

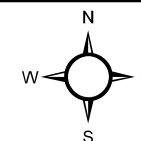


Legend

- Spill Origin
- Soil Sample Location

0 50 100 200 Feet

1 inch = 146 feet



PROJECT NO:	013-3287
DRAWN BY:	SBS
DATE:	08/18/2014

F. V. Larson B5
SPILL RESPONSE
CHEVRON USA, INC
RIO BLANCO COUNTY, COLORADO
SENW S36 T2N R102W

OLSSON
ASSOCIATES

760 HORIZON DRIVE, SUITE 102
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FIGURE

1

Table 1
FV LARSON B5 SPILL
Soil Data Summary

SAMPLE SUMMARY	
Location Description	FV Larson B5 Spill
Sample Type	Soil

LABORATORY DATA SUMMARY																
Sample ID	FVLARB5-SS1	FVLARB5-SS1	FVLARB5-SS1	FVLARB5-SS2	FVLARB5-SS2	FVLARB5-SS3	FVLARB5-SS3	FVLARB5-SS3	FVLARB5-BG1	FVLARB5-BG2	FVLARB5-BG3	FVLARB5-BG4	FVLARB5-BG5	COGCC TABLE 910-1 CONCENTRATION LIMITS	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"			
Sample Date	7/9/2012	8/1/2013	6/17/2014	7/9/2012	8/1/2013	7/9/2012	8/1/2013	6/17/2014	7/9/2012	7/9/2012	7/9/2012	7/9/2012	7/9/2012			
Analytical Parameters																
TPH																
TPH Gasoline Range Organics	30.7	NT	NT	<6.2	NT	<6.3	NT	NT	NT	NT	NT	NT	NT	500	mg/kg	
TPH Diesel Range Organics	25.3	NT	NT	39.9	NT	<9.8	NT	NT	NT	NT	NT	NT	NT			
BTEX																
Benzene	<0.026	NT	NT	<0.0024	NT	<0.024	NT	NT	NT	NT	NT	NT	NT	0.17	mg/kg	
Toluene	<0.068	NT	NT	<0.0062	NT	<0.063	NT	NT	NT	NT	NT	NT	NT	85	mg/kg	
Ethylbenzene	<0.026	NT	NT	<0.0024	NT	<0.024	NT	NT	NT	NT	NT	NT	NT	100	mg/kg	
Total Xylene	<0.14	NT	NT	<0.12	NT	<0.13	NT	NT	NT	NT	NT	NT	NT	175	mg/kg	
Metals																
Arsenic	6.3	NT	NT	7.2	NT	8.3	NT	NT	6.8	6.9	12.6	6.4	7.2	0.39	mg/kg	
Barium	117	NT	NT	152	NT	157	NT	NT	106	NT	NT	NT	NT	15,000	mg/kg	
Cadmium	<1.2	NT	NT	<1.2	NT	<1.1	NT	NT	<1.0	NT	NT	NT	NT	70	mg/kg	
Chromium	7.0	NT	NT	9.2	NT	8.2	NT	NT	8.5	NT	NT	NT	NT	NA	mg/kg	
Copper	8.9	NT	NT	12.4	NT	7.3	NT	NT	10.8	NT	NT	NT	NT	3,100	mg/kg	
Lead	10.7	NT	NT	14.1	NT	7.8	NT	NT	13.4	NT	NT	NT	NT	400	mg/kg	
Mercury	<0.11	NT	NT	<0.11	NT	<0.11	NT	NT	<0.099	NT	NT	NT	NT	23	mg/kg	
Nickel	10.8	NT	NT	13.7	NT	10	NT	NT	11.9	NT	NT	NT	NT	1,600	mg/kg	
Selenium	<6.0	NT	NT	>5.8	NT	<5.4	NT	NT	<5.0	NT	NT	NT	NT	390	mg/kg	
Silver	<3.6	NT	NT	<3.5	NT	<3.2	NT	NT	<3.0	NT	NT	NT	NT	390	mg/kg	
Zinc	40.6	NT	NT	53.9	NT	30.3	NT	NT	49.1	NT	NT	NT	NT	23,000	mg/kg	
SAR Metals Analysis																
Sodium Adsorption Ratio	56.1	5.1	NT	47.9	0.8	45.1	3.2	NT	0.60	NT	NT	NT	NT	<12	NA	
Polynuclear Aromatic Hydrocarbons																
Acenaphthene	<0.0051	NT	NT	<0.0049	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	1,000	mg/kg	
Anthracene	<0.0051	NT	NT	<0.0049	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	1,000	mg/kg	
Benzo(a)anthracene	<0.0051	NT	NT	<0.0049	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	0.22	mg/kg	
Benzo(a)pyrene	0.0058 J	NT	NT	0.0062 J	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	0.022	mg/kg	
Benzo(b)fluoranthene	0.0058 J	NT	NT	0.0059 J	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	0.22	mg/kg	
Benzo(k)fluoranthene	<0.0051	NT	NT	<0.0049	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	2.2	mg/kg	
Chrysene	0.0052 J	NT	NT	0.0065 J	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	22	mg/kg	
Dibenzo(a,h)anthracene	<0.0051	NT	NT	<0.0049	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	0.022	mg/kg	
Fluoranthene	0.0062 J	NT	NT	0.0119	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	1,000	mg/kg	
Fluorene	<0.0051	NT	NT	<0.0049	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	1,000	mg/kg	
Indeno(1,2,3-cd)pyrene	<0.0051	NT	NT	<0.0049	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	0.22	mg/kg	
Napthalene	0.0563	NT	NT	<0.012	NT	<0.012	NT	NT	NT	NT	NT	NT	NT	23	mg/kg	
Pyrene	0.0058 J	NT	NT	0.0103	NT	<0.0049	NT	NT	NT	NT	NT	NT	NT	1,000	mg/kg	
General Chemistry																
Chromium, Hexavalent	<1.0	NT	NT	<1.0	NT	<1.0	NT	NT	<1.0	NT	NT	NT	NT	23	mg/kg	
Chromium, Trivalent	7.0	NT	NT	9.2	NT	8.2	NT	NT	8.5	NT	NT	NT	NT	120,000	mg/kg	
Specific Conductivity	40	27.3	1.4	10.9	3.2	22.6	9.5	2.4	0.368	NT	NT	NT	NT	<4 or 2 x the background	mmhos/cm	
pH	8.80	NT	NT	9.50	NT	9.40	NT	NT	9.75	NT	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 Limits but under BACKGROUND level.
Over COGCC Table 910-1 Concentration Limits and not within BACKGROUND level.
Over COGCC Table 910-1 Concentration Limits



07/26/12

Technical Report for

Olsson Associates

FV Larson B5 Spill (9.0082.202.202004)

Accutest Job Number: D36215

Sampling Date: 07/09/12

Report to:


**Olsson Associates
826 21 1/2 Road
Grand Junction, CO 81505
tdobransky@oaconsulting.com**

ATTN: Tim Dobransky

Total number of pages in report: 97



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.


Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates

Job No: D36215

FV Larson B5 Spill (9.0082.202.202004)

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D36215-1	07/09/12	12:00 TPD	07/10/12	SO	Soil	FVLARB5-BG1
D36215-1A	07/09/12	12:00 TPD	07/10/12	SO	Soil	FVLARB5-BG1
D36215-2	07/09/12	12:15 TPD	07/10/12	SO	Soil	FVLARB5-BG2
D36215-3	07/09/12	12:45 TPD	07/10/12	SO	Soil	FVLARB5-BG3
D36215-4	07/09/12	12:50 TPD	07/10/12	SO	Soil	FVLARB5-BG4
D36215-5	07/09/12	12:55 TPD	07/10/12	SO	Soil	FVLARB5-BG5
D36215-6	07/09/12	12:20 TPD	07/10/12	SO	Soil	FVLARB5-SS1
D36215-6A	07/09/12	12:20 TPD	07/10/12	SO	Soil	FVLARB5-SS1
D36215-7	07/09/12	12:25 TPD	07/10/12	SO	Soil	FVLARB5-SS2
D36215-7A	07/09/12	12:25 TPD	07/10/12	SO	Soil	FVLARB5-SS2
D36215-8	07/09/12	12:40 TPD	07/10/12	SO	Soil	FVLARB5-SS3
D36215-8A	07/09/12	12:40 TPD	07/10/12	SO	Soil	FVLARB5-SS3

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Olsson Associates

Job No D36215

Site: FV Larson B5 Spill (9.0082.202.202004)

Report Date 7/26/2012 10:55:39 AM

On 07/10/2012, 8 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.7 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D36215 was assigned to the project. The lab sample IDs, client sample IDs, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO

Batch ID: V5V1370

- All samples were analyzed within the recommended method holding time.
- Sample(s) D36278-1MS, D36278-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO

Batch ID: OP6214

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D36312-1MS were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike (MS) recovery(s) of Naphthalene are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Volatiles by GC By Method SW846 8015B

Matrix SO

Batch ID: GGB925

- All samples were analyzed within the recommended method holding time.
- Sample(s) D36439-1MS, D36439-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO

Batch ID: OP6206

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36254-2MS, D36254-2MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix AQ

Batch ID: MP7939

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36215-8AMS, D36215-8AMSD, D36215-8ASDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Sodium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Matrix SO

Batch ID: MP7869

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36215-1MS, D36215-1MSD, D36215-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Cadmium, Silver, Lead, Nickel, Zinc are outside control limits for sample MP7869-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP7869-SD1 for Lead, Nickel, and Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO

Batch ID: MP7870

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36215-1MS, D36215-1MSD, D36215-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO

Batch ID: MP7873

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36170-1MSD, D36170-1MS were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Mercury are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Mercury are outside control limits. Probable cause due to matrix interference.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO

Batch ID: GN15787

- Sample(s) D36215-1DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN15809

- The data for SM19 2540B M meets quality control requirements.

