

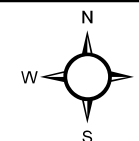


# Legend

- Spill Origin
- Other Soil Sample Location
- Spill Path
- Spill Path Area

0 75 150 300 Feet

1 inch = 201 feet



PROJECT NO:	013-3287
DRAWN BY:	SBS
DATE:	07/19/2015

WEST LINE LN HAGOOD A5  
SPILL RESPONSE  
CHEVRON USA, INC  
RIO BLANCO COUNTY, COLORADO  
SENE & NESE S23 T2N R103W



Entrada Consulting Group  
240 Mesa Avenue  
Grand Junction, CO 81501  
(970) 270-2986  
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FIGURE

1



Table 1  
LN Hagood A5 Spill  
Soil Data Summary

SAMPLE SUMMARY	
Location Description	LN Hagood A 5 Spill
Sample Type	Soil

LABORATORY DATA SUMMARY																
Sample ID	LNHA5-SS1	LNHA5-SS1	LNHA5-SS1	LNHA5-SS2	LNHA5-SS2	LNHA5-SS3	LNHA5-SS3	LNHA5-SS4	LNHA5-SS4	LNHA5-SS4	LNHA5-SS5	LNHA5-SS5	LNHA5-BG1	LNHA5-BG2	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"		
Sample Date	6/10/2015	10/26/2017	7/20/2018	6/10/2015	7/20/2018	6/10/2015	10/26/2017	6/10/2015	10/26/2017	7/20/2018	6/10/2015	10/26/2017	10/26/2017	10/26/2017		
Analytical Parameters																
TPH																
TPH Gasoline Range Organics	280	NT	<2.1	0	NT	<2.7	NT	<2.8	NT	NT	<2.9	NT	NT	NT	500	mg/kg
TPH Diesel Range Organics	630	NT	<2.8	1500	<3.7	46	NT	2100	NT	<3.5	28	NT	NT	NT		
BTEX																
Benzene	<0.035	NT	NT	<0.034	NT	<0.033	NT	<0.034	NT	NT	<0.034	NT	NT	NT	0.17	mg/kg
Toluene	<0.035	NT	NT	<0.034	NT	<0.033	NT	<0.034	NT	NT	<0.034	NT	NT	NT	85	mg/kg
Ethylbenzene	0.14	NT	NT	<0.034	NT	<0.033	NT	<0.034	NT	NT	<0.034	NT	NT	NT	100	mg/kg
Total Xylene	1.10	NT	NT	<0.100	NT	<0.98	NT	<0.100	NT	NT	<0.100	NT	NT	NT	175	mg/kg
Metals																
Arsenic	8.3	NT	NT	8.3	NT	7.9	NT	7.2	NT	NT	8.3	NT	6.04	6.38	0.39	mg/kg
Barium	130	NT	NT	410	NT	150	NT	100	NT	NT	130	NT	119	NT	15,000	mg/kg
Cadmium	<0.36	NT	NT	<0.43	NT	<0.37	NT	<0.43	NT	NT	<0.45	NT	0.264 J	NT	70	mg/kg
Chromium	10	NT	NT	12	NT	9.8	NT	11	NT	NT	11	NT	10.2	NT	NA	mg/kg
Copper	17	NT	NT	16	NT	15	NT	15	NT	NT	16	NT	12.4	NT	3,100	mg/kg
Lead	9	NT	NT	13	NT	6	NT	12	NT	NT	12	NT	14.3	NT	400	mg/kg
Mercury	0.023	NT	NT	0.024	NT	0.026	NT	0.027	NT	NT	0.019	NT	0.0122	NT	23	mg/kg
Nickel	40	NT	NT	34	NT	37	NT	29	NT	NT	32	NT	14.4	NT	1,600	mg/kg
Selenium	1.8	NT	NT	1.5	NT	1.3	NT	1.4	NT	NT	1.4	NT	1.44	NT	390	mg/kg
Silver	<0.36	NT	NT	<0.43	NT	<0.37	NT	<0.43	NT	NT	<0.45	NT	0.0936 J	NT	390	mg/kg
Zinc	150	NT	NT	57	NT	46	NT	53	NT	NT	57	NT	62.3	NT	23,000	mg/kg
SAR Metals Analysis																
Calcium	1200	110	NT	52	200	660	200	970	89	NT	150	150	190	NT	NA	mg/L
Magnesium	170	25	NT	6.6	43	130	49	150	21	NT	59	36	47.2	NT	NA	mg/L
Sodium	4,400	11	NT	550	16	950	15	3100	6.2	NT	1300	11	93.8	NT	NA	mg/L
Sodium Adsorption Ratio	31	0.23	NT	19	0.27	8.9	0.25	24	0.15	NT	23	0.22	1.58	NT	<12	ratio
Polynuclear Aromatic Hydrocarbons																
Acenaphthene	<0.0076	NT	NT	<0.0076	NT	<0.0071	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	1,000	mg/kg
Anthracene	0.050	NT	NT	<0.0076	NT	<0.0071	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	1,000	mg/kg
Benzo(a)anthracene	0.053	NT	NT	<0.0076	NT	0.02	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	0.22	mg/kg
Benzo(a)pyrene	<0.0076	NT	NT	0.087	<0.022	0.021	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	0.022	mg/kg
Benzo(b)fluoranthene	0.014	NT	NT	0.13	NT	0.03	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	0.22	mg/kg
Benzo(k)fluoranthene	0.0087	NT	NT	<0.0076	NT	0.0085	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	2.2	mg/kg
Chrysene	0.092	NT	NT	0.12	NT	0.023	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	22	mg/kg
Dibenzo(a,h)anthracene	<0.0076	NT	NT	<0.0076	NT	<0.0071	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	0.022	mg/kg
Fluoranthene	<0.0076	NT	NT	0.19	NT	0.032	NT	<0.300	NT	NT	0.016	NT	NT	NT	1,000	mg/kg
Fluorene	0.150	NT	NT	<0.0076	NT	<0.0071	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	1,000	mg/kg
Indeno(1,2,3-cd)pyrene	0.0091	NT	NT	<0.0076	NT	0.018	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	0.22	mg/kg
Napthalene	0.059	NT	NT	<0.0076	NT	<0.0071	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	23	mg/kg
Pyrene	0.037	NT	NT	0.12	NT	0.026	NT	<0.300	NT	NT	<0.0076	NT	NT	NT	1,000	mg/kg
General Chemistry																
Chromium, Hexavalent	<1.1	NT	NT	<1.1	NT	<0.92	NT	<1.1	NT	NT	<1.1	NT	<2.0	NT	23	mg/kg
Chromium, Trivalent	10	NT	NT	11	NT	9.8	NT	10	NT	NT	11	NT	10.2	NT	120,000	mg/kg
Specific Conductivity	31	0.82	NT	3.0	NT	9.7	1.5	24	0.64	NT	8.7	1.0	3.39	NT	<4 or 2 x the background	mmhos/cm
pH	7.4	NT	NT	8.4	NT	8.0	NT	7.8	NT	NT	8.5	NT	8.56	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



