

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: _____ API Number: _____

2. Name of Operator: _____ OGCC Facility ID # _____

3. Well/Facility Name: _____ Well/Facility Number: _____

4. Location (QtrQtr, Sec, Twp, Rng, Meridian): _____

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5.

DESCRIBE PROPOSED OR COMPLETED OPERATIONS

Introduction

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 Sundry Notice to request final closure status for the culvert pit associated with the South West Rangely #6001 (COGCC facility #316012, the COGCC remediation #6642). The site investigation was conducted a third party contractor 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 please refer to Figures 1 and 2 – Site Maps.

Site Investigation

November 3, 2011 - The pit was characterized utilizing a photoionization detector (PID) field unit by a third party contractor. It should be noted that there was not any liquid associated with the pit soil during the time of excavation. The culvert was carefully removed using a trackhoe and stored onsite for later disposal or recycling. Grab samples from beneath the culvert, pit walls and the pit bottom were collected. There were minimal indicators of hydrocarbon impacts in accordance with field screen readings and visual observations. The respective sample was sent to an accredited analytical laboratory for analysis. Five (5) background samples were also collected from approximately six (6) inches beneath the grounds surface for analysis with regards to arsenic. The analytical report indicated that the sample collected from the pit spoils were impacted with regards to Total Petroleum Hydrocarbons (TPH). The spoils were stockpiled onsite to facilitate natural attenuation of the hydrocarbons. The excavation was fenced.

August 1, 2012 – The soil samples collected during the sample event was characterized using a PID unit by a third party contractor. A composite sample was collected from the spoils stockpile. The sample was submitted to the analytical laboratory for analysis. The analytical report indicates that that stockpiled soil was within the specified COGCC Table 910-1 Standards. The stockpiled soil was returned to the excavation and compacted.

Conclusion

Based on the site investigation and analytical results, the pit associated with the South West Rangely #6001 is in compliance with the standards specified within COGCC Table 910-1. Encana respectfully requests that final closure be granted for the respective pit.

Analytical Review

Sample results indicate that the soil within the earthen pit footprint on Encana's South West Rangely #6001 well pad may have exceedances of COGCC Table 910-1 allowable concentrations for arsenic (7.1 ppm). The arsenic background concentrations ranged from 5.1-8.3 ppm for 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.

SWR 6001 Site Overview Map



Legend

● Sample Location

Pipeline

— Above Ground

— Buried

— Gathering

— Other

Other Features

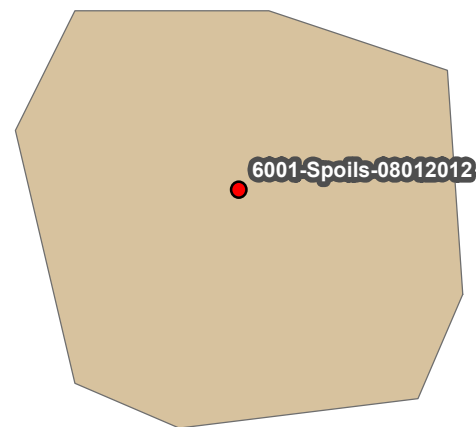
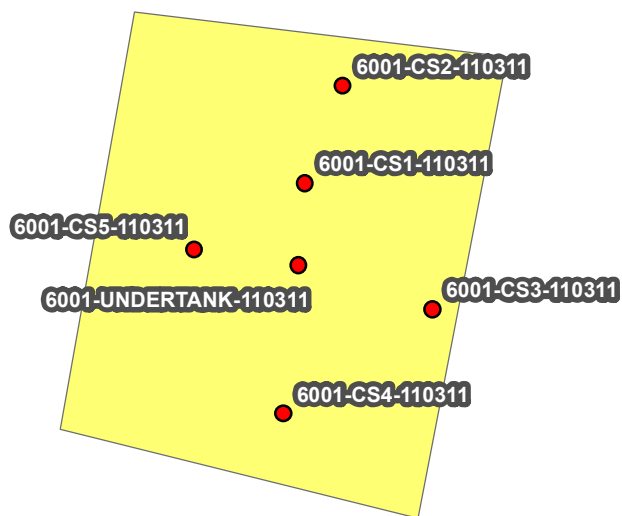
■ Excavated Area