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO	Batch ID: R13576
------------------	-------------------------

- The data for SW846 3060/7196A M meets quality control requirements.
- D36215-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO	Batch ID: R13577
------------------	-------------------------

- The data for SW846 3060/7196A M meets quality control requirements.
- D36215-6 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO	Batch ID: R13578
------------------	-------------------------

- The data for SW846 3060/7196A M meets quality control requirements.
- D36215-7 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO	Batch ID: R13579
------------------	-------------------------

- The data for SW846 3060/7196A M meets quality control requirements.
- D36215-8 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO	Batch ID: GP7714
------------------	-------------------------

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36215-1DUP, D36215-1MS, D36215-1MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 9045D

Matrix SO	Batch ID: GN15780
------------------	--------------------------

- The following samples were run outside of holding time for method SW846 9045D: D36215-1, D36215-6, D36215-7, D36215-8

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO	Batch ID: MP7939
------------------	-------------------------

- All samples for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D36215
Account: Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)
Collected: 07/09/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

D36215-1 FVLARB5-BG1

Arsenic	6.8	0.10			mg/kg	SW846 6020A
Barium	106	1.0			mg/kg	SW846 6010C
Chromium	8.5	1.0			mg/kg	SW846 6010C
Copper	10.8	1.0			mg/kg	SW846 6010C
Lead	13.4	5.0			mg/kg	SW846 6010C
Nickel	11.9	3.0			mg/kg	SW846 6010C
Zinc	49.1	3.0			mg/kg	SW846 6010C
Chromium, Trivalent ^a	8.5	2.0			mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	184				mv	ASTM D1498-76M
Specific Conductivity	368	1.0			umhos/cm	DEPT.OF AG, BOOK N9
pH	9.75				su	SW846 9045D

D36215-1A FVLARB5-BG1

Calcium	51.8	2.0			mg/l	SW846 6010C
Magnesium	9.61	1.0			mg/l	SW846 6010C
Sodium	18.0	2.0			mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	0.602				ratio	USDA HANDBOOK 60

D36215-2 FVLARB5-BG2

Arsenic	6.9	0.10			mg/kg	SW846 6020A
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D36215-3 FVLARB5-BG3

Arsenic	12.6	0.10			mg/kg	SW846 6020A
---------	------	------	--	--	-------	-------------

D36215-4 FVLARB5-BG4

Arsenic	6.4	0.10			mg/kg	SW846 6020A
---------	-----	------	--	--	-------	-------------

D36215-5 FVLARB5-BG5

Arsenic	7.2	0.10			mg/kg	SW846 6020A
---------	-----	------	--	--	-------	-------------

D36215-6 FVLARB5-SS1

Benzo(a)pyrene	5.8 J	9.8	5.1		ug/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene	5.8 J	9.8	5.1		ug/kg	SW846 8270C BY SIM
Chrysene	5.2 J	9.8	5.1		ug/kg	SW846 8270C BY SIM
Fluoranthene	6.2 J	9.8	5.1		ug/kg	SW846 8270C BY SIM
Naphthalene	56.3	14	12		ug/kg	SW846 8270C BY SIM
Pyrene	5.8 J	9.8	5.1		ug/kg	SW846 8270C BY SIM

Summary of Hits

Job Number: D36215
Account: Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)
Collected: 07/09/12

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
TPH-GRO (C6-C10)		30.7	14	6.8	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		25.3	16	10	mg/kg	SW846-8015B
Arsenic		6.3	0.12		mg/kg	SW846 6020A
Barium		117	1.2		mg/kg	SW846 6010C
Chromium		7.0	1.2		mg/kg	SW846 6010C
Copper		8.9	1.2		mg/kg	SW846 6010C
Lead		10.7	6.0		mg/kg	SW846 6010C
Nickel		10.8	3.6		mg/kg	SW846 6010C
Zinc		40.6	3.6		mg/kg	SW846 6010C
Chromium, Trivalent ^a		7.0	2.2		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		187			mv	ASTM D1498-76M
Specific Conductivity		40000	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH		8.80			su	SW846 9045D

D36215-6A FVLARB5-SS1

Calcium	1050	2.0		mg/l	SW846 6010C
Magnesium	209	1.0		mg/l	SW846 6010C
Sodium	7620	10		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	56.1			ratio	USDA HANDBOOK 60

D36215-7 FVLARB5-SS2

Benzo(a)pyrene	6.2 J	9.3	4.9	ug/kg	SW846 8270C BY SIM
Benzo(b)fluoranthene	5.9 J	9.3	4.9	ug/kg	SW846 8270C BY SIM
Chrysene	6.5 J	9.3	4.9	ug/kg	SW846 8270C BY SIM
Fluoranthene	11.9	9.3	4.9	ug/kg	SW846 8270C BY SIM
Pyrene	10.3	9.3	4.9	ug/kg	SW846 8270C BY SIM
TPH-DRO (C10-C28)	39.9	15	9.7	mg/kg	SW846-8015B
Arsenic	7.2	0.12		mg/kg	SW846 6020A
Barium	152	1.2		mg/kg	SW846 6010C
Chromium	9.2	1.2		mg/kg	SW846 6010C
Copper	12.4	1.2		mg/kg	SW846 6010C
Lead	14.1	5.8		mg/kg	SW846 6010C
Nickel	13.7	3.5		mg/kg	SW846 6010C
Zinc	53.9	3.5		mg/kg	SW846 6010C
Chromium, Trivalent ^a	9.2	2.2		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	182			mv	ASTM D1498-76M
Specific Conductivity	10900	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH	9.50			su	SW846 9045D

D36215-7A FVLARB5-SS2

Calcium	256	2.0		mg/l	SW846 6010C
Magnesium	62.5	1.0		mg/l	SW846 6010C

Summary of Hits

Job Number: D36215
Account: Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)
Collected: 07/09/12

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Sodium		3300	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b		47.9			ratio	USDA HANDBOOK 60

D36215-8 FVLARB5-SS3

Arsenic	8.3	0.11		mg/kg	SW846 6020A
Barium	157	1.1		mg/kg	SW846 6010C
Chromium	8.2	1.1		mg/kg	SW846 6010C
Copper	7.3	1.1		mg/kg	SW846 6010C
Lead	7.8	5.4		mg/kg	SW846 6010C
Nickel	10.0	3.2		mg/kg	SW846 6010C
Zinc	30.3	3.2		mg/kg	SW846 6010C
Chromium, Trivalent ^a	8.2	2.1		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	185			mv	ASTM D1498-76M
Specific Conductivity	22600	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH	9.40			su	SW846 9045D

D36215-8A FVLARB5-SS3

Calcium	483	2.0		mg/l	SW846 6010C
Magnesium	116	1.0		mg/l	SW846 6010C
Sodium	4260	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	45.1			ratio	USDA HANDBOOK 60

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

(b) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: FVLARB5-BG1

Lab Sample ID: D36215-1

Matrix: SO - Soil

Date Sampled: 07/09/12

Date Received: 07/10/12

Percent Solids: 99.1

Project: FV Larson B5 Spill (9.0082.202.202004)

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.8	0.10	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ³	SW846 3050B ⁵
Barium	106	1.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.0	1.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Chromium	8.5	1.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Copper	10.8	1.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Lead	13.4	5.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.099	0.099	mg/kg	1	07/12/12	07/13/12 JB	SW846 7471B ²	SW846 7471B ⁶
Nickel	11.9	3.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 5.0	5.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.0	3.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Zinc	49.1	3.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA2601

(2) Instrument QC Batch: MA2604

(3) Instrument QC Batch: MA2615

(4) Prep QC Batch: MP7869

(5) Prep QC Batch: MP7870

(6) Prep QC Batch: MP7873

RL = Reporting Limit

Report of Analysis

Client Sample ID: FVLARB5-BG1**Lab Sample ID:** D36215-1**Matrix:** SO - Soil**Project:** FV Larson B5 Spill (9.0082.202.202004)**Date Sampled:** 07/09/12**Date Received:** 07/10/12**Percent Solids:** 99.1**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	07/18/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	8.5	2.0	mg/kg	1	07/18/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	184		mv	1	07/11/12	JD	ASTM D1498-76M
Solids, Percent	99.1		%	1	07/13/12	JK	SM19 2540B M
Specific Conductivity	368	1.0	umhos/cm	1	07/19/12	CJ	DEPT.OF AG, BOOK N9
pH	9.75		su	1	07/11/12 13:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-BG1	Date Sampled:	07/09/12
Lab Sample ID:	D36215-1A	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	99.1
Project:	FV Larson B5 Spill (9.0082.202.202004)		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	51.8	2.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²
Magnesium	9.61	1.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²
Sodium	18.0	2.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA2623
(2) Prep QC Batch: MP7939

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-BG1	Date Sampled:	07/09/12
Lab Sample ID:	D36215-1A	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	99.1
Project:	FV Larson B5 Spill (9.0082.202.202004)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	0.602		ratio	1	07/18/12 20:57	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-BG2	Date Sampled:	07/09/12
Lab Sample ID:	D36215-2	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	99.1
Project:	FV Larson B5 Spill (9.0082.202.202004)		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.9	0.10	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2615
(2) Prep QC Batch: MP7870

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-BG3	Date Sampled:	07/09/12
Lab Sample ID:	D36215-3	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	98.9
Project:	FV Larson B5 Spill (9.0082.202.202004)		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	12.6	0.10	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2615
(2) Prep QC Batch: MP7870

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-BG4	Date Sampled:	07/09/12
Lab Sample ID:	D36215-4	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	99.1
Project:	FV Larson B5 Spill (9.0082.202.202004)		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.4	0.10	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2615
(2) Prep QC Batch: MP7870

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-BG5	Date Sampled:	07/09/12
Lab Sample ID:	D36215-5	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	98.9
Project:	FV Larson B5 Spill (9.0082.202.202004)		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.2	0.10	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2615
(2) Prep QC Batch: MP7870

