

**State of Colorado**  
**Oil and Gas Conservation Commission**

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax:(303)894-2109



FOR OGCC USE ONLY

## SPILL/RELEASE REPORT

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

Spill report taken by:

FACILITY ID:

315338

### OPERATOR INFORMATION

Name of Operator: <u>Chevron Production</u>	OGCC Operator No: <u>16700</u>	Phone Numbers
Address: <u>100 Chevron Road</u>	No: <u>970-675-3705</u>	
City: <u>Rangely</u> State: <u>CO</u> Zip: <u>81648</u>	Fax: <u>970-675-3809</u>	
Contact Person: <u>E. Faithe Schwartzengraber - HE Specialist Environmental</u>	Email: <u>efsc@chevron.com</u>	

### DESCRIPTION OF SPILL OR RELEASE

Date of Incident: <u>27-Nov-12</u>	Facility Name & No: <u>Rangely Weber Sand Unit</u>	County: <u>Rio Blanco</u>
Type of Facility (well, tank battery, flow line, pit): <u>Injection Line</u>	QtrQtr: <u>NWNE</u> Section: <u>24</u>	
Well Name and Number: <u>AC McLaughlin 72X</u>	Township: <u>2N</u> Range: <u>103W</u>	
API Number: <u>05-103-083200</u>	Meridian: <u>6PM</u>	
Specify volume spilled and recovered (in bbls) for the following materials:		
Oil spilled: <u>0</u> Oil recov'd: <u>0</u> Water spilled: <u>150</u> Water recov'd: <u>140</u> Other spilled: <u>0</u> Other recov'd: <u>0</u>		
Ground Water impacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Surface Water impacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Contained within berm? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Area and vertical extent of spill: <u>361 X 275</u>	
Current land use: <u>Non Crop Land</u>	Weather conditions: <u>40 Degrees and Sunny</u>	
Soil/geology description: <u>Silty Clay</u>		
IF LESS THAN A MILE, report distance IN FEET to nearest ... Surface water: <u>335</u> wetlands: <u>315</u> buildings: <u>None</u>		
Livestock: <u>None</u> Water wells: <u>8,434</u> Depth to shallowest ground water: <u>4876</u>		
Cause of spill (e.g. equipment failure, human error, etc.): <u>Internal Corrosion</u> Detailed description of the spill/release incident:		
<u>A leak occurred on a three inch steel pipe at AC McLaughlin 72X. Approximately 150 bbls of brine water and less than 1 bbls of crude oil were released.</u>		

### CORRECTIVE ACTION

Describe immediate response (how stopped, contained and recovered): <u>The line was shut in immediately upon detection. Operations shut in downstream and upstream of well. Vacuum trucks removed all of the free fluid, estimated recovery is approximately 140 bbls of brine water and 0 bbls of crude oil. The fluids that were picked up, were taken to the truck unloading facility at the Main Water Plant for recycling.</u>
Describe any emergency pits constructed: <u>NA</u>
How was the extent of contamination determined? Visual Inspection. <u>Chevron MCA Spill Calculation Worksheet.</u>
Further remediation activities proposed (attach separate sheet if needed):
Describe measures taken to prevent problem from reoccurring: <u>The damaged section of pipe will be repaired and returned to service.</u>

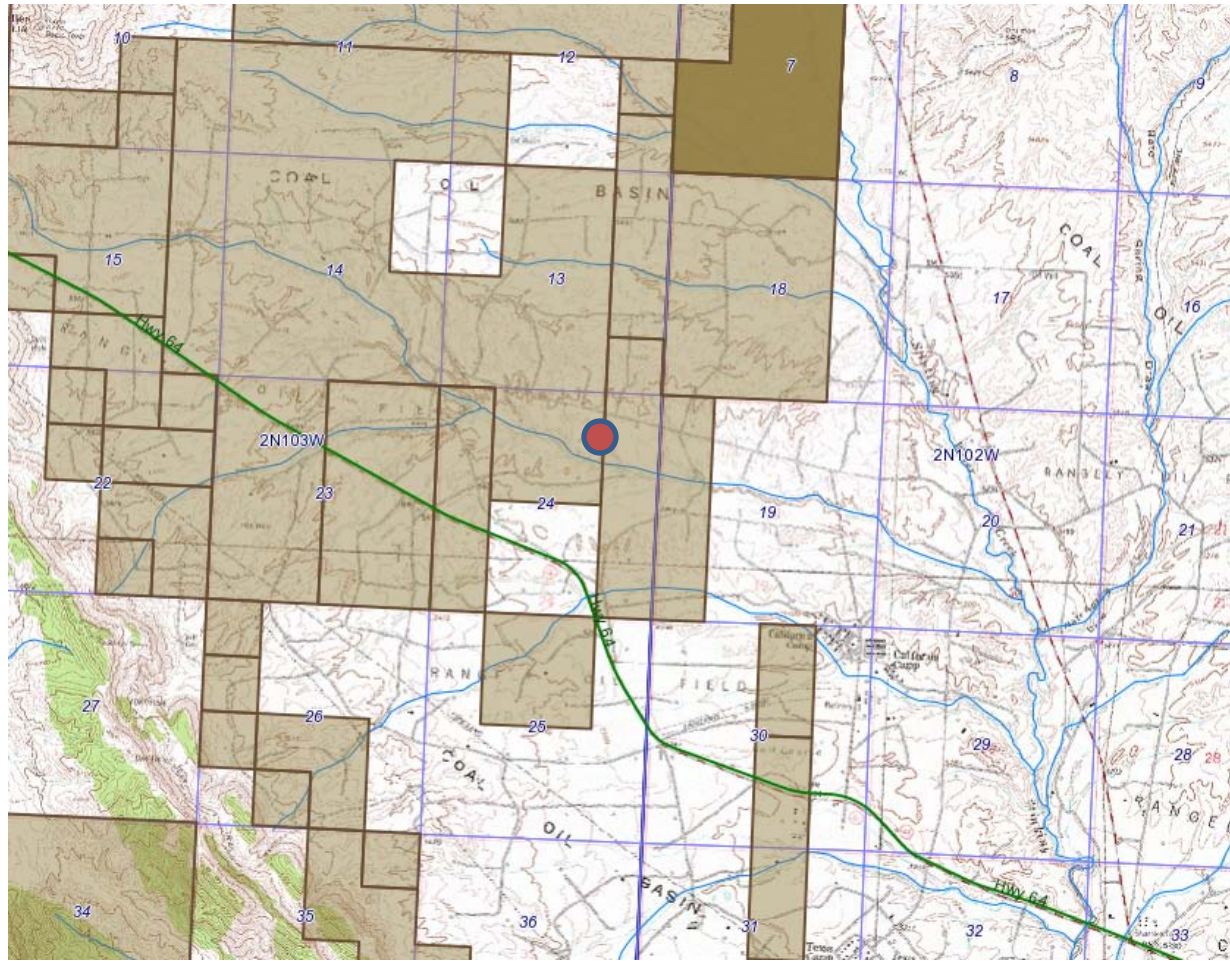
### OTHER NOTIFICATIONS

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other).

Date	Agency	Contact	Phone	Response
11/27/12	COGCC	Chris Canfield	970-625-2497	LVM at 1430