■ Pit Footprint

■ Equipment

■ Spoils Stockpile

□ Containment



Legend

● Sample Location

Pipeline

▬ Above Ground

▬ Buried

▬ Gathering

▬ Other

Other Features

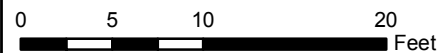
■ Excavated Area

■ Pit Footprint

■ Equipment

■ Spoils Stockpile

□ Containment



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

Report Summary

Tuesday November 15, 2011

Report Number: L545408

Samples Received: 11/05/11

Client Project:

Description: Pit Closure Project

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 - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, 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

November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project
Sample ID : 6001-UNDERTANK-110311

ESC Sample # : L545408-01

Site ID : 6001

Collected By : Kate Ramsay
Collection Date : 11/03/11 14:45

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/11/11	1
Chromium, Trivalent	12.	2.0	mg/kg	Calc.	11/10/11	1
ORP	180		mV	2580	11/11/11	1
pH	7.6		su	9045D	11/10/11	1
Sodium Adsorption Ratio	5.9			Calc.	11/08/11	1
Specific Conductance	420		umhos/cm	9050AMod	11/09/11	1
Mercury	BDL	0.020	mg/kg	7471	11/10/11	1
Arsenic	7.1	1.0	mg/kg	6010B	11/10/11	1
Barium	310	0.25	mg/kg	6010B	11/10/11	1
Cadmium	0.68	0.25	mg/kg	6010B	11/10/11	1
Chromium	12.	0.50	mg/kg	6010B	11/10/11	1
Copper	15.	1.0	mg/kg	6010B	11/10/11	1
Lead	12.	0.25	mg/kg	6010B	11/10/11	1
Nickel	13.	1.0	mg/kg	6010B	11/10/11	1
Selenium	1.5	1.0	mg/kg	6010B	11/10/11	1
Silver	BDL	0.50	mg/kg	6010B	11/10/11	1
Zinc	390	1.5	mg/kg	6010B	11/10/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/09/11	5
Ethylbenzene	0.16	0.0025	mg/kg	8021/8015	11/09/11	5
Total Xylene	1.4	0.0075	mg/kg	8021/8015	11/09/11	5
TPH (GC/FID) Low Fraction	290	0.50	mg/kg	GRO	11/09/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	91.2		% Rec.	8021/8015	11/09/11	5
a,a,a-Trifluorotoluene(PID)	94.4		% Rec.	8021/8015	11/09/11	5
TPH (GC/FID) High Fraction	2000	80.	mg/kg	3546/DRO	11/09/11	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	11/09/11	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.0068	0.0060	mg/kg	8270C-SIM	11/12/11	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Acenaphthylene	0.026	0.0060	mg/kg	8270C-SIM	11/12/11	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L545408-01 (SV8270PAHSIM) - Previous run also had high SURR recovery. Matrix effect.

L545408-01 (PH) - 7.59@19.7c



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November 15, 2011

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Sample ID : 6001-UNDERTANK-110311

ESC Sample # : L545408-01

Site ID : 6001

Collected By : Kate Ramsay
Collection Date : 11/03/11 14:45

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Naphthalene	0.012	0.0060	mg/kg	8270C-SIM	11/12/11	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
1-Methylnaphthalene	0.0086	0.0060	mg/kg	8270C-SIM	11/12/11	1
2-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	11/12/11	1
Surrogate Recovery						
Nitrobenzene-d5	2780		% Rec.	8270C-SIM	11/12/11	1
2-Fluorobiphenyl	106.		% Rec.	8270C-SIM	11/12/11	1
p-Terphenyl-d14	82.8		% Rec.	8270C-SIM	11/12/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L545408-01 (SV8270PAHSIM) - Previous run also had high SURR recovery. Matrix effect.

L545408-01 (PH) - 7.59@19.7c



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REPORT OF ANALYSIS

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744 Horizon Ct., Suite 140
Grand Junction, CO 81506

November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-CS1-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:05

ESC Sample # : L545408-02

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/09/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/09/11	5
TPH (GC/FID) Low Fraction	0.87	0.50	mg/kg	GRO	11/09/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	93.9		% Rec.	8021/8015	11/09/11	5
a,a,a-Trifluorotoluene(PID)	94.7		% Rec.	8021/8015	11/09/11	5
TPH (GC/FID) High Fraction	28.	4.0	mg/kg	3546/DRO	11/09/11	1
Surrogate recovery(%)						
o-Terphenyl	79.1		% Rec.	3546/DRO	11/09/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

ESC Sample # : L545408-03

Sample ID : 6001-CS2-110311

Site ID : 6001

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:15

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/09/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/09/11	5
TPH (GC/FID) Low Fraction	0.50	0.50	mg/kg	GRO	11/09/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.1		% Rec.	8021/8015	11/09/11	5
a,a,a-Trifluorotoluene(PID)	93.9		% Rec.	8021/8015	11/09/11	5
TPH (GC/FID) High Fraction	200	4.0	mg/kg	3546/DRO	11/09/11	1
Surrogate recovery(%)						
o-Terphenyl	112.		% Rec.	3546/DRO	11/09/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Kate Ramsay
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744 Horizon Ct., Suite 140
Grand Junction, CO 81506

November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-CS3-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:20

ESC Sample # : L545408-04

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/09/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/09/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/09/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.1		% Rec.	8021/8015	11/09/11	5
a,a,a-Trifluorotoluene(PID)	94.5		% Rec.	8021/8015	11/09/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/09/11	1
Surrogate recovery(%)						
o-Terphenyl	84.5		% Rec.	3546/DRO	11/09/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Kate Ramsay
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Grand Junction, CO 81506

November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-CS4-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:25

ESC Sample # : L545408-05

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/09/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/09/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/09/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.0		% Rec.	8021/8015	11/09/11	5
a,a,a-Trifluorotoluene(PID)	93.8		% Rec.	8021/8015	11/09/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/09/11	1
Surrogate recovery(%)						
o-Terphenyl	57.6		% Rec.	3546/DRO	11/09/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-CS5-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:30

ESC Sample # : L545408-06

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/09/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/09/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/09/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/09/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	93.8		% Rec.	8021/8015	11/09/11	5
a,a,a-Trifluorotoluene(PID)	93.3		% Rec.	8021/8015	11/09/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/09/11	1
Surrogate recovery(%)						
o-Terphenyl	79.3		% Rec.	3546/DRO	11/09/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-BG1-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:35

ESC Sample # : L545408-07

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.3	1.0	mg/kg	6010B	11/09/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-BG2-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:40

ESC Sample # : L545408-08

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.9	1.0	mg/kg	6010B	11/09/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-BG3-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:45

ESC Sample # : L545408-09

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.8	1.0	mg/kg	6010B	11/09/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-BG4-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:50

ESC Sample # : L545408-10

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.8	1.0	mg/kg	6010B	11/10/11	1

BDL - Below Detection Limit

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November 15, 2011

Date Received : November 05, 2011
Description : Pit Closure Project

Sample ID : 6001-BG5-110311

Collected By : Kate Ramsay
Collection Date : 11/03/11 13:55

ESC Sample # : L545408-11

Site ID : 6001

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.1	1.0	mg/kg	6010B	11/10/11	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: 11/14/11 12:24 Revised: 11/15/11 13:59

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L545408-01	WG565250	SAMP	Benzo(b)fluoranthene	R1930132	J3
	WG565250	SAMP	Nitrobenzene-d5	R1930132	J1
	WG565090	SAMP	ORP	R1928893	T8
	WG564413	SAMP	o-Terphenyl	R1926914	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

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

Definitions

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

Summary of Remarks For Samples Printed
11/15/11 at 13:59:41

TSR Signing Reports: 358
R5 - Desired TAT

Accounting - pending credit application. TSR - pending info release authorization.

Sample: L545408-01 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-02 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-03 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-04 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-05 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-06 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-07 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-08 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-09 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-10 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24
Sample: L545408-11 Account: HRLCSCO Received: 11/05/11 09:00 Due Date: 11/11/11 00:00 RPT Date: 11/14/11 12:24



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Tax I.D. 62-0814289

Est. 1970

November 15, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Specific Conductance	1.40	umhos/cm			WG564608	11/09/11 15:40
Benzene	< .0005	mg/kg			WG564407	11/09/11 08:04
Ethylbenzene	< .0005	mg/kg			WG564407	11/09/11 08:04
Toluene	< .005	mg/kg			WG564407	11/09/11 08:04
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG564407	11/09/11 08:04
Total Xylene	< .0015	mg/kg			WG564407	11/09/11 08:04
a,a,a-Trifluorotoluene(FID)		% Rec.	94.62	59-128	WG564407	11/09/11 08:04
a,a,a-Trifluorotoluene(PID)		% Rec.	93.87	54-144	WG564407	11/09/11 08:04
TPH (GC/FID) High Fraction	< 4	ppm			WG564413	11/09/11 12:02
o-Terphenyl		% Rec.	73.62	50-150	WG564413	11/09/11 12:02
Arsenic	< 1	mg/kg			WG564651	11/09/11 21:47
Mercury	< .02	mg/kg			WG564626	11/10/11 10:39
pH	5.90	su			WG564618	11/10/11 11:17
Arsenic	< 1	mg/kg			WG564294	11/10/11 13:38
Barium	< .25	mg/kg			WG564294	11/10/11 13:38
Cadmium	< .25	mg/kg			WG564294	11/10/11 13:38
Chromium	< .5	mg/kg			WG564294	11/10/11 13:38
Copper	< 1	mg/kg			WG564294	11/10/11 13:38
Lead	< .25	mg/kg			WG564294	11/10/11 13:38
Nickel	< 1	mg/kg			WG564294	11/10/11 13:38
Selenium	< 1	mg/kg			WG564294	11/10/11 13:38
Silver	< .5	mg/kg			WG564294	11/10/11 13:38
Zinc	< 1.5	mg/kg			WG564294	11/10/11 13:38
Chromium,Hexavalent	< 2	mg/kg			WG564219	11/11/11 14:58
1-Methylnaphthalene	< .006	mg/kg			WG565250	11/12/11 16:12
2-Chloronaphthalene	< .006	mg/kg			WG565250	11/12/11 16:12
2-Methylnaphthalene	< .006	mg/kg			WG565250	11/12/11 16:12
Acenaphthene	< .006	mg/kg			WG565250	11/12/11 16:12
Acenaphthylene	< .006	mg/kg			WG565250	11/12/11 16:12
Anthracene	< .006	mg/kg			WG565250	11/12/11 16:12
Benzo(a)anthracene	< .006	mg/kg			WG565250	11/12/11 16:12
Benzo(a)pyrene	< .006	mg/kg			WG565250	11/12/11 16:12
Benzo(b)fluoranthene	< .006	mg/kg			WG565250	11/12/11 16:12
Benzo(g,h,i)perylene	< .006	mg/kg			WG565250	11/12/11 16:12
Benzo(k)fluoranthene	< .006	mg/kg			WG565250	11/12/11 16:12
Chrysene	< .006	mg/kg			WG565250	11/12/11 16:12
Dibenz(a,h)anthracene	< .006	mg/kg			WG565250	11/12/11 16:12
Fluoranthene	< .006	mg/kg			WG565250	11/12/11 16:12
Fluorene	< .006	mg/kg			WG565250	11/12/11 16:12
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG565250	11/12/11 16:12
Naphthalene	< .006	mg/kg			WG565250	11/12/11 16:12
Phenanthrene	< .006	mg/kg			WG565250	11/12/11 16:12
Pyrene	< .006	mg/kg			WG565250	11/12/11 16:12

* Performance of this Analyte is outside of established criteria.