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS1	Date Sampled:	07/09/12
Lab Sample ID:	D36215-6	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	84.5
Method:	SW846 8260B		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V22451.D	1	07/11/12	BD	n/a	n/a	V5V1370
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	68	26	ug/kg	
108-88-3	Toluene	ND	140	68	ug/kg	
100-41-4	Ethylbenzene	ND	140	26	ug/kg	
1330-20-7	Xylene (total)	ND	270	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	95%		61-130%
460-00-4	4-Bromofluorobenzene	95%		53-131%
17060-07-0	1,2-Dichloroethane-D4	91%		62-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FVLARB5-SS1	Date Sampled:	07/09/12
Lab Sample ID:	D36215-6	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	84.5
Method:	SW846 8270C BY SIM SW846 3546		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G09947.D	1	07/12/12	SM	07/12/12	OP6214	E3G447
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.8	5.1	ug/kg	
120-12-7	Anthracene	ND	9.8	5.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.8	5.1	ug/kg	
50-32-8	Benzo(a)pyrene	5.8	9.8	5.1	ug/kg	J
205-99-2	Benzo(b)fluoranthene	5.8	9.8	5.1	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	9.8	5.1	ug/kg	
218-01-9	Chrysene	5.2	9.8	5.1	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	9.8	5.1	ug/kg	
206-44-0	Fluoranthene	6.2	9.8	5.1	ug/kg	J
86-73-7	Fluorene	ND	9.8	5.1	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.8	5.1	ug/kg	
91-20-3	Naphthalene	56.3	14	12	ug/kg	
129-00-0	Pyrene	5.8	9.8	5.1	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	58%		10-145%
321-60-8	2-Fluorobiphenyl	74%		10-130%
1718-51-0	Terphenyl-d14	80%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	FVLARB5-SS1	Date Sampled:	07/09/12
Lab Sample ID:	D36215-6	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	84.5
Method:	SW846 8015B		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16729.D	1	07/17/12	SK	n/a	n/a	GGB925
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	30.7	14	6.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	81%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	FVLARB5-SS1	Date Sampled:	07/09/12
Lab Sample ID:	D36215-6	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	84.5
Method:	SW846-8015B SW846 3546		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD15311.D	1	07/12/12	AW	07/11/12	OP6206	GFD794
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	25.3	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	65%		43-136%		

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FVLARB5-SS1

Lab Sample ID: D36215-6

Matrix: SO - Soil

Date Sampled: 07/09/12

Date Received: 07/10/12

Percent Solids: 84.5

Project: FV Larson B5 Spill (9.0082.202.202004)

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.3	0.12	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ³	SW846 3050B ⁵
Barium	117	1.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.2	1.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Chromium	7.0	1.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Copper	8.9	1.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Lead	10.7	6.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.11	0.11	mg/kg	1	07/12/12	07/13/12 JB	SW846 7471B ²	SW846 7471B ⁶
Nickel	10.8	3.6	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 6.0	6.0	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.6	3.6	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Zinc	40.6	3.6	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA2601

(2) Instrument QC Batch: MA2604

(3) Instrument QC Batch: MA2615

(4) Prep QC Batch: MP7869

(5) Prep QC Batch: MP7870

(6) Prep QC Batch: MP7873

RL = Reporting Limit

Report of Analysis

Client Sample ID: FVLARB5-SS1**Lab Sample ID:** D36215-6**Matrix:** SO - Soil**Project:** FV Larson B5 Spill (9.0082.202.202004)**Date Sampled:** 07/09/12**Date Received:** 07/10/12**Percent Solids:** 84.5**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	07/18/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	7.0	2.2	mg/kg	1	07/18/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	187		mv	1	07/11/12	JD	ASTM D1498-76M
Solids, Percent	84.5		%	1	07/13/12	JK	SM19 2540B M
Specific Conductivity	40000	1.0	umhos/cm	1	07/19/12	CJ	DEPT.OF AG, BOOK N9
pH	8.80		su	1	07/11/12 13:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS1	Date Sampled:	07/09/12
Lab Sample ID:	D36215-6A	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	84.5
Project:	FV Larson B5 Spill (9.0082.202.202004)		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	1050	2.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²
Magnesium	209	1.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²
Sodium	7620	10	mg/l	5	07/18/12	07/19/12 JB	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA2623
(2) Prep QC Batch: MP7939

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS1	Date Sampled:	07/09/12
Lab Sample ID:	D36215-6A	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	84.5
Project:	FV Larson B5 Spill (9.0082.202.202004)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	56.1		ratio	1	07/19/12 08:59	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS2	Date Sampled:	07/09/12
Lab Sample ID:	D36215-7	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	88.7
Method:	SW846 8260B		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V22452.D	1	07/11/12	BD	n/a	n/a	V5V1370
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	62	24	ug/kg	
108-88-3	Toluene	ND	120	62	ug/kg	
100-41-4	Ethylbenzene	ND	120	24	ug/kg	
1330-20-7	Xylene (total)	ND	250	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	96%		61-130%
460-00-4	4-Bromofluorobenzene	95%		53-131%
17060-07-0	1,2-Dichloroethane-D4	90%		62-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FVLARB5-SS2	Date Sampled:	07/09/12
Lab Sample ID:	D36215-7	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	88.7
Method:	SW846 8270C BY SIM SW846 3546		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G09948.D	1	07/12/12	SM	07/12/12	OP6214	E3G447
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.3	4.9	ug/kg	
120-12-7	Anthracene	ND	9.3	4.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.3	4.9	ug/kg	
50-32-8	Benzo(a)pyrene	6.2	9.3	4.9	ug/kg	J
205-99-2	Benzo(b)fluoranthene	5.9	9.3	4.9	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	9.3	4.9	ug/kg	
218-01-9	Chrysene	6.5	9.3	4.9	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	9.3	4.9	ug/kg	
206-44-0	Fluoranthene	11.9	9.3	4.9	ug/kg	
86-73-7	Fluorene	ND	9.3	4.9	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.3	4.9	ug/kg	
91-20-3	Naphthalene	ND	13	12	ug/kg	
129-00-0	Pyrene	10.3	9.3	4.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	64%		10-145%
321-60-8	2-Fluorobiphenyl	83%		10-130%
1718-51-0	Terphenyl-d14	94%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	FVLARB5-SS2	Date Sampled:	07/09/12
Lab Sample ID:	D36215-7	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	88.7
Method:	SW846 8015B		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16730.D	1	07/17/12	SK	n/a	n/a	GGB925
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	12	6.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	86%		60-140%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	FVLARB5-SS2	Date Sampled:	07/09/12
Lab Sample ID:	D36215-7	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	88.7
Method:	SW846-8015B SW846 3546		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD15313.D	1	07/12/12	AW	07/11/12	OP6206	GFD794
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	39.9	15	9.7	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	74%		43-136%		

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FVLARB5-SS2

Lab Sample ID: D36215-7

Matrix: SO - Soil

Date Sampled: 07/09/12

Date Received: 07/10/12

Percent Solids: 88.7

Project: FV Larson B5 Spill (9.0082.202.202004)

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.2	0.12	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ³	SW846 3050B ⁵
Barium	152	1.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.2	1.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Chromium	9.2	1.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Copper	12.4	1.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Lead	14.1	5.8	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.11	0.11	mg/kg	1	07/12/12	07/13/12 JB	SW846 7471B ²	SW846 7471B ⁶
Nickel	13.7	3.5	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 5.8	5.8	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.5	3.5	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Zinc	53.9	3.5	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA2601

(2) Instrument QC Batch: MA2604

(3) Instrument QC Batch: MA2615

(4) Prep QC Batch: MP7869

(5) Prep QC Batch: MP7870

(6) Prep QC Batch: MP7873

RL = Reporting Limit

Report of Analysis

Client Sample ID: FVLARB5-SS2**Lab Sample ID:** D36215-7**Matrix:** SO - Soil**Date Sampled:** 07/09/12**Date Received:** 07/10/12**Percent Solids:** 88.7**Project:** FV Larson B5 Spill (9.0082.202.202004)**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	07/18/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	9.2	2.2	mg/kg	1	07/18/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	182		mv	1	07/11/12	JD	ASTM D1498-76M
Solids, Percent	88.7		%	1	07/13/12	JK	SM19 2540B M
Specific Conductivity	10900	1.0	umhos/cm	1	07/19/12	CJ	DEPT.OF AG, BOOK N9
pH	9.50		su	1	07/11/12 13:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS2	Date Sampled:	07/09/12
Lab Sample ID:	D36215-7A	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	88.7
Project:	FV Larson B5 Spill (9.0082.202.202004)		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	256	2.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²
Magnesium	62.5	1.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²
Sodium	3300	2.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA2623
(2) Prep QC Batch: MP7939

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS2	Date Sampled:	07/09/12
Lab Sample ID:	D36215-7A	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	88.7
Project:	FV Larson B5 Spill (9.0082.202.202004)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	47.9		ratio	1	07/18/12 21:14	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS3	Date Sampled:	07/09/12
Lab Sample ID:	D36215-8	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8260B		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V22453.D	1	07/11/12	BD	n/a	n/a	V5V1370
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	63	24	ug/kg	
108-88-3	Toluene	ND	130	63	ug/kg	
100-41-4	Ethylbenzene	ND	130	24	ug/kg	
1330-20-7	Xylene (total)	ND	250	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	96%		61-130%
460-00-4	4-Bromofluorobenzene	96%		53-131%
17060-07-0	1,2-Dichloroethane-D4	90%		62-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FVLARB5-SS3	Date Sampled:	07/09/12
Lab Sample ID:	D36215-8	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8270C BY SIM SW846 3546		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G09949.D	1	07/12/12	SM	07/12/12	OP6214	E3G447
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.5	4.9	ug/kg	
120-12-7	Anthracene	ND	9.5	4.9	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.5	4.9	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.5	4.9	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.5	4.9	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.5	4.9	ug/kg	
218-01-9	Chrysene	ND	9.5	4.9	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.5	4.9	ug/kg	
206-44-0	Fluoranthene	ND	9.5	4.9	ug/kg	
86-73-7	Fluorene	ND	9.5	4.9	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.5	4.9	ug/kg	
91-20-3	Naphthalene	ND	13	12	ug/kg	
129-00-0	Pyrene	ND	9.5	4.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		10-145%
321-60-8	2-Fluorobiphenyl	90%		10-130%
1718-51-0	Terphenyl-d14	105%		22-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	FVLARB5-SS3	Date Sampled:	07/09/12
Lab Sample ID:	D36215-8	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8015B		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16731.D	1	07/17/12	SK	n/a	n/a	GGB925
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	13	6.3	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	85%		60-140%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	FVLARB5-SS3	Date Sampled:	07/09/12
Lab Sample ID:	D36215-8	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846-8015B SW846 3546		
Project:	FV Larson B5 Spill (9.0082.202.202004)		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD15281.D	1	07/11/12	AW	07/11/12	OP6206	GFD792
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	15	9.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	85%		43-136%		

