



12065 Lebanon Rd.  
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Est. 1970

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

## Report Summary

Friday November 22, 2013

Report Number: L668755

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

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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 22, 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 # : L668755-01  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/21/13	1
Chromium, Trivalent	8.2	2.0	mg/kg	Calc.	11/21/13	1
ORP	-160		mV	2580 B-2011	11/20/13	1
pH	11.		su	9045D	11/20/13	1
Sodium Adsorption Ratio	13.			Calc.	11/19/13	1
Specific Conductance	860		umhos/cm	9050AMod	11/19/13	1
Mercury	BDL	0.020	mg/kg	7471	11/15/13	1
Arsenic	4.8	1.0	mg/kg	6010B	11/20/13	1
Barium	2500	0.25	mg/kg	6010B	11/20/13	1
Cadmium	0.32	0.25	mg/kg	6010B	11/20/13	1
Chromium	8.2	0.50	mg/kg	6010B	11/20/13	1
Lead	8.4	0.25	mg/kg	6010B	11/20/13	1
Selenium	BDL	1.0	mg/kg	6010B	11/20/13	1
Silver	BDL	0.50	mg/kg	6010B	11/20/13	1
Benzene	0.0060	0.0025	mg/kg	8021/8015	11/15/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/15/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/15/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/15/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/15/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.4		% Rec.	8021/8015	11/15/13	5
a,a,a-Trifluorotoluene(PID)	99.6		% Rec.	8021/8015	11/15/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/20/13	1
Surrogate recovery(%)						
o-Terphenyl	71.2		% Rec.	3546/DRO	11/20/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L668755-01 (PH) - 11@21.5c



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November 22, 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 # : L668755-01

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Naphthalene	0.030	0.020	mg/kg	8270C-SIM	11/21/13	1
Phenanthrene	0.0074	0.0060	mg/kg	8270C-SIM	11/21/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
1-Methylnaphthalene	0.035	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Methylnaphthalene	0.060	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Surrogate Recovery						
Nitrobenzene-d5	71.8		% Rec.	8270C-SIM	11/21/13	1
2-Fluorobiphenyl	80.8		% Rec.	8270C-SIM	11/21/13	1
p-Terphenyl-d14	78.0		% Rec.	8270C-SIM	11/21/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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November 22, 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 # : L668755-02  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/21/13	1
Chromium, Trivalent	6.1	2.0	mg/kg	Calc.	11/21/13	1
ORP	-150		mV	2580 B-2011	11/20/13	1
pH	11.		su	9045D	11/20/13	1
Sodium Adsorption Ratio	5.4			Calc.	11/19/13	1
Specific Conductance	1500		umhos/cm	9050AMod	11/19/13	1
Mercury	0.027	0.020	mg/kg	7471	11/15/13	1
Arsenic	5.6	1.0	mg/kg	6010B	11/20/13	1
Barium	1400	0.25	mg/kg	6010B	11/20/13	1
Cadmium	BDL	0.25	mg/kg	6010B	11/20/13	1
Chromium	6.1	0.50	mg/kg	6010B	11/20/13	1
Lead	6.2	0.25	mg/kg	6010B	11/20/13	1
Selenium	BDL	1.0	mg/kg	6010B	11/20/13	1
Silver	BDL	0.50	mg/kg	6010B	11/20/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/15/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/15/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/15/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/15/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/15/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.3		% Rec.	8021/8015	11/15/13	5
a,a,a-Trifluorotoluene(PID)	99.2		% Rec.	8021/8015	11/15/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/20/13	1
Surrogate recovery(%)						
o-Terphenyl	75.0		% Rec.	3546/DRO	11/20/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L668755-02 (PH) - 11@21.4c



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November 22, 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 # : L668755-02

Site ID :

Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Surrogate Recovery						
Nitrobenzene-d5	72.7		% Rec.	8270C-SIM	11/21/13	1
2-Fluorobiphenyl	88.0		% Rec.	8270C-SIM	11/21/13	1
p-Terphenyl-d14	89.4		% Rec.	8270C-SIM	11/21/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L668755-02 (PH) - 11@21.4c



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November 22, 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 # : L668755-03  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/21/13	1
Chromium, Trivalent	11.	2.0	mg/kg	Calc.	11/21/13	1
ORP	-70.		mV	2580 B-2011	11/20/13	1
pH	9.8		su	9045D	11/20/13	1
Sodium Adsorption Ratio	13.			Calc.	11/19/13	1
Specific Conductance	1600		umhos/cm	9050AMod	11/19/13	1
Mercury	0.040	0.020	mg/kg	7471	11/15/13	1
Arsenic	5.3	1.0	mg/kg	6010B	11/20/13	1
Barium	4800	0.25	mg/kg	6010B	11/20/13	1
Cadmium	0.28	0.25	mg/kg	6010B	11/20/13	1
Chromium	11.	0.50	mg/kg	6010B	11/20/13	1
Lead	9.4	0.25	mg/kg	6010B	11/20/13	1
Selenium	BDL	1.0	mg/kg	6010B	11/20/13	1
Silver	BDL	0.50	mg/kg	6010B	11/20/13	1
Benzene	0.0096	0.0025	mg/kg	8021/8015	11/15/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/15/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/15/13	5
Total Xylene	0.011	0.0075	mg/kg	8021/8015	11/15/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/15/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.7		% Rec.	8021/8015	11/15/13	5
a,a,a-Trifluorotoluene(PID)	99.6		% Rec.	8021/8015	11/15/13	5
TPH (GC/FID) High Fraction	16.	4.0	mg/kg	3546/DRO	11/20/13	1
Surrogate recovery(%)						
o-Terphenyl	70.3		% Rec.	3546/DRO	11/20/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L668755-03 (PH) - 9.8@21.1c