Spill/Release Tracking No: 2147921

# Chevron-AC McLaughlin 72X



WELL HEAD



SPILL LOCATION



PERENNIAL STREAM



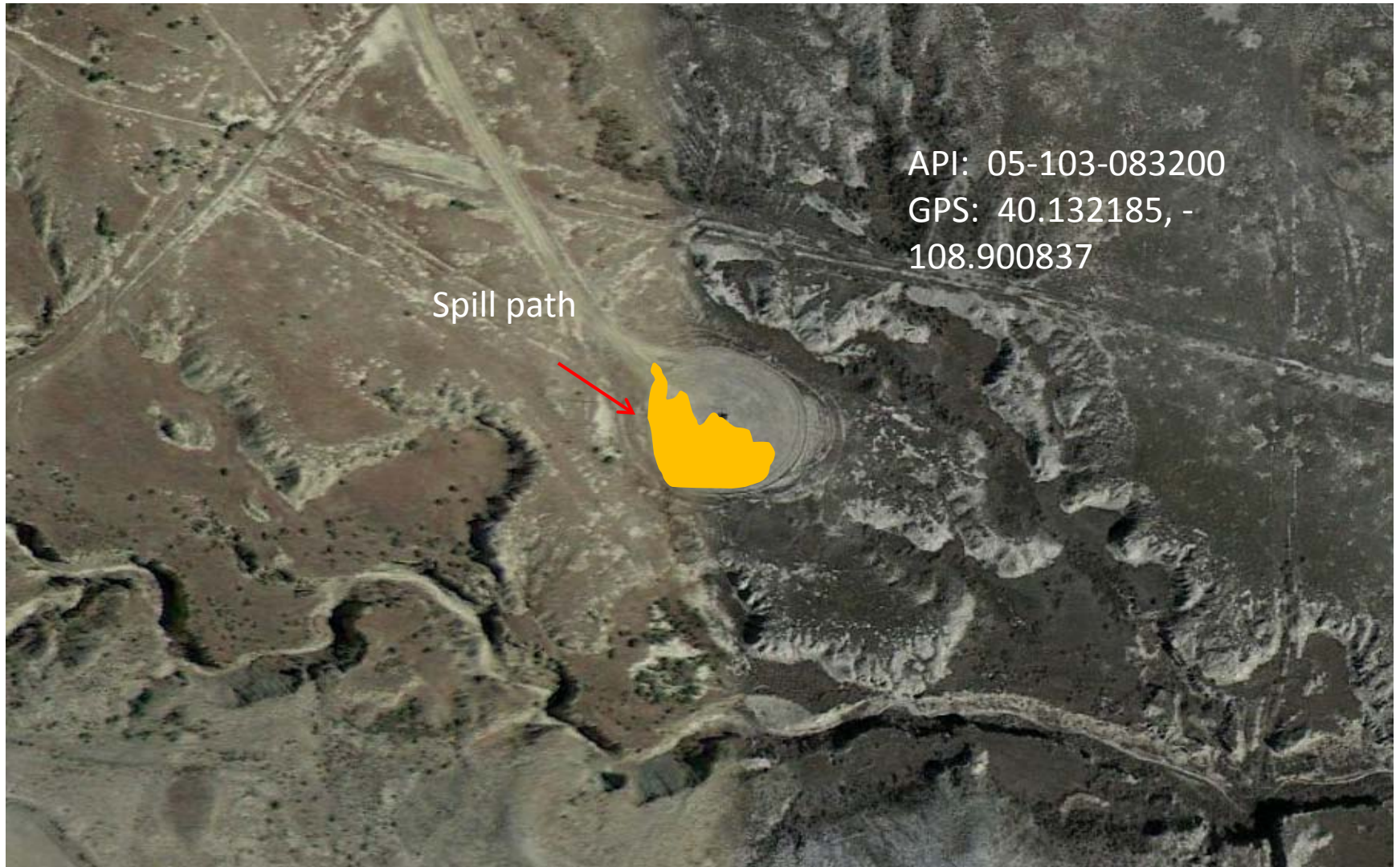
BLM Land

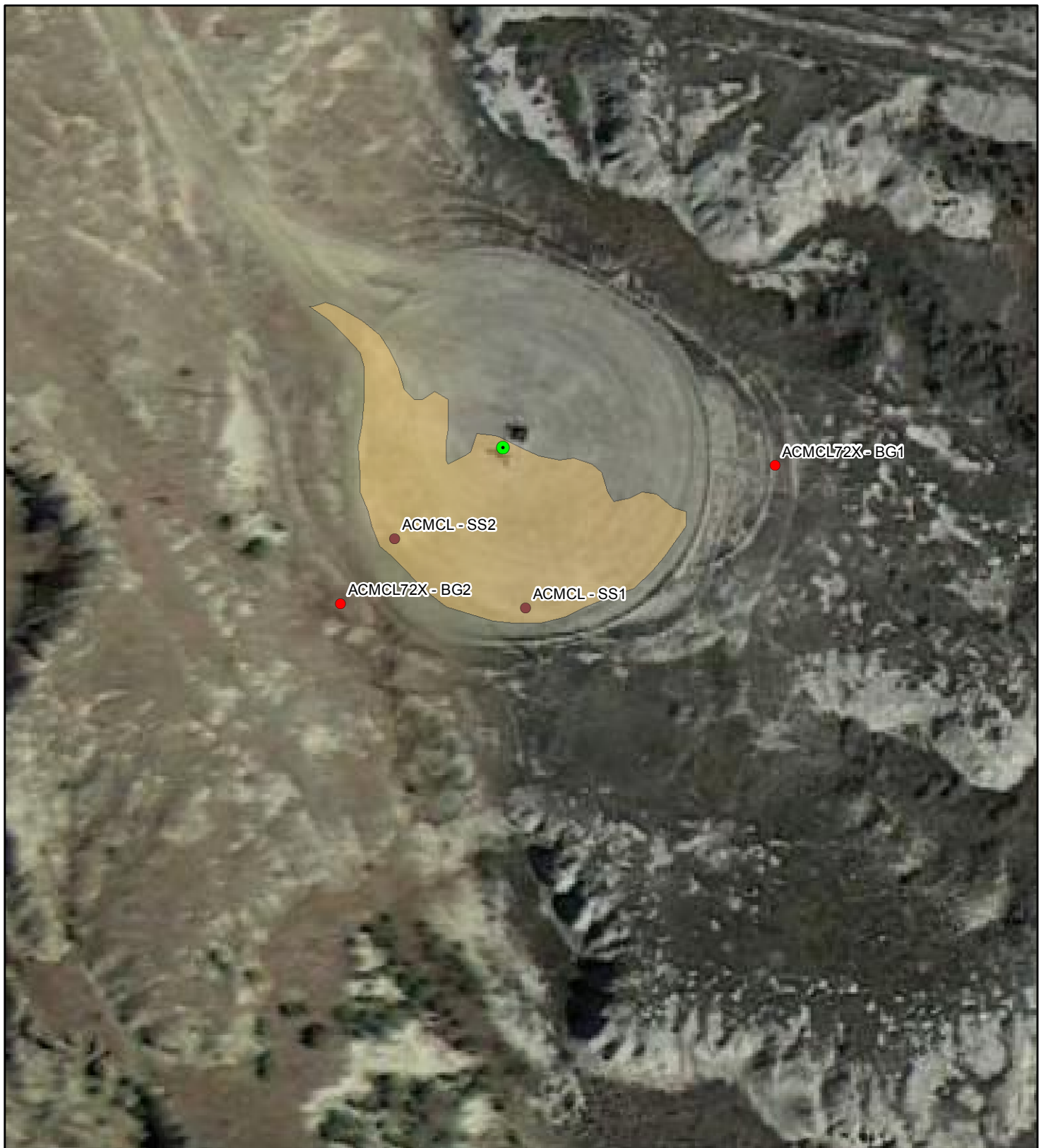
N





# Chevron-AC McLaughlin 72X

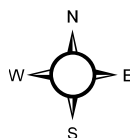




### Legend

- Point of Origin
- Soil Sample
- Spill Area
- Background Soil Sample

0 20 40 80 120 160 Feet



PROJECT:	009-0082
DRAWN BY:	KJG
DATE:	12/05/12

AC McLAUGHLIN 72X  
CHEVRON USA INC.  
RIO BLANCO COUNTY, COLORADO  
NWNE S24 T2N R103W

**OLSSON**<sup>®</sup>  
ASSOCIATES

876 21 1/2 Road  
Grand Junction, CO 81505  
www.oaconsulting.com

PH: 970 263-7800  
FX: 970 263-7456

FIGURE

1

Table 1  
AC McLaughlin 72X Spill Response  
Soil Data Summary

SAMPLE SUMMARY						
Location Description	AC McLaughlin 72X- Spill					
Sample Type	Soil					

LABORATORY DATA SUMMARY						
Sample ID	AC McLaughlin 72X-SS1	AC McLaughlin 72X-SS2	AC McLaughlin 72X-BG1	AC McLaughlin 72X-BG2	COGCC ALLOWABLE LIMITS	UNITS
Depth	0-6"	0-6"	0-6"	0-6"		
Sample Date	12/4/2012	12/4/2012	12/4/2012	12/4/2012		
Analytical Parameters						
TPH						
TPH Gasoline Range Organics	<0.050	2.3	NT	NT	500	mg/kg
TPH Diesel Range Organics	1.6 J	44	NT	NT		
BTEX						
Benzene	<0.0050	<0.0050	NT	NT	0.17	mg/kg
Toluene	<0.0050	0.0041 J	NT	NT	85	mg/kg
Ethylbenzene	<0.0050	0.0056	NT	NT	100	mg/kg
Total Xylene	<0.015	0.034	NT	NT	175	mg/kg
Metals						
Arsenic	5.34	4.73	6.31	5.42	0.39	mg/kg
Barium	584	237	304	NT	15,000	mg/kg
Cadmium	0.25 J	0.22 J	0.322 J	NT	70	mg/kg
Chromium	9.9	7.3	9.2	NT	NA	mg/kg
Copper	11.3	8.81	12.0	NT	3,100	mg/kg
Lead	21.4	15.6	20.7	NT	400	mg/kg
Mercury	0.0108	0.00769	0.012	NT	23	mg/kg
Nickel	13.2	10.4	14.1	NT	1,600	mg/kg
Selenium	1.48	1.09	0.876	NT	390	mg/kg
Silver	<0.490	<0.413	0.0818 J	NT	390	mg/kg
Zinc	64.5	51.2	67.6	NT	23,000	mg/kg
SAR Metals Analysis						
Sodium Adsorption Ratio	36.3	16.3	0.87	NT	<12	NA
Polynuclear Aromatic Hydrocarbons						
Acenaphthene	<0.0066	<0.0066	NT	NT	1,000	mg/kg
Anthracene	<0.0066	<0.0066	NT	NT	1,000	mg/kg
Benzo(a)anthracene	<0.0066	0.015	NT	NT	0.22	mg/kg
Benzo(a)pyrene	<0.0066	<0.0066	NT	NT	0.022	mg/kg
Benzo(b)fluoranthene	<0.0066	<0.0066	NT	NT	0.22	mg/kg
Benzo(k)fluoranthene	<0.0066	<0.0066	NT	NT	2.2	mg/kg
Chrysene	<0.0066	0.0086	NT	NT	22	mg/kg
Dibenzo(a,h)anthracene	<0.0066	<0.0066	NT	NT	0.022	mg/kg
Fluoranthene	<0.0066	<0.0066	NT	NT	1,000	mg/kg
Fluorene	<0.0066	0.012	NT	NT	1,000	mg/kg
Indeno(1,2,3-cd)pyrene	<0.0066	<0.0066	NT	NT	0.22	mg/kg
Napthalene	<0.0066	0.043	NT	NT	23	mg/kg
Pyrene	<0.0066	0.0085	NT	NT	1,000	mg/kg
General Chemistry						
Chromium, Hexavalent	NT	NT	NT	NT	23	mg/kg
Chromium, Trivalent	9.88	7.26	9.2	NT	120,000	mg/kg
Specific Conductivity	33.7	25.1	2.150	NT	<4 or 2 x the background	mmhos/cm
pH	8.24	8.14	8.37	NT	6-9	su

mg/kg - milligrams per kilogram  
mg/L - milligrams per liter  
J - indicates an estimated value  
mmhos/cm - millinhos per centimeter  
mv - millivolts  
su - standard units  
NA - not applicable  
NT - parameter was not tested

