total number of pages in this report is 9.

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

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

Sincerely,

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

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

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

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Work Order: 18071597

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>
18071597-01	LNHA1-SS4	Soil		7/20/2018 08:35	7/25/2018 15:00	<input type="checkbox"/>
18071597-02	LNHA1-SS5	Soil		7/20/2018 08:45	7/25/2018 15:00	<input type="checkbox"/>
18071597-03	LNHA1-SS6	Soil		7/20/2018 08:50	7/25/2018 15:00	<input type="checkbox"/>

Client: Olsson Associates
Project: LN Hagood A1X Resampling
WorkOrder: 18071597

QUALIFIERS, ACRONYMS, UNITS

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

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

<u>Units Reported</u>	<u>Description</u>
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius

ALS Group, USA

Date: 09-Aug-18

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS4
Collection Date: 7/20/2018 08:35 AM

Work Order: 18071597
Lab ID: 18071597-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ELECTRICAL CONDUCTIVITY (SAR)							
				Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 7/31/18	Analyst: JB
Electrical Conductivity @ Saturation	2.1		0.011	0.10	mmhos/cm @25°	20	8/6/2018 13:00

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

ALS Group, USA

Date: 09-Aug-18

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS5
Collection Date: 7/20/2018 08:45 AM

Work Order: 18071597
Lab ID: 18071597-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ELECTRICAL CONDUCTIVITY (SAR)							
				Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 7/31/18	Analyst: JB
Electrical Conductivity @ Saturation	2.0		0.011	0.10	mmhos/cm @25°	20	8/6/2018 13:00

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

ALS Group, USA

Date: 09-Aug-18

Client: Olsson Associates
Project: LN Hagood A1X Resampling
Sample ID: LNHA1-SS6
Collection Date: 7/20/2018 08:50 AM

Work Order: 18071597
Lab ID: 18071597-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ELECTRICAL CONDUCTIVITY (SAR)							
Method: USDA H60 METHOD 2 Prep: USDA Method 20B / 7/31/18 Analyst: JB							
Electrical Conductivity @ Saturation	2.0		0.011	0.10	mmhos/cm @25°	20	8/6/2018 13:00

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

Client: Olsson Associates

Work Order: 18071597

Project: LN Hagood A1X Resampling

QC BATCH REPORT

Batch ID: 122101

Instrument ID WETCHEM

Method: USDA H60 Metho

DUP		Sample ID: 18071597-03A DUP				Units: mmhos/cm @25°		Analysis Date: 8/6/2018 01:00 PM		
Client ID: LNHA1-SS6		Run ID: WETCHEM_180806C				SeqNo: 5186405		Prep Date: 7/31/2018		DF: 20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	1.936	0.10	0	0	0		2.03	4.74	50	

The following samples were analyzed in this batch:

18071597-01A	18071597-02A	18071597-03A
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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

ALS Project Manager:

Work Order #: 18071597

Customer Information		Project Information					Parameter/Method Request for Analysis												
Purchase Order		Project Name	LN Hagood A1X 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											
								F pH											
City/State/Zip	Grand Junction, CO 81506	City/State/Zip	Grand Junction, CO 81506					G Metals (See Attached List) CO Table 910											
Phone	970.263.7800	Phone	970.263.7800					H Arsenic Only											
Fax	970.263.7456	Fax	970.263.7456					I											
e-Mail Address	tdobransky@entradanc.com	e-Mail Address	dmack@olssonassociates.com					J											
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	LNHA1-SS4	07/20/18	835	Soil	8	1				X									
2	LNHA1-SS5	07/20/18	845	Soil	8	1				X									
3	LNHA1-SS6	07/20/18	850	Soil	8	1				X									
4																			
5																			
6																			
7																			
8																			
9																			
10																			
Sampler(s): Please Print & Sign Tim Dobransky		Shipment Method: FedEx		Required Turnaround Time: <input checked="" type="checkbox"/> STD 10 Wk <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour				Results Due Date:											
Relinquished by:		Date: 7/23/18	Time: 1545	Received by:			Notes: Chevron Pricing Applies - Per Bruce Schlatter												
Relinquished by:		Date: 7/25/18	Time: 1500	Received by (Laboratory):			Cooler Temp. x	QC Package: (Check Box Below)											
Logged by (Laboratory):		Date: 7/25/18	Time: 1630	Checked by (Laboratory):			502 5.0c	Level II: Standard QC											
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other							Level III: Std QC + Raw												
							Level IV: SW846 CLP-												
							Other:												

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

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Sample Receipt Checklist

Client Name: **OLSSON**

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

Work Order: **18071597**

Received by: **DS**

Checklist completed by Diane Shaw
eSignature

25-Jul-18
Date

Reviewed by: Chad Whelton
eSignature

26-Jul-18
Date

Matrices: **Soil**

Carrier name: **ALSHN**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>5.0/5.0 c</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>7/25/2018 4:42:02 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: