

Technical Report for

Olsson Associates

Oxy CWHF Monitoring Wells

Accutest Job Number: D36192

Sampling Date: 07/05/12

Report to:

Olsson Associates

shall@oaconsulting.com

ATTN: Stuart Hall

Total number of pages in report: 28



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.



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Laboratory Director

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Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP C000049), TX (T104704511-12-1)

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Sample Summary

Olsson Associates

Job No: D36192

Oxy CWHF Monitoring Wells

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D36192-1	07/05/12	12:30 JV	07/07/12	AQ	Ground Water	MW-1
D36192-1F	07/05/12	12:30 JV	07/07/12	AQ	Groundwater Filtered	MW-1
D36192-2	07/05/12	14:15 JV	07/07/12	AQ	Ground Water	MW-2
D36192-2F	07/05/12	14:15 JV	07/07/12	AQ	Groundwater Filtered	MW-2
D36192-3	07/05/12	15:55 JV	07/07/12	AQ	Ground Water	MW-3
D36192-3F	07/05/12	15:55 JV	07/07/12	AQ	Groundwater Filtered	MW-3



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Olsson Associates

Job No D36192

Site: Oxy CWHF Monitoring Wells

Report Date 7/23/2012 8:24:44 AM

On 07/07/2012, 3 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D36192 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: GGB921
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- All samples were analyzed within the recommended method holding time.
- Sample(s) D35924-2MS, D35924-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- All samples: were not preserved to a pH < 2 due to matrix interference.

Volatiles by GC By Method SW846 8021B

Matrix AQ	Batch ID: GTB921
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- All samples were analyzed within the recommended method holding time.
- Sample(s) D36307-2MS, D36307-2MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- All samples: were not preserved to a pH < 2 due to matrix interference.

Extractables by GC By Method SW846-8015B

Matrix AQ	Batch ID: OP6199
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- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D35938-3MS, D35938-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- The matrix spike duplicate (MSD) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Variability of recovery may be due to sample matrix/homogeneity.
- The RPD(s) for the MS and MSD recoveries of TPH-DRO (C10-C28) are outside control limits for sample OP6199-MSD. Variability of recovery may be due to sample matrix/homogeneity.
- Sample(s) OP6199-MSD have surrogates outside control limits. Probable cause due to matrix interference.
- OP6199-MSD for o-Terphenyl: Outside control limits due to possible matrix interference. Confirmed by reanalysis.

Metals By Method EPA 200.7

Matrix AQ	Batch ID: MP7882
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- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36131-2MS, D36131-2MSD were used as the QC samples for the metals analysis.

Matrix AQ	Batch ID: MP7924
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- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36463-1MS, D36463-1MSD were used as the QC samples for the metals analysis.

Metals By Method EPA 200.8

Matrix AQ	Batch ID: MP7863
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- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36197-1MSD, D36197-1MS were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Selenium are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Selenium are outside control limits. Probable cause due to matrix interference.

Wet Chemistry By Method EPA 300/SW846 9056

Matrix AQ	Batch ID: GP7661
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- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36193-1MS, D36193-1MSD were used as the QC samples for the Bromide, Chloride, Fluoride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate, Bromide analysis.
- D36192-3 for Nitrogen, Nitrite: Analysis performed past the recommended method holding time as per client instructions. Elevated detection limit due to matrix interference.
- D36192-1 for Nitrogen, Nitrite: Analysis performed past the recommended method holding time as per client instructions.
- D36192-2 for Nitrogen, Nitrite: Analysis performed past the recommended method holding time as per client instructions. Elevated detection limit due to matrix interference.
- All samples for Nitrogen, Nitrate: Analysis performed past the recommended method holding time as per client instructions.

Wet Chemistry By Method SM20 2320B

Matrix AQ	Batch ID: GN15870
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- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36192-2DUP, D36192-2MS, D36192-2MSD were used as the QC samples for the Alkalinity, Total as CaCO₃ analysis.