Over allowable limit but under BACKGROUND level.  
Over allowable limit and not within BACKGROUND level.  
Over allowable limit



1J-Dec-2012

Tim Dobransky  
Olsson Associates  
826 21 1/2 Road  
Grand Junction, Colorado 81505

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

Re: AC McLaughlin 72X

Work Order: **1212232**

Dear Tim,

ALS Environmental received 4 samples on 06-Dec-2012 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 28.

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

Sincerely,

A handwritten signature in cursive script that reads "Patricia L. Lynch".

Electronically approved by: Luke F. Hernandez

Patricia L. Lynch  
Project Manager



Certificate No: T104704231-09A-TX

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

DOV#J UR X S#K VD /#R U S#H Sdw#h i#hch#DOV#J urxs#D q#DOV#Dp l#hg#F rp sdq |

Environmental 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

---

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**Work Order:** 1212232

---

**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>
1212232-01	AC McLaughlin 72X-BG1	Soil		12/4/2012 10:35	12/6/2012 09:35	<input type="checkbox"/>
1212232-02	AC McLaughlin 72X-BG2	Soil		12/4/2012 10:45	12/6/2012 09:35	<input type="checkbox"/>
1212232-03	AC McLaughlin 72X-SS1	Soil		12/4/2012 11:00	12/6/2012 09:35	<input type="checkbox"/>
1212232-04	AC McLaughlin 72X-SS2	Soil		12/4/2012 11:10	12/6/2012 09:35	<input type="checkbox"/>

---



---

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**Work Order:** 1212232

---

**Case Narrative**

Batch 66392, Metals, Sample 1212273-14: MS/MSD and Duplicate are for an unrelated sample.

Batch R139635, BTEX: MS/MSD recoveries and RPDs are above the control limits in sample AC McLaughlin 72X-SS2. However, all recoveries are in control in the associated LCS.



# ALS Environmental

Date: 19-Dec-12

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**Sample ID:** AC McLaughlin 72X-BG1  
**Collection Date:** 12/4/2012 10:35 AM

**Work Order:** 1212232  
**Lab ID:** 1212232-01  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
<b>MERCURY - SW7471B</b>			<b>SW7471A</b>				Analyst: <b>OFO</b>
Mercury	0.0120		0.00345	mg/Kg	1	12/10/2012	12/10/2012 06:41 PM
<b>METALS</b>			<b>SW6020</b>				Analyst: <b>SKS</b>
Arsenic	6.31		0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
Barium	304		9.91	mg/Kg	20	12/10/2012	12/11/2012 02:10 PM
Cadmium	0.322	J	0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
Chromium	9.21		0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
Copper	12.1		0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
Lead	20.7		0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
Nickel	14.1		0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
Selenium	0.876		0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
Silver	0.0818	J	0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
Zinc	67.6		0.495	mg/Kg	1	12/10/2012	12/10/2012 04:01 PM
<b>LA29B SODIUM ADSORPTION RATIO</b>			<b>LA29B SAR</b>				Analyst: <b>ALR</b>
Sodium Adsorption Ratio	0.871		0.0100	meq/meq	1	12/11/2012	12/13/2012
<b>LA 29B - 1:1 SOLUBLE CATIONS FOR SAR</b>			<b>LA29B-6020</b>				Analyst: <b>ALR</b>
Calcium	138		5.00	mg/L	10	12/11/2012	12/12/2012 11:51 PM
Magnesium	23.2		5.00	mg/L	10	12/11/2012	12/12/2012 11:51 PM
Sodium	42.0		5.00	mg/L	10	12/11/2012	12/13/2012 03:03 PM
<b>LA29B ELECTRICAL CONDUCTIVITY</b>			<b>LADNR-29B EC</b>				Analyst: <b>VAN</b>
Electrical Conductivity @ saturation	2.15		0.0100	mmhos/cm @25	1		12/12/2012 05:25 PM
Electrical Conductivity, 1:1 aqueous	1.01		0.0100	mmhos/cm @25	1		12/12/2012 05:25 PM
<b>LA29B SATURATION POINT</b>			<b>LADNR-29B SP</b>				Analyst: <b>KAH</b>
Saturation Point	0.469		0.100	% Saturation as	1		12/12/2012 11:50 AM
<b>MOISTURE</b>			<b>SW3550</b>				Analyst: <b>KAH</b>
Percent Moisture	6.44		0.0100	wt%	1		12/11/2012 06:20 PM
<b>PH - SOIL - SW9045D</b>			<b>SW9045B</b>				Analyst: <b>KL</b>
pH	8.37		0.100	pH Units	1		12/11/2012 05:00 PM

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

## ALS Environmental

Date: 19-Dec-12

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**Sample ID:** AC McLaughlin 72X-BG2  
**Collection Date:** 12/4/2012 10:45 AM

**Work Order:** 1212232  
**Lab ID:** 1212232-02  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
<b>METALS</b>			<b>SW6020</b>				Analyst: <b>SKS</b>
Arsenic	5.42		0.440	mg/Kg	1	12/10/2012	12/10/2012 04:03 PM

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

# ALS Environmental

Date: 19-Dec-12

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**Sample ID:** AC McLaughlin 72X-SS1  
**Collection Date:** 12/4/2012 11:00 AM

**Work Order:** 1212232  
**Lab ID:** 1212232-03  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
<b>TPH (DRO) - 8015C</b>							
<b>DRO (&gt;C10 - C28)</b>	1.6	J	<b>SW8015M</b>	1.7 mg/Kg	1	12/10/2012	Analyst: <b>KMB</b> 12/10/2012 05:14 PM
Surr: 2-Fluorobiphenyl	66.5		60-135 %REC		1	12/10/2012	12/10/2012 05:14 PM
<b>GASOLINE RANGE ORGANICS - SW8015C</b>							
Gasoline Range Organics	U		<b>SW8015</b>	0.050 mg/Kg	1		Analyst: <b>KKP</b> 12/10/2012 03:19 PM
Surr: 4-Bromofluorobenzene	95.7		70-130 %REC		1		12/10/2012 03:19 PM
<b>MERCURY - SW7471B</b>							
Mercury	0.0108		<b>SW7471A</b>	0.00359 mg/Kg	1	12/10/2012	Analyst: <b>OFO</b> 12/10/2012 06:43 PM
<b>METALS</b>							
Arsenic	5.34		<b>SW6020</b>	0.490 mg/Kg	1	12/10/2012	Analyst: <b>SKS</b> 12/10/2012 04:06 PM
Barium	584		49.0 mg/Kg		100	12/10/2012	12/11/2012 02:17 PM
Cadmium	0.250	J	0.490 mg/Kg		1	12/10/2012	12/10/2012 04:06 PM
Chromium	9.88		0.490 mg/Kg		1	12/10/2012	12/10/2012 04:06 PM
Copper	11.3		0.490 mg/Kg		1	12/10/2012	12/10/2012 04:06 PM
Lead	21.4		0.490 mg/Kg		1	12/10/2012	12/10/2012 04:06 PM
Nickel	13.2		0.490 mg/Kg		1	12/10/2012	12/10/2012 04:06 PM
Selenium	1.48		0.490 mg/Kg		1	12/10/2012	12/10/2012 04:06 PM
Silver	U		0.490 mg/Kg		1	12/10/2012	12/10/2012 04:06 PM
Zinc	64.5		0.490 mg/Kg		1	12/10/2012	12/10/2012 04:06 PM
<b>LA29B SODIUM ADSORPTION RATIO</b>							
Sodium Adsorption Ratio	36.3		<b>LA29B SAR</b>	0.0100 meq/meq	1	12/11/2012	Analyst: <b>ALR</b> 12/13/2012
<b>LA 29B - 1:1 SOLUBLE CATIONS FOR SAR</b>							
Calcium	449		<b>LA29B-6020</b>	5.00 mg/L	10	12/11/2012	Analyst: <b>ALR</b> 12/12/2012 11:56 PM
Magnesium	50.7		5.00 mg/L		10	12/11/2012	12/12/2012 11:56 PM
Sodium	3,040		50.0 mg/L		100	12/11/2012	12/13/2012 03:08 PM
<b>LOW-LEVEL PAHS</b>							
Acenaphthene	U		<b>SW8270</b>	0.0066 mg/Kg	1	12/12/2012	Analyst: <b>LG</b> 12/12/2012 05:42 PM
Anthracene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Benz(a)anthracene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Benzo(a)pyrene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Benzo(b)fluoranthene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Benzo(k)fluoranthene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Chrysene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Dibenz(a,h)anthracene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Fluoranthene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Fluorene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM
Indeno(1,2,3-cd)pyrene	U		0.0066 mg/Kg		1	12/12/2012	12/12/2012 05:42 PM