17-Nov-2017

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

Re: **LN Hagood 5 Resampling**

Work Order: **17102061**

Dear Tim,

ALS Environmental received 7 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 22.

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 

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**Client:** Olsson Associates  
**Project:** LN Hagood 5 Resampling  
**Work Order:** 17102061

**Work Order Sample Summary**

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<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>
17102061-01	LNHA5-SS1	Soil		10/26/2017 10:20	10/31/2017 09:30	<input type="checkbox"/>
17102061-02	LNHA5-SS2	Soil		10/26/2017 10:30	10/31/2017 09:30	<input type="checkbox"/>
17102061-03	LNHA5-SS3	Soil		10/26/2017 10:40	10/31/2017 09:30	<input type="checkbox"/>
17102061-04	LNHA5-SS4	Soil		10/26/2017 10:45	10/31/2017 09:30	<input type="checkbox"/>
17102061-05	LNHA5-SS5	Soil		10/26/2017 10:50	10/31/2017 09:30	<input type="checkbox"/>
17102061-06	LNHA5-BG1	Soil		10/26/2017 10:55	10/31/2017 09:30	<input type="checkbox"/>
17102061-07	LNHA5-BG2	Soil		10/26/2017 11:05	10/31/2017 09:30	<input type="checkbox"/>

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**Client:** Olsson Associates  
**Project:** LN Hagood 5 Resampling  
**Work Order:** 17102061

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**Case Narrative**

Batch 109954, Method CR6\_7196\_S, Sample LCS-109954: The LCS recovery was above the upper control limit for Hexavalent Chromium. All the sample results in the batch were non-detect. No qualification is required.

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

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

**ALS Group, USA**

Date: 17-Nov-17

**Client:** Olsson Associates  
**Project:** LN Hagood 5 Resampling  
**Sample ID:** LNHA5-SS1  
**Collection Date:** 10/26/2017 10:20 AM

**Work Order:** 17102061  
**Lab ID:** 17102061-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	0.23		0.010	0.010	none	1	11/9/2017
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>JF</b>
Calcium	110		0.86	5.0	mg/L	10	11/9/2017 14:50
Magnesium	25		0.068	2.0	mg/L	10	11/9/2017 14:50
Sodium	11		0.34	2.0	mg/L	10	11/9/2017 14:50
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	0.82		0.011	0.10	mmhos/cm @25°	20	11/13/2017 08:40

**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 5 Resampling  
**Sample ID:** LNHA5-SS2  
**Collection Date:** 10/26/2017 10:30 AM

**Work Order:** 17102061  
**Lab ID:** 17102061-02  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>							
				Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17	Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	0.95		0.011	0.10	mmhos/cm @25°	20	11/13/2017 08:40

**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 5 Resampling  
**Sample ID:** LNHA5-SS3  
**Collection Date:** 10/26/2017 10:40 AM

**Work Order:** 17102061  
**Lab ID:** 17102061-03  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	0.25		0.010	0.010	none	1	11/9/2017
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>JF</b>
Calcium	200		0.86	5.0	mg/L	10	11/9/2017 14:56
Magnesium	49		0.068	2.0	mg/L	10	11/9/2017 14:56
Sodium	15		0.34	2.0	mg/L	10	11/9/2017 14:56
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	1.5		0.011	0.10	mmhos/cm @25°	20	11/13/2017 08:40

**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 5 Resampling  
**Sample ID:** LNHA5-SS4  
**Collection Date:** 10/26/2017 10:45 AM

**Work Order:** 17102061  
**Lab ID:** 17102061-04  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	0.15		0.010	0.010	none	1	11/9/2017
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>JF</b>
Calcium	89		0.86	5.0	mg/L	10	11/9/2017 14:57
Magnesium	21		0.068	2.0	mg/L	10	11/9/2017 14:57
Sodium	6.2		0.34	2.0	mg/L	10	11/9/2017 14:57
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	0.64		0.011	0.10	mmhos/cm @25°	20	11/13/2017 08:40

**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 5 Resampling  
**Sample ID:** LNHA5-SS5  
**Collection Date:** 10/26/2017 10:50 AM

**Work Order:** 17102061  
**Lab ID:** 17102061-05  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>RH</b>
Sodium Adsorption Ratio	0.22		0.010	0.010	none	1	11/9/2017
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>JF</b>
Calcium	150		0.86	5.0	mg/L	10	11/9/2017 15:03
Magnesium	36		0.068	2.0	mg/L	10	11/9/2017 15:03
Sodium	11		0.34	2.0	mg/L	10	11/9/2017 15:03
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 11/9/17		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	1.0		0.011	0.10	mmhos/cm @25°	20	11/13/2017 08:40

**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 5 Resampling  
Sample ID: LNHA5-BG1  
Collection Date: 10/26/2017 10:55 AM

Work Order: 17102061  
Lab ID: 17102061-06  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>MERCURY BY CVAA</b>							
Mercury	0.013	J	0.0019	0.019	mg/Kg-dry	1	11/13/2017 10:43
<b>METALS ANALYSIS BY ICP</b>							
Arsenic	9.0		0.10	0.40	mg/Kg-dry	1	11/3/2017 06:14
Barium	160		1.6	4.0	mg/Kg-dry	10	11/3/2017 15:50
Cadmium	0.78	J	0.038	0.80	mg/Kg-dry	1	11/3/2017 06:14
Chromium	12		0.022	0.40	mg/Kg-dry	1	11/3/2017 06:14
Copper	15		0.18	0.80	mg/Kg-dry	1	11/3/2017 06:14
Lead	18		0.84	4.0	mg/Kg-dry	10	11/3/2017 15:50
Nickel	17		0.16	0.40	mg/Kg-dry	1	11/3/2017 06:14
Selenium	2.0		0.22	0.80	mg/Kg-dry	1	11/3/2017 06:14
Silver	U		0.049	0.40	mg/Kg-dry	1	11/3/2017 06:14
Zinc	96		0.064	0.80	mg/Kg-dry	1	11/3/2017 06:14
<b>SODIUM ADSORPTION RATIO</b>							
Sodium Adsorption Ratio	1.3		0.010	0.010	none	1	11/9/2017
<b>SOLUBLE CATIONS FOR SAR</b>							
Calcium	160		0.86	5.0	mg/L	10	11/9/2017 15:05
Magnesium	47		0.068	2.0	mg/L	10	11/9/2017 15:05
Sodium	73		0.34	2.0	mg/L	10	11/9/2017 15:05
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>							
Electrical Conductivity @ Saturation	1.3		0.011	0.10	mmhos/cm @25°	20	11/13/2017 08:40
<b>CHROMIUM, TRIVALENT</b>							
Chromium, Trivalent	12		0.35	1.1	mg/Kg-dry	1	11/10/2017 08:32
<b>CHROMIUM, HEXAVALENT</b>							
Chromium, Hexavalent	U		0.34	1.1	mg/Kg-dry	1	11/2/2017 16:30
<b>MOISTURE</b>							
Moisture	11		0.025	0.050	% of sample	1	11/2/2017 11:19
<b>PH</b>							
pH	8.67		0.10	0.100	s.u.	1	11/1/2017 13:40

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 5 Resampling  
**Sample ID:** LNHA5-BG2  
**Collection Date:** 10/26/2017 11:05 AM

**Work Order:** 17102061  
**Lab ID:** 17102061-07  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>METALS ANALYSIS BY ICP</b>							
Arsenic	6.5		0.11	0.44	mg/Kg-dry	1	11/2/2017 00:13
<b>MOISTURE</b>							
Moisture	16		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: 17102061

Project: LN Hagood 5 Resampling

## QC BATCH REPORT

Batch ID: **110400**

Instrument ID **HG1**

Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>mblk-110400-110400</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/13/2017 08:22 A</b>		
Client ID:		Run ID: <b>HG1_171113A</b>				SeqNo: <b>4754686</b>		Prep Date: <b>11/10/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

<b>LCS</b>		Sample ID: <b>lcs-110400-110400</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/13/2017 08:25 A</b>		
Client ID:		Run ID: <b>HG1_171113A</b>				SeqNo: <b>4754687</b>		Prep Date: <b>11/10/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1825 0.020 0.1665 0 110 80-120 0

<b>MS</b>		Sample ID: <b>1711369-01ams</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/13/2017 08:40 A</b>		
Client ID:		Run ID: <b>HG1_171113A</b>				SeqNo: <b>4754693</b>		Prep Date: <b>11/10/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1557 0.018 0.1496 0 104 75-125 0

<b>MSD</b>		Sample ID: <b>1711369-01amsd</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/13/2017 08:43 A</b>		
Client ID:		Run ID: <b>HG1_171113A</b>				SeqNo: <b>4754694</b>		Prep Date: <b>11/10/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1532 0.018 0.15 0 102 75-125 0

The following samples were analyzed in this batch:

17102061-06b



**Client:** Olsson Associates  
**Work Order:** 17102061  
**Project:** LN Hagood 5 Resampling

## QC BATCH REPORT

Batch ID: **109896** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-109896-109896				Units: mg/Kg		Analysis Date: 11/1/2017 09:35 PM		
Client ID:		Run ID: ICP2_171101A				SeqNo: 4735892		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

Arsenic U 0.25

LCS		Sample ID: LCS-109896-109896					Units: mg/Kg		Analysis Date: 11/1/2017 09:41 PM		
Client ID:			Run ID: ICP2_171101A			SeqNo: 4735894		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	

Arsenic 4.56 0.25 5 0 91.2 80-120 0

MS		Sample ID: 17102039-01AMS					Units: mg/Kg		Analysis Date: 11/1/2017 10:51 PM		
Client ID:			Run ID: ICP2_171101A			SeqNo: 4735936		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	

Arsenic 6.954 0.35 6.906 0.5779 92.3 75-125 0

<b>MSD</b>		Sample ID: <b>17102039-01AMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/1/2017 10:58 PM</b>		
Client ID:			Run ID: <b>ICP2_171101A</b>			SeqNo: <b>4735939</b>		Prep Date: <b>11/1/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Arsenic 7.076 0.34 6.897 0.5779 94.2 75-125 6.954 1.74 20

The following samples were analyzed in this batch:

17102061-07A

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

**Client:** Olsson Associates  
**Work Order:** 17102061  
**Project:** LN Hagood 5 Resampling

# QC BATCH REPORT

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

<b>MBLK</b>		Sample ID: <b>MBLK-109970-109970</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/3/2017 04:03 AM</b>		
Client ID:		Run ID: <b>ICP2_171102A</b>				SeqNo: <b>4738204</b>		Prep Date: <b>11/2/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	0.1755	0.50								J
Chromium	0.091	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								
Zinc	U	0.50								

<b>LCS</b>		Sample ID: <b>LCS-109970-109970</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/3/2017 04:09 AM</b>		
Client ID:		Run ID: <b>ICP2_171102A</b>				SeqNo: <b>4738205</b>		Prep Date: <b>11/2/2017</b>		DF: <b>1</b>
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			
Cadmium	5.4	0.50	5	0	108	80-120	0			
Chromium	5.263	0.25	5	0	105	80-120	0			
Copper	4.68	0.50	5	0	93.6	80-120	0			
Lead	4.685	0.25	5	0	93.7	80-120	0			
Nickel	5.154	0.25	5	0	103	80-120	0			
Silver	4.635	0.25	5	0	92.7	80-120	0			
Zinc	5.51	0.50	5	0	110	80-120	0			

<b>LCS</b>		Sample ID: <b>LCS-109970-109970</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/3/2017 12:21 PM</b>		
Client ID:		Run ID: <b>ICP2_171103A</b>				SeqNo: <b>4739371</b>		Prep Date: <b>11/2/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	5.061	0.25	5	0	101	80-120	0			
Selenium	4.56	0.50	5	0	91.2	80-120	0			

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

Client: Olsson Associates  
 Work Order: 17102061  
 Project: LN Hagood 5 Resampling

# QC BATCH REPORT

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

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			
Cadmium	8.307	0.72	7.246	0.3215	110	75-125	0			
Chromium	10.8	0.36	7.246	2.648	112	75-125	0			
Copper	9.195	0.72	7.246	1.026	113	75-125	0			
Lead	9.834	0.36	7.246	2.507	101	75-125	0			
Nickel	8.747	0.36	7.246	0.7442	110	75-125	0			
Silver	7.007	0.36	7.246	-0.02941	97.1	75-125	0			
Zinc	18.05	0.72	7.246	6.879	154	75-125	0			S

MS Sample ID: 17102049-05BMS				Units: mg/Kg		Analysis Date: 11/3/2017 12:36 PM				
Client ID:		Run ID: ICP2_171103A		SeqNo: 4739374		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
Barium	18.75	0.36	7.246	9.158	132	75-125	0			S
Selenium	8.142	0.72	7.246	0.7416	102	75-125	0			

MSD Sample ID: 17102049-05BMSSD				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	
Cadmium	7.69	0.72	7.194	0.3215	102	75-125	8.307	7.72	20	
Chromium	10.75	0.36	7.194	2.648	113	75-125	10.8	0.442	20	
Copper	8.794	0.72	7.194	1.026	108	75-125	9.195	4.46	20	
Nickel	8.06	0.36	7.194	0.7442	102	75-125	8.747	8.17	20	
Silver	6.46	0.36	7.194	-0.02941	90.2	75-125	7.007	8.12	20	
Zinc	16.67	0.72	7.194	6.879	136	75-125	18.05	7.96	20	S

MSD Sample ID: 17102049-05BMSSD				Units: mg/Kg		Analysis Date: 11/3/2017 12:41 PM				
Client ID:		Run ID: ICP2_171103A		SeqNo: 4739398		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
Barium	18.56	0.36	7.194	9.158	131	75-125	18.75	1.01	20	S
Lead	10.37	0.36	7.194	2.655	107	75-125	10.85	4.5	20	
Selenium	7.732	0.72	7.194	0.7416	97.2	75-125	8.142	5.17	20	

The following samples were analyzed in this batch:

17102061-06B

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

Client: Olsson Associates  
 Work Order: 17102061  
 Project: LN Hagood 5 Resampling

## QC BATCH REPORT

Batch ID: 110320 Instrument ID SAR Method: USDA H60 Metho

DUP		Sample ID: 17102061-02ADUP				Units: none		Analysis Date: 11/9/2017		
Client ID: LNHA5-SS2		Run ID: SAR_171109A				SeqNo: 4753046		Prep Date: 11/9/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.3505	0.010	0	0	0		0.3598	2.61	50	

The following samples were analyzed in this batch:

17102061-01A	17102061-02A	17102061-03A
17102061-04A	17102061-05A	17102061-06A

Batch ID: 110320 Instrument ID ICPMS3 Method: SW6020A

DUP		Sample ID: 17102061-02ADUP				Units: mg/L		Analysis Date: 11/9/2017 02:53 PM		
Client ID: LNHA5-SS2		Run ID: ICPMS3_171109A				SeqNo: 4751995		Prep Date: 11/9/2017		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	110.5	5.0	0	0	0	0-0	123.7	11.3		
Magnesium	30.78	2.0	0	0	0	0-0	34.71	12		
Sodium	16.16	2.0	0	0	0	0-0	17.57	8.38		

The following samples were analyzed in this batch:

17102061-01A	17102061-02A	17102061-03A
17102061-04A	17102061-05A	17102061-06A

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

**Client:** Olsson Associates  
**Work Order:** 17102061  
**Project:** LN Hagood 5 Resampling

## QC BATCH REPORT

Batch ID: **109886**      Instrument ID **WETCHEM**      Method: **SW9045D**

LCS				Sample ID: LCS-109886-109886				Units: s.u.			Analysis Date: 11/1/2017 01:40 PM			
Client ID:				Run ID: WETCHEM_171101J				SeqNo: 4733893			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			

pH      3.94      0.10      4      0      98.5      90-110      0

DUP		Sample ID: 17101996-01A DUP				Units: s.u.		Analysis Date: 11/1/2017 01:40 PM		
Client ID:		Run ID: WETCHEM_171101J				SeqNo: 4733896		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

pH      8.84      0.10      0      0      0      0-0      8.66      2.06      20

DUP				Sample ID: 17101996-13A DUP				Units: s.u.			Analysis Date: 11/1/2017 01:40 PM			
Client ID:				Run ID: WETCHEM_171101J				SeqNo: 4733909			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				

pH      8.51      0.10      0      0      0      0-0      8.56      0.586      20

The following samples were analyzed in this batch:

17102061-06B

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

**Client:** Olsson Associates  
**Work Order:** 17102061  
**Project:** LN Hagood 5 Resampling

## QC BATCH REPORT

Batch ID: **109954**      Instrument ID **WETCHEM**      Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-109954-109954</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/2/2017 04:30 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171102R</b>				SeqNo: <b>4737435</b>		Prep Date: <b>11/2/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      U      0.93

<b>LCS</b>		Sample ID: <b>LCS-109954-109954</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/2/2017 04:30 PM</b>		
Client ID:		Run ID: <b>WETCHEM_171102R</b>				SeqNo: <b>4737436</b>		Prep Date: <b>11/2/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      6.51      0.98      4.902      0      133      80-120      0      S

<b>MS</b>		Sample ID: <b>17102061-06B MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/2/2017 04:30 PM</b>		
Client ID: <b>LNHA5-BG1</b>		Run ID: <b>WETCHEM_171102R</b>				SeqNo: <b>4737438</b>		Prep Date: <b>11/2/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      4.951      0.98      4.902      -0.08824      103      75-125      0

<b>MS</b>		Sample ID: <b>17102061-06B MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/2/2017 04:30 PM</b>		
Client ID: <b>LNHA5-BG1</b>		Run ID: <b>WETCHEM_171102R</b>				SeqNo: <b>4737440</b>		Prep Date: <b>11/2/2017</b>		DF: <b>100</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      1730      93      1579      -0.08824      110      75-125      0

<b>MSD</b>		Sample ID: <b>17102061-06B MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>11/2/2017 04:30 PM</b>		
Client ID: <b>LNHA5-BG1</b>		Run ID: <b>WETCHEM_171102R</b>				SeqNo: <b>4737439</b>		Prep Date: <b>11/2/2017</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent      4.881      0.99      4.95      -0.08824      100      75-125      4.951      1.42      20

The following samples were analyzed in this batch:

17102061-06B

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



**Client:** Olsson Associates  
**Work Order:** 17102061  
**Project:** LN Hagood 5 Resampling

## QC BATCH REPORT

Batch ID: **110320** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>17102061-02A DUP</b>				Units: <b>mmhos/cm @25°</b>		Analysis Date: <b>11/13/2017 08:40 A</b>		
Client ID: <b>LNHA5-SS2</b>		Run ID: <b>WETCHEM_171113A</b>		SeqNo: <b>4755055</b>		Prep Date: <b>11/9/2017</b>		DF: <b>20</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	0.944	0.10	0	0	0		0.95	0.634	50	

The following samples were analyzed in this batch:

17102061-01A	17102061-02A	17102061-03A
17102061-04A	17102061-05A	17102061-06A

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

Client: Olsson Associates  
 Work Order: 17102061  
 Project: LN Hagood 5 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:

17102061-06B	17102061-07A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.



**Environmental**

# Chain of Custody Form

Page 1 of 1

COC ID: 123456

☐ Cincinnati, OH  
+1 513 733 5336

☐ Everett, WA  
+1 425 356 2600

☐ Fort Collins, CO  
+1 970 490 1511

☒ Holland, MI  
+1 616 399 6070

☐ Houston, TX  
+1 281 530 5656

☐ Middletown, PA  
+1 717 944 5541

☐ Salt Lake City, UT  
+1 801 266 7700

☐ Spring City, PA  
+1 610 948 4903

☐ York, PA  
+1 717 505 5280

ALS Project Manager:

Work Order #:

17102061

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	LN Hagood 5 Resampling	A	TPH (GRO & DRO)
Work Order		Project Number	013.3287.400.400004	B	BTEX
Company Name	Olsson Associates	Bill To Company	Olsson Associates	C	PAH (See Attached List) CO Table 910
Send Report To	Tim Dobransky	Invoice Attn.	Tim Dobransky	D	Electrical Conductivity
Address	760 Horizon Drive, Ste. 102	Address	760 Horizon Drive, Ste. 102	E	Sodium Adsorption Ratio
City/State/Zip	Grand Junction, CO 81506	City/State/Zip	Grand Junction, CO 81506	F	pH
Phone	970.263.7800	Phone	970.263.7800	G	Metals (See Attached List) CO Table 910
Fax	970.263.7456	Fax	970.263.7456	H	Arsenic Only
e-Mail Address	tdobransky@olssonassoc.com	e-Mail Address	tdobransky@olssonassoc.com	I	
				J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	LNHA5-SS1	10/26/17	1020	Soil	8	1				X	X						
2	LNHA5-SS2	10/26/17	1030	Soil	8	1				X							
3	LNHA5-SS3	10/26/17	1040	Soil	8	1				X	X						
4	LNHA5-SS4	10/26/17	1045	Soil	8	1				X	X						
5	LNHA5-SS5	10/26/17	1050	Soil	8	1				X	X						
6	LNHA5-BG1	10/26/17	1055	Soil	8	2				X	X	X	X				
7	LNHA5-BG2	10/26/17	1105	Soil	8	1								X			
8																	
9																	
10																	

Sampler(s): Please Print & Sign Tim Dobransky		Shipment Method: FedEx		Required Turnaround Time: <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour		Results Due Date:	
Relinquished by:	Date: 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°C	QC Package: (Check Box Below)		
Logged by (Laboratory):	Date: 10/31/17	Time: 1600	Checked 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		
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035				Other: 522			

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: **17102061**

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 4:02:33 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 5 Resampling**

Work Order: **18071604**

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 15.

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 

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RIGHT SOLUTIONS RIGHT PARTNER

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**Client:** Olsson Associates  
**Project:** LN Hagood 5 Resampling  
**Work Order:** 18071604

**Work Order Sample Summary**

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<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>
18071604-01	LNHA5-SS1	Soil		7/20/2018 09:15	7/25/2018 15:00	<input type="checkbox"/>
18071604-02	LNHA5-SS2	Soil		7/20/2018 09:25	7/25/2018 15:00	<input type="checkbox"/>
18071604-03	LNHA5-SS4	Soil		7/20/2018 09:35	7/25/2018 15:00	<input type="checkbox"/>



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**Client:** Olsson Associates  
**Project:** LN Hagood 5 Resampling  
**Work Order:** 18071604

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**Case Narrative**

Batch 121885, Method DRLVI\_8015\_S, Samples 18071604-01A and -03A: One or more DRO surrogate recoveries were below the lower control limits. The sample results may be biased low.

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% 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: 09-Aug-18

**Client:** Olsson Associates  
**Project:** LN Hagood 5 Resampling  
**Sample ID:** LNHA5-SS1  
**Collection Date:** 7/20/2018 09:15 AM

**Work Order:** 18071604  
**Lab ID:** 18071604-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 7/26/18		Analyst: <b>RP</b>
DRO (C10-C28)	U		2.8	4.9	mg/Kg-dry	1	7/29/2018 20:27
Surr: 4-Terphenyl-d14	23.0	S		34-130	%REC	1	7/29/2018 20:27
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015D</b>		Prep: SW5035 / 7/26/18		Analyst: <b>RP</b>
GRO (C6-C10)	U		2.1	5.1	mg/Kg-dry	1	7/28/2018 09:32
Surr: Toluene-d8	117			71-123	%REC	1	7/28/2018 09:32
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 8/2/18		Analyst: <b>STP</b>
Calcium	130		0.86	5.0	mg/L	10	8/2/2018 18:05
Magnesium	28		0.068	2.0	mg/L	10	8/2/2018 18:05
Sodium	11		0.34	2.0	mg/L	10	8/2/2018 18:05
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 8/2/18		Analyst: <b>STP</b>
Sodium Adsorption Ratio	0.23		0.010	0.010	none	1	8/2/2018
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 8/2/18		Analyst: <b>JB</b>
Electrical Conductivity @ Saturation	1.1		0.011	0.10	mmhos/cm @25°	20	8/6/2018 13:15
<b>MOISTURE</b>							
			Method: <b>SW3550C</b>				Analyst: <b>SBR</b>
Moisture	0.69		0.025	0.050	% of sample	1	8/1/2018 13:58

**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 5 Resampling  
**Sample ID:** LNHA5-SS2  
**Collection Date:** 7/20/2018 09:25 AM

**Work Order:** 18071604  
**Lab ID:** 18071604-02  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: <b>SW8015C</b>		Prep: SW3546 / 7/26/18		Analyst: <b>RP</b>
DRO (C10-C28)	U		3.7	6.4	mg/Kg-dry	1	7/29/2018 20:56
Surr: 4-Terphenyl-d14	40.5			34-130	%REC	1	7/29/2018 20:56
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: <b>SW6020A</b>		Prep: USDA Method 20B / 8/2/18		Analyst: <b>STP</b>
Calcium	200		0.86	5.0	mg/L	10	8/2/2018 18:06
Magnesium	43		0.068	2.0	mg/L	10	8/2/2018 18:06
Sodium	16		0.34	2.0	mg/L	10	8/2/2018 18:06
<b>SODIUM ADSORPTION RATIO</b>							
			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 8/2/18		Analyst: <b>STP</b>
Sodium Adsorption Ratio	0.27		0.010	0.010	none	1	8/2/2018
<b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>							
			Method: <b>SW846 8270D</b>		Prep: SW3546 / 7/26/18		Analyst: <b>RM</b>
Benzo(a)pyrene	U		0.022	0.053	mg/Kg-dry	1	7/27/2018 04:10
Surr: 2-Fluorobiphenyl	60.1			20-140	%REC	1	7/27/2018 04:10
Surr: 4-Terphenyl-d14	44.9			22-172	%REC	1	7/27/2018 04:10
Surr: Nitrobenzene-d5	72.9			28-140	%REC	1	7/27/2018 04:10
<b>MOISTURE</b>							
			Method: <b>SW3550C</b>				Analyst: <b>SBR</b>
Moisture	23		0.025	0.050	% of sample	1	8/1/2018 13:58

**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 5 Resampling  
**Sample ID:** LNHA5-SS4  
**Collection Date:** 7/20/2018 09:35 AM

**Work Order:** 18071604  
**Lab ID:** 18071604-03  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
<b>DIESEL RANGE ORGANICS BY GC-FID</b>			Method: <b>SW8015C</b>		Prep: SW3546 / 7/26/18		Analyst: <b>RP</b>
DRO (C10-C28)	U		3.5	6.1	mg/Kg-dry	1	7/26/2018 21:59
Surr: 4-Terphenyl-d14	32.5	S		34-130	%REC	1	7/26/2018 21:59
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>SBR</b>
Moisture	19		0.025	0.050	% of sample	1	8/1/2018 13:58

