



04/03/12

## Technical Report for

**Olsson Associates**

**Oxy CWHF Monitoring Wells**

**012-0441**

**Accutest Job Number: D33040**

**Sampling Date: 03/23/12**

### Report to:


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

**ATTN: Stuart Hall**

**Total number of pages in report: 56**



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: D33040

Oxy CWHF Monitoring Wells  
Project No: 012-0441

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D33040-1	03/23/12	14:45 JV	03/24/12	AQ	Ground Water	MW-3
D33040-1F	03/23/12	14:45 JV	03/24/12	AQ	Groundwater Filtered	MW-3
D33040-2	03/23/12	16:05 JV	03/24/12	AQ	Ground Water	MW-2
D33040-2F	03/23/12	16:05 JV	03/24/12	AQ	Groundwater Filtered	MW-2



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Olsson Associates

**Job No** D33040

**Site:** Oxy CWHF Monitoring Wells

**Report Date** 4/3/2012 11:29:35 AM

On 03/24/2012, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.8 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D33040 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 GC By Method SW846 8015B

**Matrix** AQ

**Batch ID:** GGA881

- All samples were analyzed within the recommended method holding time.
- Sample(s) D33040-1MS, D33040-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Volatiles by GC By Method SW846 8021B

**Matrix** AQ

**Batch ID:** GTA881

- All samples were analyzed within the recommended method holding time.
- Sample(s) D33040-1MS, D33040-1MSD 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** AQ

**Batch ID:** OP5614

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D32863-11MS, D32863-11MSD were used as the QC samples indicated.

### Metals By Method EPA 200.7

**Matrix** AQ

**Batch ID:** MP7141

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33020-1FMS, D33020-1FMSD were used as the QC samples for the metals analysis.

**Matrix** AQ

**Batch ID:** MP7157

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33062-1MS, D33062-1MSD were used as the QC samples for the metals analysis.

## Metals By Method EPA 200.8

**Matrix** AQ

**Batch ID:** MP7142

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33021-1FMS, D33021-1FMSD were used as the QC samples for the metals analysis.
- MP7142-MB1 for Selenium: All sample results >10x method blank concentration.

## Wet Chemistry By Method EPA 300/SW846 9056

**Matrix** AQ

**Batch ID:** GP6799

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33040-1MS, D33040-1MSD were used as the QC samples for the Bromide, Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Bromide analysis.
- D33040-1 and D33040-2 for Nitrogen, Nitrite: Elevated detection limit/MDL due to matrix interference.

## Wet Chemistry By Method SM20 2320B

**Matrix** AQ

**Batch ID:** GN14328

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33022-1DUP, D33022-1MS, D33022-1MSD were used as the QC samples for the Alkalinity, Total as CaCO<sub>3</sub> analysis.

## Wet Chemistry By Method SM20 2510B

**Matrix** AQ

**Batch ID:** GP6808

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33045-1DUP were used as the QC samples for the Specific Conductivity analysis.

## Wet Chemistry By Method SM20 2540C

**Matrix** AQ

**Batch ID:** GN14274

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33016-4DUP were used as the QC samples for the Solids, Total Dissolved analysis.

## Wet Chemistry By Method SM20 4500H

**Matrix** AQ

**Batch ID:** GN14268

- The following samples were run outside of holding time for method SM20 4500H: D33040-1, D33040-2

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.

## Sample Results

## Report of Analysis

## Report of Analysis

Client Sample ID:	MW-3	Date Sampled:	03/23/12
Lab Sample ID:	D33040-1	Date Received:	03/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015B		
Project:	Oxy CWHF Monitoring Wells		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA15593.D	1	03/30/12	SK	n/a	n/a	GGA881
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	95%		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

Client Sample ID:	MW-3	Date Sampled:	03/23/12
Lab Sample ID:	D33040-1	Date Received:	03/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	Oxy CWHF Monitoring Wells		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA15593.D	1	03/30/12	SK	n/a	n/a	GTA881
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	104%		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