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

# ALS Environmental

Date: 19-Dec-12

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**Sample ID:** AC McLaughlin 72X-SS1  
**Collection Date:** 12/4/2012 11:00 AM

**Work Order:** 1212232  
**Lab ID:** 1212232-03  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Naphthalene	U		0.0066	mg/Kg	1	12/12/2012	12/12/2012 05:42 PM
Pyrene	U		0.0066	mg/Kg	1	12/12/2012	12/12/2012 05:42 PM
Surr: 2-Fluorobiphenyl	60.4		43-125	%REC	1	12/12/2012	12/12/2012 05:42 PM
Surr: 4-Terphenyl-d14	72.4		32-125	%REC	1	12/12/2012	12/12/2012 05:42 PM
Surr: Nitrobenzene-d5	59.3		37-125	%REC	1	12/12/2012	12/12/2012 05:42 PM
<b>VOLATILES - SW8260C</b>			<b>SW8260</b>			Analyst: <b>WLR</b>	
Benzene	U		0.0050	mg/Kg	1		12/12/2012 11:14 AM
Ethylbenzene	U		0.0050	mg/Kg	1		12/12/2012 11:14 AM
m,p-Xylene	U		0.010	mg/Kg	1		12/12/2012 11:14 AM
o-Xylene	U		0.0050	mg/Kg	1		12/12/2012 11:14 AM
Toluene	U		0.0050	mg/Kg	1		12/12/2012 11:14 AM
Xylenes, Total	U		0.015	mg/Kg	1		12/12/2012 11:14 AM
Surr: 1,2-Dichloroethane-d4	90.7		70-128	%REC	1		12/12/2012 11:14 AM
Surr: 4-Bromofluorobenzene	92.7		73-126	%REC	1		12/12/2012 11:14 AM
Surr: Dibromofluoromethane	98.5		71-128	%REC	1		12/12/2012 11:14 AM
Surr: Toluene-d8	97.1		73-127	%REC	1		12/12/2012 11:14 AM
<b>LA29B ELECTRICAL CONDUCTIVITY</b>			<b>LADNR-29B EC</b>			Analyst: <b>VAN</b>	
Electrical Conductivity @ saturation	33.7		0.0100	mmhos/cm @25	1		12/12/2012 05:25 PM
Electrical Conductivity, 1:1 aqueous	15.8		0.0100	mmhos/cm @25	1		12/12/2012 05:25 PM
<b>LA29B SATURATION POINT</b>			<b>LADNR-29B SP</b>			Analyst: <b>KAH</b>	
Saturation Point	0.468		0.100	% Saturation as	1		12/12/2012 11:50 AM
<b>MOISTURE</b>			<b>SW3550</b>			Analyst: <b>KAH</b>	
Percent Moisture	12.3		0.0100	wt%	1		12/11/2012 06:20 PM
<b>PH - SOIL - SW9045D</b>			<b>SW9045B</b>			Analyst: <b>KL</b>	
pH	8.24		0.100	pH Units	1		12/11/2012 05:00 PM

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



# ALS Environmental

Date: 19-Dec-12

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**Sample ID:** AC McLaughlin 72X-SS2  
**Collection Date:** 12/4/2012 11:10 AM

**Work Order:** 1212232  
**Lab ID:** 1212232-04  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
<b>TPH (DRO) - 8015C</b>							
<b>DRO (&gt;C10 - C28)</b>	<b>44</b>		<b>SW8015M</b>				Analyst: <b>KMB</b>
<i>Surr: 2-Fluorobiphenyl</i>	67.2		1.7 mg/Kg		1	12/10/2012	12/10/2012 05:37 PM
			60-135 %REC		1	12/10/2012	12/10/2012 05:37 PM
<b>GASOLINE RANGE ORGANICS - SW8015C</b>							
<b>Gasoline Range Organics</b>	<b>2.3</b>		<b>SW8015</b>				Analyst: <b>KKP</b>
<i>Surr: 4-Bromofluorobenzene</i>	124		0.050 mg/Kg		1	12/10/2012	12/10/2012 02:22 PM
			70-130 %REC		1	12/10/2012	12/10/2012 02:22 PM
<b>MERCURY - SW7471B</b>							
<b>Mercury</b>	<b>0.00769</b>		<b>SW7471A</b>				Analyst: <b>OFO</b>
			0.00349 mg/Kg		1	12/10/2012	12/10/2012 06:45 PM
<b>METALS</b>							
<b>Arsenic</b>	<b>4.73</b>		<b>SW6020</b>				Analyst: <b>SKS</b>
<b>Barium</b>	<b>237</b>		0.413 mg/Kg		1	12/10/2012	12/10/2012 04:08 PM
<b>Cadmium</b>	<b>0.220</b>	J	8.26 mg/Kg		20	12/10/2012	12/11/2012 02:19 PM
<b>Chromium</b>	<b>7.26</b>		0.413 mg/Kg		1	12/10/2012	12/10/2012 04:08 PM
<b>Copper</b>	<b>8.81</b>		0.413 mg/Kg		1	12/10/2012	12/10/2012 04:08 PM
<b>Lead</b>	<b>15.6</b>		0.413 mg/Kg		1	12/10/2012	12/10/2012 04:08 PM
<b>Nickel</b>	<b>10.4</b>		0.413 mg/Kg		1	12/10/2012	12/10/2012 04:08 PM
<b>Selenium</b>	<b>1.09</b>		0.413 mg/Kg		1	12/10/2012	12/10/2012 04:08 PM
<b>Silver</b>	<b>U</b>		0.413 mg/Kg		1	12/10/2012	12/10/2012 04:08 PM
<b>Zinc</b>	<b>51.2</b>		0.413 mg/Kg		1	12/10/2012	12/10/2012 04:08 PM
<b>LA29B SODIUM ADSORPTION RATIO</b>							
<b>Sodium Adsorption Ratio</b>	<b>16.3</b>		<b>LA29B SAR</b>				Analyst: <b>ALR</b>
			0.0100 meq/meq		1	12/11/2012	12/13/2012
<b>LA 29B - 1:1 SOLUBLE CATIONS FOR SAR</b>							
<b>Calcium</b>	<b>865</b>		<b>LA29B-6020</b>				Analyst: <b>ALR</b>
<b>Magnesium</b>	<b>97.2</b>		5.00 mg/L		10	12/11/2012	12/13/2012 12:01 AM
<b>Sodium</b>	<b>1,900</b>		5.00 mg/L		10	12/11/2012	12/13/2012 12:01 AM
			50.0 mg/L		100	12/11/2012	12/13/2012 03:13 PM
<b>LOW-LEVEL PAHS</b>							
<b>Acenaphthene</b>	<b>U</b>		<b>SW8270</b>				Analyst: <b>LG</b>
<b>Anthracene</b>	<b>U</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Benz(a)anthracene</b>	<b>0.015</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Benzo(a)pyrene</b>	<b>U</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Benzo(b)fluoranthene</b>	<b>U</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Benzo(k)fluoranthene</b>	<b>U</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Chrysene</b>	<b>0.0086</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Dibenz(a,h)anthracene</b>	<b>U</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Fluoranthene</b>	<b>U</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Fluorene</b>	<b>0.012</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM
<b>Indeno(1,2,3-cd)pyrene</b>	<b>U</b>		0.0066 mg/Kg		1	12/12/2012	12/12/2012 06:42 PM

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

# ALS Environmental

Date: 19-Dec-12

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**Sample ID:** AC McLaughlin 72X-SS2  
**Collection Date:** 12/4/2012 11:10 AM

**Work Order:** 1212232  
**Lab ID:** 1212232-04  
**Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
<b>Naphthalene</b>	<b>0.043</b>		<b>0.0066</b>	<b>mg/Kg</b>	1	12/12/2012	12/12/2012 06:42 PM
<b>Pyrene</b>	<b>0.0085</b>		<b>0.0066</b>	<b>mg/Kg</b>	1	12/12/2012	12/12/2012 06:42 PM
Surr: 2-Fluorobiphenyl	55.4		43-125	%REC	1	12/12/2012	12/12/2012 06:42 PM
Surr: 4-Terphenyl-d14	86.4		32-125	%REC	1	12/12/2012	12/12/2012 06:42 PM
Surr: Nitrobenzene-d5	63.3		37-125	%REC	1	12/12/2012	12/12/2012 06:42 PM
<b>VOLATILES - SW8260C</b>			<b>SW8260</b>				Analyst: <b>WLR</b>
Benzene	U		0.0050	mg/Kg	1		12/12/2012 11:40 AM
<b>Ethylbenzene</b>	<b>0.0056</b>		<b>0.0050</b>	<b>mg/Kg</b>	1		12/12/2012 11:40 AM
<b>m,p-Xylene</b>	<b>0.020</b>		<b>0.010</b>	<b>mg/Kg</b>	1		12/12/2012 11:40 AM
<b>o-Xylene</b>	<b>0.013</b>		<b>0.0050</b>	<b>mg/Kg</b>	1		12/12/2012 11:40 AM
<b>Toluene</b>	<b>0.0041</b>	J	<b>0.0050</b>	<b>mg/Kg</b>	1		12/12/2012 11:40 AM
<b>Xylenes, Total</b>	<b>0.034</b>		<b>0.015</b>	<b>mg/Kg</b>	1		12/12/2012 11:40 AM
Surr: 1,2-Dichloroethane-d4	91.7		70-128	%REC	1		12/12/2012 11:40 AM
Surr: 4-Bromofluorobenzene	96.7		73-126	%REC	1		12/12/2012 11:40 AM
Surr: Dibromofluoromethane	99.4		71-128	%REC	1		12/12/2012 11:40 AM
Surr: Toluene-d8	98.1		73-127	%REC	1		12/12/2012 11:40 AM
<b>LA29B ELECTRICAL CONDUCTIVITY</b>			<b>LADNR-29B EC</b>				Analyst: <b>VAN</b>
Electrical Conductivity @ saturation	25.1		0.0100	mmhos/cm @25	1		12/12/2012 05:25 PM
Electrical Conductivity, 1:1 aqueous	12.3		0.0100	mmhos/cm @25	1		12/12/2012 05:25 PM
<b>LA29B SATURATION POINT</b>			<b>LADNR-29B SP</b>				Analyst: <b>KAH</b>
Saturation Point	0.490		0.100	% Saturation as	1		12/12/2012 11:50 AM
<b>MOISTURE</b>			<b>SW3550</b>				Analyst: <b>KAH</b>
Percent Moisture	13.9		0.0100	wt%	1		12/11/2012 06:20 PM
<b>PH - SOIL - SW9045D</b>			<b>SW9045B</b>				Analyst: <b>KL</b>
pH	8.14		0.100	pH Units	1		12/11/2012 05:00 PM

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

# ALS Environmental

Date: 1; -Dec-12

**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **66389** Instrument ID **FID-7** Method: **SW8015M**

<b>MBLK</b>	Sample ID: <b>FBLKS1-121210-66389</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/10/2012 12:00 PM</b>			
Client ID:	Run ID: <b>FID-7_121210A</b>				SeqNo: <b>3045650</b>		Prep Date: <b>12/10/2012</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (>C10 - C28)	U	1.7								
<i>Surr: 2-Fluorobiphenyl</i>	2.999	0	3.3	0	90.9	60-135	0			

<b>LCS</b>	Sample ID: <b>FLCSS1-121210-66389</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/10/2012 11:38 AM</b>			
Client ID:	Run ID: <b>FID-7_121210A</b>				SeqNo: <b>3045649</b>		Prep Date: <b>12/10/2012</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (>C10 - C28)	40.36	1.7	33.3	0	121	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	3.092	0	3.3	0	93.7	60-135	0			

<b>MS</b>	Sample ID: <b>1212277-01CMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/10/2012 12:45 PM</b>			
Client ID:	Run ID: <b>FID-7_121210A</b>				SeqNo: <b>3045652</b>		Prep Date: <b>12/10/2012</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (>C10 - C28)	24.8	1.7	33.17	0.3428	73.7	70-130	0			
<i>Surr: 2-Fluorobiphenyl</i>	2.218	0	3.287	0	67.5	60-135	0			

<b>MSD</b>	Sample ID: <b>1212277-01CMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>12/10/2012 01:08 PM</b>			
Client ID:	Run ID: <b>FID-7_121210A</b>				SeqNo: <b>3045653</b>		Prep Date: <b>12/10/2012</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (>C10 - C28)	24.14	1.7	33.17	0.3428	71.7	70-130	24.8	2.71	30	
<i>Surr: 2-Fluorobiphenyl</i>	2.441	0	3.287	0	74.3	60-135	2.218	9.58	30	

The following samples were analyzed in this batch:

1212232-03A	1212232-04A
-------------	-------------

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

QC Page: 1 of 15

Client: Olsson Associates  
 Work Order: 1212232  
 Project: AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **R139577** Instrument ID **FID-9** Method: **SW8015**

**MBLK** Sample ID: **GBLKS-121210-R139577** Units: **mg/Kg** Analysis Date: **12/10/2012 12:33 PM**

Client ID: Run ID: **FID-9\_121210A** SeqNo: **3047277** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	U	0.050								
Surr: 4-Bromofluorobenzene	0.09105	0.0050	0.1	0	91.1	70-130	0			

**LCS** Sample ID: **GLCSS-121210-R139577** Units: **mg/Kg** Analysis Date: **12/10/2012 11:56 AM**

Client ID: Run ID: **FID-9\_121210A** SeqNo: **3047275** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.9853	0.050	1	0	98.5	70-130	0			
Surr: 4-Bromofluorobenzene	0.1009	0.0050	0.1	0	101	70-130	0			

**LCSD** Sample ID: **GLCSDS-121210-R139577** Units: **mg/Kg** Analysis Date: **12/10/2012 12:15 PM**

Client ID: Run ID: **FID-9\_121210A** SeqNo: **3047276** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.066	0.050	1	0	107	70-130	0.9853	7.86	30	
Surr: 4-Bromofluorobenzene	0.1003	0.0050	0.1	0	100	70-130	0.1009	0.626	30	

**MS** Sample ID: **1212232-03AMS** Units: **mg/Kg** Analysis Date: **12/10/2012 02:41 PM**

Client ID: **AC McLaughlin 72X-SS1** Run ID: **FID-9\_121210A** SeqNo: **3047279** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	0.964	0.050	1	0	96.4	70-130	0			
Surr: 4-Bromofluorobenzene	0.09359	0.0050	0.1	0	93.6	70-130	0			

**MSD** Sample ID: **1212232-03AMSD** Units: **mg/Kg** Analysis Date: **12/10/2012 03:00 PM**

Client ID: **AC McLaughlin 72X-SS1** Run ID: **FID-9\_121210A** SeqNo: **3047280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Gasoline Range Organics	1.014	0.050	1	0	101	70-130	0.964	5.04	30	
Surr: 4-Bromofluorobenzene	0.09395	0.0050	0.1	0	94	70-130	0.09359	0.385	30	

The following samples were analyzed in this batch:

1212232-03A 1212232-04A

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



**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **66392** Instrument ID **ICPMS05** Method: **SW6020**

**MBLK** Sample ID: **MBLKS1-121012-66392** Units: **mg/Kg** Analysis Date: **12/10/2012 03:31 PM**

Client ID: Run ID: **ICPMS05\_121210A** SeqNo: **3046008** Prep Date: **12/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.50								
Barium	U	0.50								
Cadmium	U	0.50								
Chromium	U	0.50								
Copper	U	0.50								
Lead	U	0.50								
Nickel	U	0.50								
Selenium	U	0.50								
Silver	U	0.50								
Zinc	U	0.50								

**LCS** Sample ID: **MLCSS1-121012-66392** Units: **mg/Kg** Analysis Date: **12/10/2012 03:33 PM**

Client ID: Run ID: **ICPMS05\_121210A** SeqNo: **3046009** Prep Date: **12/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Zinc	8.981	0.50	10	0	89.8	80-120	0			

**LCS** Sample ID: **MLCSS1-121012-66392** Units: **mg/Kg** Analysis Date: **12/10/2012 04:27 PM**

Client ID: Run ID: **ICPMS05\_121210A** SeqNo: **3046245** Prep Date: **12/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.291	0.50	10	0	92.9	80-120	0			
Barium	10.18	0.50	10	0	102	80-120	0			
Cadmium	9.707	0.50	10	0	97.1	80-120	0			
Chromium	9.55	0.50	10	0	95.5	80-120	0			
Copper	9.684	0.50	10	0	96.8	80-120	0			
Lead	9.939	0.50	10	0	99.4	80-120	0			
Nickel	9.423	0.50	10	0	94.2	80-120	0			
Selenium	9.36	0.50	10	0	93.6	80-120	0			
Silver	9.592	0.50	10	0	95.9	80-120	0			

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

**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **66392** Instrument ID **ICPMS05** Method: **SW6020**

**MS** Sample ID: **1212273-14AMS** Units: **mg/Kg** Analysis Date: **12/10/2012 03:44 PM**

Client ID: Run ID: **ICPMS05\_121210A** SeqNo: **3046014** Prep Date: **12/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	13.08	0.48	9.558	3.606	99.1	75-125	0			
Barium	204	0.48	9.558	96.6	1120	75-125	0			SEO
Cadmium	8.954	0.48	9.558	0.06479	93	75-125	0			
Chromium	14.75	0.48	9.558	5.505	96.7	75-125	0			
Copper	12.69	0.48	9.558	3.428	96.8	75-125	0			
Lead	21.86	0.48	9.558	9.105	133	75-125	0			S
Nickel	48.16	0.48	9.558	14	357	75-125	0			S
Selenium	9.33	0.48	9.558	0.8025	89.2	75-125	0			
Silver	8.876	0.48	9.558	0.04431	92.4	75-125	0			
Zinc	21.08	0.48	9.558	11.82	96.9	75-125	0			