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Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
			Duplicate				
2-Fluorobiphenyl		% Rec.	71.94		34-129		11/12/11 16:12
Nitrobenzene-d5		% Rec.	73.47		14-141		11/12/11 16:12
p-Terphenyl-d14		% Rec.	82.52		25-139		11/12/11 16:12

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
			Duplicate				
Specific Conductance	umhos/cm	4400	4800	9.38	20	L545001-02	WG564608
Specific Conductance	umhos/cm	830.	770.	7.14	20	L545606-01	WG564608
Arsenic	mg/kg	7.00	6.80	2.90	20	L545337-05	WG564651
Mercury	mg/kg	0.0900	0.0910	0.994	20	L545453-01	WG564626
pH	su	8.60	8.60	0.233	1	L545207-01	WG564618
pH	su	9.60	9.60	0.104	1	L545613-01	WG564618
Arsenic	mg/kg	5.50	5.80	5.13	20	L545376-01	WG564294
Barium	mg/kg	160.	177.	10.1	20	L545376-01	WG564294
Cadmium	mg/kg	0	0	0	20	L545376-01	WG564294
Chromium	mg/kg	15.0	15.0	0.669	20	L545376-01	WG564294
Copper	mg/kg	9.10	9.12	0.110	20	L545376-01	WG564294
Lead	mg/kg	53.0	47.0	11.4	20	L545376-01	WG564294
Nickel	mg/kg	9.00	9.33	3.38	20	L545376-01	WG564294
Selenium	mg/kg	1.60	0.869	61.5*	20	L545376-01	WG564294
Silver	mg/kg	0.820	0.710	14.1	20	L545376-01	WG564294
Zinc	mg/kg	38.0	38.0	1.32	20	L545376-01	WG564294
Chromium,Hexavalent	mg/kg	0	1.20	NA	20	L545613-01	WG564219
Chromium,Hexavalent	mg/kg	0	0	0	20	L545207-01	WG564219
ORP	mV	180.	180.	1.10	20	L545601-02	WG565090
ORP	mV	0	0	0	20	L546195-01	WG565090

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Specific Conductance	umhos/cm	427	430.	101.	85-115	WG564608
Benzene	mg/kg	.05	0.0447	89.4	76-113	WG564407
Ethylbenzene	mg/kg	.05	0.0465	93.0	78-115	WG564407
Toluene	mg/kg	.05	0.0494	98.8	76-114	WG564407
Total Xylene	mg/kg	.15	0.133	88.8	81-118	WG564407
a,a,a-Trifluorotoluene(PID)				94.46	54-144	WG564407
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.20	113.	67-135	WG564407
a,a,a-Trifluorotoluene(FID)				100.8	59-128	WG564407
TPH (GC/FID) High Fraction	ppm	60	45.3	75.6	50-150	WG564413
o-Terphenyl				70.77	50-150	WG564413

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Arsenic	mg/kg	92.6	82.6	89.2	82.9-117	WG564651
Mercury	mg/kg	3.77	4.19	111.	71.6-128	WG564626
pH	su	7.98	8.00	100.	98-101	WG564618
Arsenic	mg/kg	92.6	84.5	91.3	82.9-117	WG564294
Barium	mg/kg	169	170.	101.	82.8-117	WG564294
Cadmium	mg/kg	61.8	56.0	90.6	83.3-117	WG564294
Chromium	mg/kg	71.3	70.1	98.3	81.8-118	WG564294
Copper	mg/kg	81.2	80.9	99.6	83.9-116	WG564294
Lead	mg/kg	92.4	86.3	93.4	83.3-117	WG564294
Nickel	mg/kg	59.1	57.4	97.1	83.8-116	WG564294
Selenium	mg/kg	89.5	79.7	89.1	79-121	WG564294
Silver	mg/kg	34.4	32.1	93.3	66.3-134	WG564294
Zinc	mg/kg	141	133.	94.3	80.9-119	WG564294
Chromium, Hexavalent	mg/kg	203	155.	76.4	50-150	WG564219
ORP	mV	229	230.	100.	95.6-104.37	WG565090
1-Methylnaphthalene	mg/kg	.033	0.0273	82.6	48-113	WG565250
2-Chloronaphthalene	mg/kg	.033	0.0281	85.2	51-114	WG565250
2-Methylnaphthalene	mg/kg	.033	0.0223	67.6	44-109	WG565250
Acenaphthene	mg/kg	.033	0.0260	78.8	52-108	WG565250
Acenaphthylene	mg/kg	.033	0.0257	77.7	51-110	WG565250
Anthracene	mg/kg	.033	0.0324	98.2	58-120	WG565250
Benzo(a)anthracene	mg/kg	.033	0.0268	81.3	54-110	WG565250
Benzo(a)pyrene	mg/kg	.033	0.0300	90.9	56-118	WG565250
Benzo(b)fluoranthene	mg/kg	.033	0.0268	81.3	55-114	WG565250
Benzo(g,h,i)perylene	mg/kg	.033	0.0290	88.0	48-130	WG565250
Benzo(k)fluoranthene	mg/kg	.033	0.0304	92.1	55-122	WG565250
Chrysene	mg/kg	.033	0.0276	83.7	57-118	WG565250
Dibenz(a,h)anthracene	mg/kg	.033	0.0291	88.2	53-122	WG565250
Fluoranthene	mg/kg	.033	0.0294	89.1	58-118	WG565250
Fluorene	mg/kg	.033	0.0265	80.3	54-109	WG565250
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0291	88.2	51-125	WG565250
Naphthalene	mg/kg	.033	0.0229	69.4	45-105	WG565250
Phenanthrene	mg/kg	.033	0.0242	73.3	53-114	WG565250
Pyrene	mg/kg	.033	0.0277	83.9	53-121	WG565250
2-Fluorobiphenyl				72.46	34-129	WG565250
Nitrobenzene-d5				68.83	14-141	WG565250
p-Terphenyl-d14				86.04	25-139	WG565250

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
Specific Conductance	umhos/	430.	430.	101.	85-115	0	20	WG564608
Benzene	mg/kg	0.0447	0.0447	89.0	76-113	0.0700	20	WG564407
Ethylbenzene	mg/kg	0.0465	0.0465	93.0	78-115	0.0800	20	WG564407
Toluene	mg/kg	0.0494	0.0494	99.0	76-114	0	20	WG564407