Client Sample ID:	MW-3	Date Sampled:	03/23/12
Lab Sample ID:	D33040-1	Date Received:	03/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846-8015B SW846 3510C		
Project:	Oxy CWHF Monitoring Wells		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH002682.D	1	03/29/12	TR	03/26/12	OP5614	GFH139
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1040 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.38	0.25	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	61%		25-146%		

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

<b>Client Sample ID:</b> MW-3	<b>Date Sampled:</b> 03/23/12
<b>Lab Sample ID:</b> D33040-1	<b>Date Received:</b> 03/24/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> Oxy CWHF Monitoring Wells	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO <sub>3</sub>	375	5.0	mg/l	1	03/30/12	JD	SM20 2320B
Bromide	0.42	0.20	mg/l	1	03/24/12 10:46	NS	EPA 300/SW846 9056
Chloride	78.6	2.5	mg/l	5	03/24/12 11:14	NS	EPA 300/SW846 9056
Fluoride	0.67	0.10	mg/l	1	03/24/12 10:46	NS	EPA 300/SW846 9056
Nitrogen, Nitrate	1.7	0.23	mg/l	5	03/24/12 11:14	NS	EPA 300/SW846 9056
Nitrogen, Nitrite <sup>a</sup>	< 0.050	0.050	mg/l	5	03/24/12 11:14	NS	EPA 300/SW846 9056
Solids, Total Dissolved	698	10	mg/l	1	03/28/12	CJ	SM20 2540C
Specific Conductivity	882	1.0	umhos/cm	1	03/26/12	JK	SM20 2510B
Sulfate	140	2.5	mg/l	5	03/24/12 11:14	NS	EPA 300/SW846 9056
pH	7.38		su	1	03/27/12 16:00	CT	SM20 4500H

(a) Elevated detection limit/MDL due to matrix interference.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-3	<b>Date Sampled:</b> 03/23/12
<b>Lab Sample ID:</b> D33040-1F	<b>Date Received:</b> 03/24/12
<b>Matrix:</b> AQ - Groundwater Filtered	<b>Percent Solids:</b> n/a
<b>Project:</b> Oxy CWHF Monitoring Wells	

## Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	105000	400	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>
Iron	1140	70	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>
Magnesium	62300	200	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>
Manganese	37.4	5.0	ug/l	1	03/27/12	03/28/12 JB	EPA 200.7 <sup>3</sup>	EPA 200.7 <sup>6</sup>
Potassium	3430	1000	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>
Selenium	6.5	0.80	ug/l	2	03/26/12	03/29/12 GJ	EPA 200.8 <sup>2</sup>	EPA 200.8 <sup>5</sup>
Sodium	81600	400	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>

(1) Instrument QC Batch: MA2282

(2) Instrument QC Batch: MA2289

(3) Instrument QC Batch: MA2290

(4) Prep QC Batch: MP7141

(5) Prep QC Batch: MP7142

(6) Prep QC Batch: MP7157

RL = Reporting Limit

## Report of Analysis

Client Sample ID:	MW-2	Date Sampled:	03/23/12
Lab Sample ID:	D33040-2	Date Received:	03/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015B		
Project:	Oxy CWHF Monitoring Wells		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA15596.D	1	03/30/12	SK	n/a	n/a	GGA881
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	97%		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

Client Sample ID:	MW-2	Date Sampled:	03/23/12
Lab Sample ID:	D33040-2	Date Received:	03/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8021B		
Project:	Oxy CWHF Monitoring Wells		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	TA15596.D	1	03/30/12	SK	n/a	n/a	GTA881
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	106%		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

Client Sample ID:	MW-2	Date Sampled:	03/23/12
Lab Sample ID:	D33040-2	Date Received:	03/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846-8015B SW846 3510C		
Project:	Oxy CWHF Monitoring Wells		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH002684.D	1	03/29/12	TR	03/26/12	OP5614	GFH139
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1050 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.38	0.25	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	55%		25-146%		

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

<b>Client Sample ID:</b> MW-2	<b>Date Sampled:</b> 03/23/12
<b>Lab Sample ID:</b> D33040-2	<b>Date Received:</b> 03/24/12
<b>Matrix:</b> AQ - Ground Water	<b>Percent Solids:</b> n/a
<b>Project:</b> Oxy CWHF Monitoring Wells	

## General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO <sub>3</sub>	430	5.0	mg/l	1	03/30/12	JD	SM20 2320B
Bromide	0.38	0.20	mg/l	1	03/24/12 11:00	NS	EPA 300/SW846 9056
Chloride	69.5	2.5	mg/l	5	03/24/12 11:28	NS	EPA 300/SW846 9056
Fluoride	0.68	0.10	mg/l	1	03/24/12 11:00	NS	EPA 300/SW846 9056
Nitrogen, Nitrate	1.8	0.23	mg/l	5	03/24/12 11:28	NS	EPA 300/SW846 9056
Nitrogen, Nitrite <sup>a</sup>	< 0.050	0.050	mg/l	5	03/24/12 11:28	NS	EPA 300/SW846 9056
Solids, Total Dissolved	654	10	mg/l	1	03/28/12	CJ	SM20 2540C
Specific Conductivity	806	1.0	umhos/cm	1	03/26/12	JK	SM20 2510B
Sulfate	130	2.5	mg/l	5	03/24/12 11:28	NS	EPA 300/SW846 9056
pH	7.46		su	1	03/27/12 16:00	CT	SM20 4500H

(a) Elevated detection limit/MDL due to matrix interference.

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> MW-2	<b>Date Sampled:</b> 03/23/12
<b>Lab Sample ID:</b> D33040-2F	<b>Date Received:</b> 03/24/12
<b>Matrix:</b> AQ - Groundwater Filtered	<b>Percent Solids:</b> n/a
<b>Project:</b> Oxy CWHF Monitoring Wells	

## Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	91600	400	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>
Iron	< 70	70	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>
Magnesium	53300	200	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>
Manganese	< 5.0	5.0	ug/l	1	03/27/12	03/28/12 JB	EPA 200.7 <sup>3</sup>	EPA 200.7 <sup>6</sup>
Potassium	3000	1000	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>
Selenium	6.2	0.80	ug/l	2	03/26/12	03/29/12 GJ	EPA 200.8 <sup>2</sup>	EPA 200.8 <sup>5</sup>
Sodium	74500	400	ug/l	1	03/26/12	03/26/12 JM	EPA 200.7 <sup>1</sup>	EPA 200.7 <sup>4</sup>

(1) Instrument QC Batch: MA2282

(2) Instrument QC Batch: MA2289

(3) Instrument QC Batch: MA2290

(4) Prep QC Batch: MP7141

(5) Prep QC Batch: MP7142

(6) Prep QC Batch: MP7157

RL = Reporting Limit



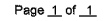
## Misc. Forms

### Custody Documents and Other Forms

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**Includes the following where applicable:**

- Chain of Custody



Client / Reporting Information				Project Information				Requested Analyses										Matrix Codes					
Company Name Olsson Associates				Project Name / No. Oxy CWHF Monitoring Wells				<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BTEX 8021</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH GRO/DRO 8015</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Dissolved Metals* - Ca, Fe, Mg, Mn, K, Se, Na</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Anions - F, Br, Cl, NO3, NO2, SO4</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TDS</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">SPCON</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">pH</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Alkalinity</div> </div>										DW - Drinking Water GW - Ground Water WW - Wastewater SO - Soil SL - Sludge LI - Oil LIQ - Liquid SOL - Other Solid					
Project Contact Edward Hall				Bill to Olsson Associates																Invoice Attn.			
E-Mail ehall@oasoconsulting.com				Address																			
Address 26 21 1/2 Road				City Grand Junction																State CO		Zip 81505	
Phone No. 70-263-7800				Fax No. 970-263-7456																Phone No. 70-263-7800			
Sample's Name ess Vann				Client Purchase Order # 012-0441																			
Accutest Sample #	Field ID / Point of Collection			Collection		Matrix	# of bottles	Number of preserved bottles								LAB USE ONLY							
				Date	Time			HCl	NaOH	NaOH	NaOH	HESM	ENCORE	NaOH	MEH			None					
	MW-3			3/23/2012	1445	GW	16													01			
	MW-2			3/23/2012	1605	GW	16													02			
	N/A			3/23/2012		GW																	

Turnaround Time (Business days)		Data Deliverable Information		Comments / Remarks	
<input checked="" type="checkbox"/> 10 Day STANDARD	Approved By: Date:	<input type="checkbox"/> Commercial "A"	<input type="checkbox"/> TRRP-13	AMS FEDEX Account Number - 467721860	
<input type="checkbox"/> 7 Day (per contract)		<input checked="" type="checkbox"/> Commercial "B"	<input type="checkbox"/> EDD Format		
<input type="checkbox"/> 4 Day RUSH		<input type="checkbox"/> Reduced Tier 1	<input type="checkbox"/> Other		
<input type="checkbox"/> 3 Day EMERGENCY		<input type="checkbox"/> Full Data Package			
<input type="checkbox"/> 2 Day EMERGENCY		Commercial "A" = Results Only Commercial "B" = Results & Standard QC			
<input type="checkbox"/> 1 Day EMERGENCY					
<input type="checkbox"/> Other					
<b>Real time analytical data available via Lablink</b>					
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY					
Relinquished by Sampler: <i>[Signature]</i>	Date Time: 3-23-12 16:15 hrs	Received By: 1	Relinquished By: 2	Date Time: 3-24-12 09:00	Received By: 2 <i>[Signature]</i>
Relinquished by:	Date Time:	Received By: 3	Relinquished By:	Date Time:	Received By:
Relinquished by:	Date Time:	Received By: 5	Custody Seal# Excella	Op/Se K	Cooler Temp. 4.8

Page 1 of 2

# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D33040

Client: OLSSON ASSOC.

Immediate Client Services Action Required: No

Date / Time Received: 3/24/2012 9:00:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: OXY CWHF MONITORING WELLS

Airbill #'s: FedEx

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 Volatiles

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### QC Data Summaries

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**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: D33040  
Account: CORCCOGJ Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA881-MB	GA15591.D	1	03/30/12	SK	n/a	n/a	GGA881

The QC reported here applies to the following samples:

Method: SW846 8015B

D33040-1, D33040-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	94% 60-140%

## Method Blank Summary

Page 1 of 1

Job Number: D33040  
Account: CORCCOGJ Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA881-MB	TA15591.D	1	03/30/12	SK	n/a	n/a	GTA881

The QC reported here applies to the following samples:

Method: SW846 8021B

D33040-1, D33040-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	2.0	1.0	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylenes (total)	ND	2.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	102% 60-140%

## Blank Spike Summary

Page 1 of 1

Job Number: D33040  
Account: CORCCOGJ Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA881-BS	GA15592.D	1	03/30/12	SK	n/a	n/a	GGA881

The QC reported here applies to the following samples:

Method: SW846 8015B

D33040-1, D33040-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.37	108	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	102%	60-140%

## Blank Spike Summary

Page 1 of 1

Job Number: D33040  
Account: CORCCOGJ Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GTA881-BS	TA15592.D	1	03/30/12	SK	n/a	n/a	GTA881

The QC reported here applies to the following samples:

Method: SW846 8021B

D33040-1, D33040-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	27.2	27.8	102	70-130
100-41-4	Ethylbenzene	45.6	46.5	102	70-130
108-88-3	Toluene	212	206	97	70-130
1330-20-7	Xylenes (total)	216	228	106	68-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	108%	60-140%



# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D33040  
Account: CORCCOGJ Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D33040-1MS	GA15594.D	5	03/30/12	SK	n/a	n/a	GGA881
D33040-1MSD	GA15595.D	5	03/30/12	SK	n/a	n/a	GGA881
D33040-1	GA15593.D	1	03/30/12	SK	n/a	n/a	GGA881

The QC reported here applies to the following samples:

Method: SW846 8015B

D33040-1, D33040-2

CAS No.	Compound	D33040-1 mg/l	Spike Q	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	11	11.9	108	11.6	105	3	61-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D33040-1	Limits
120-82-1	1,2,4-Trichlorobenzene	103%	104%	95%	60-140%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D33040

Account: CORCCOGJ Olsson Associates

Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D33040-1MS	TA15594.D	5	03/30/12	SK	n/a	n/a	GTA881
D33040-1MSD	TA15595.D	5	03/30/12	SK	n/a	n/a	GTA881
D33040-1	TA15593.D	1	03/30/12	SK	n/a	n/a	GTA881

The QC reported here applies to the following samples:

Method: SW846 8021B

D33040-1, D33040-2

CAS No.	Compound	D33040-1		Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits
		ug/l	Q							Rec/RPD
71-43-2	Benzene	ND		136	139	102	137	101	1	67-130/30
100-41-4	Ethylbenzene	ND		228	232	102	229	100	1	62-130/30
108-88-3	Toluene	ND		1060	1030	97	1010	95	2	66-130/30
1330-20-7	Xylenes (total)	ND		1080	1140	106	1120	104	2	61-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D33040-1	Limits
120-82-1	1,2,4-Trichlorobenzene	110%	112%	104%	60-140%

## 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: D33040  
Account: CORCCOGJ Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5614-MB	FH002662.D	1	03/29/12	TR	03/26/12	OP5614	GFH139

The QC reported here applies to the following samples:

Method: SW846-8015B

D33040-1, D33040-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.40	0.26	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	43% 25-146%

## Blank Spike Summary

Page 1 of 1

Job Number: D33040

Account: CORCCOGJ Olsson Associates

Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5614-BS	FH002664.D	1	03/29/12	TR	03/26/12	OP5614	GFH139

The QC reported here applies to the following samples:

Method: SW846-8015B

D33040-1, D33040-2

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	20	16.2	81	49-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	84%	25-146%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D33040  
Account: CORCCOGJ Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5614-MS	FH002666.D	1	03/29/12	TR	03/26/12	OP5614	GFH139
OP5614-MSD	FH002668.D	1	03/29/12	TR	03/26/12	OP5614	GFH139
D32863-11	FH002670.D	1	03/29/12	TR	03/26/12	OP5614	GFH139

The QC reported here applies to the following samples:

Method: SW846-8015B

D33040-1, D33040-2

CAS No.	Compound	D32863-11 mg/l	Spike Q	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	20	13.2	66	12.3	62	7	47-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D32863-11	Limits
84-15-1	o-Terphenyl	75%	67%	53%	25-146%

## 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: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7141  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date: 03/26/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	5.9	7.1		
Antimony	30	3.1	3.1		
Arsenic	25	5.9	5.9		
Barium	10	1.1	1.1		
Beryllium	10	.44	1.8		
Boron	50	4.8	4.8		
Cadmium	10	.27	.62		
Calcium	400	9.6	28	18.0	<400
Chromium	10	.18	.42		
Cobalt	5.0	.35	.4		
Copper	10	.85	1.9		
Iron	70	3.4	5.5	8.4	<70
Lead	50	1.6	1.8		
Lithium	2.0	.28	.46		
Magnesium	200	5.8	12	6.9	<200
Manganese	5.0	.053	.28		
Molybdenum	10	.45	1.1		
Nickel	30	.43	.96		
Phosphorus	100	11	12		
Potassium	1000	55	130	56.0	<1000
Selenium	50	3.8	5.7		
Silicon	50	3.8	3.8		
Silver	30	.18	.56		
Sodium	400	110	110	110	<400
Strontium	5.0		.17		
Thallium	10	2.9	2.9		
Tin	50	5.5	15		
Titanium	10	.11	.17		
Uranium	50	1.5	1.9		
Vanadium	10	.16	.18		
Zinc	30	.28	1.4		

Associated samples MP7141: D33040-1F, D33040-2F

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



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7141  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

7.1.1

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
 Account: CORCCOGJ - Olsson Associates  
 Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7141  
 Matrix Type: AQUEOUS

Methods: EPA 200.7  
 Units: ug/l

Prep Date: 03/26/12

Metal	D33020-1F Original MS	Spikelot MPICPAL % Rec	QC Limits
Aluminum			
Antimony			
Arsenic	anr		
Barium			
Beryllium			
Boron	anr		
Cadmium	anr		
Calcium	260000	282000	25000
Chromium	anr		
Cobalt			
Copper	anr		
Iron	72.8	5230	5000
Lead	anr		
Lithium			
Magnesium	90500	118000	25000
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	6810	35000	25000
Selenium			
Silicon			
Silver	anr		
Sodium	707000	726000	25000
Strontium	anr		
Thallium			
Tin			
Titanium			
Uranium			
Vanadium			
Zinc	anr		

Associated samples MP7141: D33040-1F, D33040-2F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7141  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
 Account: CORCCOGJ - Olsson Associates  
 Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7141  
 Matrix Type: AQUEOUS

Methods: EPA 200.7  
 Units: ug/l

Prep Date: 03/26/12

Metal	D33020-1F Original MSD		Spikelot MPICPAL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron	anr					
Cadmium	anr					
Calcium	260000	286000	25000	104.0	1.4	20
Chromium	anr					
Cobalt						
Copper	anr					
Iron	72.8	5250	5000	103.5	0.4	20
Lead	anr					
Lithium						
Magnesium	90500	117000	25000	106.0	0.9	20
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	6810	34800	25000	112.0	0.6	20
Selenium						
Silicon						
Silver	anr					
Sodium	707000	721000	25000	56.0 (a)	0.7	20
Strontium	anr					
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP7141: D33040-1F, D33040-2F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7141  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
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: D33040

Account: CORCCOGJ - Olsson Associates

Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7141

Methods: EPA 200.7

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

03/26/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron	anr			
Cadmium	anr			
Calcium	26900	25000	107.6	85-115
Chromium	anr			
Cobalt				
Copper	anr			
Iron	5190	5000	103.8	85-115
Lead	anr			
Lithium				
Magnesium	26400	25000	105.6	85-115
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium	27200	25000	108.8	85-115
Selenium				
Silicon				
Silver	anr			
Sodium	26500	25000	106.0	85-115
Strontium	anr			
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP7141: D33040-1F, D33040-2F

Results &lt; IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7141  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7142  
Matrix Type: AQUEOUS

Methods: EPA 200.8  
Units: ug/l

Prep Date: 03/26/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	.28	4.8		
Antimony	0.40	.002	.022		
Arsenic	0.80	.098	.19		
Barium	2.0	.007	.11		
Beryllium	0.20	.015	.066		
Boron	40	1.9	1.5		
Cadmium	0.10	.045	.054		
Calcium	400	3.6	19		
Chromium	2.0	.041	.11		
Cobalt	0.20	.0065	.011		
Copper	2.0	.021	.2		
Iron	40	1.6	8.2		
Lead	0.50	.0024	.046		
Magnesium	100	.13	3.6		
Manganese	1.0	.014	.14		
Molybdenum	1.0	.0087	.05		
Nickel	2.0	.0057	.11		
Phosphorus	60	3.6			
Potassium	200	4	6.4		
Selenium	0.40	.15	.32	0.28	* (a)
Silver	0.10	.0016	.05		
Sodium	500	1.6	54		
Strontium	20	.0079	.028		
Thallium	0.20	.029	.034		
Thorium	0.20				
Tin	10	.012	.22		
Titanium	2.0	.069	.24		
Uranium	0.20	.00076	.031		
Vanadium	1.0	.1	.54		
Zinc	10	.077	.55		

Associated samples MP7142: D33040-1F, D33040-2F

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested  
(a) All sample results >10x method blank concentration.



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
 Account: CORCCOGJ - Olsson Associates  
 Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7142  
 Matrix Type: AQUEOUS

Methods: EPA 200.8  
 Units: ug/l

Prep Date: 03/26/12

Metal	D33021-1F Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium	4.3	221	200	108.4	70-130
Silver					
Sodium					
Strontium					
Thallium					
Thorium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP7142: D33040-1F, D33040-2F

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: D33040  
 Account: CORCCOGJ - Olsson Associates  
 Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7142  
 Matrix Type: AQUEOUS

Methods: EPA 200.8  
 Units: ug/l

Prep Date: 03/26/12

Metal	D33021-1F Original MSD		Spikelot MPICPAL % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium	4.3	222	200	108.9	0.5	12
Silver						
Sodium						
Strontium						
Thallium						
Thorium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP7142: D33040-1F, D33040-2F

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: D33040

Account: CORCCOGJ - Olsson Associates

Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7142

Methods: EPA 200.8

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

03/26/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium	196	200	98.0	85-115
Silver				
Sodium				
Strontium				
Thallium				
Thorium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP7142: D33040-1F, D33040-2F

Results &lt; 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: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7157  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date: 03/27/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	5.9	7.1		
Antimony	30	3.1	3.1		
Arsenic	25	5.9	5.9		
Barium	10	1.1	1.1		
Beryllium	10	.44	1.8		
Boron	50	4.8	4.8		
Cadmium	10	.27	.62		
Calcium	400	9.6	28		
Chromium	10	.18	.42		
Cobalt	5.0	.35	.4		
Copper	10	.85	1.9		
Iron	70	3.4	5.5		
Lead	50	1.6	1.8		
Lithium	2.0	.28	.46		
Magnesium	200	5.8	12		
Manganese	5.0	.053	.28	0.20	<5.0
Molybdenum	10	.45	1.1		
Nickel	30	.43	.96		
Phosphorus	100	11	12		
Potassium	1000	55	130		
Selenium	50	3.8	5.7		
Silicon	50	3.8	3.8		
Silver	30	.18	.56		
Sodium	400	110	110		
Strontium	5.0		.17		
Thallium	10	2.9	2.9		
Tin	50	5.5	15		
Titanium	10	.11	.17		
Uranium	50	1.5	1.9		
Vanadium	10	.16	.18		
Zinc	30	.28	1.4		

Associated samples MP7157: D33040-1F, D33040-2F

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

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7157  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
 Account: CORCCOGJ - Olsson Associates  
 Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7157  
 Matrix Type: AQUEOUS

Methods: EPA 200.7  
 Units: ug/l

Prep Date: 03/27/12

Metal	D33062-1 Original MS	Spikelot MPICPALL % Rec	QC Limits
Aluminum			
Antimony			
Arsenic	anr		
Barium			
Beryllium			
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt			
Copper	anr		
Iron	anr		
Lead	anr		
Lithium			
Magnesium	anr		
Manganese	766	1260	500
Molybdenum	anr		
Nickel	anr		
Phosphorus			
Potassium			
Selenium			
Silicon			
Silver	anr		
Sodium			
Strontium			
Thallium			
Tin			
Titanium			
Uranium			
Vanadium			
Zinc	anr		

Associated samples MP7157: D33040-1F, D33040-2F

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7157  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date:

Metal

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

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
 Account: CORCCOGJ - Olsson Associates  
 Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7157  
 Matrix Type: AQUEOUS

Methods: EPA 200.7  
 Units: ug/l

Prep Date: 03/27/12

Metal	D33062-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Lithium						
Magnesium	anr					
Manganese	766	1250	500	96.8	0.8	20
Molybdenum	anr					
Nickel	anr					
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP7157: D33040-1F, D33040-2F

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



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7157  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date:

Metal

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

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D33040

Account: CORCCOGJ - Olsson Associates

Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7157

Methods: EPA 200.7

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

03/27/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Lithium				
Magnesium	anr			
Manganese	499	500	99.8	85-115
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP7157: D33040-1F, D33040-2F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