**MSD** Sample ID: **1212273-14AMSD** Units: **mg/Kg** Analysis Date: **12/10/2012 03:47 PM**

Client ID: Run ID: **ICPMS05\_121210A** SeqNo: **3046016** Prep Date: **12/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	10.85	0.47	9.316	3.606	77.8	75-125	13.08	18.6	25	
Barium	56.89	0.47	9.316	96.6	-426	75-125	204	113	25	SRO
Cadmium	7.345	0.47	9.316	0.06479	78.1	75-125	8.954	19.7	25	
Chromium	13.45	0.47	9.316	5.505	85.3	75-125	14.75	9.22	25	
Copper	10.55	0.47	9.316	3.428	76.5	75-125	12.69	18.4	25	
Lead	13.7	0.47	9.316	9.105	49.4	75-125	21.86	45.9	25	SR
Nickel	11.28	0.47	9.316	14	-29.2	75-125	48.16	124	25	SR
Selenium	7.341	0.47	9.316	0.8025	70.2	75-125	9.33	23.9	25	S
Silver	7.568	0.47	9.316	0.04431	80.8	75-125	8.876	15.9	25	
Zinc	19.31	0.47	9.316	11.82	80.4	75-125	21.08	8.75	25	

**DUP** Sample ID: **1212273-14ADUP** Units: **mg/Kg** Analysis Date: **12/10/2012 03:42 PM**

Client ID: Run ID: **ICPMS05\_121210A** SeqNo: **3046013** Prep Date: **12/10/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	2.451	0.48	0	0	0	0-0	3.606	38.2	25	R
Barium	49.7	0.48	0	0	0	0-0	96.6	64.1	25	R
Cadmium	U	0.48	0	0	0	0-0	0.06479	0	25	
Chromium	5.315	0.48	0	0	0	0-0	5.505	3.52	25	
Copper	3.05	0.48	0	0	0	0-0	3.428	11.7	25	
Lead	5.773	0.48	0	0	0	0-0	9.105	44.8	25	R
Nickel	3.16	0.48	0	0	0	0-0	14	126	25	R
Selenium	0.7181	0.48	0	0	0	0-0	0.8025	11.1	25	
Silver	U	0.48	0	0	0	0-0	0.04431	0	25	
Zinc	11.8	0.48	0	0	0	0-0	11.82	0.154	25	

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

**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

**QC BATCH REPORT**

Batch ID: **66392**      Instrument ID **ICPMS05**      Method: **SW6020**

The following samples were analyzed in this batch:

1212232-01A	1212232-02A	1212232-03A
1212232-04A		

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

**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **66401**      Instrument ID **HG02**      Method: **SW7471A**

**MBLK**      Sample ID: **GBLKS2-121012-66401**      Units: **µg/Kg**      Analysis Date: **12/10/2012 06:13 PM**

Client ID:      Run ID: **HG02\_121210A**      SeqNo: **3046381**      Prep Date: **12/10/2012**      DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	U	3.3								

**LCS**      Sample ID: **GLCSS2-121012-66401**      Units: **µg/Kg**      Analysis Date: **12/10/2012 06:15 PM**

Client ID:      Run ID: **HG02\_121210A**      SeqNo: **3046382**      Prep Date: **12/10/2012**      DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	316.7	3.3	333.3	0	95	85-115	0			

**MS**      Sample ID: **1212146-02CMS**      Units: **µg/Kg**      Analysis Date: **12/10/2012 06:21 PM**

Client ID:      Run ID: **HG02\_121210A**      SeqNo: **3046385**      Prep Date: **12/10/2012**      DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	362.3	3.5	352.4	35.81	92.6	85-115	0			

**MSD**      Sample ID: **1212146-02CMSD**      Units: **µg/Kg**      Analysis Date: **12/10/2012 06:23 PM**

Client ID:      Run ID: **HG02\_121210A**      SeqNo: **3046386**      Prep Date: **12/10/2012**      DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	356	3.5	351.8	35.81	91	85-115	362.3	1.74	20	

**DUP**      Sample ID: **1212146-02CDUP**      Units: **µg/Kg**      Analysis Date: **12/10/2012 06:19 PM**

Client ID:      Run ID: **HG02\_121210A**      SeqNo: **3046384**      Prep Date: **12/10/2012**      DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	35.73	3.5	0	0	0		35.81	0.212	20	

The following samples were analyzed in this batch:

1212232-01A	1212232-03A	1212232-04A
-------------	-------------	-------------

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



**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **66467** Instrument ID **ICP7500** Method: **La29B-6020**

<b>MBLK</b>	Sample ID: <b>BLK-121212-SAR-66467</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/12/2012 11:41 PM</b>			
Client ID:	Run ID: <b>ICP7500_121212A</b>				SeqNo: <b>3050748</b>		Prep Date: <b>12/11/2012</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	U	0.50								
Magnesium	U	0.50								

<b>MBLK</b>	Sample ID: <b>BLK-121212-SAR-66467</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/13/2012 02:53 PM</b>			
Client ID:	Run ID: <b>ICP7500_121213A</b>				SeqNo: <b>3051971</b>		Prep Date: <b>12/11/2012</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	U	0.50								

<b>LCS</b>	Sample ID: <b>LCS-121212-SAR-66467</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/12/2012 11:46 PM</b>			
Client ID:	Run ID: <b>ICP7500_121212A</b>				SeqNo: <b>3050749</b>		Prep Date: <b>12/11/2012</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	8.65	0.50	10	0	86.5	80-120	0			
Magnesium	9.596	0.50	10	0	96	80-120	0			

<b>LCS</b>	Sample ID: <b>LCS-121212-SAR-66467</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/13/2012 02:58 PM</b>			
Client ID:	Run ID: <b>ICP7500_121213A</b>				SeqNo: <b>3051972</b>		Prep Date: <b>12/11/2012</b>		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	10.46	0.50	10	0	105	80-120	0			

<b>DUP</b>	Sample ID: <b>1212232-04BDUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/13/2012 12:06 AM</b>			
Client ID: <b>AC McLaughlin 72X-SS2</b>	Run ID: <b>ICP7500_121212A</b>				SeqNo: <b>3050753</b>		Prep Date: <b>12/11/2012</b>		DF: <b>10</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	866.1	5.0	0	0	0		864.9	0.139	30	
Magnesium	98.58	5.0	0	0	0		97.25	1.36	30	

<b>DUP</b>	Sample ID: <b>1212232-04BDUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>12/13/2012 03:18 PM</b>			
Client ID: <b>AC McLaughlin 72X-SS2</b>	Run ID: <b>ICP7500_121213A</b>				SeqNo: <b>3051976</b>		Prep Date: <b>12/11/2012</b>		DF: <b>100</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	1994	50	0	0	0		1904	4.62	30	

The following samples were analyzed in this batch:

1212232-01B	1212232-03B	1212232-04B
-------------	-------------	-------------

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

Client: Olsson Associates  
 Work Order: 1212232  
 Project: AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **66453** Instrument ID **SV-4** Method: **SW8270**

**MBLK** Sample ID: **SBLKS3-121212-66453** Units: **µg/Kg** Analysis Date: **12/12/2012 05:01 PM**

Client ID: Run ID: **SV-4\_121212A** SeqNo: **3050463** Prep Date: **12/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	6.6								
Anthracene	U	6.6								
Benz(a)anthracene	U	6.6								
Benzo(a)pyrene	U	6.6								
Benzo(b)fluoranthene	U	6.6								
Benzo(k)fluoranthene	U	6.6								
Chrysene	U	6.6								
Dibenz(a,h)anthracene	U	6.6								
Fluoranthene	U	6.6								
Fluorene	U	6.6								
Indeno(1,2,3-cd)pyrene	U	6.6								
Naphthalene	U	6.6								
Pyrene	U	6.6								
Surr: 2-Fluorobiphenyl	126.5	6.6	166.7	0	75.9	43-125	0			
Surr: 4-Terphenyl-d14	148.1	6.6	166.7	0	88.8	32-125	0			
Surr: Nitrobenzene-d5	126	6.6	166.7	0	75.6	37-125	0			

**LCS** Sample ID: **SLCSS3-121212-66453** Units: **µg/Kg** Analysis Date: **12/12/2012 05:21 PM**

Client ID: Run ID: **SV-4\_121212A** SeqNo: **3050464** Prep Date: **12/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	128.2	6.6	166.7	0	76.9	50-120	0			
Anthracene	132.8	6.6	166.7	0	79.7	50-123	0			
Benz(a)anthracene	138.8	6.6	166.7	0	83.3	50-131	0			
Benzo(a)pyrene	96.59	6.6	166.7	0	58	50-130	0			
Benzo(b)fluoranthene	100.1	6.6	166.7	0	60	50-137	0			
Benzo(k)fluoranthene	97.73	6.6	166.7	0	58.6	50-143	0			
Chrysene	124.8	6.6	166.7	0	74.9	50-130	0			
Dibenz(a,h)anthracene	97.3	6.6	166.7	0	58.4	50-130	0			
Fluoranthene	137.8	6.6	166.7	0	82.7	50-131	0			
Fluorene	130.6	6.6	166.7	0	78.4	50-125	0			
Indeno(1,2,3-cd)pyrene	99.98	6.6	166.7	0	60	45-139	0			
Naphthalene	122.2	6.6	166.7	0	73.3	50-125	0			
Pyrene	133	6.6	166.7	0	79.8	45-130	0			
Surr: 2-Fluorobiphenyl	127.1	6.6	166.7	0	76.3	43-125	0			
Surr: 4-Terphenyl-d14	148.4	6.6	166.7	0	89	32-125	0			
Surr: Nitrobenzene-d5	120.6	6.6	166.7	0	72.3	37-125	0			

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

Client: Olsson Associates  
 Work Order: 1212232  
 Project: AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **66453** Instrument ID **SV-4** Method: **SW8270**

**MS** Sample ID: **1212232-03AMS** Units: **µg/Kg** Analysis Date: **12/12/2012 06:02 PM**  
 Client ID: **AC McLaughlin 72X-SS1** Run ID: **SV-4\_121212A** SeqNo: **3050466** Prep Date: **12/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	123.4	6.6	166.4	0	74.2	50-120	0			
Anthracene	137.1	6.6	166.4	0	82.3	50-123	0			
Benz(a)anthracene	142.4	6.6	166.4	0	85.6	50-131	0			
Benzo(a)pyrene	96.37	6.6	166.4	0	57.9	50-130	0			
Benzo(b)fluoranthene	123.9	6.6	166.4	0	74.4	50-137	0			
Benzo(k)fluoranthene	94.07	6.6	166.4	0	56.5	50-143	0			
Chrysene	137.9	6.6	166.4	0	82.9	50-130	0			
Dibenz(a,h)anthracene	96.83	6.6	166.4	0	58.2	50-130	0			
Fluoranthene	147.4	6.6	166.4	0	88.5	50-131	0			
Fluorene	128.6	6.6	166.4	0	77.2	50-125	0			
Indeno(1,2,3-cd)pyrene	99.7	6.6	166.4	0	59.9	45-139	0			
Naphthalene	109.2	6.6	166.4	0	65.6	50-125	0			
Pyrene	142.6	6.6	166.4	0	85.7	45-130	0			
Surr: 2-Fluorobiphenyl	121.4	6.6	166.4	0	72.9	43-125	0			
Surr: 4-Terphenyl-d14	162	6.6	166.4	0	97.3	32-125	0			
Surr: Nitrobenzene-d5	113.6	6.6	166.4	0	68.2	37-125	0			

**MSD** Sample ID: **1212232-03AMSD** Units: **µg/Kg** Analysis Date: **12/12/2012 06:22 PM**  
 Client ID: **AC McLaughlin 72X-SS1** Run ID: **SV-4\_121212A** SeqNo: **3050467** Prep Date: **12/12/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	125.9	6.6	166.4	0	75.6	50-120	123.4	1.96	30	
Anthracene	142.2	6.6	166.4	0	85.5	50-123	137.1	3.72	30	
Benz(a)anthracene	141.2	6.6	166.4	0	84.8	50-131	142.4	0.9	30	
Benzo(a)pyrene	94.55	6.6	166.4	0	56.8	50-130	96.37	1.9	30	
Benzo(b)fluoranthene	120.4	6.6	166.4	0	72.3	50-137	123.9	2.86	30	
Benzo(k)fluoranthene	91.85	6.6	166.4	0	55.2	50-143	94.07	2.39	30	
Chrysene	131.7	6.6	166.4	0	79.1	50-130	137.9	4.61	30	
Dibenz(a,h)anthracene	95.2	6.6	166.4	0	57.2	50-130	96.83	1.7	30	
Fluoranthene	153.9	6.6	166.4	0	92.5	50-131	147.4	4.31	30	
Fluorene	129.8	6.6	166.4	0	78	50-125	128.6	0.936	30	
Indeno(1,2,3-cd)pyrene	101.2	6.6	166.4	0	60.8	45-139	99.7	1.51	30	
Naphthalene	114.7	6.6	166.4	0	68.9	50-125	109.2	4.91	30	
Pyrene	146.2	6.6	166.4	0	87.9	45-130	142.6	2.5	30	
Surr: 2-Fluorobiphenyl	122.3	6.6	166.4	0	73.5	43-125	121.4	0.752	30	
Surr: 4-Terphenyl-d14	158.1	6.6	166.4	0	95	32-125	162	2.43	30	
Surr: Nitrobenzene-d5	102.9	6.6	166.4	0	61.8	37-125	113.6	9.85	30	

The following samples were analyzed in this batch:

1212232-03A 1212232-04A

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

Client: Olsson Associates  
 Work Order: 1212232  
 Project: AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **R139635** Instrument ID **VOA3** Method: **SW8260**

**MBLK** Sample ID: **VBLKS1-121212-R139635** Units: **µg/Kg** Analysis Date: **12/12/2012 10:47 AM**

Client ID: Run ID: **VOA3\_121212A** SeqNo: **3048878** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
o-Xylene	U	5.0								
Toluene	U	5.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	45.12	0	50	0	90.2	70-128	0			
Surr: 4-Bromofluorobenzene	45.92	0	50	0	91.8	73-126	0			
Surr: Dibromofluoromethane	48.71	0	50	0	97.4	71-128	0			
Surr: Toluene-d8	47.76	0	50	0	95.5	73-127	0			

**LCS** Sample ID: **VLCSS1-121212-R139635** Units: **µg/Kg** Analysis Date: **12/12/2012 09:26 AM**

Client ID: Run ID: **VOA3\_121212A** SeqNo: **3048876** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	55.94	5.0	50	0	112	79-120	0			
Ethylbenzene	54.94	5.0	50	0	110	80-122	0			
m,p-Xylene	107.4	10	100	0	107	79-122	0			
o-Xylene	54.52	5.0	50	0	109	80-123	0			
Toluene	53.36	5.0	50	0	107	79-120	0			
Xylenes, Total	162	15	150	0	108	80-120	0			
Surr: 1,2-Dichloroethane-d4	46.12	0	50	0	92.2	70-128	0			
Surr: 4-Bromofluorobenzene	49.05	0	50	0	98.1	73-126	0			
Surr: Dibromofluoromethane	49.57	0	50	0	99.1	71-128	0			
Surr: Toluene-d8	48.72	0	50	0	97.4	73-127	0			

**LCSD** Sample ID: **VLCSDS1-121212-R139635** Units: **µg/Kg** Analysis Date: **12/12/2012 09:52 AM**

Client ID: Run ID: **VOA3\_121212A** SeqNo: **3048877** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	50.52	5.0	50	0	101	79-120	55.94	10.2	30	
Ethylbenzene	50.01	5.0	50	0	100	80-122	54.94	9.39	30	
m,p-Xylene	98.3	10	100	0	98.3	79-122	107.4	8.9	30	
o-Xylene	48.31	5.0	50	0	96.6	80-123	54.52	12.1	30	
Toluene	49.91	5.0	50	0	99.8	79-120	53.36	6.68	30	
Xylenes, Total	146.6	15	150	0	97.7	80-120	162	9.96	30	
Surr: 1,2-Dichloroethane-d4	47.86	0	50	0	95.7	70-128	46.12	3.7	30	
Surr: 4-Bromofluorobenzene	48.87	0	50	0	97.7	73-126	49.05	0.377	30	
Surr: Dibromofluoromethane	48.16	0	50	0	96.3	71-128	49.57	2.89	30	
Surr: Toluene-d8	50.03	0	50	0	100	73-127	48.72	2.65	30	

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



Client: Olsson Associates  
 Work Order: 1212232  
 Project: AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **R139635** Instrument ID **VOA3** Method: **SW8260**

**MS** Sample ID: **1212232-04AMS** Units: **µg/Kg** Analysis Date: **12/12/2012 01:28 PM**  
 Client ID: **AC McLaughlin 72X-SS2** Run ID: **VOA3\_121212A** SeqNo: **3049688** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	55.78	5.0	50	0	112	79-120	0			
Ethylbenzene	69.38	5.0	50	5.555	128	80-122	0			S
m,p-Xylene	174.7	10	100	20.08	155	79-122	0			S
o-Xylene	90.27	5.0	50	13.49	154	80-123	0			S
Toluene	62.83	5.0	50	4.117	117	79-120	0			
Xylenes, Total	265	15	150	33.57	154	80-120	0			S
Surr: 1,2-Dichloroethane-d4	44.23	0	50	0	88.5	70-128	0			
Surr: 4-Bromofluorobenzene	51.47	0	50	0	103	73-126	0			
Surr: Dibromofluoromethane	49.04	0	50	0	98.1	71-128	0			
Surr: Toluene-d8	50.04	0	50	0	100	73-127	0			

**MSD** Sample ID: **1212232-04AMSD** Units: **µg/Kg** Analysis Date: **12/12/2012 01:55 PM**  
 Client ID: **AC McLaughlin 72X-SS2** Run ID: **VOA3\_121212A** SeqNo: **3049690** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	57.7	5.0	50	0	115	79-120	55.78	3.38	30	
Ethylbenzene	85.52	5.0	50	5.555	160	80-122	69.38	20.8	30	S
m,p-Xylene	244.3	10	100	20.08	224	79-122	174.7	33.2	30	SR
o-Xylene	127	5.0	50	13.49	227	80-123	90.27	33.8	30	SR
Toluene	74.73	5.0	50	4.117	141	79-120	62.83	17.3	30	S
Xylenes, Total	371.3	15	150	33.57	225	80-120	265	33.4	30	SR
Surr: 1,2-Dichloroethane-d4	43.49	0	50	0	87	70-128	44.23	1.68	30	
Surr: 4-Bromofluorobenzene	48.2	0	50	0	96.4	73-126	51.47	6.57	30	
Surr: Dibromofluoromethane	48.35	0	50	0	96.7	71-128	49.04	1.41	30	
Surr: Toluene-d8	50.37	0	50	0	101	73-127	50.04	0.649	30	

