

Table 2
Oxy CWHF Monitoring Wells Quarterly Sampling
Water Quality Comparison

SAMPLE SUMMARY																
Location Description	Central Water Handling Facility															
Sample Type	Water Grab															
Client	OXY															
LABORATORY DATA SUMMARY																
Sample ID	MW-1					MW-2					MW-3					Units
Sample Date	3/26/2012	4/25/2012	5/17/2012	7/5/2012	11/8/2012	3/23/2012	4/25/2012	5/17/2012	7/5/2012	11/8/2012	3/23/2012	4/25/2012	5/17/2012	7/5/2012	11/8/2012	
Analytical Parameters																
TPH																
TPH-DRO	0.533	0.591	1.04	<0.38	0.39	<0.38	<0.38	0.631	<0.38	0.19	<0.38	<0.38	0.623	<0.38	0.14	mg/L
TPH-GRO	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	<0.20	<0.20	<0.20	<0.10	<0.20	<0.20	<0.20	<0.20	<0.10	mg/L
BTEX																
Benzene	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0	<1.0	<1.0	<0.5	ug/L
Toluene	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<5.0	ug/L
Ethylbenzene	<2.0	<2.0	<2.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<0.5	<2.0	<2.0	<2.0	<2.0	<0.5	ug/L
Total Xylenes	<2.0	<2.0	<2.0	<2.0	<1.5	<2.0	<2.0	<2.0	<2.0	<1.5	<2.0	<2.0	<2.0	<2.0	<1.5	ug/L
General Chemistry																
pH	7.56	7.66	7.37	7.43	7.6	7.46	7.46	7.43	7.48	7.5	7.38	7.44	7.35	7.45	7.5	su
Specific Conductivity	839	879	886	1010	1100	806	872	835	896	1100	882	1010	1010	983	1100	µmhos/cm
Total Alkalinity	425	414	384	377	440	430	340	340	343	370	375	361	374	339	340	mg/L
Total Dissolved Solids	612	652	728	720	530	654	666	650	672	590	698	760	730	734	630	mg/L
Anions																
Bromide	<0.20	<0.40	0.40	0.40	<1.0	0.38	0.37	0.39	0.40	<1.0	0.42	0.53	0.61	0.57	<1.0	mg/L
Chloride	38.3	52.5	74.7	74.8	68.0	69.5	68.9	66.1	69.1	69.0	78.6	93.7	99.0	99.7	79.0	mg/L
Fluoride	0.79	0.73	0.65	0.59	NT	0.68	0.53	0.58	0.54	NT	0.67	0.52	0.60	0.53	NT	mg/L
Nitrogen, Nitrate	0.53	0.74	1.3	1.1	0.81	1.8	1.8	1.9	1.8	1.6	1.7	1.8	1.6	1.4	1.4	mg/L
Nitrogen, Nitrite	0.055	<0.020	<0.020	0.051	<0.10	<0.050	<0.050	<0.010	<0.050	<0.10	<0.050	<0.050	<0.020	<0.050	<0.10	mg/L
Sulfate	72.1	89.2	146	151	44.0	130	130	129	135	50	140	143	143	142	140	mg/L
Dissolved Metals																
Calcium	46.5	73.8	83.8	80.9	68.0	91.6	84.7	82.6	83.9	80.0	105.0	93.6	94.1	91.2	82.0	mg/L
Iron	<0.070	0.0295	0.01	0.12	<0.10	<0.070	<0.010	0.0151	0.0163	<0.10	1.140	0.015	0.0196	0.0110	<0.10	mg/L
Magnesium	29.3	45.7	53.8	52.8	45.0	53.3	49.1	48.9	49.1	48.0	62.3	57.3	58.4	56.6	52.0	mg/L
Manganese	0.107	0.0431	0.0278	0.0556	0.018	<0.0050	<0.0050	<0.0050	0.013	<0.010	0.0374	<0.0050	0.0228	<0.0050	<0.010	mg/L
Potassium	3.43	3.01	3.16	3.01	3.0	3.00	2.80	2.77	2.77	2.9	3.43	2.99	3.22	2.96	3.0	mg/L
Selenium	0.0021	0.0025	0.0034	0.0032	<0.020	0.0062	0.0037	0.0035	0.0038	<0.020	0.0065	0.0044	0.0037	0.0033	<0.020	mg/L
Sodium	152.0	104.0	91.5	96.0	100	74.5	69.7	70.1	70.9	70.0	81.6	77.2	78.3	74.4	76.0	mg/L

<## - Analyte not detected above method detection limit
mg/L - milligrams per liter
ug/L - micrograms per liter
umhos/cm - micromhos per centimeter
su - standard units



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

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

Report Summary

Monday November 19, 2012

Report Number: L605245

Samples Received: 11/09/12

Client Project: 012-0744

Description: CWHF Quarterly Sampling

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Daphne Richards , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

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

November 19, 2012

Date Received : November 09, 2012
Description : CWHF Quarterly Sampling

ESC Sample # : L605245-01

Sample ID : MW 1

Site ID :

Collected By : K. Richards
Collection Date : 11/08/12 10:50

Project # : 012-0744

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Bromide	BDL	1.0	mg/l	9056	11/09/12	1
Chloride	68.	1.0	mg/l	9056	11/09/12	1
Nitrate	0.81	0.10	mg/l	9056	11/09/12	1
Nitrite	BDL	0.10	mg/l	9056	11/09/12	1
Sulfate	44.	10.	mg/l	9056	11/17/12	2
Alkalinity	440	100	mg/l	2320B	11/16/12	5
pH	7.6		su	9040C	11/15/12	1
Specific Conductance	1100		umhos/cm	9050A	11/13/12	1
Dissolved Solids	530	10.	mg/l	2540C	11/16/12	1
Calcium,Dissolved	68.	0.50	mg/l	6010B	11/16/12	1
Iron,Dissolved	BDL	0.10	mg/l	6010B	11/16/12	1
Magnesium,Dissolved	45.	0.10	mg/l	6010B	11/16/12	1
Manganese,Dissolved	0.018	0.010	mg/l	6010B	11/16/12	1
Potassium,Dissolved	3.0	0.50	mg/l	6010B	11/16/12	1
Selenium,Dissolved	BDL	0.020	mg/l	6010B	11/16/12	1
Sodium,Dissolved	100	0.50	mg/l	6010B	11/16/12	1
Benzene	BDL	0.00050	mg/l	8021/8015	11/11/12	1
Toluene	BDL	0.0050	mg/l	8021/8015	11/11/12	1
Ethylbenzene	BDL	0.00050	mg/l	8021/8015	11/11/12	1
Total Xylene	BDL	0.0015	mg/l	8021/8015	11/11/12	1
TPH (GC/FID) Low Fraction	BDL	0.10	mg/l	GRO	11/11/12	1
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.0		% Rec.	8021/8015	11/11/12	1
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	11/11/12	1
TPH (GC/FID) High Fraction	0.39	0.10	mg/l	3511/8015	11/13/12	1
Surrogate recovery(%)						
o-Terphenyl	92.4		% Rec.	3511/8015	11/13/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/19/12 09:20 Printed: 11/19/12 09:21
L605245-01 (PH) - 7.6@17.1c



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

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

November 19, 2012

Date Received : November 09, 2012
Description : CWHF Quarterly Sampling
Sample ID : MW 2
Collected By : K. Richards
Collection Date : 11/08/12 12:10

ESC Sample # : L605245-02

Site ID :