QC Batch ID: MP7157  
Matrix Type: AQUEOUS

Methods: EPA 200.7  
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

## General Chemistry

### QC Data Summaries

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**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: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Alkalinity, Total as CaCO <sub>3</sub>	GN14328	5.0	0.0	mg/l	100	103	102.5	90-110%
Bromide	GP6799/GN14226	0.20	0.0	mg/l	20	20.4	102.0	90-110%
Chloride	GP6799/GN14226	0.50	0.22	mg/l	20	20.0	100.0	90-110%
Fluoride	GP6799/GN14226	0.10	0.0	mg/l	10	10.2	102.0	90-110%
Nitrogen, Nitrate	GP6799/GN14226	0.045	0.0	mg/l	4.52	4.45	98.5	90-110%
Nitrogen, Nitrite	GP6799/GN14226	0.010	0.0	mg/l	6.09	6.04	99.2	90-110%
Solids, Total Dissolved	GN14274	10	0.0	mg/l	400	396	99.0	90-110%
Specific Conductivity	GP6808/GN14241	1.0	<1.0	umhos/cm	99.4	93.5	94.1	90-110%
Sulfate	GP6799/GN14226	0.50	0.0	mg/l	30	29.5	98.3	90-110%
pH	GN14268			su	8.00	7.95	99.4	99.3-100.7%
pH	GN14268			su	8.00	7.95	99.4	99.3-100.7%

Associated Samples:

Batch GN14268: D33040-1, D33040-2

Batch GN14274: D33040-1, D33040-2

Batch GN14328: D33040-1, D33040-2

Batch GP6799: D33040-1, D33040-2

Batch GP6808: D33040-1, D33040-2

(\*) Outside of QC limits

8.1

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DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO <sub>3</sub>	GN14328	D33022-1	mg/l	208	205	1.2	0-20%
Solids, Total Dissolved	GN14274	D33016-4	mg/l	502	490	2.4	0-25%
Specific Conductivity	GP6808/GN14241	D33045-1	umhos/cm	36900	711	1.9	0-20%

Associated Samples:

Batch GN14274: D33040-1, D33040-2

Batch GN14328: D33040-1, D33040-2

Batch GP6808: D33040-1, D33040-2

(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO <sub>3</sub>	GN14328	D33022-1	mg/l	208	100	303	95.0	80-120%
Bromide	GP6799/GN14226	D33040-1	mg/l	0.42	25	27.1	106.7	80-120%
Chloride	GP6799/GN14226	D33040-1	mg/l	78.6	100	186	107.4	80-120%
Fluoride	GP6799/GN14226	D33040-1	mg/l	0.67	25	28.1	109.7	80-120%
Nitrogen, Nitrate	GP6799/GN14226	D33040-1	mg/l	1.7	5.65	7.8	108.0	80-120%
Nitrogen, Nitrite	GP6799/GN14226	D33040-1	mg/l	0.0	3.05	3.1	101.8	80-120%
Sulfate	GP6799/GN14226	D33040-1	mg/l	140	100	248	108.0	80-120%

Associated Samples:

Batch GN14328: D33040-1, D33040-2

Batch GP6799: D33040-1, D33040-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



MATRIX SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D33040  
Account: CORCCOGJ - Olsson Associates  
Project: Oxy CWHF Monitoring Wells

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO <sub>3</sub>	GN14328	D33022-1	mg/l	208	100	300	0.8	20%
Bromide	GP6799/GN14226	D33040-1	mg/l	0.42	25	27.2	0.4	20%
Chloride	GP6799/GN14226	D33040-1	mg/l	78.6	100	186	0.0	20%
Fluoride	GP6799/GN14226	D33040-1	mg/l	0.67	25	28.2	0.4	20%
Nitrogen, Nitrate	GP6799/GN14226	D33040-1	mg/l	1.7	5.65	7.8	0.0	20%
Nitrogen, Nitrite	GP6799/GN14226	D33040-1	mg/l	0.0	3.05	3.1	0.0	20%
Sulfate	GP6799/GN14226	D33040-1	mg/l	140	100	248	0.0	20%

Associated Samples:

Batch GN14328: D33040-1, D33040-2

Batch GP6799: D33040-1, D33040-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

8.4

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