

## Introduction

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 Sundry Notice to request final closure status for an earthen pit associated with Foundation Creek B 7407 (COGCC facility #322343, COGCC remediation #5295). The pit was investigated, characterized and sampled by third party consultant as authorized by Encana personnel. All samples were collected in accordance with Encana's Environmental Compliance Group's Sampling Procedures. The analytical results for the respective soil samples were within the COGCC Table 910-1 standards and are provided in Table 1 and Attachment A of this submittal. The text below provides the details of the site investigation. For a visual description of the site investigation please refer to Figures 1 and 2 – Site Maps.

## Site Investigation

October 2010 – The pit was delineated and characterized using a PetroFlag field unit by a third party consultant. The excavated soil was in exceedance of the COGCC Table 910-1 standards with regards to the total petroleum hydrocarbon standard (2293 ppm). As such, the soil was treated with a bioremediation product and returned to the point of origin for later assessment.

June 14, 2011 – The pit was characterized utilizing a photoionization (PID) meter, and the use of a trackhoe. Field screen readings were collected throughout the excavation process. There were minimal indicators of hydrocarbon impacts to the soil; the highest reading was 17 ppm. Excavation continued until there were no indicators of hydrocarbon impacts. Grab samples were collected and submitted to the analytical laboratory for analysis. The stockpiled soil was backfilled and compacted into the excavation. Five (5) background samples were collected from up gradient of the excavation site from a depth of approximately one (1) foot. These samples were sent the lab for analysis with respect to arsenic. The excavated soil was stockpiled on location until the analytical laboratory report confirmed that the soil was within the COGCC Table 910-1 standards. The soil was backfilled and compacted upon receiving confirmation that the soil was within the Table 910-1 standards.

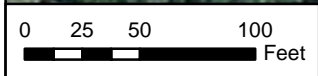
## Conclusion

Based on the site investigation and analytical results, the pit associated with the Foundation Creek B 7407 is in compliance with the standards specified within COGCC Table 910-1. Encana respectfully requests that final closure be granted for the respective pit, COGCC remediation #5295.

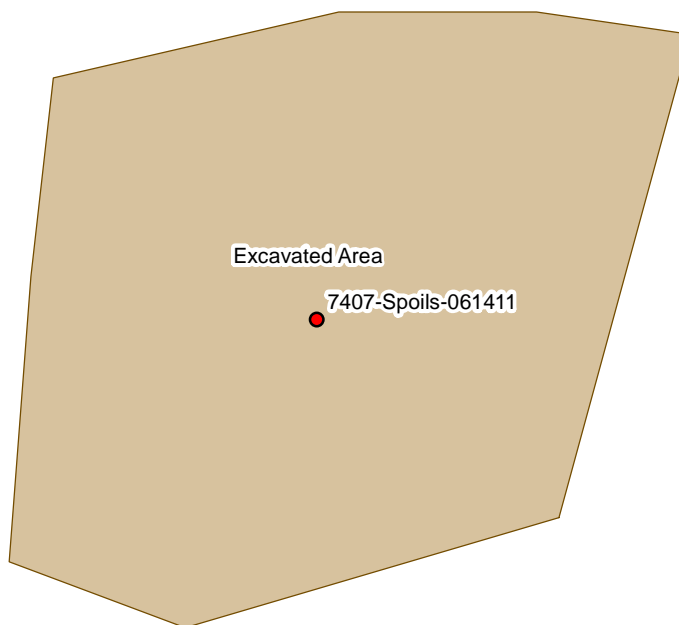
## Analytical Review

Sample results indicate that the soil within the earthen pit footprint on Encana's Foundation Creek B 7407 well pad have exceedances of COGCC Table 910-1 allowable concentrations for arsenic (2.3 ppm). Though the arsenic concentration in the soil is above the allowable concentration identified in Table 910-1, the concentration is within the range of arsenic background values (2.3-3.0 ppm) in this area. Based on these results and footnote 1 to COGCC Table 910-1, Encana requests that the COGCC consider the higher range of background arsenic value(s) as the allowable concentration for this constituent. Please see Attachment A for the respective laboratory analytical results.









[illegible]



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

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

## Report Summary

Monday April 09, 2012

Report Number: L521096

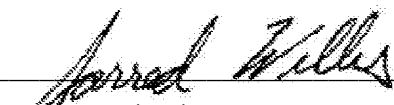
Samples Received: 06/15/11

Client Project:

Description: Encana Pit Closure

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:

  
Jayred Willis , 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

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.

REPORT OF ANALYSIS

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

April 09, 2012

Date Received : June 15, 2011  
Description : Encana Pit Closure  
Sample ID : 7407-CLEARANCE-061411

ESC Sample # : L521096-01

Site ID : F.C. 7407

Collected By : Casey Richardson  
Collection Date : 06/14/11 11:10

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	06/22/11	1
Chromium, Trivalent	8.5	2.0	mg/kg	Calc.	06/20/11	1
ORP	38.		mV	2580	06/20/11	1
pH	8.2		su	9045D	06/22/11	1
Sodium Adsorption Ratio	4.6			Calc.	06/22/11	1
Specific Conductance	1100		umhos/cm	9050AMod	06/20/11	1
Mercury	0.027	0.020	mg/kg	7471	06/18/11	1
Arsenic	2.3	1.0	mg/kg	6010B	06/20/11	1
Barium	110	0.25	mg/kg	6010B	06/20/11	1
Cadmium	BDL	0.25	mg/kg	6010B	06/20/11	1
Chromium	8.5	0.50	mg/kg	6010B	06/20/11	1
Copper	13.	1.0	mg/kg	6010B	06/20/11	1
Lead	13.	0.25	mg/kg	6010B	06/20/11	1
Nickel	12.	1.0	mg/kg	6010B	06/20/11	1
Selenium	BDL	1.0	mg/kg	6010B	06/20/11	1
Silver	BDL	0.50	mg/kg	6010B	06/20/11	1
Zinc	54.	1.5	mg/kg	6010B	06/20/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	06/16/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	06/16/11	5
Ethylbenzene	0.0027	0.0025	mg/kg	8021/8015	06/16/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	06/16/11	5
TPH (GC/FID) Low Fraction	1.4	0.50	mg/kg	GRO	06/16/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.7		% Rec.	8021/8015	06/16/11	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	06/16/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	06/19/11	1
Surrogate recovery(%)						
o-Terphenyl	53.7		% Rec.	3546/DRO	06/19/11	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L521096-01 (PH) - 8.2@20.3c

REPORT OF ANALYSIS

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

April 09, 2012

Date Received : June 15, 2011  
Description : Encana Pit Closure  
Sample ID : 7407-CLEARANCE-061411

ESC Sample # : L521096-01

Site ID : F.C. 7407

Collected By : Casey Richardson  
Collection Date : 06/14/11 11:10

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Naphthalene	0.0079	0.0060	mg/kg	8270C-SIM	06/22/11	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
1-Methylnaphthalene	0.0085	0.0060	mg/kg	8270C-SIM	06/22/11	1
2-Methylnaphthalene	0.0090	0.0060	mg/kg	8270C-SIM	06/22/11	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	06/22/11	1
Surrogate Recovery						
Nitrobenzene-d5	69.2		% Rec.	8270C-SIM	06/22/11	1
2-Fluorobiphenyl	53.2		% Rec.	8270C-SIM	06/22/11	1
p-Terphenyl-d14	39.2		% Rec.	8270C-SIM	06/22/11	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: 06/23/11 10:44 Revised: 04/09/12 13:33  
L521096-01 (PH) - 8.2@20.3c





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

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

April 09, 2012

Date Received : June 15, 2011  
Description : Encana Pit Closure

Sample ID : 7407-SPOILS-061411

Collected By : Casey Richardson  
Collection Date : 06/14/11 10:40

ESC Sample # : L521096-02

Site ID : F.C. 7407

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	250	5.0	mg/kg	8015D/GRO	06/16/11	50
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	85.7		% Rec.	602/8015	06/16/11	50
TPH (GC/FID) High Fraction	37.	4.0	mg/kg	3546/DRO	06/19/11	1
Surrogate recovery(%) o-Terphenyl	58.1		% Rec.	3546/DRO	06/19/11	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: 06/23/11 10:44 Revised: 04/09/12 13:33



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

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

April 09, 2012

Date Received : June 15, 2011  
Description : Encana Pit Closure

Sample ID : 7407-BG1-061411

Collected By : Casey Richardson  
Collection Date : 06/14/11 09:40

ESC Sample # : L521096-03

Site ID : F.C. 7407

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.5	1.0	mg/kg	6010B	06/18/11	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: 06/23/11 10:44 Revised: 04/09/12 13:33



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

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

April 09, 2012

Date Received : June 15, 2011  
Description : Encana Pit Closure  
Sample ID : 7407-BG2-061411  
Collected By : Casey Richardson  
Collection Date : 06/14/11 09:50

ESC Sample # : L521096-04

Site ID : F.C. 7407

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.8	1.0	mg/kg	6010B	06/18/11	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: 06/23/11 10:44 Revised: 04/09/12 13:33



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

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

April 09, 2012

Date Received : June 15, 2011  
Description : Encana Pit Closure

Sample ID : 7407-BG3-061411

Collected By : Casey Richardson  
Collection Date : 06/14/11 10:00

ESC Sample # : L521096-05

Site ID : F.C. 7407

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	3.0	1.0	mg/kg	6010B	06/18/11	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: 06/23/11 10:44 Revised: 04/09/12 13:33



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

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

April 09, 2012

Date Received : June 15, 2011  
Description : Encana Pit Closure

Sample ID : 7407-BG4-061411

Collected By : Casey Richardson  
Collection Date : 06/14/11 10:10

ESC Sample # : L521096-06

Site ID : F.C. 7407

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.3	1.0	mg/kg	6010B	06/18/11	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: 06/23/11 10:44 Revised: 04/09/12 13:33



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

Kate Ramsay  
HRL Compliance Solutions- CO  
744 Horizon Ct., Suite 140  
Grand Junction, CO 81506

April 09, 2012

Date Received : June 15, 2011  
Description : Encana Pit Closure

Sample ID : 7407-BG5-061411

Collected By : Casey Richardson  
Collection Date : 06/14/11 10:20

ESC Sample # : L521096-07

Site ID : F.C. 7407

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.3	1.0	mg/kg	6010B	06/18/11	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: 06/23/11 10:44 Revised: 04/09/12 13:33





YOUR LAB OF CHOICE

HRL Compliance Solutions- CO  
Kate Ramsay  
744 Horizon Ct., Suite 140

Grand Junction, CO 81506

Quality Assurance Report  
Level II

L521096

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

April 09, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG540842	06/16/11 12:48
a,a,a-Trifluorotoluene(FID)		% Rec.	98.96	59-128	WG540842	06/16/11 12:48
Mercury	< .02	mg/kg			WG541197	06/18/11 11:31
TPH (GC/FID) High Fraction	< 4	ppm			WG541312	06/19/11 06:27
o-Terphenyl		% Rec.	73.28	50-150	WG541312	06/19/11 06:27
Benzene	< .0005	mg/kg			WG540793	06/16/11 15:34
Ethylbenzene	< .0005	mg/kg			WG540793	06/16/11 15:34
Toluene	< .005	mg/kg			WG540793	06/16/11 15:34
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG540793	06/16/11 15:34
Total Xylene	< .0015	mg/kg			WG540793	06/16/11 15:34
a,a,a-Trifluorotoluene(FID)		% Rec.	97.72	59-128	WG540793	06/16/11 15:34
a,a,a-Trifluorotoluene(PID)		% Rec.	102.0	54-144	WG540793	06/16/11 15:34
Arsenic	< 1	mg/kg			WG541078	06/18/11 13:34
Arsenic	< 1	mg/kg			WG541101	06/20/11 18:44
Barium	< .25	mg/kg			WG541101	06/20/11 18:44
Cadmium	< .25	mg/kg			WG541101	06/20/11 18:44
Chromium	< .5	mg/kg			WG541101	06/20/11 18:44
Copper	< 1	mg/kg			WG541101	06/20/11 18:44
Lead	< .25	mg/kg			WG541101	06/20/11 18:44
Nickel	< 1	mg/kg			WG541101	06/20/11 18:44
Selenium	< 1	mg/kg			WG541101	06/20/11 18:44
Silver	< .5	mg/kg			WG541101	06/20/11 18:44
Zinc	< 1.5	mg/kg			WG541101	06/20/11 18:44
Specific Conductance	2.20	umhos/cm			WG541399	06/20/11 18:40
Chromium, Hexavalent	< 2	mg/kg			WG541335	06/22/11 13:48
pH	4.60	su			WG541808	06/22/11 14:13
1-Methylnaphthalene	< .006	mg/kg			WG541410	06/22/11 10:14
2-Chloronaphthalene	< .006	mg/kg			WG541410	06/22/11 10:14
2-Methylnaphthalene	< .006	mg/kg			WG541410	06/22/11 10:14
Acenaphthene	< .006	mg/kg			WG541410	06/22/11 10:14
Acenaphthylene	< .006	mg/kg			WG541410	06/22/11 10:14
Anthracene	< .006	mg/kg			WG541410	06/22/11 10:14
Benzo(a)anthracene	< .006	mg/kg			WG541410	06/22/11 10:14
Benzo(a)pyrene	< .006	mg/kg			WG541410	06/22/11 10:14
Benzo(b)fluoranthene	< .006	mg/kg			WG541410	06/22/11 10:14
Benzo(g,h,i)perylene	< .006	mg/kg			WG541410	06/22/11 10:14
Benzo(k)fluoranthene	< .006	mg/kg			WG541410	06/22/11 10:14
Chrysene	< .006	mg/kg			WG541410	06/22/11 10:14
Dibenz(a,h)anthracene	< .006	mg/kg			WG541410	06/22/11 10:14
Fluoranthene	< .006	mg/kg			WG541410	06/22/11 10:14
Fluorene	< .006	mg/kg			WG541410	06/22/11 10:14

\* 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**

HRL Compliance Solutions- CO  
Kate Ramsay  
744 Horizon Ct., Suite 140

Grand Junction, CO 81506

Quality Assurance Report  
Level II

L521096

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

April 09, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG541410	06/22/11 10:14
Naphthalene	< .006	mg/kg			WG541410	06/22/11 10:14
Phenanthrene	< .006	mg/kg			WG541410	06/22/11 10:14
Pyrene	< .006	mg/kg			WG541410	06/22/11 10:14
2-Fluorobiphenyl		% Rec.	78.58	21-120	WG541410	06/22/11 10:14
Nitrobenzene-d5		% Rec.	73.39	33-114	WG541410	06/22/11 10:14
p-Terphenyl-d14		% Rec.	88.52	18-142	WG541410	06/22/11 10:14

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0	0	0	20	L521102-04	WG541197
Arsenic	mg/kg	2.10	2.30	10.0	20	L521096-07	WG541078
Arsenic	mg/kg	6.60	5.30	21.7*	20	L521049-03	WG541101
Barium	mg/kg	720.	1200	50.0*	20	L521049-03	WG541101
Cadmium	mg/kg	8.30	17.0	68.8*	20	L521049-03	WG541101
Chromium	mg/kg	67.0	100.	39.5*	20	L521049-03	WG541101
Copper	mg/kg	77.0	106.	31.7*	20	L521049-03	WG541101
Lead	mg/kg	250.	400.	45.8*	20	L521049-03	WG541101
Nickel	mg/kg	13.0	20.5	44.0*	20	L521049-03	WG541101
Selenium	mg/kg	0	0.390	NA	20	L521049-03	WG541101
Silver	mg/kg	0	0.240	NA	20	L521049-03	WG541101
Zinc	mg/kg	470.	762.	47.4*	20	L521049-03	WG541101
ORP	mV	160.	160.	0.623	20	L520924-03	WG541398
ORP	mV	64.0	54.0	16.9	20	L521530-01	WG541398
Specific Conductance	umhos/cm	180.	170.	5.71	20	L521381-02	WG541399
Specific Conductance	umhos/cm	1700	1600	6.06	20	L521624-37	WG541399
Chromium,Hexavalent	mg/kg	0	0	0	20	L520967-01	WG541335
Chromium,Hexavalent	mg/kg	0	0	0	20	L521334-14	WG541335
pH	su	8.10	8.10	0	1	L521047-01	WG541808
pH	su	6.30	6.30	0	1	L521166-05	WG541808

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.28	95.9	67-135	WG540842
a,a,a-Trifluorotoluene(FID)				105.0	59-128	WG540842
Mercury	mg/kg	8.77	7.98	91.0	71.6-127.7	WG541197
Benzene	mg/kg	.05	0.0494	98.9	76-113	WG540793
Ethylbenzene	mg/kg	.05	0.0503	101.	78-115	WG540793
Toluene	mg/kg	.05	0.0536	107.	76-114	WG540793
Total Xylene	mg/kg	.15	0.147	98.3	81-118	WG540793
a,a,a-Trifluorotoluene(PID)				101.0	54-144	WG540793

\* 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**

HRL Compliance Solutions- CO  
Kate Ramsay  
744 Horizon Ct., Suite 140

Grand Junction, CO 81506

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

Quality Assurance Report  
Level II

L521096

April 09, 2012

Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.26	114.	67-135	WG540793
a,a,a-Trifluorotoluene(FID)				104.5	59-128	WG540793
TPH (GC/FID) High Fraction	ppm	60	47.5	79.2	50-150	WG541312
o-Terphenyl				72.31	50-150	WG541312
Arsenic	mg/kg	192	168.	87.5	78.6-120.8	WG541078
Arsenic	mg/kg	192	184.	95.8	78.6-120.8	WG541101
Barium	mg/kg	420	421.	100.	78.8-121.4	WG541101
Cadmium	mg/kg	70.1	64.7	92.3	78.5-121.5	WG541101
Chromium	mg/kg	168	167.	99.4	80.4-120.2	WG541101
Copper	mg/kg	122	124.	102.	81.6-119.7	WG541101
Lead	mg/kg	113	111.	98.2	77.3-122.1	WG541101
Nickel	mg/kg	74.1	73.7	99.5	78.8-121.2	WG541101
Selenium	mg/kg	176	170.	96.6	75.6-125.0	WG541101
Silver	mg/kg	115	118.	103.	66-133.9	WG541101
Zinc	mg/kg	437	417.	95.4	78.5-121.7	WG541101
ORP	mV	229	230.	100.	95.6-104.37	WG541398
Specific Conductance	umhos/cm	445	440.	98.9	85-115	WG541399
Chromium,Hexavalent	mg/kg	132	100.	75.8	50-150	WG541335
pH	su	6.3	6.30	100.	97.98-102.02	WG541808
1-Methylnaphthalene	mg/kg	.033	0.0263	79.6	41-110	WG541410
2-Chloronaphthalene	mg/kg	.033	0.0245	74.2	43-109	WG541410
2-Methylnaphthalene	mg/kg	.033	0.0238	72.3	38-104	WG541410
Acenaphthene	mg/kg	.033	0.0248	75.1	48-103	WG541410
Acenaphthylene	mg/kg	.033	0.0262	79.3	43-106	WG541410
Anthracene	mg/kg	.033	0.0278	84.4	51-110	WG541410
Benzo(a)anthracene	mg/kg	.033	0.0264	79.9	38-126	WG541410
Benzo(a)pyrene	mg/kg	.033	0.0279	84.4	47-118	WG541410
Benzo(b)fluoranthene	mg/kg	.033	0.0287	86.8	47-118	WG541410
Benzo(g,h,i)perylene	mg/kg	.033	0.0275	83.3	40-125	WG541410
Benzo(k)fluoranthene	mg/kg	.033	0.0265	80.4	45-121	WG541410
Chrysene	mg/kg	.033	0.0269	81.4	35-135	WG541410
Dibenz(a,h)anthracene	mg/kg	.033	0.0272	82.3	41-124	WG541410
Fluoranthene	mg/kg	.033	0.0284	86.0	50-114	WG541410
Fluorene	mg/kg	.033	0.0265	80.2	49-109	WG541410
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0277	83.9	40-126	WG541410
Naphthalene	mg/kg	.033	0.0237	71.9	36-100	WG541410
Phenanthrene	mg/kg	.033	0.0277	84.0	46-108	WG541410
Pyrene	mg/kg	.033	0.0281	85.1	30-136	WG541410
2-Fluorobiphenyl				71.39	33-114	WG541410
Nitrobenzene-d5				68.61	21-120	WG541410
p-Terphenyl-d14				78.93	18-142	WG541410

\* 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**

HRL Compliance Solutions- CO  
Kate Ramsay  
744 Horizon Ct., Suite 140

Grand Junction, CO 81506

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

Quality Assurance Report  
Level II

L521096

April 09, 2012

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	6.25	5.28	114.		67-135	16.9	20	WG540842
a,a,a-Trifluorotoluene(FID)				105.8		59-128			WG540842
Benzene	mg/kg	0.0475	0.0494	95.0		76-113	3.91	20	WG540793
Ethylbenzene	mg/kg	0.0480	0.0503	96.0		78-115	4.68	20	WG540793
Toluene	mg/kg	0.0509	0.0536	102.		76-114	5.15	20	WG540793
Total Xylene	mg/kg	0.140	0.147	93.0		81-118	5.01	20	WG540793
a,a,a-Trifluorotoluene(PID)				101.3		54-144			WG540793
TPH (GC/FID) Low Fraction	mg/kg	5.93	6.26	108.		67-135	5.40	20	WG540793
a,a,a-Trifluorotoluene(FID)				103.0		59-128			WG540793
TPH (GC/FID) High Fraction	ppm	48.5	47.5	81.0		50-150	1.98	25	WG541312
o-Terphenyl				71.28		50-150			WG541312
ORP	mV	220.	230.	96.0		95.6-104.37	4.44	20	WG541398
Specific Conductance	umhos/	440.	440.	99.0		85-115	0	20	WG541399
Chromium,Hexavalent	mg/kg	99.0	100.	75.0		50-150	1.01	20	WG541335
pH	su	6.30	6.30	100.		97.98-102.02	0	20	WG541808
1-Methylnaphthalene	mg/kg	0.0261	0.0263	79.0		41-110	0.540	24	WG541410
2-Chloronaphthalene	mg/kg	0.0255	0.0245	77.0		43-109	4.29	21	WG541410
2-Methylnaphthalene	mg/kg	0.0235	0.0238	71.0		38-104	1.54	24	WG541410
Acenaphthene	mg/kg	0.0236	0.0248	72.0		48-103	4.73	20	WG541410
Acenaphthylene	mg/kg	0.0249	0.0262	76.0		43-106	4.85	20	WG541410
Anthracene	mg/kg	0.0257	0.0278	78.0		51-110	7.98	22	WG541410
Benzo(a)anthracene	mg/kg	0.0251	0.0264	76.0		38-126	4.79	20	WG541410
Benzo(a)pyrene	mg/kg	0.0268	0.0279	81.0		47-118	3.78	20	WG541410
Benzo(b)fluoranthene	mg/kg	0.0271	0.0287	82.0		47-118	5.68	29	WG541410
Benzo(g,h,i)perylene	mg/kg	0.0271	0.0275	82.0		40-125	1.61	20	WG541410
Benzo(k)fluoranthene	mg/kg	0.0266	0.0265	81.0		45-121	0.358	31	WG541410
Chrysene	mg/kg	0.0274	0.0269	83.0		35-135	1.84	20	WG541410
Dibenz(a,h)anthracene	mg/kg	0.0275	0.0272	83.0		41-124	1.24	20	WG541410
Fluoranthene	mg/kg	0.0271	0.0284	82.0		50-114	4.59	20	WG541410
Fluorene	mg/kg	0.0256	0.0265	77.0		49-109	3.41	19	WG541410
Indeno(1,2,3-cd)pyrene	mg/kg	0.0273	0.0277	83.0		40-126	1.40	20	WG541410
Naphthalene	mg/kg	0.0232	0.0237	70.0		36-100	2.36	24	WG541410
Phenanthrene	mg/kg	0.0244	0.0277	74.0		46-108	12.7	21	WG541410
Pyrene	mg/kg	0.0271	0.0281	82.0		30-136	3.40	20	WG541410
2-Fluorobiphenyl				64.13		33-114			WG541410
Nitrobenzene-d5				63.20		21-120			WG541410
p-Terphenyl-d14				70.50		18-142			WG541410

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
TPH (GC/FID) Low Fraction	mg/kg	19.2	0	5.5	69.7	55-109	L520797-01	WG540842
a,a,a-Trifluorotoluene(FID)					99.63	59-128		WG540842
Mercury	mg/kg	0.231	0	.25	92.4	70-130	L521102-04	WG541197

\* 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**

HRL Compliance Solutions- CO  
Kate Ramsay  
744 Horizon Ct., Suite 140

Grand Junction, CO 81506

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

Quality Assurance Report  
Level II

L521096

April 09, 2012

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
TPH (GC/FID) Low Fraction	mg/kg	29.1	1.40	5.5	100.	55-109	L521096-01	WG540793
a,a,a-Trifluorotoluene(FID)					102.2	59-128		WG540793
Benzene	mg/kg	0.222	0	.05	88.9	32-137	L521096-01	WG540793
Ethylbenzene	mg/kg	0.204	0.00270	.05	80.4	10-150	L521096-01	WG540793
Toluene	mg/kg	0.219	0	.05	87.5	20-142	L521096-01	WG540793
Total Xylene	mg/kg	0.634	0	.15	84.6	16-141	L521096-01	WG540793
a,a,a-Trifluorotoluene(PID)					100.8	54-144		WG540793
TPH (GC/FID) High Fraction	ppm	49.4	0	60	82.3	50-150	L521334-02	WG541312
o-Terphenyl					68.68	50-150		WG541312
Arsenic	mg/kg	43.8	2.30	50	83.0	75-125	L521096-07	WG541078
Arsenic	mg/kg	50.4	5.30	50	90.2	75-125	L521049-03	WG541101
Barium	mg/kg	1020	1200	50	0*	75-125	L521049-03	WG541101
Cadmium	mg/kg	56.8	17.0	50	79.6	75-125	L521049-03	WG541101
Chromium	mg/kg	130.	100.	50	60.0*	75-125	L521049-03	WG541101
Copper	mg/kg	165.	106.	50	118.	75-125	L521049-03	WG541101
Lead	mg/kg	364.	400.	50	0*	75-125	L521049-03	WG541101
Nickel	mg/kg	65.1	20.5	50	89.2	75-125	L521049-03	WG541101
Selenium	mg/kg	43.6	0.390	50	86.4	75-125	L521049-03	WG541101
Silver	mg/kg	47.4	0.240	50	94.3	75-125	L521049-03	WG541101
Zinc	mg/kg	734.	762.	50	0*	75-125	L521049-03	WG541101
Chromium,Hexavalent	mg/kg	7.70	0	20	38.5*	50-150	L520967-02	WG541335
1-Methylnaphthalene	mg/kg	0.0225	0	.033	68.0	19-131	L521047-06	WG541410
2-Chloronaphthalene	mg/kg	0.0228	0	.033	69.1	38-117	L521047-06	WG541410
2-Methylnaphthalene	mg/kg	0.0213	0	.033	64.4	18-125	L521047-06	WG541410
Acenaphthene	mg/kg	0.0201	0	.033	61.0	31-120	L521047-06	WG541410
Acenaphthylene	mg/kg	0.0217	0	.033	65.6	34-116	L521047-06	WG541410
Anthracene	mg/kg	0.0216	0	.033	65.6	32-131	L521047-06	WG541410
Benzo(a)anthracene	mg/kg	0.0201	0	.033	61.0	32-131	L521047-06	WG541410
Benzo(a)pyrene	mg/kg	0.0198	0	.033	60.1	28-130	L521047-06	WG541410
Benzo(b)fluoranthene	mg/kg	0.0203	0	.033	61.6	37-130	L521047-06	WG541410
Benzo(g,h,i)perylene	mg/kg	0.0194	0	.033	58.7	10-134	L521047-06	WG541410
Benzo(k)fluoranthene	mg/kg	0.0196	0	.033	59.5	31-129	L521047-06	WG541410
Chrysene	mg/kg	0.0220	0	.033	66.7	25-137	L521047-06	WG541410
Dibenz(a,h)anthracene	mg/kg	0.0186	0	.033	56.3	20-134	L521047-06	WG541410
Fluoranthene	mg/kg	0.0233	0	.033	70.5	27-138	L521047-06	WG541410
Fluorene	mg/kg	0.0228	0	.033	69.0	26-136	L521047-06	WG541410
Indeno(1,2,3-cd)pyrene	mg/kg	0.0192	0	.033	58.2	16-135	L521047-06	WG541410
Naphthalene	mg/kg	0.0222	0	.033	67.2	22-121	L521047-06	WG541410
Phenanthrene	mg/kg	0.0235	0	.033	71.1	27-133	L521047-06	WG541410
Pyrene	mg/kg	0.0226	0	.033	68.4	22-133	L521047-06	WG541410
2-Fluorobiphenyl					57.42	33-114		WG541410
Nitrobenzene-d5					61.37	21-120		WG541410
p-Terphenyl-d14					64.23	18-142		WG541410

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	17.6	19.2	64.1	55-109	8.37	20	L520797-01	WG540842
a,a,a-Trifluorotoluene(FID)				98.47	59-128				WG540842

\* 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**

HRL Compliance Solutions- CO  
Kate Ramsay  
744 Horizon Ct., Suite 140

Grand Junction, CO 81506

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

Quality Assurance Report  
Level II

L521096

April 09, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Mercury	mg/kg	0.220	0.231	88.0	70-130	4.88	20	L521102-04	WG541197
TPH (GC/FID) Low Fraction	mg/kg	25.7	29.1	88.4	55-109	12.3	20	L521096-01	WG540793
a,a,a-Trifluorotoluene(FID)				101.9	59-128				WG540793
Benzene	mg/kg	0.213	0.222	85.4	32-137	4.08	39	L521096-01	WG540793
Ethylbenzene	mg/kg	0.181	0.204	71.4	10-150	11.7	44	L521096-01	WG540793
Toluene	mg/kg	0.197	0.219	78.6	20-142	10.7	42	L521096-01	WG540793
Total Xylene	mg/kg	0.588	0.634	78.3	16-141	7.64	46	L521096-01	WG540793
a,a,a-Trifluorotoluene(PID)				101.8	54-144				WG540793
TPH (GC/FID) High Fraction	ppm	45.5	49.4	75.8	50-150	8.20	25	L521334-02	WG541312
o-Terphenyl				66.99	50-150				WG541312
Arsenic	mg/kg	41.7	43.8	78.8	75-125	4.91	20	L521096-07	WG541078
Arsenic	mg/kg	47.2	50.4	83.8	75-125	6.56	20	L521049-03	WG541101
Barium	mg/kg	1230	1020	60.0*	75-125	18.7	20	L521049-03	WG541101
Cadmium	mg/kg	56.4	56.8	78.8	75-125	0.707	20	L521049-03	WG541101
Chromium	mg/kg	139.	130.	78.0	75-125	6.69	20	L521049-03	WG541101
Copper	mg/kg	134.	165.	56.0*	75-125	20.7*	20	L521049-03	WG541101
Lead	mg/kg	384.	364.	0*	75-125	5.35	20	L521049-03	WG541101
Nickel	mg/kg	62.1	65.1	83.2	75-125	4.72	20	L521049-03	WG541101
Selenium	mg/kg	43.3	43.6	85.8	75-125	0.690	20	L521049-03	WG541101
Silver	mg/kg	46.8	47.4	93.1	75-125	1.27	20	L521049-03	WG541101
Zinc	mg/kg	846.	734.	168.*	75-125	14.2	20	L521049-03	WG541101
Chromium,Hexavalent	mg/kg	2.90	7.70	14.5*	50-150	90.6*	20	L520967-02	WG541335
1-Methylnaphthalene	mg/kg	0.0237	0.0225	71.8	19-131	5.43	30	L521047-06	WG541410
2-Chloronaphthalene	mg/kg	0.0242	0.0228	73.4	38-117	5.92	26	L521047-06	WG541410
2-Methylnaphthalene	mg/kg	0.0246	0.0213	74.4	18-125	14.4	29	L521047-06	WG541410
Acenaphthene	mg/kg	0.0217	0.0201	65.8	31-120	7.52	30	L521047-06	WG541410
Acenaphthylene	mg/kg	0.0230	0.0217	69.6	34-116	5.89	29	L521047-06	WG541410
Anthracene	mg/kg	0.0214	0.0216	64.9	32-131	1.12	26	L521047-06	WG541410
Benzo(a)anthracene	mg/kg	0.0221	0.0201	66.9	32-131	9.21	31	L521047-06	WG541410
Benzo(a)pyrene	mg/kg	0.0205	0.0198	62.0	28-130	3.00	28	L521047-06	WG541410
Benzo(b)fluoranthene	mg/kg	0.0206	0.0203	62.6	37-130	1.62	41	L521047-06	WG541410
Benzo(g,h,i)perylene	mg/kg	0.0206	0.0194	62.3	10-134	6.00	26	L521047-06	WG541410
Benzo(k)fluoranthene	mg/kg	0.0208	0.0196	63.0	31-129	5.72	42	L521047-06	WG541410
Chrysene	mg/kg	0.0228	0.0220	69.1	25-137	3.49	22	L521047-06	WG541410
Dibenz(a,h)anthracene	mg/kg	0.0186	0.0186	56.2	20-134	0.160	25	L521047-06	WG541410
Fluoranthene	mg/kg	0.0243	0.0233	73.7	27-138	4.45	35	L521047-06	WG541410
Fluorene	mg/kg	0.0231	0.0228	70.0	26-136	1.49	30	L521047-06	WG541410
Indeno(1,2,3-cd)pyrene	mg/kg	0.0193	0.0192	58.6	16-135	0.717	26	L521047-06	WG541410
Naphthalene	mg/kg	0.0228	0.0222	69.2	22-121	2.81	30	L521047-06	WG541410
Phenanthrene	mg/kg	0.0226	0.0235	68.5	27-133	3.64	36	L521047-06	WG541410
Pyrene	mg/kg	0.0230	0.0226	69.7	22-133	1.78	33	L521047-06	WG541410
2-Fluorobiphenyl				60.87	33-114				WG541410
Nitrobenzene-d5				65.63	21-120				WG541410
p-Terphenyl-d14				64.81	18-142				WG541410

\* 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**

HRL Compliance Solutions- CO  
Kate Ramsay  
744 Horizon Ct., Suite 140

Grand Junction, CO 81506

Quality Assurance Report  
Level II

L521096

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

April 09, 2012

---

Batch number /Run number / Sample number cross reference

WG540842: R1725813: L521096-02  
WG541197: R1728790: L521096-01  
WG541312: R1729770: L521096-01 02  
WG540793: R1729772: L521096-01  
WG541078: R1729991: L521096-03 04 05 06 07  
WG541101: R1731354: L521096-01  
WG541398: R1731489: L521096-01  
WG541399: R1731491: L521096-01  
WG541335: R1733650: L521096-01  
WG541808: R1733710: L521096-01  
WG541410: R1733836: L521096-01  
WG541442: R1733989: L521096-01

\* \* 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**

HRL Compliance Solutions- CO  
Kate Ramsay  
744 Horizon Ct., Suite 140

Grand Junction, CO 81506

Quality Assurance Report  
Level II

L521096

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

April 09, 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.