The following samples were analyzed in this batch:

1212232-03A 1212232-04A

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

**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **R139619** Instrument ID **WetChem** Method: **SW9045B (Dissolve)**

**LCS** Sample ID: **WLCSS2-121211-R139619** Units: **pH Units** Analysis Date: **12/11/2012 05:00 PM**

Client ID: Run ID: **WETCHEM\_121211I** SeqNo: **3048255** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	90-110	0			

**DUP** Sample ID: **1212232-01ADUP** Units: **pH Units** Analysis Date: **12/11/2012 05:00 PM**

Client ID: **AC McLaughlin 72X-BG1** Run ID: **WETCHEM\_121211I** SeqNo: **3048262** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.36	0.10	0	0	0	0-0	8.37	0.12	20	

The following samples were analyzed in this batch:

1212232-01A	1212232-03A	1212232-04A
-------------	-------------	-------------

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

**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **R139704** Instrument ID **Balance1** Method: **SW3550** **(Dissolve)**

**DUP** Sample ID: **1212232-04ADUP** Units: **wt%** Analysis Date: **12/11/2012 06:20 PM**

Client ID: **AC McLaughlin 72X-SS2** Run ID: **BALANCE1\_121211I** SeqNo: **3050258** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Percent Moisture	13.33	0.010	0	0	0	0-0	13.88	3.99	20	

The following samples were analyzed in this batch:

1212232-01A	1212232-03A	1212232-04A
-------------	-------------	-------------

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

**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **R139727** Instrument ID **Balance1** Method: **LaDNR-29B SP (Dissolve)**

**DUP** Sample ID: **1212232-03BDUP** Units: % Saturation as D Analysis Date: **12/12/2012 11:50 AM**

Client ID: **AC McLaughlin 72X-SS1** Run ID: **BALANCE1\_121212B** SeqNo: **3050352** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Saturation Point	0.472	0.10	0	0	0		0.468	0.851	30	

The following samples were analyzed in this batch:

1212232-01B	1212232-03B	1212232-04B
-------------	-------------	-------------

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

**Client:** Olsson Associates  
**Work Order:** 1212232  
**Project:** AC McLaughlin 72X

## QC BATCH REPORT

Batch ID: **R139742** Instrument ID **BALANCE1** Method: **LaDNR-29B EC (Dissolve)**

**MBLK** Sample ID: **WBLKW1-121212-R139742** Units: **mmhos/cm @25°** Analysis Date: **12/12/2012 05:25 PM**

Client ID: Run ID: **BALANCE1\_121212C** SeqNo: **3050598** 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	0.010								
Electrical Conductivity, 1:1 aqueous	U	0.010								

**LCS** Sample ID: **WLCSW2-121212-R139742** Units: **mmhos/cm @25°** Analysis Date: **12/12/2012 05:25 PM**

Client ID: Run ID: **BALANCE1\_121212C** SeqNo: **3050599** 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	1.52	0.010	1.412	0	108	90-110	0			

**DUP** Sample ID: **1212232-03BDUP** Units: **mmhos/cm @25°** Analysis Date: **12/12/2012 05:25 PM**

Client ID: **AC McLaughlin 72X-SS1** Run ID: **BALANCE1\_121212C** SeqNo: **3050608** 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	32.84	0.010	0	0	0		33.74	2.7	20	
Electrical Conductivity, 1:1 aqueous	15.5	0.010	0	0	0		15.8	1.92	20	

The following samples were analyzed in this batch:

1212232-01B	1212232-03B	1212232-04B
-------------	-------------	-------------

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

**Client:** Olsson Associates  
**Project:** AC McLaughlin 72X  
**WorkOrder:** 1212232

## **QUALIFIERS, ACRONYMS, UNITS**

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

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

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% Saturation as	
Decimal	
meq/meq	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
mmhos/cm @25°C	
pH Units	
wt%	

## Sample Receipt Checklist

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

Date/Time Received: **06-Dec-12 09:35**

Work Order: **1212232**

Received by: **PMG**

Checklist completed by *Rishel D. Naran* 07-Dec-12  
eSignature Date

Reviewed by: *Patricia L. Lynch* 19-Dec-12  
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"/>	
Temperature(s)/Thermometer(s):	<u>3.6c u/c</u> <u>005</u>		
Cooler(s)/Kit(s):	<u>n/a</u>		
Date/Time sample(s) sent to storage:	<u>12/7/12 16:14</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		
Login Notes:			

Client Contacted:

Date Contacted:

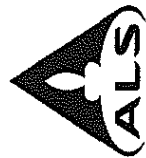
Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



# Chain of Custody Form

Page 1 of 1

COC ID: 123456

**Environmental**

ALS Project Manager:

- ☐ Cincinnati  
+1 513 731  
☐ Everett, W/  
+1 425 351  
☐ Fort Collins  
+1 970 491

1212232

OLSSON ASSOC - GRAND JUNCTION: Olsson Associates

Project: AC McLaughlin 72X



Customer Information				Project Information													
Purchase Order	Project Name	Project Number	Bill To Company	Invoice Attn	Address	City/State/Zip	Phone	Fax	e-Mail Address								
	AC McLaughlin 72X	9.0082.202.202004	Olsson Associates	Tim Dobransky	826 21 1/2 Road	Grand Junction, CO	970.263.7800	970.263.7456									
Company Name	Olsson Associates																
Send Report To	Tim Dobransky																
Address	826 21 1/2 Road																
City/State/Zip	Grand Junction, CO																
Phone	970.263.7800																
Fax	970.263.7456																
e-Mail Address	dobransky@olssonassociates.com																
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	AC McLaughlin 72X - BG1	12/04/12	1035	Soil	NA	2					X	X	X	X			
2	AC McLaughlin 72X - BG2	12/04/12	1045	Soil	NA	1								X			
3	AC McLaughlin 72X - SS1	12/04/12	1100	Soil	NA	2	X	X	X	X	X	X	X	X			
4	AC McLaughlin 72X - SS2	12/04/12	1110	Soil	NA	2	X	X	X	X	X	X	X	X			
5																	
6																	
7																	
8																	
9																	
10																	
Sampler(s): Please Print & Sign <i>Tim Dobransky</i> Shipment Method: <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: <i>Tim Dobransky</i> Date: <i>12/12/12</i> Time: <i>1700</i> Received by: <i>Jeff</i> Date: <i>12/12/12</i> Time: <i>0935</i>																	
Relinquished by: <i>Tim Dobransky</i> Date: <i>12/12/12</i> Time: <i>1700</i> Received by: <i>Jeff</i> Date: <i>12/12/12</i> Time: <i>0935</i>																	
Logged by (Laboratory): <i>Tim Dobransky</i> Date: <i>12/12/12</i> Time: <i>1700</i> Checked by (Laboratory): <i>Jeff</i> Date: <i>12/12/12</i> Time: <i>0935</i>																	
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NAOH 5-NA2S2O3 6-NAHSO4 7-Other 8-4 degrees C 9-5035																	

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

Copyright 2011 by ALS Group



SHIP DATE: 05DEC12  
ACTWT: 30.0 LB MAN  
CAO: 390082/CPE2605

ORIGIN ID: GJTA (970) 270-2986  
TIM DOBRANSKY  
OLSSON ASSOCIATES, INC.  
826 21 ROAD

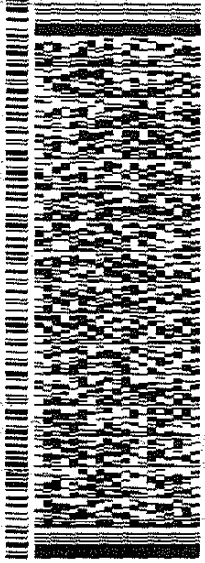
BILL SENDER

GRAND JUNCTION, CO 81505  
UNITED STATES US

TO **BRUCE SCHLATTER**  
**ALS ENVIRONMENTAL**  
**10450 STANCLIFF RD STE 210**

**HOUSTON TX 770994338**

(281) 575-2162  
PO: 009-0082



512131208160125

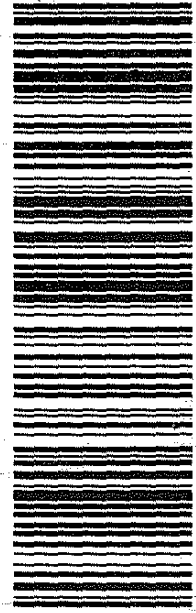
512C1/B2B3/CF60

THU - 06 DEC A1  
PRIORITY OVERNIGHT

TRK# 9660 0452 6190  
0201

**XH SCRA**

**77099**  
TX-US IAH



Part 1: 152148-434 NMT 09-07

12-6-12

12/15/12

12/22/12

12-6-12

12/15/12