Wet Chemistry By Method SM20 2510B

Matrix AQ	Batch ID: GP7667
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- Sample(s) D36059-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ	Batch ID: GN15791
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- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36241-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

Wet Chemistry By Method SM20 4500H B+

Matrix AQ	Batch ID: GN15746
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- The following samples were run outside of holding time for method SM20 4500H B+: D36192-1, D36192-2, D36192-3

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

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

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

Summary of Hits

Job Number: D36192
Account: Olsson Associates
Project: Oxy CWHF Monitoring Wells
Collected: 07/05/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D36192-1 MW-1

Alkalinity, Total as CaCO3	377	5.0			mg/l	SM20 2320B
Bromide	0.40	0.40			mg/l	EPA 300/SW846 9056
Chloride	74.8	2.5			mg/l	EPA 300/SW846 9056
Fluoride	0.59	0.20			mg/l	EPA 300/SW846 9056
Nitrogen, Nitrate ^a	1.1	0.23			mg/l	EPA 300/SW846 9056
Nitrogen, Nitrite ^a	0.051	0.020			mg/l	EPA 300/SW846 9056
Solids, Total Dissolved	720	10			mg/l	SM20 2540C
Specific Conductivity	1010	1.0			umhos/cm	SM20 2510B
Sulfate	151	5.0			mg/l	EPA 300/SW846 9056
pH	7.43				su	SM20 4500H B+

D36192-1F MW-1

Calcium	80900	400			ug/l	EPA 200.7
Iron	117	10			ug/l	EPA 200.7
Magnesium	52800	200			ug/l	EPA 200.7
Manganese	55.6	5.0			ug/l	EPA 200.7
Potassium	3010	1000			ug/l	EPA 200.7
Selenium	3.2	0.80			ug/l	EPA 200.8
Sodium	96000	400			ug/l	EPA 200.7

D36192-2 MW-2

Alkalinity, Total as CaCO3	343	5.0			mg/l	SM20 2320B
Bromide	0.40	0.40			mg/l	EPA 300/SW846 9056
Chloride	69.1	2.5			mg/l	EPA 300/SW846 9056
Fluoride	0.54	0.20			mg/l	EPA 300/SW846 9056
Nitrogen, Nitrate ^a	1.8	0.23			mg/l	EPA 300/SW846 9056
Solids, Total Dissolved	672	10			mg/l	SM20 2540C
Specific Conductivity	896	1.0			umhos/cm	SM20 2510B
Sulfate	135	2.5			mg/l	EPA 300/SW846 9056
pH	7.48				su	SM20 4500H B+

D36192-2F MW-2

Calcium	83900	400			ug/l	EPA 200.7
Iron	16.3	10			ug/l	EPA 200.7
Magnesium	49100	200			ug/l	EPA 200.7
Manganese	12.5	5.0			ug/l	EPA 200.7
Potassium	2770	1000			ug/l	EPA 200.7
Selenium	3.8	0.80			ug/l	EPA 200.8
Sodium	70900	400			ug/l	EPA 200.7

Summary of Hits

Job Number: D36192
Account: Olsson Associates
Project: Oxy CWHF Monitoring Wells
Collected: 07/05/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D36192-3 MW-3

Alkalinity, Total as CaCO3	339	5.0			mg/l	SM20 2320B
Bromide	0.57	0.40			mg/l	EPA 300/SW846 9056
Chloride	99.7	2.5			mg/l	EPA 300/SW846 9056
Fluoride	0.53	0.20			mg/l	EPA 300/SW846 9056
Nitrogen, Nitrate ^a	1.4	0.23			mg/l	EPA 300/SW846 9056
Solids, Total Dissolved	734	10			mg/l	SM20 2540C
Specific Conductivity	983	1.0			umhos/cm	SM20 2510B
Sulfate	142	2.5			mg/l	EPA 300/SW846 9056
pH	7.45				su	SM20 4500H B+

D36192-3F MW-3

Calcium	91200	400			ug/l	EPA 200.7
Iron	11.0	10			ug/l	EPA 200.7
Magnesium	56600	200			ug/l	EPA 200.7
Potassium	2960	1000			ug/l	EPA 200.7
Selenium	3.3	0.80			ug/l	EPA 200.8
Sodium	74400	400			ug/l	EPA 200.7

(a) Analysis performed past the recommended method holding time as per client instructions.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: MW-1 Lab Sample ID: D36192-1 Matrix: AQ - Ground Water Method: SW846 8015B Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	GB16646.D	1	07/13/12	SK	n/a	n/a	GGB921
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	88%		60-140%		

(a) Sample was not preserved to a pH < 2 due to matrix interference.

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

4.1
4

Report of Analysis

Client Sample ID: MW-1 Lab Sample ID: D36192-1 Matrix: AQ - Ground Water Method: SW846 8021B Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	TB16646.D	1	07/13/12	SK	n/a	n/a	GTB921
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	92%		60-140%

(a) Sample was not preserved to a pH < 2 due to matrix interference.

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

4.1
4

Report of Analysis

Client Sample ID: MW-1 Lab Sample ID: D36192-1 Matrix: AQ - Ground Water Method: SW846-8015B SW846 3510C Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD15217.D	1	07/10/12	AW	07/07/12	OP6199	GFD790
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	89%		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

4.1
4

Report of Analysis

Client Sample ID: MW-1	Date Sampled: 07/05/12
Lab Sample ID: D36192-1	Date Received: 07/07/12
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Oxy CWHF Monitoring Wells	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	377	5.0	mg/l	1	07/18/12	JD	SM20 2320B
Bromide	0.40	0.40	mg/l	2	07/09/12 13:57	JML	EPA 300/SW846 9056
Chloride	74.8	2.5	mg/l	5	07/09/12 16:35	JML	EPA 300/SW846 9056
Fluoride	0.59	0.20	mg/l	2	07/09/12 13:57	JML	EPA 300/SW846 9056
Nitrogen, Nitrate ^a	1.1	0.23	mg/l	5	07/09/12 16:35	JML	EPA 300/SW846 9056
Nitrogen, Nitrite ^a	0.051	0.020	mg/l	2	07/09/12 13:57	JML	EPA 300/SW846 9056
Solids, Total Dissolved	720	10	mg/l	1	07/12/12	CJ	SM20 2540C
Specific Conductivity	1010	1.0	umhos/cm	1	07/10/12	CJ	SM20 2510B
Sulfate	151	5.0	mg/l	10	07/09/12 16:49	JML	EPA 300/SW846 9056
pH	7.43		su	1	07/09/12 13:00	CT	SM20 4500H B+

(a) Analysis performed past the recommended method holding time as per client instructions.

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-1	Date Sampled: 07/05/12
Lab Sample ID: D36192-1F	Date Received: 07/07/12
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: Oxy CWHF Monitoring Wells	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	80900	400	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵
Iron	117	10	ug/l	1	07/17/12	07/18/12 JB	EPA 200.7 ³	EPA 200.7 ⁶
Magnesium	52800	200	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵
Manganese	55.6	5.0	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵
Potassium	3010	1000	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵
Selenium	3.2	0.80	ug/l	2	07/11/12	07/12/12 JB	EPA 200.8 ¹	EPA 200.8 ⁴
Sodium	96000	400	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵

(1) Instrument QC Batch: MA2600

(2) Instrument QC Batch: MA2612

(3) Instrument QC Batch: MA2621

(4) Prep QC Batch: MP7863

(5) Prep QC Batch: MP7882

(6) Prep QC Batch: MP7924

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: MW-2 Lab Sample ID: D36192-2 Matrix: AQ - Ground Water Method: SW846 8015B Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	GB16647.D	1	07/13/12	SK	n/a	n/a	GGB921
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	90%		60-140%		

(a) Sample was not preserved to a pH < 2 due to matrix interference.

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

4.3
4

Report of Analysis

Client Sample ID: MW-2 Lab Sample ID: D36192-2 Matrix: AQ - Ground Water Method: SW846 8021B Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	TB16647.D	1	07/13/12	SK	n/a	n/a	GTB921
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	94%		60-140%

(a) Sample was not preserved to a pH < 2 due to matrix interference.