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

Client: Olsson Associates

Work Order: 18071604

Project: LN Hagood 5 Resampling

# QC BATCH REPORT

Batch ID: 121885

Instrument ID GC8

Method: SW8015C

<b>MBLK</b>		Sample ID: <b>DBLKS1-121885-121885</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2018 09:01 PM</b>		
Client ID:		Run ID: <b>GC8_180726B</b>				SeqNo: <b>5171953</b>		Prep Date: <b>7/26/2018</b>		DF: <b>1</b>
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	1.283	0	3.33	0	38.5	34-130		0		

<b>LCS</b>		Sample ID: <b>DLCSS1-121885-121885</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2018 09:30 PM</b>		
Client ID:		Run ID: <b>GC8_180726B</b>				SeqNo: <b>5171954</b>		Prep Date: <b>7/26/2018</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	330.8	5.0	333	0	99.3	65-122		0		
Surr: 4-Terphenyl-d14	1.55	0	3.33	0	46.5	34-130		0		

<b>MS</b>		Sample ID: <b>18071604-03A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2018 10:29 PM</b>		
Client ID: <b>LNHA5-SS4</b>		Run ID: <b>GC8_180726B</b>				SeqNo: <b>5171956</b>		Prep Date: <b>7/26/2018</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	330.3	5.0	331.8	0	99.5	65-122		0		
Surr: 4-Terphenyl-d14	1.594	0	3.318	0	48	34-130		0		

<b>MSD</b>		Sample ID: <b>18071604-03A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>7/26/2018 10:58 PM</b>		
Client ID: <b>LNHA5-SS4</b>		Run ID: <b>GC8_180726B</b>				SeqNo: <b>5171957</b>		Prep Date: <b>7/26/2018</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	258.5	4.8	321.6	0	80.4	65-122	330.3	24.4	30	
Surr: 4-Terphenyl-d14	1.207	0	3.216	0	37.5	34-130	1.594	27.6	30	

The following samples were analyzed in this batch:

18071604-01A	18071604-02A	18071604-03A
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Client: Olsson Associates  
 Work Order: 18071604  
 Project: LN Hagood 5 Resampling

# QC BATCH REPORT

Batch ID: 121917 Instrument ID GC10 Method: SW8015D

<b>MBLK</b>		Sample ID: <b>MBLK-121917-121917</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>7/27/2018 06:00 AM</b>		
Client ID:		Run ID: <b>GC10_180726B</b>				SeqNo: <b>5172733</b>		Prep Date: <b>7/26/2018</b>		DF: <b>1</b>
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	5716	0	5000	0	114	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-121917-121917</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>7/27/2018 05:07 AM</b>		
Client ID:		Run ID: <b>GC10_180726B</b>				SeqNo: <b>5172732</b>		Prep Date: <b>7/26/2018</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	486400	5,000	500000	0	97.3	71-123	0			
Surr: Toluene-d8	5916	0	5000	0	118	71-123	0			

<b>MS</b>		Sample ID: <b>18071590-02A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>7/27/2018 08:12 AM</b>		
Client ID:		Run ID: <b>GC10_180726B</b>				SeqNo: <b>5172738</b>		Prep Date: <b>7/26/2018</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	663100	7,800	782100	0	84.8	71-123	0			
Surr: Toluene-d8	8637	0	7821	0	110	71-123	0			

<b>MSD</b>		Sample ID: <b>18071590-02A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>7/27/2018 08:38 AM</b>		
Client ID:		Run ID: <b>GC10_180726B</b>				SeqNo: <b>5172739</b>		Prep Date: <b>7/26/2018</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	766500	7,800	782100	0	98	71-123	663100	14.5	30	
Surr: Toluene-d8	8736	0	7821	0	112	71-123	8637	1.14	30	

The following samples were analyzed in this batch:

18071604-01A

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

**Client:** Olsson Associates  
**Work Order:** 18071604  
**Project:** LN Hagood 5 Resampling

## QC BATCH REPORT

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

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

The following samples were analyzed in this batch:

18071604-01A	18071604-02B
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Batch ID: **122211** Instrument ID **SAR** Method: **USDA H60 Metho**

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

The following samples were analyzed in this batch:

18071604-01A	18071604-02B
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**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates  
 Work Order: 18071604  
 Project: LN Hagood 5 Resampling

# QC BATCH REPORT

Batch ID: 121884 Instrument ID SVMS6 Method: SW846 8270D

MBLK Sample ID: SBLKS1-121884-121884				Units: µg/Kg		Analysis Date: 7/26/2018 11:11 PM				
Client ID:		Run ID: SVMS6_180726A		SeqNo: 5171847		Prep Date: 7/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(a)pyrene	U	42								
Surr: 2-Fluorobiphenyl	2828	0	3333	0	84.9	20-140	0			
Surr: 4-Terphenyl-d14	2258	0	3333	0	67.8	22-172	0			
Surr: Nitrobenzene-d5	3027	0	3333	0	90.8	28-140	0			

LCS Sample ID: SLCSS1-121884-121884				Units: µg/Kg		Analysis Date: 7/26/2018 11:26 PM				
Client ID:		Run ID: SVMS6_180726A		SeqNo: 5171848		Prep Date: 7/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(a)pyrene	1232	42	1333	0	92.4	40-140	0			
Surr: 2-Fluorobiphenyl	2796	0	3333	0	83.9	20-140	0			
Surr: 4-Terphenyl-d14	2201	0	3333	0	66	22-172	0			
Surr: Nitrobenzene-d5	3169	0	3333	0	95.1	28-140	0			