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FVLARB5-SS3

Lab Sample ID: D36215-8

Matrix: SO - Soil

Date Sampled: 07/09/12

Date Received: 07/10/12

Percent Solids: 87.7

Project: FV Larson B5 Spill (9.0082.202.202004)

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.3	0.11	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ³	SW846 3050B ⁵
Barium	157	1.1	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Cadmium	< 1.1	1.1	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Chromium	8.2	1.1	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Copper	7.3	1.1	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Lead	7.8	5.4	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Mercury	< 0.11	0.11	mg/kg	1	07/12/12	07/13/12 JB	SW846 7471B ²	SW846 7471B ⁶
Nickel	10.0	3.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Selenium	< 5.4	5.4	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Silver	< 3.2	3.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴
Zinc	30.3	3.2	mg/kg	1	07/11/12	07/12/12 JB	SW846 6010C ¹	SW846 3050B ⁴

(1) Instrument QC Batch: MA2601

(2) Instrument QC Batch: MA2604

(3) Instrument QC Batch: MA2615

(4) Prep QC Batch: MP7869

(5) Prep QC Batch: MP7870

(6) Prep QC Batch: MP7873

RL = Reporting Limit

Report of Analysis

Client Sample ID: FVLARB5-SS3**Lab Sample ID:** D36215-8**Matrix:** SO - Soil**Project:** FV Larson B5 Spill (9.0082.202.202004)**Date Sampled:** 07/09/12**Date Received:** 07/10/12**Percent Solids:** 87.7**General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	07/18/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	8.2	2.1	mg/kg	1	07/18/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	185		mv	1	07/11/12	JD	ASTM D1498-76M
Solids, Percent	87.7		%	1	07/13/12	JK	SM19 2540B M
Specific Conductivity	22600	1.0	umhos/cm	1	07/19/12	CJ	DEPT.OF AG, BOOK N9
pH	9.40		su	1	07/11/12 13:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS3	Date Sampled:	07/09/12
Lab Sample ID:	D36215-8A	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	87.7
Project:	FV Larson B5 Spill (9.0082.202.202004)		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	483	2.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²
Magnesium	116	1.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²
Sodium	4260	2.0	mg/l	1	07/18/12	07/18/12 JB	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA2623
(2) Prep QC Batch: MP7939

RL = Reporting Limit

Report of Analysis

Client Sample ID:	FVLARB5-SS3	Date Sampled:	07/09/12
Lab Sample ID:	D36215-8A	Date Received:	07/10/12
Matrix:	SO - Soil	Percent Solids:	87.7
Project:	FV Larson B5 Spill (9.0082.202.202004)		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	45.1		ratio	1	07/18/12 20:19	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY



Page 1 of 1

4036 Youngfield St., Wheat Ridge, CO 80033; 303-425-6021; 303-425-6854

Client / Reporting Information Company Name: Olsson Associates Project Contact: Tim Dobransky E-Mail: tdobransky@oaconsulting.com Address: 326 21 1/2 Road City: Grand Junction State: CO Zip: 81505 Phone No.: 970-263-7800 Fax No.: 970-263-7800 Sample Name: TPD		Project Information Project Name / No.: FV Larson B5 Spill (9.0082.202.202004) Bill to: Olsson Associates Invoice Attn: Tim Dobransky Address: 826 21 1/2 Road City: Grand Junction State: CO Zip: 81505 Phone No.: 970-263-7800 Fax No.: Client Purchase Order #:		FED-EX Tracking # Accutest Quote # BSB/2010-41 Bottle Order Control # Accutest Job # D36215	
Collection Field ID / Point of Collection: FVLARB5-BG1 Date: 7/9/2012 Time: 1200 Matrix: SO # of bottles: 1 Number of preserved bottles: 1		Requested Analyses TPH (GRO) TPH (DRO) BTEX PAH (See List 1) Electrical Conductivity Sodium Adsorption Ratio pH Metals (See List 2) Arsenic Only		Matrix Codes DW - Drinking Water GW - Ground Water WW - Wastewater SO - Soil SL - Sludge OL - Oil LIQ - Liquid SOL - Other Solid	
Turnaround Time (Business Days) <input checked="" type="checkbox"/> 10 Day STANDARD <input type="checkbox"/> 7 Day (per contract) <input type="checkbox"/> 4 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <input type="checkbox"/> Other		Data Deliverable Information <input type="checkbox"/> Commercial "A" <input checked="" type="checkbox"/> Commercial "B" <input type="checkbox"/> Reduced Tier 1 <input type="checkbox"/> Full Data Package Approved By: / Date: / Commercial "A" = Results Only Commercial "B" = Results & Standard QC		Comments / Remarks AMS FEDEX Account Number - 467721860 List 1 - Acenaphthene, Anthracene, Benzo(A)anthracene, Benzo(B)fluoranthene, Benzo(K)fluoranthene, Benzo(A)pyrene, Chrysene, Dibenzo(A,H)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3,C,D)pyrene, Naphthalene, Pyrene List 2 - As, Ba, Cd, Cr3, Cr6, Cu, Pb, Hg, Ni, Se, Ag, Zn	
Real time analytical data available via LabLink Relinquished By: [Signature] Date Time: 7/9/12 1700 Relinquished By: Date Time: Relinquished By: Date Time:		SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY Relinquished By: 1 Date Time: Received By: 2 Date Time: EX → Relinquished By: 3 Date Time: Received By: 4 Date Time: 7/9-7-10-12 Relinquished By: 5 Date Time: Received By: 4 Date Time: 1000 Custody Seal # 2 On Ice Cooler Temp. 2.7			

5.1
5

D36215: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D36215

Client: OLSSON

Immediate Client Services Action Required: No

Date / Time Received: 7/10/2012 10:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: FV LARSON

Airbill #'s: FX

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | Infrared gun | |
| 3. Cooler media: | Ice (bag) | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

Y or N N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume rec'd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1370-MB	5V22435.D	1	07/11/12	BD	n/a	n/a	V5V1370

The QC reported here applies to the following samples:

Method: SW846 8260B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	19	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	95% 61-130%
460-00-4	4-Bromofluorobenzene	96% 53-131%
17060-07-0	1,2-Dichloroethane-D4	90% 62-130%

Blank Spike Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1370-BS	5V22440.D	1	07/11/12	BD	n/a	n/a	V5V1370

The QC reported here applies to the following samples:

Method: SW846 8260B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	54.0	108	70-130
100-41-4	Ethylbenzene	50	53.4	107	70-130
108-88-3	Toluene	50	51.2	102	70-130
1330-20-7	Xylene (total)	150	166	111	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	97%	61-130%
460-00-4	4-Bromofluorobenzene	99%	53-131%
17060-07-0	1,2-Dichloroethane-D4	94%	62-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D36278-1MS	5V22438.D	1	07/11/12	BD	n/a	n/a	V5V1370
D36278-1MSD	5V22439.D	1	07/11/12	BD	n/a	n/a	V5V1370
D36278-1	5V22437.D	1	07/11/12	BD	n/a	n/a	V5V1370

The QC reported here applies to the following samples:

Method: SW846 8260B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	D36278-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3280	3560	109	3960	121	11	70-134/30
100-41-4	Ethylbenzene	ND		3280	3530	108	3910	119	10	70-137/30
108-88-3	Toluene	ND		3280	3350	102	3710	113	10	70-130/30
1330-20-7	Xylene (total)	ND		9840	11100	113	12200	124	9	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D36278-1	Limits
2037-26-5	Toluene-D8	96%	95%	96%	61-130%
460-00-4	4-Bromofluorobenzene	104%	107%	98%	53-131%
17060-07-0	1,2-Dichloroethane-D4	91%	93%	88%	62-130%

* = Outside of Control Limits.

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6214-MB	3G09945.D	1	07/12/12	SM	07/12/12	OP6214	E3G447

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D36215-6, D36215-7, D36215-8

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.3	4.3	ug/kg	
120-12-7	Anthracene	ND	8.3	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.3	4.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.3	4.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.3	4.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.3	4.3	ug/kg	
218-01-9	Chrysene	ND	8.3	4.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.3	4.3	ug/kg	
206-44-0	Fluoranthene	ND	8.3	4.3	ug/kg	
86-73-7	Fluorene	ND	8.3	4.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.3	4.3	ug/kg	
91-20-3	Naphthalene	ND	12	10	ug/kg	
129-00-0	Pyrene	ND	8.3	4.3	ug/kg	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	69% 10-145%
321-60-8	2-Fluorobiphenyl	84% 10-130%
1718-51-0	Terphenyl-d14	94% 22-130%

Blank Spike Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6214-BS	3G09946.D	1	07/12/12	SM	07/12/12	OP6214	E3G447

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D36215-6, D36215-7, D36215-8

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	81.5	98	34-130
120-12-7	Anthracene	83.3	92.1	111	35-130
56-55-3	Benzo(a)anthracene	83.3	97.5	117	36-130
50-32-8	Benzo(a)pyrene	83.3	88.4	106	36-130
205-99-2	Benzo(b)fluoranthene	83.3	99.0	119	35-130
207-08-9	Benzo(k)fluoranthene	83.3	68.4	82	37-130
218-01-9	Chrysene	83.3	83.5	100	40-130
53-70-3	Dibenzo(a,h)anthracene	83.3	85.5	103	32-130
206-44-0	Fluoranthene	83.3	92.0	110	38-130
86-73-7	Fluorene	83.3	86.4	104	35-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	82.5	99	28-130
91-20-3	Naphthalene	83.3	75.8	91	35-130
129-00-0	Pyrene	83.3	84.6	102	37-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	71%	10-145%
321-60-8	2-Fluorobiphenyl	88%	10-130%
1718-51-0	Terphenyl-d14	89%	22-130%

* = Outside of Control Limits.

Matrix Spike Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6214-MS	3G09954.D	1	07/12/12	SM	07/12/12	OP6214	E3G447
D36312-1	3G09952.D	1	07/12/12	SM	07/12/12	OP6214	E3G447

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D36215-6, D36215-7, D36215-8

CAS No.	Compound	D36312-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
83-32-9	Acenaphthene	ND		114	75.0	55	10-155
120-12-7	Anthracene	ND		114	81.6	71	10-155
56-55-3	Benzo(a)anthracene	ND		114	94.3	77	10-175
50-32-8	Benzo(a)pyrene	ND		114	76.8	67	10-164
205-99-2	Benzo(b)fluoranthene	ND		114	115	101	10-165
207-08-9	Benzo(k)fluoranthene	ND		114	79.2	69	10-178
218-01-9	Chrysene	30.4		114	91.3	53	10-147
53-70-3	Dibenzo(a,h)anthracene	ND		114	49.8	44	10-144
206-44-0	Fluoranthene	ND		114	86.9	76	10-207
86-73-7	Fluorene	50.1		114	91.4	36	10-163
193-39-5	Indeno(1,2,3-cd)pyrene	ND		114	43.4	38	10-180
91-20-3	Naphthalene	312		114	284	-25* a	10-198
129-00-0	Pyrene	26.2		114	95.6	61	10-189

CAS No.	Surrogate Recoveries	MS	D36312-1	Limits
4165-60-0	Nitrobenzene-d5	42%	35%	10-145%
321-60-8	2-Fluorobiphenyl	65%	66%	10-130%
1718-51-0	Terphenyl-d14	72%	99%	22-130%

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB925-MB	GB16719.D	1	07/17/12	SK	n/a	n/a	GGB925

The QC reported here applies to the following samples:

Method: SW846 8015B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	86% 60-140%

8.1.1

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Blank Spike Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB925-BS	GB16720.D	1	07/17/12	SK	n/a	n/a	GGB925

The QC reported here applies to the following samples:

Method: SW846 8015B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	126	115	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	99%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D36439-1MS	GB16722.D	1	07/17/12	SK	n/a	n/a	GGB925
D36439-1MSD	GB16723.D	1	07/17/12	SK	n/a	n/a	GGB925
D36439-1	GB16721.D	1	07/17/12	SK	n/a	n/a	GGB925

The QC reported here applies to the following samples:

Method: SW846 8015B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	D36439-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	21.9		143	181	111	182	112	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D36439-1	Limits
120-82-1	1,2,4-Trichlorobenzene	85%	89%	89%	60-140%

* = Outside of Control Limits.

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6206-MB	FD15249.D	1	07/11/12	AW	07/11/12	OP6206	GFD792

The QC reported here applies to the following samples:

Method: SW846-8015B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	86% 43-136%

9.1.1

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Blank Spike Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6206-BS	FD15251.D	1	07/11/12	AW	07/11/12	OP6206	GFD792

The QC reported here applies to the following samples:

Method: SW846-8015B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	507	76	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	82%	43-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D36215
Account: CORCCOGJ Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6206-MS	FD15253.D	1	07/11/12	AW	07/11/12	OP6206	GFD792
OP6206-MSD	FD15255.D	1	07/11/12	AW	07/11/12	OP6206	GFD792
D36254-2	FD15257.D	1	07/11/12	AW	07/11/12	OP6206	GFD792

The QC reported here applies to the following samples:

Method: SW846-8015B

D36215-6, D36215-7, D36215-8

CAS No.	Compound	D36254-2 mg/kg	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	725	494	68	518	71	5	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D36254-2	Limits
84-15-1	o-Terphenyl	76%	77%	90%	43-136%

* = Outside of Control Limits.

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 07/11/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.96	.57		
Antimony	3.0	.17	.12		
Arsenic	2.5	.44	.56		
Barium	1.0	.01	.11	0.10	<1.0
Beryllium	1.0	.13	.15		
Boron	5.0	.1	.06		
Cadmium	1.0	.06	.036	0.010	<1.0
Calcium	40	.54	9		
Chromium	1.0	.03	.03	0.050	<1.0
Cobalt	0.50	.04	.07		
Copper	1.0	.12	.15	-0.070	<1.0
Iron	7.0	.12	.87		
Lead	5.0	.19	.24	0.28	<5.0
Lithium	0.20	.05	.054		
Magnesium	20	.65	.98		
Manganese	0.50	.12	.022		
Molybdenum	1.0	.21	.08		
Nickel	3.0	.05	.026	0.040	<3.0
Phosphorus	10	1.4	1.9		
Potassium	200	6.1	7		
Selenium	5.0	.48	.36	0.090	<5.0
Silicon	5.0	.29	.37		
Silver	3.0	.04	.06	-0.050	<3.0
Sodium	40	.59	1.9		
Strontium	5.0	.004	.017		
Thallium	1.0	.29	.53		
Tin	5.0	1.2	2		
Titanium	1.0	.01	.038		
Uranium	5.0	.22	.26		
Vanadium	1.0	.02	.036		
Zinc	3.0	.05	.37	0.44	<3.0

Associated samples MP7869: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 07/11/12

Metal	D36215-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	106	266	192	83.2	75-125
Beryllium					
Boron					
Cadmium	0.25	41.5	48.1	85.8	75-125
Calcium					
Chromium	8.5	51.6	48.1	89.7	75-125
Cobalt					
Copper	10.8	54.5	48.1	90.9	75-125
Iron					
Lead	13.4	93.8	96.1	83.7	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	11.9	51.5	48.1	82.4	75-125
Phosphorus					
Potassium					
Selenium	0.0	85.6	96.1	89.1	75-125
Silicon					
Silver	0.091	18.1	19.2	93.7	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	49.1	87.5	48.1	79.9	75-125

Associated samples MP7869: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 07/11/12

Metal	D36215-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	106	278	202	85.2	4.4	20
Beryllium						
Boron						
Cadmium	0.25	42.9	50.5	84.5	3.3	20
Calcium						
Chromium	8.5	53.4	50.5	89.0	3.4	20
Cobalt						
Copper	10.8	55.8	50.5	89.2	2.4	20
Iron						
Lead	13.4	96.2	101	82.1	2.5	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	11.9	52.4	50.5	80.3	1.7	20
Phosphorus						
Potassium						
Selenium	0.0	88.7	101	87.9	3.6	20
Silicon						
Silver	0.091	18.7	20.2	92.2	3.3	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	49.1	88.5	50.5	78.1	1.1	20

Associated samples MP7869: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

10.1.2
10

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 07/11/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	192	200	96.0	80-120
Beryllium				
Boron				
Cadmium	49.2	50	98.4	80-120
Calcium				
Chromium	52.4	50	104.8	80-120
Cobalt				
Copper	49.1	50	98.2	80-120
Iron				
Lead	98.9	100	98.9	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	50.2	50	100.4	80-120
Phosphorus				
Potassium				
Selenium	101	100	101.0	80-120
Silicon				
Silver	20.8	20	104.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	51.8	50	103.6	80-120

Associated samples MP7869: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

10.1.3
10

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: ug/l

Prep Date: 07/11/12

Metal	D36215-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	1050	1130	7.4	0-10
Beryllium				
Boron				
Cadmium	2.50	0.00	100.0(a)	0-10
Calcium				
Chromium	84.2	90.5	7.5	0-10
Cobalt				
Copper	107	102	4.3	0-10
Iron				
Lead	133	147	10.3*(b)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	118	131	11.2*(b)	0-10
Phosphorus				
Potassium				
Selenium	0.00	0.00	NC	0-10
Silicon				
Silver	0.900	3.00	233.3(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	487	559	14.9*(b)	0-10

Associated samples MP7869: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

10.1.4
10

SERIAL DILUTION RESULTS SUMMARY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7869
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

- (anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7870
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 07/11/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.042	.06	0.033	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
Cadmium	0.050	.014	.021		
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Iron	20	.8	5		
Lead	0.25	.0011	.024		
Magnesium	50	.44	.85		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Phosphorus	30	1.4	3.6		
Potassium	100	9.8	10		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Sodium	250	1.5	2.3		
Strontium	10	.036	.036		
Thallium	0.10	.00095	.0095		
Tin	5.0	.023	.34		
Titanium	1.0	.044	.1		
Uranium	0.25	.00085	.001		
Vanadium	2.0	.12	.21		
Zinc	5.0	.033	.35		

Associated samples MP7870: D36215-1, D36215-2, D36215-3, D36215-4, D36215-5, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7870
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 07/11/12

Metal	D36215-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	6.8	106	96.1	103.2	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP7870: D36215-1, D36215-2, D36215-3, D36215-4, D36215-5, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7870
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 07/11/12

Metal	D36215-1 Original	MSD	Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	6.8	103	101	95.3	2.9	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP7870: D36215-1, D36215-2, D36215-3, D36215-4, D36215-5, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7870
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 07/11/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	107	100	107.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7870: D36215-1, D36215-2, D36215-3, D36215-4, D36215-5, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

10.2.3
10

SERIAL DILUTION RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7870
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 07/11/12

Metal	D36215-1 Original SDL 5:25 %DIF			QC Limits
Aluminum				
Antimony				
Arsenic	67.8	65.2	3.8	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7870: D36215-1, D36215-2, D36215-3, D36215-4, D36215-5, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7873
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 07/12/12

Metal	RL	IDL	MDL	MB	
				raw	final
Mercury	0.10	.0011	.0009	0.00077	<0.10

Associated samples MP7873: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7873
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 07/12/12

Metal	D36170-1 Original MS	Spikelot HGWSR1	% Rec	QC Limits
-------	-------------------------	--------------------	-------	--------------

Mercury 0.013 0.34 0.472 69.2N(a) 75-125

Associated samples MP7873: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested
 (a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7873
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 07/12/12

Metal	D36170-1 Original MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.013	0.33	0.445	71.3N(a) 3.0	

Associated samples MP7873: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested
 (a) Spike recovery indicates possible matrix interference.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7873
 Matrix Type: SOLID

Methods: SW846 7471B
 Units: mg/kg

Prep Date: 07/12/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.38	0.4	95.0	80-120

Associated samples MP7873: D36215-1, D36215-6, D36215-7, D36215-8

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 07/18/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	48	110		
Antimony	150	8.5	16		
Arsenic	130	22	38		
Barium	50	.5	2.5		
Beryllium	50	6.5	16		
Boron	250	5	13		
Cadmium	50	3	3		
Calcium	2000	27	37	-120	<2000
Chromium	50	1.5	2		
Cobalt	25	2	2		
Copper	50	6	15		
Iron	350	6	95		
Lead	250	9.5	15		
Lithium	10	2.5	3.3		
Magnesium	1000	33	55	12.0	<1000
Manganese	25	6	9		
Molybdenum	50	11	11		
Nickel	150	2.5	2.7		
Phosphorus	500	70	300		
Potassium	5000	310	310		
Selenium	250	24	29		
Silicon	250	15	11		
Silver	150	2	3.3		
Sodium	2000	30	490	-240	<2000
Strontium	25	.2	7.5		
Thallium	50	15	15		
Tin	250	60	120		
Titanium	50	.5	6		
Uranium	250	11	11		
Vanadium	50	1	2		
Zinc	150	2.5	7.5		

Associated samples MP7939: D36215-1A, D36215-6A, D36215-7A, D36215-8A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
 Units: ug/l

Prep Date: 07/18/12

Metal	D36215-8A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	483000	583000	125000	80.0	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	116000	233000	125000	93.6	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	4260000	4090000	125000	-136.0(a	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP7939: D36215-1A, D36215-6A, D36215-7A, D36215-8A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

10.4.2
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
 Units: ug/l

Prep Date: 07/18/12

Metal	D36215-8A Original MSD		Spikelot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	483000	631000	125000	118.4	7.9	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	116000	242000	125000	100.8	3.8	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	4260000	4450000	125000	152.0(a)	8.4	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP7939: D36215-1A, D36215-6A, D36215-7A, D36215-8A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

- (N) Matrix Spike Rec. outside of QC limits
- (anr) Analyte not requested
- (a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D36215

Account: CORCCOGJ - Olsson Associates

Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939

Methods: SW846 6010C, USDA HANDBOOK 60

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

07/18/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	135000	125000	108.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	130000	125000	104.0	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	134000	125000	107.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7939: D36215-1A, D36215-6A, D36215-7A, D36215-8A

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

10.4.3
10

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D36215

Account: CORCCOGJ - Olsson Associates

Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939

Methods: SW846 6010C, USDA HANDBOOK 60

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D36215
 Account: CORCCOGJ - Olsson Associates
 Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
 Units: ug/l

Prep Date: 07/18/12

Metal	D36215-8A Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	96600	98300	1.7	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	23100	23500	1.4	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	853000	924000	8.4	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7939: D36215-1A, D36215-6A, D36215-7A, D36215-8A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

QC Batch ID: MP7939
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

10.4.4
10

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP7714/GN15895	1.0	0.0	mg/kg	60.7	64.9	107.0	80-120%
Specific Conductivity	GP7744/GN15914			umhos/cm	10009	10300	102.5	90-110%
pH	GN15780			su	8.00	8.00	100.0	99.3-100.7%

Associated Samples:

Batch GN15780: D36215-1, D36215-6, D36215-7, D36215-8

Batch GP7714: D36215-1, D36215-6, D36215-7, D36215-8

Batch GP7744: D36215-1, D36215-6, D36215-7, D36215-8

(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP7714/GN15895	D36215-1	mg/kg	0.0	0.0	17.0	0-20%
Redox Potential Vs H2	GN15787	D36215-1	mv	184	184	0.0	0-20%

Associated Samples:

Batch GN15787: D36215-1, D36215-6, D36215-7, D36215-8

Batch GP7714: D36215-1, D36215-6, D36215-7, D36215-8

(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP7714/GN15895	D36215-1	mg/kg	0.0	40	34	85.0	75-125%

Associated Samples:

Batch GP7714: D36215-1, D36215-6, D36215-7, D36215-8

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D36215
Account: CORCCOGJ - Olsson Associates
Project: FV Larson B5 Spill (9.0082.202.202004)

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP7714/GN15895	D36215-1	mg/kg	0.0	40	31.3	8.3	

Associated Samples:

Batch GP7714: D36215-1, D36215-6, D36215-7, D36215-8

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



13-Aug-2013

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

Tel: (970) 263-7800
Fax: (970) 263-7456

Re: FV Larson B5 Spill 9.0082.203.203004

Work Order: **1308171**

Dear Tim,

ALS Environmental received 3 samples on 03-Aug-2013 09:35 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. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

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

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Luke F. Hernandez

Sonia West
Project Manager



Certificate No: T104704231-13-12

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

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Client: Olsson Associates
Project: FV Larson B5 Spill 9.0082.203.203004
Work Order: 1308171

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>
1308171-01	FVLARB5-SS1	Soil		8/1/2013 10:25	8/3/2013 09:35	<input type="checkbox"/>
1308171-02	FLVARB5-SS2	Soil		8/1/2013 10:30	8/3/2013 09:35	<input type="checkbox"/>
1308171-03	FLVARB5-SS3	Soil		8/1/2013 10:35	8/3/2013 09:35	<input type="checkbox"/>

ALS Environmental

Date: 13-Aug-13

Client: Olsson Associates
Project: FV Larson B5 Spill 9.0082.203.203004
Work Order: 1308171

Case Narrative

No Exceptions

ALS Environmental

Date: 13-Aug-13

Client: Olsson Associates

Project: FV Larson B5 Spill 9.0082.203.203004

Work Order: 1308171

Sample ID: FVLARB5-SS1

Lab ID: 1308171-01

Collection Date: 8/1/2013 10:25 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
LA 29B - 1:1 SOLUBLE CATIONS FOR SAR			LA29B-6020		La29B-6020		Analyst: ALR
Calcium	2,120		50.0	mg/L	100	8/8/2013	8/12/2013 01:12 PM
Magnesium	139		50.0	mg/L	100	8/8/2013	8/12/2013 01:12 PM
Sodium	899		50.0	mg/L	100	8/8/2013	8/12/2013 01:12 PM
LA29B SODIUM ADSORPTION RATIO			LA29B SAR		La29B-6020		Analyst: ALR
Sodium Adsorption Ratio	5.11		0.0100	meq/meq	1	8/8/2013	8/12/2013
LA29B ELECTRICAL CONDUCTIVITY			LADNR-29B EC				Analyst: PPM
Electrical Conductivity @ saturation	27.3		0.0100	mmhos/cm @25°C	1		8/12/2013 04:00 PM
Electrical Conductivity, 1:1 aqueous	10.6		0.0100	mmhos/cm @25°C	1		8/12/2013 04:00 PM
LA29B SATURATION POINT (AS FRACTION)			LADNR-29B SP				Analyst: KAH
Saturation Point	0.388		0.100	SP as fraction	1		8/9/2013 11:50 AM
MOISTURE			SW3550				Analyst: KAH
Percent Moisture	2.60		0.0100	wt%	1		8/9/2013 02:35 PM

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

ALS Environmental

Date: 13-Aug-13

Client: Olsson Associates

Project: FV Larson B5 Spill 9.0082.203.203004

Work Order: 1308171

Sample ID: FLVARB5-SS2

Lab ID: 1308171-02

Collection Date: 8/1/2013 10:30 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
LA 29B - 1:1 SOLUBLE CATIONS FOR SAR			LA29B-6020		La29B-6020		Analyst: ALR
Calcium	206		4.99	mg/L	10	8/8/2013	8/12/2013 01:16 PM
Magnesium	14.7		4.99	mg/L	10	8/8/2013	8/12/2013 01:16 PM
Sodium	43.7		4.99	mg/L	10	8/8/2013	8/12/2013 01:16 PM
LA29B SODIUM ADSORPTION RATIO			LA29B SAR		La29B-6020		Analyst: ALR
Sodium Adsorption Ratio	0.793		0.0100	meq/meq	1	8/8/2013	8/12/2013
LA29B ELECTRICAL CONDUCTIVITY			LADNR-29B EC				Analyst: PPM
Electrical Conductivity @ saturation	3.24		0.0100	mmhos/cm @25°C	1		8/12/2013 04:00 PM
Electrical Conductivity, 1:1 aqueous	1.18		0.0100	mmhos/cm @25°C	1		8/12/2013 04:00 PM
LA29B SATURATION POINT (AS FRACTION)			LADNR-29B SP				Analyst: KAH
Saturation Point	0.364		0.100	SP as fraction	1		8/9/2013 11:50 AM
MOISTURE			SW3550				Analyst: KAH
Percent Moisture	2.40		0.0100	wt%	1		8/9/2013 02:35 PM

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

ALS Environmental

Date: 13-Aug-13

Client: Olsson Associates

Project: FV Larson B5 Spill 9.0082.203.203004

Work Order: 1308171

Sample ID: FLVARB5-SS3

Lab ID: 1308171-03

Collection Date: 8/1/2013 10:35 AM

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
LA 29B - 1:1 SOLUBLE CATIONS FOR SAR			LA29B-6020		La29B-6020		Analyst: ALR
Calcium	221		4.99	mg/L	10	8/8/2013	8/12/2013 01:21 PM
Magnesium	34.0		4.99	mg/L	10	8/8/2013	8/12/2013 01:21 PM
Sodium	191		4.99	mg/L	10	8/8/2013	8/12/2013 01:21 PM
LA29B SODIUM ADSORPTION RATIO			LA29B SAR		La29B-6020		Analyst: ALR
Sodium Adsorption Ratio	3.16		0.0100	meq/meq	1	8/8/2013	8/12/2013
LA29B ELECTRICAL CONDUCTIVITY			LADNR-29B EC				Analyst: PPM
Electrical Conductivity @ saturation	9.52		0.0100	mmhos/cm @25°C	1		8/12/2013 04:00 PM
Electrical Conductivity, 1:1 aqueous	2.41		0.0100	mmhos/cm @25°C	1		8/12/2013 04:00 PM
LA29B SATURATION POINT (AS FRACTION)			LADNR-29B SP				Analyst: KAH
Saturation Point	0.253		0.100	SP as fraction	1		8/9/2013 11:50 AM
MOISTURE			SW3550				Analyst: KAH
Percent Moisture	1.32		0.0100	wt%	1		8/9/2013 02:35 PM

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

Work Order: 1308171
Client: Olsson Associates
Project: FV Larson B5 Spill 9.0082.203.203004

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID 72131</u> <u>Test Name:</u> <u>La 29B - 1:1 Soluble Cations for SAR</u>						
1308171-01A	FVLARB5-SS1	Soil	8/1/2013 10:25:00 AM		8/8/2013 06:00 PM	8/12/2013 01:12 PM
1308171-02A	FLVARB5-SS2		8/1/2013 10:30:00 AM		8/8/2013 06:00 PM	8/12/2013 01:16 PM
1308171-03A	FLVARB5-SS3		8/1/2013 10:35:00 AM		8/8/2013 06:00 PM	8/12/2013 01:21 PM
<u>Batch ID 72131A</u> <u>Test Name:</u> <u>La29B Sodium Adsorption Ratio</u>						
1308171-01A	FVLARB5-SS1	Soil	8/1/2013 10:25:00 AM		8/8/2013 06:00 PM	8/12/2013
1308171-02A	FLVARB5-SS2		8/1/2013 10:30:00 AM		8/8/2013 06:00 PM	8/12/2013
1308171-03A	FLVARB5-SS3		8/1/2013 10:35:00 AM		8/8/2013 06:00 PM	8/12/2013
<u>Batch ID R151991</u> <u>Test Name:</u> <u>Moisture</u>						
1308171-01A	FVLARB5-SS1	Soil	8/1/2013 10:25:00 AM			8/9/2013 02:35 PM
1308171-02A	FLVARB5-SS2		8/1/2013 10:30:00 AM			8/9/2013 02:35 PM
1308171-03A	FLVARB5-SS3		8/1/2013 10:35:00 AM			8/9/2013 02:35 PM
<u>Batch ID R152022</u> <u>Test Name:</u> <u>La29B Saturation Point (as fraction)</u>						
1308171-01A	FVLARB5-SS1	Soil	8/1/2013 10:25:00 AM			8/9/2013 11:50 AM
1308171-02A	FLVARB5-SS2		8/1/2013 10:30:00 AM			8/9/2013 11:50 AM
1308171-03A	FLVARB5-SS3		8/1/2013 10:35:00 AM			8/9/2013 11:50 AM
<u>Batch ID R152045</u> <u>Test Name:</u> <u>La29B Electrical Conductivity</u>						
1308171-01A	FVLARB5-SS1	Soil	8/1/2013 10:25:00 AM			8/12/2013 04:00 PM
1308171-02A	FLVARB5-SS2		8/1/2013 10:30:00 AM			8/12/2013 04:00 PM
1308171-03A	FLVARB5-SS3		8/1/2013 10:35:00 AM			8/12/2013 04:00 PM

ALS Environmental

Date: 13-Aug-13

Client: Olsson Associates

Work Order: 1308171

Project: FV Larson B5 Spill 9.0082.203.203004

QC BATCH REPORT

Batch ID: **72131** Instrument ID **ICP7500** Method: **La29B-6020**

MBLK	Sample ID: BLK-SAR-080913-72131				Units: mg/L		Analysis Date: 8/12/2013 12:42 PM			
Client ID:	Run ID: ICP7500_130812A				SeqNo: 3318762		Prep Date: 8/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	U	0.500								
Magnesium	U	0.500								
Sodium	U	0.500								

LCS	Sample ID: LCS-SAR-080913-72131				Units: mg/L		Analysis Date: 8/12/2013 12:47 PM			
Client ID:	Run ID: ICP7500_130812A				SeqNo: 3318763		Prep Date: 8/8/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	9.695	0.500	10	0	97	80-120				
Magnesium	9.303	0.500	10	0	93	80-120				
Sodium	9.368	0.500	10	0	93.7	80-120				

DUP	Sample ID: 1308176-01ADUP				Units: mg/L		Analysis Date: 8/12/2013 02:03 PM			
Client ID:	Run ID: ICP7500_130812A				SeqNo: 3318778		Prep Date: 8/8/2013		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	128.2	4.99					125.7	2.02	30	
Magnesium	6.882	4.99					6.789	1.35	30	
Sodium	20.73	4.99					19.89	4.13	30	

The following samples were analyzed in this batch:

1308171-01A	1308171-02A	1308171-03A
-------------	-------------	-------------

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

QC Page: 1 of 5

Client: Olsson Associates
Work Order: 1308171
Project: FV Larson B5 Spill 9.0082.203.203004

QC BATCH REPORT

Batch ID: **72131A** Instrument ID **MISC-Metals** Method: **La29B SAR**

DUP Sample ID: **1308176-01ADUP** Units: **meq/meq** Analysis Date: **8/12/2013**
Client ID: Run ID: **MISC-METALS_130812** SeqNo: **3318700** Prep Date: **8/8/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	0.483	0.0100					0.468	3.15	30	

The following samples were analyzed in this batch:

1308171-01A	1308171-02A	1308171-03A
-------------	-------------	-------------

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

Client: Olsson Associates
Work Order: 1308171
Project: FV Larson B5 Spill 9.0082.203.203004

QC BATCH REPORT

Batch ID: **R151991** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

DUP Sample ID: **1308179-02ADUP** Units: **wt%** Analysis Date: **8/9/2013 02:35 PM**

Client ID: Run ID: **BALANCE1_130809C** SeqNo: **3318407** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	8.46	0.0100					8.695	2.74	20	

The following samples were analyzed in this batch:

1308171-01A	1308171-02A	1308171-03A
-------------	-------------	-------------

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

Client: Olsson Associates
Work Order: 1308171
Project: FV Larson B5 Spill 9.0082.203.203004

QC BATCH REPORT

Batch ID: **R152022** Instrument ID **Balance1** Method: **LaDNR-29B SP (Dissolve)**

DUP Sample ID: **1308190-01ADUP** Units: **SP as fraction** Analysis Date: **8/9/2013 11:50 AM**

Client ID: Run ID: **BALANCE1_130809E** SeqNo: **3318803** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Saturation Point	0.417	0.100					0.426	2.14	30	

The following samples were analyzed in this batch:

1308171-01A	1308171-02A	1308171-03A
-------------	-------------	-------------

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

Client: Olsson Associates
Work Order: 1308171
Project: FV Larson B5 Spill 9.0082.203.203004

QC BATCH REPORT

Batch ID: **R152045** Instrument ID **WetChem** Method: **LaDNR-29B EC (Dissolve)**

MBLK Sample ID: **WBLKW1-130812-R152045** Units: **mmhos/cm @25°C** Analysis Date: **8/12/2013 04:00 PM**

Client ID: Run ID: **WETCHEM_130812Q** SeqNo: **3319200** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ saturation	U	0.0100								
Electrical Conductivity, 1:1 aqueous	U	0.0100								

LCS Sample ID: **WLCSW1-130812-R152045** Units: **mmhos/cm @25°C** Analysis Date: **8/12/2013 04:00 PM**

Client ID: Run ID: **WETCHEM_130812Q** SeqNo: **3319201** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity, 1:1 aqueous	1.41	0.0100	1.413		0	99.8	90-110			

DUP Sample ID: **1308190-01ADUP** Units: **mmhos/cm @25°C** Analysis Date: **8/12/2013 04:00 PM**

Client ID: Run ID: **WETCHEM_130812Q** SeqNo: **3319218** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ saturation	11.56	0.0100					11.44	1.03	20	
Electrical Conductivity, 1:1 aqueous	4.82	0.0100					4.87	1.03	20	

The following samples were analyzed in this batch:

1308171-01A	1308171-02A	1308171-03A
-------------	-------------	-------------

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

Client: Olsson Associates
Project: FV Larson B5 Spill 9.0082.203.203004
WorkOrder: 1308171

QUALIFIERS, ACRONYMS, UNITS

<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 detected below quantitation limit
M	Manually integrated, see raw data for justification
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>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
meq/meq	
mg/L	Milligrams per Liter
mmhos/cm @25°C	
SP as fraction	
wt%	

Sample Receipt Checklist

Client Name: **OLSSON ASSOC - GRAND JUNC**

Date/Time Received: **03-Aug-13 09:35**

Work Order: **1308171**

Received by: **RDH**

Checklist completed by Johanna B. Allen
eSignature

05-Aug-13
Date

Reviewed by: Senia West
eSignature

05-Aug-13
Date

Matrices: soil/sludge

Carrier name: FedEx Saturday Priority

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"/>	
Temperature(s)/Thermometer(s):	4.6 C/4.6 C; 5.4 C/5.4 C; 5.3 C/5.3 C u/c		IR 1
Cooler(s)/Kit(s):	Large Blue/White; Large Blue/White; Medium Blue/White		
Date/Time sample(s) sent to storage:	0/05/13 12:00		
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: FVLARB5-SS2 on COC collected 8/1/13 @ 10:30; However, sample container has FVLARB5-SS1 collected 8/1/13 @ 10:30.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



Chain of Custody Form

Page 1 of 1

COC ID: 123456

Environmental

- ☐ Cincinnati, OH
+1 513 733 5336
- ☐ Everett, WA
+1 425 356 2600
- ☐ Fort Collins, CO
+1 970 490 1311

OLSSON ASSOC - GRAND JUNCTION: Olsson Associates
Project: FV Larson B5 Spill 9.0082.203.203004

1308171



Customer Information				Project Information				Parameter/Method Request for Analysis											
Purchase Order				Project Name				A TPH (GRO & DRO)											
Work Order				Project Number				B BTEX											
Company Name				Bill To Company				C PAH (See Attached List)											
Send Report To				Invoice Attn				D Electrical Conductivity											
Address				Address				E Sodium Adsorption Ratio											
City/State/Zip				City/State/Zip				F pH											
Phone				Phone				G Metals (See Attached List)											
Fax				Fax				H Arsenic Only											
e-Mail Address				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	FVLARB5-SS1	08/01/13	1025	Soil	8	1					X	X							
2	FVLARB5-SS2	08/01/13	1030	Soil	8	1					X	X							
3	FVLARB5-SS3	08/01/13	1035	Soil	8	1					X	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 Days	<input type="checkbox"/> 5 Wk Days	<input type="checkbox"/> 2 Wk Days	<input type="checkbox"/> 24 Hour
Relinquished by:	Date: 8/2/13	Time: 1:00	Received by:	Notes: Chevron Pricing Applies - Per Bruce Schlatter			
Relinquished by:	Date:	Time:	Received by (Laboratory):	QC Package: (Check Box Below)			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	Cooler Temp. X			
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035				Level II: Standard QC			
				Level III: Std QC + Raw Data			
				Level IV: SW846 CLP-Like			
				Other:			

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

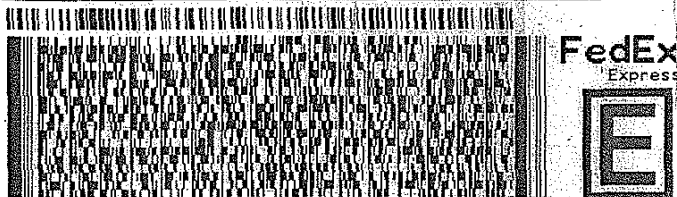
Copyright 2011 by ALS Group

ORIGIN ID: GJTA (970) 270-2986
TIM DOBRANSKY
OLSSON ASSOCIATES, INC.
760 HORIZON DRIVE STE 102
GRAND JUNCTION, CO 81506
UNITED STATES US

SHIP DATE: 02AUG13
ACTWGT: 75.0 LB MAN
CAD: 390082/CAFE2608
BILL SENDER

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
10450 STANCLIFF RD. #210

HOUSTON TX 77099
(281) 530-5656
PO: 9.0082.203.203004



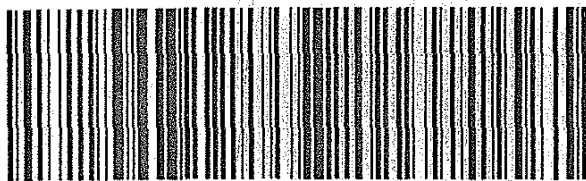
2 of 3
MPS# 0263 5632 6808 2949
Mstr# 5632 6808 2938

SATURDAY 12:00P
PRIORITY OVERNIGHT

0201

X0 SGRA

77099
TX-US IAH

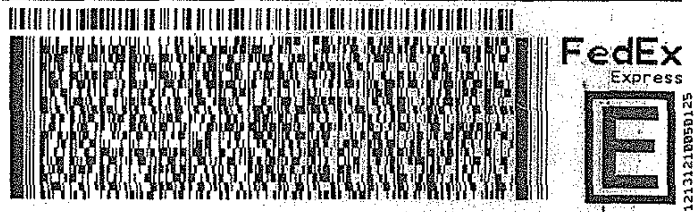


ORIGIN ID: GJTA (970) 270-2986
TIM DOBRANSKY
OLSSON ASSOCIATES, INC.
760 HORIZON DRIVE STE 102
GRAND JUNCTION, CO 81506
UNITED STATES US

SHIP DATE: 02AUG13
ACTWGT: 75.0 LB MAN
CAD: 390082/CAFE2608
BILL SENDER

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
10450 STANCLIFF RD. #210

HOUSTON TX 77099
(281) 530-5656
PO: 9.0082.203.203004



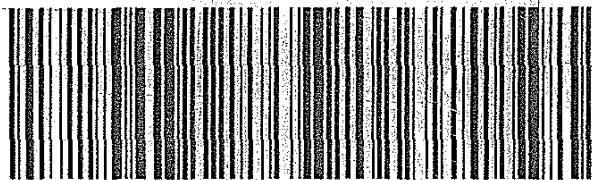
3 of 3
MPS# 0263 5632 6808 2950
Mstr# 5632 6808 2938

SATURDAY 12:00P
PRIORITY OVERNIGHT

0201

X0 SGRA

77099
TX-US IAH

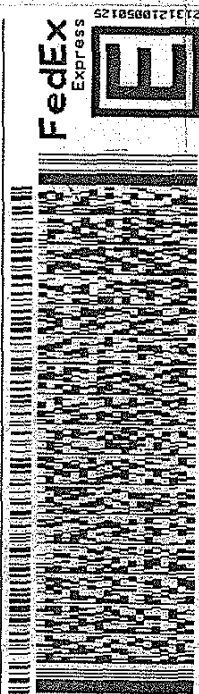


Part # 156148-434 NRI 06-07

ORIGIN ID: GJTA (970) 270-2986
TIM DOBRANSKY
OLSSON ASSOCIATES, INC.
760 HORIZON DRIVE STE 102
GRAND JUNCTION, CO 81506
UNITED STATES US

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
10450 STANCLIFF RD. #210

HOUSTON TX 77099
(281) 530-5656
PO: 9.0082.203.203004

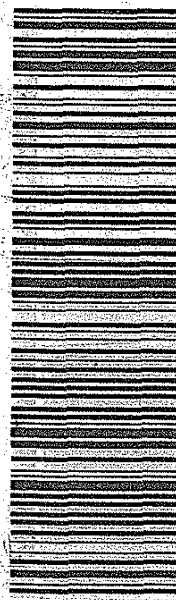


1 of 3
TRK# 5632 6808 2938
MSTR# MASTER #

0201

X0 SGRA

77099
TX-US IAH



ACCUTEST®
LABORATORIES
Signature: [Signature]
Date: 8/2/13

ACCUTEST®
LABORATORIES
Signature: [Signature]
Date: 8/2/13

Signature: [Signature]
Date: 8/2/13



01-Jul-2014

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

Re: **Chevron FV Larson B5 Spill 6.17.14**

Work Order: **14061122**

Dear Tim,

ALS Environmental received 2 samples on 20-Jun-2014 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 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 9.

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 FV Larson B5 Spill 6.17.14
Work Order: 14061122

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>
14061122-01	FVLARB5-SS1	Soil		6/17/2014 16:40	6/20/2014 09:30	<input type="checkbox"/>
14061122-02	FVLARB5-SS3	Soil		6/17/2014 16:50	6/20/2014 09:30	<input type="checkbox"/>

Client: Olsson Associates
Project: Chevron FV Larson B5 Spill 6.17.14
WorkOrder: 14061122

**QUALIFIERS,
ACRONYMS, UNITS**

<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>
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius

ALS Group USA, Corp

Date: 01-Jul-14

Client: Olsson Associates

Project: Chevron FV Larson B5 Spill 6.17.14

Sample ID: FVLARB5-SS1

Collection Date: 6/17/2014 04:40 PM

Work Order: 14061122

Lab ID: 14061122-01

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 6/26/14		
Electrical Conductivity @ Saturation	1.4		0.050	mmhos/cm @25	10	Analyst: JB 6/27/2014 12:00 PM

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

ALS Group USA, Corp

Date: 01-Jul-14

Client: Olsson Associates

Project: Chevron FV Larson B5 Spill 6.17.14

Sample ID: FVLARB5-SS3

Collection Date: 6/17/2014 04:50 PM

Work Order: 14061122

Lab ID: 14061122-02

Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 6/26/14		
Electrical Conductivity @ Saturation	2.4		0.050	mmhos/cm @25	10	Analyst: JB 6/27/2014 12:00 PM

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

Client: Olsson Associates

Work Order: 14061122

Project: Chevron FV Larson B5 Spill 6.17.14

QC BATCH REPORT

Batch ID: 59952

Instrument ID WETCHEM

Method: USDA H60 Method

DUP	Sample ID: 14061125-07B DUP					Units: mmhos/cm @25°C		Analysis Date: 6/27/2014 12:00 PM		
Client ID:	Run ID: WETCHEM_140627G				SeqNo: 2827369		Prep Date: 6/26/2014		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	1.674	0.050	0	0	0		1.621	3.22	50	

The following samples were analyzed in this batch:

14061122-01A	14061122-02A
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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

Customer Information		Project Information					Parameter/Method Request for Analysis												
Purchase Order		Project Name	Chevron FV Larson B5 Spill					A TPH (GRO & DRO)											
Work Order		Project Number	13.3287.100.100004					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	FVLARB5-SS1	06/17/14	1640	Soil	8	1				X									
	FVLARB5-SS3	06/17/14	1650	Soil	8	1				X									
3																			
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 Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour		Results Due Date:	
Relinquished by:	Date: 6/19/14	Time: 1615	Received by:	Notes: Chevron Pricing Applies - Per Bruce Schlatter			
Relinquished by: FEOEx	Date: 6/20/14	Time: 0930	Received by (Laboratory):	QC Package: (Check Box Below)			
Logged by (Laboratory):	Date: 6/20/14	Time: 1025	Checked by (Laboratory):	Cooler Temp:	<input checked="" type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input type="checkbox"/> Level IV: SW846 CLP-Like Other:		

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-DMA 8-4 degree C 9-5035

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

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Sample Receipt Checklist

Client Name: **OLSSON**

Date/Time Received: **20-Jun-14 09:30**

Work Order: **14061122**

Received by: **KRW**

Checklist completed by <u>Joseph Ribar</u>	20-Jun-14	Reviewed by: <u>Ann Preston</u>	23-Jun-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>4.6 C</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>6/20/2014 4:41:35 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:

ORIGIN ID:GJTA (970) 270-2886
TIM DOBRANSKY
OLSSON ASSOCIATES, INC.
780 HORIZON DRIVE STE 102

GRAND JUNCTION, CO 81506
UNITED STATES US

SHIP DATE: 19JUN14
ACTWGT: 55.0 LB MAX
CAD: 390082/CAFE2704

BILL SENDER

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

HOLLAND MI 49424

(616) 399-8878

PO: 013.3287.100.100004



FedEx
Express



TRKH 5632 6808 5341
0201

FRI - 20 JUN 10:30A
PRIORITY OVERNIGHT

XX GRRRA

49424
MI-US GRR

Part # 155148-434 NRIT 06-07 ::