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

4.3
4

Report of Analysis

Client Sample ID: MW-2 Lab Sample ID: D36192-2 Matrix: AQ - Ground Water Method: SW846-8015B SW846 3510C Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD15219.D	1	07/10/12	AW	07/07/12	OP6199	GFD790
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	79%		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

4.3
4

Report of Analysis

Client Sample ID: MW-2	Date Sampled: 07/05/12
Lab Sample ID: D36192-2	Date Received: 07/07/12
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Oxy CWHF Monitoring Wells	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	343	5.0	mg/l	1	07/18/12	JD	SM20 2320B
Bromide	0.40	0.40	mg/l	2	07/09/12 14:11	JML	EPA 300/SW846 9056
Chloride	69.1	2.5	mg/l	5	07/09/12 17:04	JML	EPA 300/SW846 9056
Fluoride	0.54	0.20	mg/l	2	07/09/12 14:11	JML	EPA 300/SW846 9056
Nitrogen, Nitrate ^a	1.8	0.23	mg/l	5	07/09/12 17:04	JML	EPA 300/SW846 9056
Nitrogen, Nitrite ^b	< 0.050	0.050	mg/l	5	07/09/12 17:04	JML	EPA 300/SW846 9056
Solids, Total Dissolved	672	10	mg/l	1	07/12/12	CJ	SM20 2540C
Specific Conductivity	896	1.0	umhos/cm	1	07/10/12	CJ	SM20 2510B
Sulfate	135	2.5	mg/l	5	07/09/12 17:04	JML	EPA 300/SW846 9056
pH	7.48		su	1	07/09/12 13:00	CT	SM20 4500H B+

(a) Analysis performed past the recommended method holding time as per client instructions.

(b) Analysis performed past the recommended method holding time as per client instructions. Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-2 Lab Sample ID: D36192-2F Matrix: AQ - Groundwater Filtered Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	83900	400	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵
Iron	16.3	10	ug/l	1	07/17/12	07/18/12 JB	EPA 200.7 ³	EPA 200.7 ⁶
Magnesium	49100	200	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵
Manganese	12.5	5.0	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵
Potassium	2770	1000	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵
Selenium	3.8	0.80	ug/l	2	07/11/12	07/12/12 JB	EPA 200.8 ¹	EPA 200.8 ⁴
Sodium	70900	400	ug/l	1	07/13/12	07/16/12 JB	EPA 200.7 ²	EPA 200.7 ⁵

- (1) Instrument QC Batch: MA2600
- (2) Instrument QC Batch: MA2612
- (3) Instrument QC Batch: MA2621
- (4) Prep QC Batch: MP7863
- (5) Prep QC Batch: MP7882
- (6) Prep QC Batch: MP7924

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: MW-3 Lab Sample ID: D36192-3 Matrix: AQ - Ground Water Method: SW846 8015B Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	GB16648.D	1	07/13/12	SK	n/a	n/a	GGB921
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	90%		60-140%		

(a) Sample was not preserved to a pH < 2 due to matrix interference.

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

4.5
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Report of Analysis

Client Sample ID: MW-3	Date Sampled: 07/05/12
Lab Sample ID: D36192-3	Date Received: 07/07/12
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 ^a	TB16648.D	1	07/13/12	SK	n/a	n/a	GTB921
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	95%		60-140%

(a) Sample was not preserved to a pH < 2 due to matrix interference.

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 Lab Sample ID: D36192-3 Matrix: AQ - Ground Water Method: SW846-8015B SW846 3510C Project: Oxy CWHF Monitoring Wells	Date Sampled: 07/05/12 Date Received: 07/07/12 Percent Solids: n/a
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Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD15221.D	1	07/10/12	AW	07/07/12	OP6199	GFD790
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	78%		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

4.5
4

Report of Analysis

Client Sample ID: MW-3	Date Sampled: 07/05/12
Lab Sample ID: D36192-3	Date Received: 07/07/12
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Oxy CWHF Monitoring Wells	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃	339	5.0	mg/l	1	07/18/12	JD	SM20 2320B
Bromide	0.57	0.40	mg/l	2	07/09/12 14:25	JML	EPA 300/SW846 9056
Chloride	99.7	2.5	mg/l	5	07/09/12 17:33	JML	EPA 300/SW846 9056
Fluoride	0.53	0.20	mg/l	2	07/09/12 14:25	JML	EPA 300/SW846 9056
Nitrogen, Nitrate ^a	1.4	0.23	mg/l	5	07/09/12 17:33	JML	EPA 300/SW846 9056
Nitrogen, Nitrite ^b	< 0.050	0.050	mg/l	5	07/09/12 17:33	JML	EPA 300/SW846 9056
Solids, Total Dissolved	734	10	mg/l	1	07/12/12	CJ	SM20 2540C
Specific Conductivity	983	1.0	umhos/cm	1	07/10/12	CJ	SM20 2510B
Sulfate	142	2.5	mg/l	5	07/09/12 17:33	JML	EPA 300/SW846 9056
pH	7.45		su	1	07/09/12 13:00	CT	SM20 4500H B+

(a) Analysis performed past the recommended method holding time as per client instructions.

(b) Analysis performed past the recommended method holding time as per client instructions. Elevated detection limit due to matrix interference.

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-3	Date Sampled: 07/05/12
Lab Sample ID: D36192-3F	Date Received: 07/07/12
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: Oxy CWHF Monitoring Wells	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	91200	400	ug/l	1	07/13/12 07/16/12	JB	EPA 200.7 ²	EPA 200.7 ⁵
Iron	11.0	10	ug/l	1	07/17/12 07/18/12	JB	EPA 200.7 ³	EPA 200.7 ⁶
Magnesium	56600	200	ug/l	1	07/13/12 07/16/12	JB	EPA 200.7 ²	EPA 200.7 ⁵
Manganese	< 5.0	5.0	ug/l	1	07/13/12 07/16/12	JB	EPA 200.7 ²	EPA 200.7 ⁵
Potassium	2960	1000	ug/l	1	07/13/12 07/16/12	JB	EPA 200.7 ²	EPA 200.7 ⁵
Selenium	3.3	0.80	ug/l	2	07/11/12 07/12/12	JB	EPA 200.8 ¹	EPA 200.8 ⁴
Sodium	74400	400	ug/l	1	07/13/12 07/16/12	JB	EPA 200.7 ²	EPA 200.7 ⁵

(1) Instrument QC Batch: MA2600

(2) Instrument QC Batch: MA2612

(3) Instrument QC Batch: MA2621

(4) Prep QC Batch: MP7863

(5) Prep QC Batch: MP7882

(6) Prep QC Batch: MP7924

RL = Reporting Limit

Misc. Forms

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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D36192

Client: olsson Ass.

Immediate Client Services Action Required: No

Date / Time Received: 7/7/2012 10:45:00 AM

Delivery Method:

Project: OXY WTP CWHF monitoring Wells Qtr

No. Coolers:

Airbill #'s: Fedex

Cooler Security

Y or N

Y or N

- 1. Custody Seals Present: 3. COC Present:
- 2. Custody Seals Intact: 4. Smpl Dates/Time OK

Cooler Temperature

Y or N

- 1. Temp criteria achieved:
- 2. Cooler temp verification: Infrared gun
- 3. Cooler media: Ice (bag)

Quality Control Preservation

Y

N

N/A

- 1. Trip Blank present / cooler:
- 2. Trip Blank listed on COC:
- 3. Samples preserved properly:
- 4. VOCs headspace free:

Sample Integrity - Documentation

Y or N

- 1. Sample labels present on bottles:
- 2. Container labeling complete:
- 3. Sample container label / COC agree:

Sample Integrity - Condition

Y or N

- 1. Sample rec'd within HT:
- 2. All containers accounted for:
- 3. Condition of sample: Intact

Sample Integrity - Instructions

Y N N/A

- 1. Analysis requested is clear:
- 2. Bottles received for unspecified tests:
- 3. Sufficient volume rec'd for analysis:
- 4. Compositing instructions clear:
- 5. Filtering instructions clear:

Comments

Samples were received on Saturday with short holds.

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Accutest Job Number: D36192

CSR: Renea Jackson

Response Date

7/9/2012

Response: Please analyze out of hold per Stuart Hall. Thank you.