



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

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

Report Summary

Thursday December 12, 2013

Report Number: L672153

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

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Grand Junction, CO 81501

December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : CUTTINGS PILE - SE

Collected By : Scott Carmichael
Collection Date : 11/13/13 12:15

ESC Sample # : L672153-01

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	12.	1.0	mg/kg	6010B	11/20/13	1
Nickel	11.	1.0	mg/kg	6010B	12/06/13	1
Zinc	38.	1.5	mg/kg	6010B	11/20/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Reported: 12/09/13 12:37 Revised: 12/12/13 13:59



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December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : CUTTINGS PILE - NW

Collected By : Scott Carmichael
Collection Date : 11/13/13 11:55

ESC Sample # : L672153-02

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	7.0	1.0	mg/kg	6010B	11/20/13	1
Nickel	6.8	1.0	mg/kg	6010B	12/06/13	1
Zinc	22.	1.5	mg/kg	6010B	11/20/13	1

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December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : CUTTINGS PILE - C

Collected By : Scott Carmichael
Collection Date : 11/13/13 12:10

ESC Sample # : L672153-03

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	19.	1.0	mg/kg	6010B	11/20/13	1
Nickel	15.	1.0	mg/kg	6010B	12/06/13	1
Zinc	39.	1.5	mg/kg	6010B	11/20/13	1

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December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : DRILL PIT - C

Collected By : Scott Carmichael
Collection Date : 11/13/13 11:00

ESC Sample # : L672153-04

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	12.	1.0	mg/kg	6010B	11/20/13	1
Nickel	13.	1.0	mg/kg	6010B	12/06/13	1
Zinc	41.	1.5	mg/kg	6010B	11/20/13	1

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December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : DRILL PIT - S

Collected By : Scott Carmichael
Collection Date : 11/13/13 11:15

ESC Sample # : L672153-05

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	12.	1.0	mg/kg	6010B	11/20/13	1
Nickel	9.6	1.0	mg/kg	6010B	12/06/13	1
Zinc	49.	1.5	mg/kg	6010B	11/20/13	1

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December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : DRILL PIT - N

Collected By : Scott Carmichael
Collection Date : 11/13/13 11:25

ESC Sample # : L672153-06

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	13.	1.0	mg/kg	6010B	11/20/13	1
Nickel	14.	1.0	mg/kg	6010B	12/06/13	1
Zinc	39.	1.5	mg/kg	6010B	11/20/13	1

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December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : PIT BOTTOM-SW

Collected By : Scott Carmichael
Collection Date : 11/13/13 12:10

ESC Sample # : L672153-07

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	6.4	1.0	mg/kg	6010B	12/11/13	1
Nickel	8.1	1.0	mg/kg	6010B	12/11/13	1
Zinc	22.	1.5	mg/kg	6010B	12/11/13	1

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December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : PIT BOTTOM-C

Collected By : Scott Carmichael
Collection Date : 11/13/13 12:00

ESC Sample # : L672153-08

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	5.0	1.0	mg/kg	6010B	12/11/13	1
Nickel	6.2	1.0	mg/kg	6010B	12/11/13	1
Zinc	20.	1.5	mg/kg	6010B	12/11/13	1

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Det. Limit - Practical Quantitation Limit(PQL)
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December 12, 2013

Date Received : November 14, 2013
Description : Lake 6-22

Sample ID : PIT BOTTOM-N

Collected By : Scott Carmichael
Collection Date : 11/13/13 12:15

ESC Sample # : L672153-09

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Copper	4.3	1.0	mg/kg	6010B	12/11/13	1
Nickel	5.8	1.0	mg/kg	6010B	12/11/13	1
Zinc	19.	1.5	mg/kg	6010B	12/11/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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Summary of Remarks For Samples Printed
12/12/13 at 13:59:11

TSR Signing Reports: 134
R5 - Desired TAT

Accounting - pending credit app

Sample: L672153-01 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L668755-01
Sample: L672153-02 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L668755-02
Sample: L672153-03 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L668755-03
Sample: L672153-04 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L668755-04
Sample: L672153-05 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L668755-05
Sample: L672153-06 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L668755-06
Sample: L672153-07 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L669143-01
Sample: L672153-08 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L669143-02
Sample: L672153-09 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 12/11/13 00:00 RPT Date: 12/09/13 12:37
Relogged from L669143-03



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Quality Assurance Report
Level II

L672153

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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Copper	< 1	mg/kg			WG692613	11/18/13 17:12
Nickel	< 1	mg/kg			WG692613	11/18/13 17:12
Zinc	< 1.5	mg/kg			WG692613	11/18/13 17:12
Copper	< 1	mg/kg			WG696342	12/11/13 12:49
Nickel	< 1	mg/kg			WG696342	12/11/13 12:49
Zinc	< 1.5	mg/kg			WG696342	12/11/13 12:49

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Copper	mg/kg	1500	1410	8.00	20	L672839-04	WG696342
Nickel	mg/kg	2500	2340	8.00	20	L672839-04	WG696342
Zinc	mg/kg	83000	75700	9.00	20	L672839-04	WG696342

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Copper	mg/kg	123	142.	116.	83.7-116	WG692613
Nickel	mg/kg	118	126.	106.	82-118	WG692613
Zinc	mg/kg	183	185.	101.	82-118	WG692613
Copper	mg/kg	123	117.	95.0	83.7-116	WG696342
Nickel	mg/kg	118	105.	89.0	82-118	WG696342
Zinc	mg/kg	183	171.	93.0	82-118	WG696342

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Copper	mg/kg	1650	1410	5	480.*	75-125	L672839-04	WG696342
Nickel	mg/kg	2660	2340	5	640.*	75-125	L672839-04	WG696342
Zinc	mg/kg	85600	75700	2.5	20000*	75-125	L672839-04	WG696342

Analyte	Units	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref					
Copper	mg/kg	1680	1650	534.*	75-125	1.00	L672839-04	WG696342
Nickel	mg/kg	2840	2660	990.*	75-125	6.00	L672839-04	WG696342
Zinc	mg/kg	93100	85600	34600*	75-125	8.00	L672839-04	WG696342

Batch number /Run number / Sample number cross reference

WG692613: R2857105 R2864020: L672153-01 02 03 04 05 06
WG695915: R2864860: L672153-07 08 09
WG696342: R2866432: L672153-07 08 09

* * 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.'



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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.