Project # : 012-0744

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Bromide	BDL	1.0	mg/l	9056	11/09/12	1
Chloride	69.	1.0	mg/l	9056	11/09/12	1
Nitrate	1.6	0.10	mg/l	9056	11/09/12	1
Nitrite	BDL	0.10	mg/l	9056	11/09/12	1
Sulfate	50.	10.	mg/l	9056	11/17/12	2
Alkalinity	370	100	mg/l	2320B	11/16/12	5
pH	7.5		su	9040C	11/15/12	1
Specific Conductance	1100		umhos/cm	9050A	11/13/12	1
Dissolved Solids	590	10.	mg/l	2540C	11/16/12	1
Calcium,Dissolved	80.	0.50	mg/l	6010B	11/16/12	1
Iron,Dissolved	BDL	0.10	mg/l	6010B	11/16/12	1
Magnesium,Dissolved	48.	0.10	mg/l	6010B	11/16/12	1
Manganese,Dissolved	BDL	0.010	mg/l	6010B	11/16/12	1
Potassium,Dissolved	2.9	0.50	mg/l	6010B	11/16/12	1
Selenium,Dissolved	BDL	0.020	mg/l	6010B	11/16/12	1
Sodium,Dissolved	70.	0.50	mg/l	6010B	11/16/12	1
Benzene	BDL	0.00050	mg/l	8021/8015	11/11/12	1
Toluene	BDL	0.0050	mg/l	8021/8015	11/11/12	1
Ethylbenzene	BDL	0.00050	mg/l	8021/8015	11/11/12	1
Total Xylene	BDL	0.0015	mg/l	8021/8015	11/11/12	1
TPH (GC/FID) Low Fraction	BDL	0.10	mg/l	GRO	11/11/12	1
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.7		% Rec.	8021/8015	11/11/12	1
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	11/11/12	1
TPH (GC/FID) High Fraction	0.19	0.10	mg/l	3511/8015	11/13/12	1
Surrogate recovery(%)						
o-Terphenyl	90.8		% Rec.	3511/8015	11/13/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/19/12 09:20 Printed: 11/19/12 09:21
L605245-02 (PH) - 7.5@16.6c



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

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

November 19, 2012

Date Received : November 09, 2012
Description : CWHF Quarterly Sampling
Sample ID : MW 3
Collected By : K. Richards
Collection Date : 11/08/12 13:05

ESC Sample # : L605245-03

Site ID :

Project # : 012-0744

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Bromide	BDL	1.0	mg/l	9056	11/09/12	1
Chloride	79.	1.0	mg/l	9056	11/09/12	1
Nitrate	1.4	0.10	mg/l	9056	11/09/12	1
Nitrite	BDL	0.10	mg/l	9056	11/09/12	1
Sulfate	140	10.	mg/l	9056	11/09/12	2
Alkalinity	340	20.	mg/l	2320B	11/16/12	1
pH	7.5		su	9040C	11/15/12	1
Specific Conductance	1100		umhos/cm	9050A	11/16/12	1
Dissolved Solids	630	10.	mg/l	2540C	11/16/12	1
Calcium,Dissolved	82.	0.50	mg/l	6010B	11/16/12	1
Iron,Dissolved	BDL	0.10	mg/l	6010B	11/16/12	1
Magnesium,Dissolved	52.	0.10	mg/l	6010B	11/16/12	1
Manganese,Dissolved	BDL	0.010	mg/l	6010B	11/16/12	1
Potassium,Dissolved	3.0	0.50	mg/l	6010B	11/16/12	1
Selenium,Dissolved	BDL	0.020	mg/l	6010B	11/16/12	1
Sodium,Dissolved	76.	0.50	mg/l	6010B	11/16/12	1
Benzene	BDL	0.00050	mg/l	8021/8015	11/11/12	1
Toluene	BDL	0.0050	mg/l	8021/8015	11/11/12	1
Ethylbenzene	BDL	0.00050	mg/l	8021/8015	11/11/12	1
Total Xylene	BDL	0.0015	mg/l	8021/8015	11/11/12	1
TPH (GC/FID) Low Fraction	BDL	0.10	mg/l	GRO	11/11/12	1
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.9		% Rec.	8021/8015	11/11/12	1
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	11/11/12	1
TPH (GC/FID) High Fraction	0.14	0.10	mg/l	3511/8015	11/13/12	1
Surrogate recovery(%)						
o-Terphenyl	103.		% Rec.	3511/8015	11/13/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 11/19/12 09:20 Printed: 11/19/12 09:21
L605245-03 (PH) - 7.5@16.5c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L605245-01	WG623139	SAMP	Dissolved Solids	R2445404	J3
	WG623174	SAMP	pH	R2443800	T8
L605245-02	WG623174	SAMP	pH	R2443800	T8
L605245-03	WG623174	SAMP	pH	R2443800	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
11/19/12 at 09:21:11

TSR Signing Reports: 288
R5 - Desired TAT

Log all PAHs as PAHSIM.

Sample: L605245-01 Account: OLSSONCO Received: 11/09/12 09:30 Due Date: 11/16/12 00:00 RPT Date: 11/19/12 09:20
filter metals in-house
Sample: L605245-02 Account: OLSSONCO Received: 11/09/12 09:30 Due Date: 11/16/12 00:00 RPT Date: 11/19/12 09:20
filter metals in-house
Sample: L605245-03 Account: OLSSONCO Received: 11/09/12 09:30 Due Date: 11/16/12 00:00 RPT Date: 11/19/12 09:20
filter metals in-house



YOUR LAB OF CHOICE

Olsson Associates- Grand Junction, CO
Tim Dobransky
826 21 1/2 Road

Grand Junction, CO 81505

Quality Assurance Report
Level II

L605245

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 19, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/l			WG622388	11/10/12 20:36
Ethylbenzene	< .0005	mg/l			WG622388	11/10/12 20:36
Toluene	< .005	mg/l			WG622388	11/10/12 20:36
TPH (GC/FID) Low Fraction	< .1	mg/l			WG622388	11/10/12 20:36
Total Xylene	< .0015	mg/l			WG622388	11/10/12 20:36
a,a,a-Trifluorotoluene(FID)		% Rec.	96.09	62-128	WG622388	11/10/12 20:36
a,a,a-Trifluorotoluene(PID)		% Rec.	103.7	55-122	WG622388	11/10/12 20:36
TPH (GC/FID) High Fraction	< .1	mg/l			WG622539	11/13/12 08:43
o-Terphenyl		% Rec.	104.0	50-150	WG622539	11/13/12 08:43
Specific Conductance	20.5	umhos/cm			WG622459	11/13/12 13:38
Bromide	< 1	mg/l			WG622246	11/09/12 09:34
Chloride	< 1	mg/l			WG622246	11/09/12 09:34
Nitrate	< .1	mg/l			WG622246	11/09/12 09:34
Nitrite	< .1	mg/l			WG622246	11/09/12 09:34
Sulfate	< 5	mg/l			WG622246	11/09/12 09:34
Calcium,Dissolved	< .5	mg/l			WG623267	11/15/12 15:24
Iron,Dissolved	< .1	mg/l			WG623267	11/15/12 15:24
Magnesium,Dissolved	< .1	mg/l			WG623267	11/15/12 15:24
Manganese,Dissolved	< .01	mg/l			WG623267	11/15/12 15:24
Potassium,Dissolved	< .5	mg/l			WG623267	11/15/12 15:24
Selenium,Dissolved	< .02	mg/l			WG623267	11/15/12 15:24
Sodium,Dissolved	< .5	mg/l			WG623267	11/15/12 15:24
Specific Conductance	2.22	umhos/cm			WG623324	11/16/12 10:42
Dissolved Solids	< 10	mg/l			WG623139	11/16/12 11:09
Alkalinity	< 20	mg/l			WG623002	11/16/12 13:18
Sulfate	< 5	mg/l			WG623491	11/16/12 23:08

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Specific Conductance	umhos/cm	58.0	64.0		9.84	20	L604731-07	WG622459
Specific Conductance	umhos/cm	2300	2300		0.436	20	L605567-01	WG622459
Bromide	mg/l	0	0		0	20	L605245-01	WG622246
Chloride	mg/l	69.0	68.0		1.46	20	L605245-01	WG622246
Nitrate	mg/l	0.840	0.810		3.64	20	L605245-01	WG622246
Nitrite	mg/l	0	0		0	20	L605245-01	WG622246
Nitrate	mg/l	0.610	0.620		1.63	20	L605289-02	WG622246
Nitrite	mg/l	0	0		0	20	L605289-02	WG622246
pH	su	7.70	7.70		0.521	1	L605031-01	WG623174

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Olsson Associates- Grand Junction, CO
Tim Dobransky
826 21 1/2 Road

Grand Junction, CO 81505

Quality Assurance Report
Level II

L605245

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 19, 2012

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
pH	su	7.60	7.60	0.525	1	L605632-01	WG623174
Calcium,Dissolved	mg/l	120.	118.	1.68	20	L604789-03	WG623267
Iron,Dissolved	mg/l	0	0.104	NA	20	L604789-03	WG623267
Magnesium,Dissolved	mg/l	14.0	14.3	2.12	20	L604789-03	WG623267
Manganese,Dissolved	mg/l	0.420	0.426	1.42	20	L604789-03	WG623267
Potassium,Dissolved	mg/l	1.60	1.64	2.47	20	L604789-03	WG623267
Selenium,Dissolved	mg/l	0	0.00400	NA	20	L604789-03	WG623267
Sodium,Dissolved	mg/l	14.0	14.5	3.51	20	L604789-03	WG623267
Specific Conductance	umhos/cm	800.	820.	1.85	20	L602318-01	WG623324
Specific Conductance	umhos/cm	5200	5300	1.33	20	L606161-01	WG623324
Dissolved Solids	mg/l	560.	527.	6.73*	5	L605245-01	WG623139
Dissolved Solids	mg/l	660.	643.	3.06	5	L605593-12	WG623139
Alkalinity	mg/l	460.	460.	0.218	20	L604582-07	WG623002
Alkalinity	mg/l	78.0	78.0	0.385	20	L604858-04	WG623002
Sulfate	mg/l	14.0	14.2	1.42	20	L605247-01	WG623491
Sulfate	mg/l	230.	240.	4.26	20	L605102-01	WG623491
Sulfate	mg/l	590.	600.	1.68	20	L605102-05	WG623491

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.05	0.0476	95.2	79-114	WG622388
Ethylbenzene	mg/l	.05	0.0523	105.	80-116	WG622388
Toluene	mg/l	.05	0.0502	100.	79-112	WG622388
Total Xylene	mg/l	.15	0.156	104.	84-118	WG622388
a,a,a-Trifluorotoluene(FID)				96.09	62-128	WG622388
a,a,a-Trifluorotoluene(PID)				103.6	55-122	WG622388
TPH (GC/FID) Low Fraction	mg/l	5.5	6.06	110.	70-124	WG622388
a,a,a-Trifluorotoluene(FID)				104.0	62-128	WG622388
a,a,a-Trifluorotoluene(PID)				118.3	55-122	WG622388
TPH (GC/FID) High Fraction	mg/l	1.5	1.52	101.	50-150	WG622539
o-Terphenyl				98.90	50-150	WG622539
Specific Conductance	umhos/cm	1050	1050	100.	85-115	WG622459
Bromide	mg/l	40	41.5	104.	90-110	WG622246
Chloride	mg/l	40	41.1	103.	90-110	WG622246
Nitrate	mg/l	8	8.54	107.	90-110	WG622246
Nitrite	mg/l	8	8.24	103.	90-110	WG622246
Sulfate	mg/l	40	40.5	101.	90-110	WG622246
pH	su	6.03	6.06	100.	98-101	WG623174

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Olsson Associates- Grand Junction, CO
Tim Dobransky
826 21 1/2 Road

Grand Junction, CO 81505

Quality Assurance Report
Level II

L605245

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 19, 2012

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Calcium,Dissolved	mg/l	11.3	10.8	95.6	85-115	WG623267
Iron,Dissolved	mg/l	1.13	1.08	95.6	85-115	WG623267
Magnesium,Dissolved	mg/l	11.3	10.7	94.7	85-115	WG623267
Manganese,Dissolved	mg/l	1.13	1.07	94.7	85-115	WG623267
Potassium,Dissolved	mg/l	11.3	10.4	92.0	85-115	WG623267
Selenium,Dissolved	mg/l	1.13	1.04	92.0	85-115	WG623267
Sodium,Dissolved	mg/l	11.3	10.1	89.4	85-115	WG623267
Specific Conductance	umhos/cm	1050	1050	100.	85-115	WG623324
Dissolved Solids	mg/l	8800	8550	97.2	85-115	WG623139
Alkalinity	mg/l	100	103.	103.	85-115	WG623002
Sulfate	mg/l	40	39.2	98.0	90-110	WG623491

Analyte	Units	Laboratory Control Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref %Rec				
Benzene	mg/l	0.0488	0.0476 98.0	79-114	2.44	20	WG622388
Ethylbenzene	mg/l	0.0538	0.0523 108.	80-116	2.67	20	WG622388
Toluene	mg/l	0.0514	0.0502 103.	79-112	2.36	20	WG622388
Total Xylene	mg/l	0.160	0.156 107.	84-118	2.34	20	WG622388
a,a,a-Trifluorotoluene(FID)			96.12	62-128			WG622388
a,a,a-Trifluorotoluene(PID)			103.8	55-122			WG622388
TPH (GC/FID) Low Fraction	mg/l	6.00	6.06 109.	70-124	0.940	20	WG622388
a,a,a-Trifluorotoluene(FID)			104.0	62-128			WG622388
a,a,a-Trifluorotoluene(PID)			118.9	55-122			WG622388
TPH (GC/FID) High Fraction	mg/l	1.52	1.52 101.	50-150	0.0900	20	WG622539
o-Terphenyl			100.0	50-150			WG622539
Specific Conductance	umhos/	1050	1050 100.	85-115	0	20	WG622459
Bromide	mg/l	41.7	41.5 104.	90-110	0.481	20	WG622246
Chloride	mg/l	41.2	41.1 103.	90-110	0.243	20	WG622246
Nitrate	mg/l	8.61	8.54 108.	90-110	0.816	20	WG622246
Nitrite	mg/l	8.25	8.24 103.	90-110	0.121	20	WG622246
Sulfate	mg/l	41.0	40.5 102.	90-110	1.23	20	WG622246
pH	su	6.08	6.06 101.	98-101	0.329	20	WG623174
Specific Conductance	umhos/	1050	1050 100.	85-115	0	20	WG623324
Dissolved Solids	mg/l	8520	8550 97.0	85-115	0.422	5	WG623139
Alkalinity	mg/l	109.	103. 109.	85-115	5.66	20	WG623002

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Olsson Associates- Grand Junction, CO
Tim Dobransky
826 21 1/2 Road

Grand Junction, CO 81505

Quality Assurance Report
Level II

L605245

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 19, 2012

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Sulfate	mg/l	39.1	39.2	98.0	90-110	0.255	20	WG623491

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/l	0.0551	0.00890	.05	92.5	35-147	L604816-07	WG622388
Ethylbenzene	mg/l	0.0846	0.0290	.05	111.	39-141	L604816-07	WG622388
Toluene	mg/l	0.0582	0.00810	.05	100.	35-148	L604816-07	WG622388
Total Xylene	mg/l	0.158	0.0120	.15	97.6	33-151	L604816-07	WG622388
a,a,a-Trifluorotoluene(FID)					153.4*	62-128		WG622388
a,a,a-Trifluorotoluene(PID)					183.2*	55-122		WG622388
TPH (GC/FID) Low Fraction	mg/l	7.43	1.70	5.5	104.	55-109	L604816-07	WG622388
a,a,a-Trifluorotoluene(FID)					167.8*	62-128		WG622388
a,a,a-Trifluorotoluene(PID)					202.8*	55-122		WG622388
Nitrate	mg/l	5.03	0	5	101.	80-120	L605236-01	WG622246
Nitrite	mg/l	5.12	0	5	102.	80-120	L605236-01	WG622246
Calcium,Dissolved	mg/l	129.	118.	11.3	97.3	75-125	L604789-03	WG623267
Iron,Dissolved	mg/l	1.24	0.104	1.13	100.	75-125	L604789-03	WG623267
Magnesium,Dissolved	mg/l	25.1	14.3	11.3	95.6	75-125	L604789-03	WG623267
Manganese,Dissolved	mg/l	1.52	0.426	1.13	96.8	75-125	L604789-03	WG623267
Potassium,Dissolved	mg/l	12.6	1.64	11.3	97.0	75-125	L604789-03	WG623267
Selenium,Dissolved	mg/l	1.06	0.00400	1.13	93.4	75-125	L604789-03	WG623267
Sodium,Dissolved	mg/l	25.8	14.5	11.3	100.	75-125	L604789-03	WG623267
Alkalinity	mg/l	339.	270.	100	69.0*	80-120	L605236-01	WG623002
Sulfate	mg/l	217.	120.	50	97.0	80-120	L605102-02	WG623491