MS Sample ID: 18071553-08A MS				Units: µg/Kg		Analysis Date: 7/26/2018 11:41 PM				
Client ID:		Run ID: SVMS6_180726A		SeqNo: 5171849		Prep Date: 7/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(a)pyrene	1268	41	1307	0	97	40-140	0			
Surr: 2-Fluorobiphenyl	2990	0	3267	0	91.5	20-140	0			
Surr: 4-Terphenyl-d14	2335	0	3267	0	71.5	22-172	0			
Surr: Nitrobenzene-d5	3458	0	3267	0	106	28-140	0			

MSD Sample ID: 18071553-08A MSD				Units: µg/Kg		Analysis Date: 7/26/2018 11:56 PM				
Client ID:		Run ID: SVMS6_180726A		SeqNo: 5171850		Prep Date: 7/26/2018		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzo(a)pyrene	1279	41	1315	0	97.3	40-140	1268	0.848	30	
Surr: 2-Fluorobiphenyl	3040	0	3288	0	92.5	20-140	2990	1.69	0	
Surr: 4-Terphenyl-d14	2351	0	3288	0	71.5	22-172	2335	0.657	0	
Surr: Nitrobenzene-d5	3532	0	3288	0	107	28-140	3458	2.1	0	

The following samples were analyzed in this batch:

18071604-02A

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

**Client:** Olsson Associates  
**Work Order:** 18071604  
**Project:** LN Hagood 5 Resampling

## QC BATCH REPORT

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

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

The following samples were analyzed in this batch:

18071604-01A	18071604-02B
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**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Olsson Associates  
 Work Order: 18071604  
 Project: LN Hagood 5 Resampling

# QC BATCH REPORT

Batch ID: **R241439** Instrument ID **MOIST** Method: **SW3550C**

<b>MBLK</b>		Sample ID: <b>WBLKS-R241439</b>				Units: % of sample			Analysis Date: <b>8/1/2018 01:58 PM</b>		
Client ID:		Run ID: <b>MOIST_180801B</b>				SeqNo: <b>5181461</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture U 0.050

<b>LCS</b>		Sample ID: <b>LCS-R241439</b>				Units: % of sample			Analysis Date: <b>8/1/2018 01:58 PM</b>		
Client ID:		Run ID: <b>MOIST_180801B</b>				SeqNo: <b>5181460</b>			Prep Date:		DF: <b>1</b>
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

<b>DUP</b>		Sample ID: <b>18071604-02A DUP</b>				Units: % of sample			Analysis Date: <b>8/1/2018 01:58 PM</b>		
Client ID: <b>LNHA5-SS2</b>		Run ID: <b>MOIST_180801B</b>				SeqNo: <b>5181436</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 22.39 0.050 0 0 0 0-0 22.78 1.73 10

<b>DUP</b>		Sample ID: <b>18071805-05A DUP</b>				Units: % of sample			Analysis Date: <b>8/1/2018 01:58 PM</b>		
Client ID:		Run ID: <b>MOIST_180801B</b>				SeqNo: <b>5181453</b>			Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 53.87 0.050 0 0 0 0-0 50.35 6.75 10

The following samples were analyzed in this batch:

18071604-01A	18071604-02A	18071604-03A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.



**Environmental**

# Chain of Custody Form

Page 1 of 1

COC ID: 123456

☐ Cincinnati, OH  
+1 513 733 5336

☐ Everett, WA  
+1 425 356 2600

☐ Fort Collins, CO  
+1 970 490 1511

☒ Holland, MI  
+1 616 399 6070

☐ Houston, TX  
+1 281 530 5656

☐ Middletown, PA  
+1 717 944 5541

☐ Salt Lake City, UT  
+1 801 266 7700

☐ Spring City, PA  
+1 610 948 4903

☐ York, PA  
+1 717 505 5280

ALS Project Manager:

Work Order #:

18071604

Customer Information		Project Information						Parameter/Method Request for Analysis														
Purchase Order		Project Name	LN Hagood 5 Resampling					A	TPH (GRO & DRO)													
Work Order		Project Number	013.3287.400.400004					B	BTEX													
Company Name	Olsson Associates	Bill To Company	Olsson Associates					C	PAH (See Attached List) CO Table 910													
Send Report To	Tim Dobransky	Invoice Attn.	Tim Dobransky					D	Electrical Conductivity													
Address	760 Horizon Drive, Ste. 102	Address	760 Horizon Drive, Ste. 102					E	Sodium Adsorption Ratio													
City/State/Zip	Grand Junction, CO 81506	City/State/Zip	Grand Junction, CO 81506					F	pH													
Phone	970.263.7800	Phone	970.263.7800					G	Metals (See Attached List) CO Table 910													
Fax	970.263.7456	Fax	970.263.7456					H	Arsenic Only													
e-Mail Address	tdobransky@entradainc.com	e-Mail Address	dmack@olssonassociates.com					I	DRO													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold					
1	LNHA5-SS1	07/20/18	915	Soil	8	1	X			X	X											
2	LNHA5-SS2	07/20/18	925	Soil	8	2					X				X	X						
3	LNHA5-SS4	07/20/18	935	Soil	8	1									X							
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Results Due Date:	
Tim Dobransky		FedEx		<input checked="" type="checkbox"/> STD 10 Wk <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour			
Relinquished by:	Date:	Time:	Received by:	Notes:			
	7/23/18	1545	FED EX	Chevron Pricing Applies - Per Bruce Schlatter			
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler Temp.	QC Package: (Check Box Below)		
FED EX	7/25/18	1500		50Z	<input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw <input type="checkbox"/> Level IV: SW846 CLP-		
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	50Z			
DES	7/25/18	1700		50Z			
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-503							

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: **18071604**

Received by: **DS**

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

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

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>5.0/5.0 c</u> <u>SR2</u>		
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>7/25/2018 5:06:30 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:

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Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: