



12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
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Fax (615) 758-5859  
  
Tax I.D. 62-0814289  
  
Est. 1970

Scott Carmichael  
Walter Env. & Eng. Group -CO  
115 N 5th Street, Suite 340  
Grand Junction, CO 81501

### Report Summary

Wednesday November 20, 2013

Report Number: L668749

Samples Received: 11/14/13

Client Project: 242-05-001

Description: Lake 6-22

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:

Mark W. Beasley , 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, EPA - TN002

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.

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REPORT OF ANALYSIS

Scott Carmichael  
Walter Env. & Eng. Group -CO  
115 N 5th Street, Suite 340  
Grand Junction, CO 81501

November 20, 2013

Date Received : November 14, 2013  
Description : Lake 6-22  
Sample ID : BACKGROUND 1 5FT  
Collected By : Scott Carmichael  
Collection Date : 11/13/13 13:15

ESC Sample # : L668749-01  
Site ID :  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	9.6		su	9045D	11/20/13	1
Sodium Adsorption Ratio	4.6			Calc.	11/19/13	1
Specific Conductance	680		umhos/cm	9050AMod	11/19/13	1
Arsenic	4.1	1.0	mg/kg	6010B	11/17/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
Note:  
The reported analytical results relate only to the sample submitted.  
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Reported: 11/20/13 14:12 Printed: 11/20/13 14:12  
L668749-01 (PH) - 9.6@22.7c



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November 20, 2013

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115 N 5th Street, Suite 340  
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Date Received : November 14, 2013  
Description : Lake 6-22  
Sample ID : BACKGROUND 2 5FT  
Collected By : Scott Carmichael  
Collection Date : 11/13/13 13:30

ESC Sample # : L668749-02  
Site ID :  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	10.		su	9045D	11/20/13	1
Sodium Adsorption Ratio	8.0			Calc.	11/19/13	1
Specific Conductance	480		umhos/cm	9050AMod	11/19/13	1
Arsenic	1.4	1.0	mg/kg	6010B	11/17/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
Note:  
The reported analytical results relate only to the sample submitted.  
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Reported: 11/20/13 14:12 Printed: 11/20/13 14:12  
L668749-02 (PH) - 10@23.3c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L668749-02	WG692513	SAMP	Arsenic	R2856822	01

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
01	(ESC) The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

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  
11/20/13 at 14:12:41

TSR Signing Reports: 134  
R5 - Desired TAT

Accounting - pending credit app

Sample: L668749-01 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 11/21/13 00:00 RPT Date: 11/20/13 14:12

Sample: L668749-02 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 11/21/13 00:00 RPT Date: 11/20/13 14:12



**YOUR LAB OF CHOICE**

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Quality Assurance Report  
Level II

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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Arsenic	< 1	mg/kg			WG692513	11/17/13 08:47
Specific Conductance	1.10	umhos/cm			WG692975	11/19/13 12:02

Analyte	Units	Duplicate			Limit	Ref Samp	Batch
		Result	Duplicate	RPD			
Arsenic	mg/kg	1.40	1.36	4.00	20	L668749-02	WG692513
Specific Conductance	umhos/cm	680.	680.	0.295	20	L668749-01	WG692975
Specific Conductance	umhos/cm	2100	2100	2.17	20	L669238-01	WG692975
pH	su	9.60	9.60	0.312	1	L668749-01	WG693119
pH	su	7.80	7.80	0.257	1	L669197-10	WG693119

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Arsenic	mg/kg	237	225.	95.0	83.1-117	WG692513
Specific Conductance	umhos/cm	510	510.	100.	85-115	WG692975
pH	su	6.96	6.90	99.1	98.3-101.7	WG693119

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Specific Conductance	umhos/	510.	510.	100.	85-115	0.0	20	WG692975
pH	su	7.00	6.90	100.	98.3-101.7	1.44	20	WG693119

Analyte	Units	Matrix Spike				% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV					
Arsenic	mg/kg	49.7	1.36	50	97.0	75-125	L668749-02	WG692513	

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Arsenic	mg/kg	47.8	49.7	92.9	75-125	4.00	20	L668749-02	WG692513

Post Spike

Serial Dilution

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



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Batch number /Run number / Sample number cross reference

WG692513: R2856822 R2856823: L668749-01 02  
WG692975: R2857360: L668749-01 02  
WG692519: R2857460: L668749-01 02  
WG693119: R2857786: L668749-01 02

\* \* Calculations are performed prior to rounding of reported values.  
\* Performance of this Analyte is outside of established criteria.  
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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.