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene	mg/l	0.0595	0.0551	101.	35-147	7.59	20	L604816-07	WG622388
Ethylbenzene	mg/l	0.0937	0.0846	129.	39-141	10.1	20	L604816-07	WG622388
Toluene	mg/l	0.0642	0.0582	112.	35-148	9.77	20	L604816-07	WG622388
Total Xylene	mg/l	0.178	0.158	110.	33-151	11.5	20	L604816-07	WG622388
a,a,a-Trifluorotoluene(FID)				157.5*	62-128				WG622388
a,a,a-Trifluorotoluene(PID)				191.3*	55-122				WG622388
TPH (GC/FID) Low Fraction	mg/l	7.42	7.43	104.	55-109	0.240	20	L604816-07	WG622388
a,a,a-Trifluorotoluene(FID)				167.8*	62-128				WG622388
a,a,a-Trifluorotoluene(PID)				203.8*	55-122				WG622388
Nitrate	mg/l	5.10	5.03	102.	80-120	1.38	20	L605236-01	WG622246
Nitrite	mg/l	5.17	5.12	103.	80-120	0.972	20	L605236-01	WG622246
Calcium,Dissolved	mg/l	124.	129.	53.1*	75-125	3.95	20	L604789-03	WG623267
Iron,Dissolved	mg/l	1.17	1.24	94.3	75-125	5.81	20	L604789-03	WG623267
Magnesium,Dissolved	mg/l	24.3	25.1	88.5	75-125	3.24	20	L604789-03	WG623267
Manganese,Dissolved	mg/l	1.46	1.52	91.5	75-125	4.03	20	L604789-03	WG623267
Potassium,Dissolved	mg/l	12.0	12.6	91.7	75-125	4.88	20	L604789-03	WG623267
Selenium,Dissolved	mg/l	1.06	1.06	93.4	75-125	0	20	L604789-03	WG623267

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Olsson Associates- Grand Junction, CO
Tim Dobransky
826 21 1/2 Road

Grand Junction, CO 81505

Quality Assurance Report
Level II

L605245

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 19, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Sodium, Dissolved	mg/l	24.6	25.8	89.4	75-125	4.76	20	L604789-03	WG623267
Alkalinity	mg/l	342.	339.	72.0*	80-120	0.881	20	L605236-01	WG623002
Sulfate	mg/l	217.	217.	97.0	80-120	0	20	L605102-02	WG623491

Batch number /Run number / Sample number cross reference

WG622388: R2436837: L605245-01 02 03
WG622539: R2438898: L605245-01 02 03
WG622459: R2439517: L605245-01 02
WG622246: R2441877: L605245-01 02 03
WG623174: R2443800: L605245-01 02 03
WG623267: R2444277: L605245-01 02 03
WG623324: R2445378: L605245-03
WG623139: R2445404: L605245-01 02 03
WG623002: R2445701: L605245-01 02 03
WG623491: R2446917: L605245-01 02

* * Calculations are performed prior to rounding of reported values.

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Olsson Associates- Grand Junction, CO
Tim Dobransky
826 21 1/2 Road

Grand Junction, CO 81505

Quality Assurance Report
Level II

L605245

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

November 19, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.