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November 22, 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 # : L668755-03  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluorene	0.0099	0.0060	mg/kg	8270C-SIM	11/21/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Naphthalene	0.12	0.020	mg/kg	8270C-SIM	11/21/13	1
Phenanthrene	0.029	0.0060	mg/kg	8270C-SIM	11/21/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
1-Methylnaphthalene	0.17	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Methylnaphthalene	0.27	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Surrogate Recovery						
Nitrobenzene-d5	77.8		% Rec.	8270C-SIM	11/21/13	1
2-Fluorobiphenyl	89.6		% Rec.	8270C-SIM	11/21/13	1
p-Terphenyl-d14	84.2		% Rec.	8270C-SIM	11/21/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
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L668755-03 (PH) - 9.8@21.1c



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November 22, 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 # : L668755-04  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/21/13	1
Chromium, Trivalent	7.3	2.0	mg/kg	Calc.	11/21/13	1
ORP	87.		mV	2580 B-2011	11/21/13	1
pH	9.8		su	9045D	11/20/13	1
Sodium Adsorption Ratio	33.			Calc.	11/19/13	1
Specific Conductance	810		umhos/cm	9050AMod	11/19/13	1
Mercury	0.081	0.020	mg/kg	7471	11/15/13	1
Arsenic	4.6	1.0	mg/kg	6010B	11/20/13	1
Barium	100	0.25	mg/kg	6010B	11/20/13	1
Cadmium	0.36	0.25	mg/kg	6010B	11/20/13	1
Chromium	7.3	0.50	mg/kg	6010B	11/20/13	1
Lead	7.9	0.25	mg/kg	6010B	11/20/13	1
Selenium	BDL	1.0	mg/kg	6010B	11/20/13	1
Silver	BDL	0.50	mg/kg	6010B	11/20/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/19/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/19/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/19/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/19/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/19/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	92.7		% Rec.	8021/8015	11/19/13	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	11/19/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/20/13	1
Surrogate recovery(%)						
o-Terphenyl	56.0		% Rec.	3546/DRO	11/20/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L668755-04 (PH) - 9.8@21.6c





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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 22, 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 # : L668755-04  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Surrogate Recovery						
Nitrobenzene-d5	73.7		% Rec.	8270C-SIM	11/21/13	1
2-Fluorobiphenyl	86.0		% Rec.	8270C-SIM	11/21/13	1
p-Terphenyl-d14	77.8		% Rec.	8270C-SIM	11/21/13	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: 11/22/13 18:15 Printed: 11/22/13 18:15  
L668755-04 (PH) - 9.8@21.6c



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Mt. Juliet, TN 37122  
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Fax (615) 758-5859  
  
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Est. 1970

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November 22, 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 # : L668755-05  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/21/13	1
Chromium, Trivalent	6.7	2.0	mg/kg	Calc.	11/21/13	1
ORP	82.		mV	2580 B-2011	11/21/13	1
pH	9.7		su	9045D	11/20/13	1
Sodium Adsorption Ratio	2.8			Calc.	11/19/13	1
Specific Conductance	780		umhos/cm	9050AMod	11/19/13	1
Mercury	0.12	0.020	mg/kg	7471	11/15/13	1
Arsenic	2.2	1.0	mg/kg	6010B	11/20/13	1
Barium	21.	0.25	mg/kg	6010B	11/20/13	1
Cadmium	1.3	0.25	mg/kg	6010B	11/20/13	1
Chromium	6.7	0.50	mg/kg	6010B	11/20/13	1
Lead	17.	0.25	mg/kg	6010B	11/20/13	1
Selenium	BDL	1.0	mg/kg	6010B	11/20/13	1
Silver	BDL	0.50	mg/kg	6010B	11/20/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/19/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/19/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/19/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/19/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/19/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	92.8		% Rec.	8021/8015	11/19/13	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	11/19/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/20/13	1
Surrogate recovery(%)						
o-Terphenyl	76.5		% Rec.	3546/DRO	11/20/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L668755-05 (PH) - 9.7@21.1c



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Sample ID : DRILL PIT - S  
  
Collected By : Scott Carmichael  
Collection Date : 11/13/13 11:15

ESC Sample # : L668755-05  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Surrogate Recovery						
Nitrobenzene-d5	73.6		% Rec.	8270C-SIM	11/21/13	1
2-Fluorobiphenyl	91.0		% Rec.	8270C-SIM	11/21/13	1
p-Terphenyl-d14	88.1		% Rec.	8270C-SIM	11/21/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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L668755-05 (PH) - 9.7@21.1c



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November 22, 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 # : L668755-06  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/21/13	1
Chromium, Trivalent	9.6	2.0	mg/kg	Calc.	11/21/13	1
ORP	84.		mV	2580 B-2011	11/21/13	1
pH	9.7		su	9045D	11/20/13	1
Sodium Adsorption Ratio	21.			Calc.	11/19/13	1
Specific Conductance	810		umhos/cm	9050AMod	11/19/13	1
Mercury	BDL	0.020	mg/kg	7471	11/15/13	1
Arsenic	3.1	1.0	mg/kg	6010B	11/20/13	1
Barium	23.	0.25	mg/kg	6010B	11/20/13	1
Cadmium	BDL	0.25	mg/kg	6010B	11/20/13	1
Chromium	9.6	0.50	mg/kg	6010B	11/20/13	1
Lead	9.4	0.25	mg/kg	6010B	11/20/13	1
Selenium	BDL	1.0	mg/kg	6010B	11/20/13	1
Silver	BDL	0.50	mg/kg	6010B	11/20/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/19/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/19/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/19/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/19/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/19/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	92.6		% Rec.	8021/8015	11/19/13	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	11/19/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/20/13	1
Surrogate recovery(%)						
o-Terphenyl	75.2		% Rec.	3546/DRO	11/20/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1

BDL - Below Detection Limit  
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L668755-06 (PH) - 9.7@21.8c



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Sample ID : DRILL PIT - N  
  
Collected By : Scott Carmichael  
Collection Date : 11/13/13 11:25

ESC Sample # : L668755-06  
  
Site ID :  
  
Project # : 242-05-001

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/21/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	11/21/13	1
Surrogate Recovery						
Nitrobenzene-d5	71.7		% Rec.	8270C-SIM	11/21/13	1
2-Fluorobiphenyl	87.0		% Rec.	8270C-SIM	11/21/13	1
p-Terphenyl-d14	87.0		% Rec.	8270C-SIM	11/21/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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L668755-06 (PH) - 9.7@21.8c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L668755-01	WG693236	SAMP	Benzo(k)fluoranthene	R2858225	J3
	WG693236	SAMP	Pyrene	R2858225	J3
L668755-02	WG693236	SAMP	2-Methylnaphthalene	R2858225	J3
	WG693236	SAMP	Benzo(k)fluoranthene	R2858225	J3
L668755-03	WG693236	SAMP	Pyrene	R2858225	J3
	WG693236	SAMP	Benzo(k)fluoranthene	R2858225	J3
L668755-04	WG693236	SAMP	Pyrene	R2858225	J3
	WG693236	SAMP	Benzo(k)fluoranthene	R2858225	J3
L668755-05	WG693236	SAMP	Pyrene	R2858225	J3
	WG693236	SAMP	Benzo(k)fluoranthene	R2858225	J3
L668755-06	WG693236	SAMP	Benzo(k)fluoranthene	R2858225	J3
	WG693236	SAMP	Pyrene	R2858225	J3

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.

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  
11/22/13 at 18:15:44

TSR Signing Reports: 134  
R5 - Desired TAT

Accounting - pending credit app

Sample: L668755-01 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 11/21/13 00:00 RPT Date: 11/22/13 18:15  
Sample: L668755-02 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 11/21/13 00:00 RPT Date: 11/22/13 18:15  
Sample: L668755-03 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 11/21/13 00:00 RPT Date: 11/22/13 18:15  
Sample: L668755-04 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 11/21/13 00:00 RPT Date: 11/22/13 18:15  
Sample: L668755-05 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 11/21/13 00:00 RPT Date: 11/22/13 18:15  
Sample: L668755-06 Account: WALTERGJCO Received: 11/14/13 09:30 Due Date: 11/21/13 00:00 RPT Date: 11/22/13 18:15





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Quality Assurance Report  
Level II

L668755

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Tax I.D. 62-0814289

Est. 1970

November 22, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Mercury	< .02	mg/kg			WG692510	11/15/13 15:11
Mercury	< .02	mg/kg			WG692507	11/15/13 16:37
Benzene	< .0005	mg/kg			WG692455	11/15/13 18:29
Ethylbenzene	< .0005	mg/kg			WG692455	11/15/13 18:29
Toluene	< .005	mg/kg			WG692455	11/15/13 18:29
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG692455	11/15/13 18:29
Total Xylene	< .0015	mg/kg			WG692455	11/15/13 18:29
a,a,a-Trifluorotoluene(FID)		% Rec.	95.30	59-128	WG692455	11/15/13 18:29
a,a,a-Trifluorotoluene(PID)		% Rec.	101.0	54-144	WG692455	11/15/13 18:29
Arsenic	< 1	mg/kg			WG692613	11/18/13 17:12
Barium	< .25	mg/kg			WG692613	11/18/13 17:12
Cadmium	< .25	mg/kg			WG692613	11/18/13 17:12
Chromium	< .5	mg/kg			WG692613	11/18/13 17:12
Lead	< .25	mg/kg			WG692613	11/18/13 17:12
Selenium	< 1	mg/kg			WG692613	11/18/13 17:12
Silver	< .5	mg/kg			WG692613	11/18/13 17:12
Specific Conductance	1.10	umhos/cm			WG692975	11/19/13 12:02
Benzene	< .0005	mg/kg			WG693016	11/19/13 12:53
Ethylbenzene	< .0005	mg/kg			WG693016	11/19/13 12:53
Toluene	< .005	mg/kg			WG693016	11/19/13 12:53
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG693016	11/19/13 12:53
Total Xylene	< .0015	mg/kg			WG693016	11/19/13 12:53
a,a,a-Trifluorotoluene(FID)		% Rec.	93.00	59-128	WG693016	11/19/13 12:53
a,a,a-Trifluorotoluene(PID)		% Rec.	101.0	54-144	WG693016	11/19/13 12:53
TPH (GC/FID) High Fraction	< 4	mg/kg			WG692831	11/20/13 09:34
o-Terphenyl		% Rec.	80.30	50-150	WG692831	11/20/13 09:34
TPH (GC/FID) High Fraction	< 4	mg/kg			WG692996	11/20/13 16:06
o-Terphenyl		% Rec.	92.00	50-150	WG692996	11/20/13 16:06
Chromium,Hexavalent	< 2	mg/kg			WG693036	11/21/13 13:19
1-Methylnaphthalene	< .02	mg/kg			WG693236	11/21/13 03:46
2-Chloronaphthalene	< .02	mg/kg			WG693236	11/21/13 03:46
2-Methylnaphthalene	< .02	mg/kg			WG693236	11/21/13 03:46
Acenaphthene	< .006	mg/kg			WG693236	11/21/13 03:46
Acenaphthylene	< .006	mg/kg			WG693236	11/21/13 03:46
Anthracene	< .006	mg/kg			WG693236	11/21/13 03:46
Benzo(a)anthracene	< .006	mg/kg			WG693236	11/21/13 03:46
Benzo(a)pyrene	< .006	mg/kg			WG693236	11/21/13 03:46
Benzo(b)fluoranthene	< .006	mg/kg			WG693236	11/21/13 03:46
Benzo(g,h,i)perylene	< .006	mg/kg			WG693236	11/21/13 03:46
Benzo(k)fluoranthene	< .006	mg/kg			WG693236	11/21/13 03:46
Chrysene	< .006	mg/kg			WG693236	11/21/13 03:46

\* 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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Est. 1970

November 22, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Dibenz(a,h)anthracene	< .006	mg/kg			WG693236	11/21/13 03:46
Fluoranthene	< .006	mg/kg			WG693236	11/21/13 03:46
Fluorene	< .006	mg/kg			WG693236	11/21/13 03:46
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG693236	11/21/13 03:46
Naphthalene	< .02	mg/kg			WG693236	11/21/13 03:46
Phenanthrene	< .006	mg/kg			WG693236	11/21/13 03:46
Pyrene	< .006	mg/kg			WG693236	11/21/13 03:46
2-Fluorobiphenyl		% Rec.	60.90	51.1-131	WG693236	11/21/13 03:46
Nitrobenzene-d5		% Rec.	49.20	40.9-147	WG693236	11/21/13 03:46
p-Terphenyl-d14		% Rec.	57.90	45.3-138	WG693236	11/21/13 03:46

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Mercury	mg/kg	0.0	0.00292		63.2*	20	L668817-07	WG692510
Mercury	mg/kg	0.0230	0.0262		12.7	20	L668561-13	WG692507
Arsenic	mg/kg	1.60	1.71		9.00	20	L668817-07	WG692613
Barium	mg/kg	22.0	25.9		17.0	20	L668817-07	WG692613
Cadmium	mg/kg	0.0	0.204		96.0*	20	L668817-07	WG692613
Chromium	mg/kg	4.00	4.30		8.00	20	L668817-07	WG692613
Lead	mg/kg	6.20	6.82		10.0	20	L668817-07	WG692613
Selenium	mg/kg	0.0	0.0656		465.*	20	L668817-07	WG692613
Silver	mg/kg	0.0	0.0449		41.0*	20	L668817-07	WG692613
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
ORP	mV	190.	190.		1.05	20	L668296-01	WG693179
ORP	mV	10.0	10.0		0.0	20	L668882-07	WG693179
Chromium,Hexavalent	mg/kg	0.0	0.0		0.0	20	L669143-02	WG693036
Chromium,Hexavalent	mg/kg	0.0	0.0		0.0	20	L669238-02	WG693036
ORP	mV	86.0	87.0		1.16	20	L668755-04	WG693466
ORP	mV	80.0	79.0		1.26	20	L669245-07	WG693466

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Mercury	mg/kg	12.4	13.1	106.	71.6-128	WG692510
Mercury	mg/kg	12.4	13.0	105.	71.6-128	WG692507
Benzene	mg/kg	.05	0.0439	87.9	70-130	WG692455
Ethylbenzene	mg/kg	.05	0.0469	93.7	70-130	WG692455

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Toluene	mg/kg	.05	0.0465	93.0	70-130	WG692455
Total Xylene	mg/kg	.15	0.136	90.9	70-130	WG692455
a,a,a-Trifluorotoluene(PID)				100.0	54-144	WG692455
TPH (GC/FID) Low Fraction	mg/kg	5.5	4.50	81.9	63.5-137	WG692455
a,a,a-Trifluorotoluene(FID)				96.90	59-128	WG692455
Arsenic	mg/kg	237	232.	98.0	83.1-117	WG692613
Barium	mg/kg	252	259.	103.	84.1-116	WG692613
Cadmium	mg/kg	191	210.	110.	83.2-117	WG692613
Chromium	mg/kg	128	137.	107.	81.3-118	WG692613
Lead	mg/kg	103	104.	101.	83.1-117	WG692613
Selenium	mg/kg	110	108.	98.0	78.7-122	WG692613
Silver	mg/kg	47.3	45.3	96.0	66.2-134	WG692613
Specific Conductance	umhos/cm	510	510.	100.	85-115	WG692975
Benzene	mg/kg	.05	0.0451	90.2	70-130	WG693016
Ethylbenzene	mg/kg	.05	0.0463	92.6	70-130	WG693016
Toluene	mg/kg	.05	0.0453	90.7	70-130	WG693016
Total Xylene	mg/kg	.15	0.141	93.8	70-130	WG693016
a,a,a-Trifluorotoluene(PID)				100.0	54-144	WG693016
TPH (GC/FID) Low Fraction	mg/kg	5.5	4.13	75.2	63.5-137	WG693016
a,a,a-Trifluorotoluene(FID)				98.10	59-128	WG693016
pH	su	6.96	6.90	99.1	98.3-101.7	WG693119
ORP	mV	100	110.	110.	90-110	WG693179
TPH (GC/FID) High Fraction	mg/kg	60	42.1	70.2	50-150	WG692831
o-Terphenyl				75.30	50-150	WG692831
TPH (GC/FID) High Fraction	mg/kg	60	52.6	87.6	50-150	WG692996
o-Terphenyl				94.80	50-150	WG692996
Chromium, Hexavalent	mg/kg	146	139.	95.2	80-120	WG693036
1-Methylnaphthalene	mg/kg	.08	0.0645	80.7	62.5-121	WG693236
2-Chloronaphthalene	mg/kg	.08	0.0600	75.0	62.1-120	WG693236
2-Methylnaphthalene	mg/kg	.08	0.0651	81.4	62.5-121	WG693236
Acenaphthene	mg/kg	.08	0.0594	74.3	62.4-121	WG693236
Acenaphthylene	mg/kg	.08	0.0598	74.8	62.9-123	WG693236
Anthracene	mg/kg	.08	0.0637	79.6	64.9-129	WG693236
Benzo(a)anthracene	mg/kg	.08	0.0619	77.4	61.8-125	WG693236
Benzo(a)pyrene	mg/kg	.08	0.0581	72.6	63.4-119	WG693236
Benzo(b)fluoranthene	mg/kg	.08	0.0626	78.3	62.7-119	WG693236
Benzo(g,h,i)perylene	mg/kg	.08	0.0659	82.4	68.2-129	WG693236
Benzo(k)fluoranthene	mg/kg	.08	0.0576	72.0	64.5-128	WG693236
Chrysene	mg/kg	.08	0.0631	78.9	64.4-128	WG693236
Dibenz(a,h)anthracene	mg/kg	.08	0.0644	80.5	65.3-128	WG693236
Fluoranthene	mg/kg	.08	0.0606	75.7	61.8-129	WG693236

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Fluorene	mg/kg	.08	0.0603	75.4	60.8-121	WG693236
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0652	81.5	67.6-129	WG693236
Naphthalene	mg/kg	.08	0.0599	74.9	59.5-116	WG693236
Phenanthrene	mg/kg	.08	0.0575	71.8	59.4-121	WG693236
Pyrene	mg/kg	.08	0.0582	72.8	61.2-130	WG693236
2-Fluorobiphenyl				76.10	51.1-131	WG693236
Nitrobenzene-d5				56.90	40.9-147	WG693236
p-Terphenyl-d14				75.40	45.3-138	WG693236
ORP	mV	100	100.	100.	90-110	WG693466