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November 15, 2011

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Total Xylene	mg/kg	0.133	0.133	89.0	81-118	0.190	20	WG564407
a,a,a-Trifluorotoluene(PID)				94.50	54-144			WG564407
TPH (GC/FID) Low Fraction	mg/kg	6.10	6.20	111.	67-135	1.63	20	WG564407
a,a,a-Trifluorotoluene(FID)				100.1	59-128			WG564407
TPH (GC/FID) High Fraction	ppm	46.6	45.3	78.0	50-150	2.65	25	WG564413
o-Terphenyl				73.03	50-150			WG564413
pH	su	8.00	8.00	100.	98-101	0	20	WG564618
Chromium, Hexavalent	mg/kg	154.	155.	76.0	50-150	0.647	20	WG564219
ORP	mV	230.	230.	100.	95.6-104.37	0	20	WG565090
1-Methylnaphthalene	mg/kg	0.0329	0.0273	100.	48-113	18.6	24	WG565250
2-Chloronaphthalene	mg/kg	0.0329	0.0281	100.	51-114	15.7	24	WG565250
2-Methylnaphthalene	mg/kg	0.0270	0.0223	82.0	44-109	19.0	24	WG565250
Acenaphthene	mg/kg	0.0285	0.0260	86.0	52-108	9.35	22	WG565250
Acenaphthylene	mg/kg	0.0288	0.0257	87.0	51-110	11.7	21	WG565250
Anthracene	mg/kg	0.0317	0.0324	96.0	58-120	2.06	20	WG565250
Benzo(a)anthracene	mg/kg	0.0265	0.0268	80.0	54-110	1.17	22	WG565250
Benzo(a)pyrene	mg/kg	0.0302	0.0300	92.0	56-118	0.744	21	WG565250
Benzo(b)fluoranthene	mg/kg	0.0346	0.0268	105.	55-114	25.4*	20	WG565250
Benzo(g,h,i)perylene	mg/kg	0.0282	0.0290	85.0	48-130	2.90	20	WG565250
Benzo(k)fluoranthene	mg/kg	0.0364	0.0304	110.	55-122	18.0	25	WG565250
Chrysene	mg/kg	0.0275	0.0276	83.0	57-118	0.332	20	WG565250
Dibenz(a,h)anthracene	mg/kg	0.0293	0.0291	89.0	53-122	0.662	20	WG565250
Fluoranthene	mg/kg	0.0293	0.0294	89.0	58-118	0.567	20	WG565250
Fluorene	mg/kg	0.0277	0.0265	84.0	54-109	4.49	20	WG565250
Indeno(1,2,3-cd)pyrene	mg/kg	0.0291	0.0291	88.0	51-125	0.0153	21	WG565250
Naphthalene	mg/kg	0.0260	0.0229	79.0	45-105	12.7	24	WG565250
Phenanthrene	mg/kg	0.0246	0.0242	75.0	53-114	1.77	20	WG565250
Pyrene	mg/kg	0.0279	0.0277	84.0	53-121	0.674	20	WG565250
2-Fluorobiphenyl				85.29	34-129			WG565250
Nitrobenzene-d5				77.89	14-141			WG565250
p-Terphenyl-d14				86.33	25-139			WG565250

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.203	0	.05	81.2	32-137	L545408-04	WG564407
Ethylbenzene	mg/kg	0.206	0	.05	82.5	10-150	L545408-04	WG564407
Toluene	mg/kg	0.221	0	.05	88.6	20-142	L545408-04	WG564407
Total Xylene	mg/kg	0.593	0	.15	79.0	16-141	L545408-04	WG564407
a,a,a-Trifluorotoluene(PID)					93.56	54-144		WG564407
TPH (GC/FID) Low Fraction	mg/kg	29.7	0	5.5	108.	55-109	L545408-04	WG564407
a,a,a-Trifluorotoluene(FID)					99.92	59-128		WG564407
TPH (GC/FID) High Fraction	ppm	52.9	9.70	60	72.0	50-150	L545404-09	WG564413
o-Terphenyl					80.98	50-150		WG564413
Arsenic	mg/kg	51.6	6.80	50	89.6	75-125	L545337-05	WG564651