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0433	0.0439	87.0	70-130	1.32	20	WG692455
Ethylbenzene	mg/kg	0.0463	0.0469	92.0	70-130	1.22	20	WG692455
Toluene	mg/kg	0.0456	0.0465	91.0	70-130	2.10	20	WG692455
Total Xylene	mg/kg	0.135	0.136	90.0	70-130	1.20	20	WG692455
a,a,a-Trifluorotoluene(PID)				101.0	54-144			WG692455
TPH (GC/FID) Low Fraction	mg/kg	4.21	4.50	77.0	63.5-137	6.67	20	WG692455
a,a,a-Trifluorotoluene(FID)				96.80	59-128			WG692455
Specific Conductance	umhos/	510.	510.	100.	85-115	0.0	20	WG692975
Benzene	mg/kg	0.0456	0.0451	91.0	70-130	1.09	20	WG693016
Ethylbenzene	mg/kg	0.0467	0.0463	93.0	70-130	0.820	20	WG693016
Toluene	mg/kg	0.0453	0.0453	90.0	70-130	0.170	20	WG693016
Total Xylene	mg/kg	0.142	0.141	95.0	70-130	1.24	20	WG693016
a,a,a-Trifluorotoluene(PID)				100.0	54-144			WG693016
TPH (GC/FID) Low Fraction	mg/kg	4.13	4.13	75.0	63.5-137	0.210	20	WG693016
a,a,a-Trifluorotoluene(FID)				98.00	59-128			WG693016
pH	su	7.00	6.90	100.	98.3-101.7	1.44	20	WG693119
ORP	mV	110.	110.	110.	90-110	0.0	20	WG693179
TPH (GC/FID) High Fraction	mg/kg	43.6	42.1	73.0	50-150	3.36	20	WG692831
o-Terphenyl				79.10	50-150			WG692831
TPH (GC/FID) High Fraction	mg/kg	54.5	52.6	91.0	50-150	3.58	20	WG692996
o-Terphenyl				97.40	50-150			WG692996
Chromium, Hexavalent	mg/kg	139.	139.	95.0	80-120	0.0	20	WG693036
1-Methylnaphthalene	mg/kg	0.0775	0.0645	97.0	62.5-121	18.2	20	WG693236
2-Chloronaphthalene	mg/kg	0.0717	0.0600	90.0	62.1-120	17.8	20	WG693236
2-Methylnaphthalene	mg/kg	0.0784	0.0651	98.0	62.5-121	18.6	20	WG693236
Acenaphthene	mg/kg	0.0708	0.0594	88.0	62.4-121	17.5	20	WG693236
Acenaphthylene	mg/kg	0.0711	0.0598	89.0	62.9-123	17.1	20	WG693236
Anthracene	mg/kg	0.0768	0.0637	96.0	64.9-129	18.7	20	WG693236

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzo(a)anthracene	mg/kg	0.0718	0.0619	90.0	61.8-125	14.8	20	WG693236
Benzo(a)pyrene	mg/kg	0.0690	0.0581	86.0	63.4-119	17.1	20	WG693236
Benzo(b)fluoranthene	mg/kg	0.0735	0.0626	92.0	62.7-119	15.9	20	WG693236
Benzo(g,h,i)perylene	mg/kg	0.0777	0.0659	97.0	68.2-129	16.4	20	WG693236
Benzo(k)fluoranthene	mg/kg	0.0719	0.0576	90.0	64.5-128	22.2*	20	WG693236
Chrysene	mg/kg	0.0752	0.0631	94.0	64.4-128	17.5	20	WG693236
Dibenz(a,h)anthracene	mg/kg	0.0757	0.0644	95.0	65.3-128	16.2	20	WG693236
Fluoranthene	mg/kg	0.0726	0.0606	91.0	61.8-129	18.1	20	WG693236
Fluorene	mg/kg	0.0709	0.0603	88.0	60.8-121	16.1	20	WG693236
Indeno(1,2,3-cd)pyrene	mg/kg	0.0769	0.0652	96.0	67.6-129	16.5	20	WG693236
Naphthalene	mg/kg	0.0713	0.0599	89.0	59.5-116	17.4	20	WG693236
Phenanthrene	mg/kg	0.0683	0.0575	85.0	59.4-121	17.2	20	WG693236
Pyrene	mg/kg	0.0712	0.0582	89.0	61.2-130	20.1*	20	WG693236
2-Fluorobiphenyl				90.60	51.1-131			WG693236
Nitrobenzene-d5				65.20	40.9-147			WG693236
p-Terphenyl-d14				91.00	45.3-138			WG693236
ORP	mV	100.	100.	100.	90-110	0.0	20	WG693466

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Mercury	mg/kg	0.263	0.00292	.25	100.	80-120	L668817-07	WG692510
Mercury	mg/kg	0.244	0.0262	.25	87.0	80-120	L668561-13	WG692507
Benzene	mg/kg	0.202	0.0	.05	81.0	49.7-127	L668511-11	WG692455
Ethylbenzene	mg/kg	0.213	0.0	.05	85.0	40.8-141	L668511-11	WG692455
Toluene	mg/kg	0.212	0.0	.05	85.0	49.8-132	L668511-11	WG692455
Total Xylene	mg/kg	0.619	0.0	.15	83.0	41.2-140	L668511-11	WG692455
a,a,a-Trifluorotoluene(PID)					99.90	54-144		WG692455
TPH (GC/FID) Low Fraction	mg/kg	18.6	0.0575	5.5	68.0	28.5-138	L668511-11	WG692455
a,a,a-Trifluorotoluene(FID)					91.80	59-128		WG692455
Arsenic	mg/kg	46.0	1.71	50	89.0	75-125	L668817-07	WG692613
Barium	mg/kg	67.5	25.9	50	83.0	75-125	L668817-07	WG692613
Cadmium	mg/kg	45.4	0.204	50	90.0	75-125	L668817-07	WG692613
Chromium	mg/kg	49.0	4.30	50	89.0	75-125	L668817-07	WG692613
Lead	mg/kg	50.9	6.82	50	88.0	75-125	L668817-07	WG692613
Selenium	mg/kg	44.0	0.0656	50	88.0	75-125	L668817-07	WG692613
Silver	mg/kg	43.5	0.0449	50	87.0	75-125	L668817-07	WG692613
Benzene	mg/kg	0.201	0.000358	.05	80.0	49.7-127	L669359-01	WG693016
Ethylbenzene	mg/kg	0.196	0.000416	.05	78.0	40.8-141	L669359-01	WG693016
Toluene	mg/kg	0.198	0.000762	.05	79.0	49.8-132	L669359-01	WG693016
Total Xylene	mg/kg	0.592	0.00124	.15	79.0	41.2-140	L669359-01	WG693016
a,a,a-Trifluorotoluene(PID)					99.70	54-144		WG693016
TPH (GC/FID) Low Fraction	mg/kg	17.2	0.0682	5.5	62.0	28.5-138	L669359-01	WG693016
a,a,a-Trifluorotoluene(FID)					96.50	59-128		WG693016
TPH (GC/FID) High Fraction	mg/kg	49.6	1.84	60	80.0	50-150	L668761-02	WG692996
o-Terphenyl					92.80	50-150		WG692996

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Chromium,Hexavalent	mg/kg	19.7	0.0	20	98.0	75-125	L669143-03	WG693036
1-Methylnaphthalene	mg/kg	0.0846	0.0355	.08	61.4	58.9-123	L668755-01	WG693236
2-Chloronaphthalene	mg/kg	0.0534	0.	.08	66.7	61.6-120	L668755-01	WG693236
2-Methylnaphthalene	mg/kg	0.105	0.0595	.08	57.3	50.7-129	L668755-01	WG693236
Acenaphthene	mg/kg	0.0520	0.00113	.08	63.6	51.6-124	L668755-01	WG693236
Acenaphthylene	mg/kg	0.0546	0.	.08	68.3	58.3-126	L668755-01	WG693236
Anthracene	mg/kg	0.0582	0.000857	.08	71.7	47.9-137	L668755-01	WG693236
Benzo(a)anthracene	mg/kg	0.0544	0.	.08	68.0	34.2-138	L668755-01	WG693236
Benzo(a)pyrene	mg/kg	0.0550	0.	.08	68.7	34.6-133	L668755-01	WG693236
Benzo(b)fluoranthene	mg/kg	0.0487	0.000820	.08	59.8	19.8-142	L668755-01	WG693236
Benzo(g,h,i)perylene	mg/kg	0.0551	0.000701	.08	68.0	20-149	L668755-01	WG693236
Benzo(k)fluoranthene	mg/kg	0.0547	0.000650	.08	67.5	32.1-137	L668755-01	WG693236
Chrysene	mg/kg	0.0593	0.00165	.08	72.0	36.6-137	L668755-01	WG693236
Dibenz(a,h)anthracene	mg/kg	0.0579	0.	.08	72.4	27.1-145	L668755-01	WG693236
Fluoranthene	mg/kg	0.0519	0.000736	.08	63.9	39.8-141	L668755-01	WG693236
Fluorene	mg/kg	0.0525	0.00263	.08	62.4	42.5-130	L668755-01	WG693236
Indeno(1,2,3-cd)pyrene	mg/kg	0.0549	0.	.08	68.6	19-151	L668755-01	WG693236
Naphthalene	mg/kg	0.0817	0.0296	.08	65.1	40.6-135	L668755-01	WG693236
Phenanthrene	mg/kg	0.0539	0.00736	.08	58.2	39.7-129	L668755-01	WG693236
Pyrene	mg/kg	0.0474	0.00113	.08	57.9	31.5-141	L668755-01	WG693236
2-Fluorobiphenyl					76.70	51.1-131		WG693236
Nitrobenzene-d5					64.10	40.9-147		WG693236
p-Terphenyl-d14					74.40	45.3-138		WG693236

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Mercury	mg/kg	0.253	0.263	99.9	80-120	3.89	20	L668817-07	WG692510
Mercury	mg/kg	0.233	0.244	82.9	80-120	4.38	20	L668561-13	WG692507
Benzene	mg/kg	0.195	0.202	78.0	49.7-127	3.62	23.5	L668511-11	WG692455
Ethylbenzene	mg/kg	0.207	0.213	82.7	40.8-141	3.17	23.8	L668511-11	WG692455
Toluene	mg/kg	0.205	0.212	82.1	49.8-132	3.13	23.5	L668511-11	WG692455
Total Xylene	mg/kg	0.597	0.619	79.7	41.2-140	3.58	23.7	L668511-11	WG692455
a,a,a-Trifluorotoluene(PID)				100.0	54-144				WG692455
TPH (GC/FID) Low Fraction	mg/kg	18.6	18.6	67.5	28.5-138	0.0800	23.6	L668511-11	WG692455
a,a,a-Trifluorotoluene(FID)				95.40	59-128				WG692455
Arsenic	mg/kg	46.4	46.0	89.4	75-125	1.00	20	L668817-07	WG692613
Barium	mg/kg	69.0	67.5	86.2	75-125	2.00	20	L668817-07	WG692613
Cadmium	mg/kg	46.3	45.4	92.2	75-125	2.00	20	L668817-07	WG692613
Chromium	mg/kg	49.3	49.0	90.1	75-125	1.00	20	L668817-07	WG692613
Lead	mg/kg	50.2	50.9	86.8	75-125	1.00	20	L668817-07	WG692613
Selenium	mg/kg	44.7	44.0	89.3	75-125	2.00	20	L668817-07	WG692613
Silver	mg/kg	44.2	43.5	88.3	75-125	2.00	20	L668817-07	WG692613
Benzene	mg/kg	0.219	0.201	87.4	49.7-127	8.55	23.5	L669359-01	WG693016
Ethylbenzene	mg/kg	0.212	0.196	84.6	40.8-141	7.74	23.8	L669359-01	WG693016
Toluene	mg/kg	0.214	0.198	85.2	49.8-132	7.64	23.5	L669359-01	WG693016
Total Xylene	mg/kg	0.634	0.592	84.4	41.2-140	6.90	23.7	L669359-01	WG693016
a,a,a-Trifluorotoluene(PID)				99.90	54-144				WG693016

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

Grand Junction, CO 81501

Quality Assurance Report  
Level II

L668755

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 22, 2013

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	18.5	17.2	67.0	28.5-138	7.40	23.6	L669359-01	WG693016
a,a,a-Trifluorotoluene(FID)				96.90	59-128				WG693016
TPH (GC/FID) High Fraction	mg/kg	48.2	49.6	77.2	50-150	2.86	20	L668761-02	WG692996
o-Terphenyl				87.60	50-150				WG692996
Chromium,Hexavalent	mg/kg	18.6	19.7	93.0	75-125	5.74	20	L669143-03	WG693036
1-Methylnaphthalene	mg/kg	0.102	0.0846	83.4	58.9-123	18.9	20	L668755-01	WG693236
2-Chloronaphthalene	mg/kg	0.0521	0.0534	65.1	61.6-120	2.38	20	L668755-01	WG693236
2-Methylnaphthalene	mg/kg	0.137	0.105	96.6	50.7-129	26.0*	20	L668755-01	WG693236
Acenaphthene	mg/kg	0.0503	0.0520	61.5	51.6-124	3.22	20	L668755-01	WG693236
Acenaphthylene	mg/kg	0.0539	0.0546	67.4	58.3-126	1.27	20	L668755-01	WG693236
Anthracene	mg/kg	0.0513	0.0582	63.0	47.9-137	12.6	20	L668755-01	WG693236
Benzo(a)anthracene	mg/kg	0.0530	0.0544	66.3	34.2-138	2.51	22.8	L668755-01	WG693236
Benzo(a)pyrene	mg/kg	0.0537	0.0550	67.1	34.6-133	2.34	26.3	L668755-01	WG693236
Benzo(b)fluoranthene	mg/kg	0.0468	0.0487	57.4	19.8-142	4.06	30.3	L668755-01	WG693236
Benzo(g,h,i)perylene	mg/kg	0.0536	0.0551	66.1	20-149	2.92	27.1	L668755-01	WG693236
Benzo(k)fluoranthene	mg/kg	0.0545	0.0547	67.2	32.1-137	0.360	24.6	L668755-01	WG693236
Chrysene	mg/kg	0.0600	0.0593	72.9	36.6-137	1.21	22.7	L668755-01	WG693236
Dibenz(a,h)anthracene	mg/kg	0.0585	0.0579	73.1	27.1-145	0.910	21.9	L668755-01	WG693236
Fluoranthene	mg/kg	0.0487	0.0519	59.9	39.8-141	6.38	22.2	L668755-01	WG693236
Fluorene	mg/kg	0.0517	0.0525	61.3	42.5-130	1.61	20	L668755-01	WG693236
Indeno(1,2,3-cd)pyrene	mg/kg	0.0540	0.0549	67.4	19-151	1.68	25	L668755-01	WG693236
Naphthalene	mg/kg	0.0971	0.0817	84.3	40.6-135	17.2	20	L668755-01	WG693236
Phenanthrene	mg/kg	0.0533	0.0539	57.5	39.7-129	1.07	20	L668755-01	WG693236
Pyrene	mg/kg	0.0451	0.0474	54.9	31.5-141	5.06	23.5	L668755-01	WG693236
2-Fluorobiphenyl				79.60	51.1-131				WG693236
Nitrobenzene-d5				70.10	40.9-147				WG693236
p-Terphenyl-d14				76.80	45.3-138				WG693236

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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Serial Dilution

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Batch number /Run number / Sample number cross reference

WG692510: R2855582: L668755-06  
WG692507: R2855583: L668755-01 02 03 04 05  
WG692455: R2857062: L668755-01 02 03  
WG692613: R2857105: L668755-01 02 03 04 05 06  
WG692975: R2857360: L668755-01 02 03 04 05 06  
WG693016: R2857446: L668755-04 05 06  
WG692519: R2857460: L668755-01 02 03 04 05 06  
WG693119: R2857786: L668755-01 02 03 04 05 06  
WG693179: R2857791: L668755-01 02 03  
WG692831: R2858134: L668755-01 02 03 04 05  
WG692996: R2858135: L668755-06  
WG693036: R2858180: L668755-01 02 03 04 05 06  
WG693236: R2858225: L668755-01 02 03 04 05 06  
WG693466: R2858341: L668755-04 05 06

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