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Mercury	mg/kg	0.312	0.0910	.25	88.4	70-130	L545453-01	WG564626
Arsenic	mg/kg	50.3	5.80	50	89.0	75-125	L545376-01	WG564294
Barium	mg/kg	212.	177.	50	70.0*	75-125	L545376-01	WG564294
Cadmium	mg/kg	42.9	0	50	85.8	75-125	L545376-01	WG564294
Chromium	mg/kg	64.2	15.0	50	98.4	75-125	L545376-01	WG564294
Copper	mg/kg	60.6	9.12	50	103.	75-125	L545376-01	WG564294
Lead	mg/kg	96.6	47.0	50	99.2	75-125	L545376-01	WG564294
Nickel	mg/kg	56.7	9.33	50	94.7	75-125	L545376-01	WG564294
Selenium	mg/kg	44.7	0.869	50	87.7	75-125	L545376-01	WG564294
Silver	mg/kg	49.6	0.710	50	97.8	75-125	L545376-01	WG564294
Zinc	mg/kg	87.8	38.0	50	99.6	75-125	L545376-01	WG564294
Chromium, Hexavalent	mg/kg	13.5	0	20	67.5	50-150	L545207-02	WG564219
1-Methylnaphthalene	mg/kg	0.0273	0	.033	82.8	25-155	L546434-01	WG565250
2-Chloronaphthalene	mg/kg	0.0321	0	.033	97.2	31-153	L546434-01	WG565250
2-Methylnaphthalene	mg/kg	0.0229	0	.033	69.3	22-172	L546434-01	WG565250
Acenaphthene	mg/kg	0.0245	0.00120	.033	70.6	43-133	L546434-01	WG565250
Acenaphthylene	mg/kg	0.0242	0.000980	.033	70.5	42-146	L546434-01	WG565250
Anthracene	mg/kg	0.0275	0	.033	83.3	38-153	L546434-01	WG565250
Benzo(a)anthracene	mg/kg	0.0237	0.00140	.033	67.5	31-142	L546434-01	WG565250
Benzo(a)pyrene	mg/kg	0.0272	0	.033	82.5	26-152	L546434-01	WG565250
Benzo(b)fluoranthene	mg/kg	0.0265	0.000900	.033	77.4	10-188	L546434-01	WG565250
Benzo(g,h,i)perylene	mg/kg	0.0257	0	.033	77.9	10-176	L546434-01	WG565250
Benzo(k)fluoranthene	mg/kg	0.0248	0	.033	75.3	22-163	L546434-01	WG565250
Chrysene	mg/kg	0.0236	0	.033	71.6	26-146	L546434-01	WG565250
Dibenz(a,h)anthracene	mg/kg	0.0263	0	.033	79.7	10-160	L546434-01	WG565250
Fluoranthene	mg/kg	0.0267	0.00290	.033	72.1	23-160	L546434-01	WG565250
Fluorene	mg/kg	0.0231	0.0120	.033	33.6*	44-143	L546434-01	WG565250
Indeno(1,2,3-cd)pyrene	mg/kg	0.0262	0	.033	79.3	10-157	L546434-01	WG565250
Naphthalene	mg/kg	0.0218	0.00170	.033	61.0	22-156	L546434-01	WG565250
Phenanthrene	mg/kg	0.0228	0	.033	69.0	23-164	L546434-01	WG565250
Pyrene	mg/kg	0.0242	0.00220	.033	66.8	12-170	L546434-01	WG565250
2-Fluorobiphenyl					66.49	34-129		WG565250
Nitrobenzene-d5					70.41	14-141		WG565250
p-Terphenyl-d14					71.91	25-139		WG565250

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.213	0.203	85.2	32-137	4.81	39	L545408-04	WG564407
Ethylbenzene	mg/kg	0.212	0.206	84.9	10-150	2.82	44	L545408-04	WG564407
Toluene	mg/kg	0.220	0.221	88.0	20-142	0.700	42	L545408-04	WG564407
Total Xylene	mg/kg	0.601	0.593	80.1	16-141	1.35	46	L545408-04	WG564407
a,a,a-Trifluorotoluene(PID)				94.19	54-144				WG564407
TPH (GC/FID) Low Fraction	mg/kg	26.9	29.7	97.9	55-109	9.70	20	L545408-04	WG564407
a,a,a-Trifluorotoluene(FID)				99.04	59-128				WG564407
TPH (GC/FID) High Fraction	ppm	53.2	52.9	72.6	50-150	0.656	25	L545404-09	WG564413
o-Terphenyl				82.49	50-150				WG564413

Arsenic mg/kg 49.9 51.6 86.2 75-125 3.35 20 L545337-05 WG564651

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Mercury	mg/kg	0.314	0.312	89.2	70-130	0.639	20	L545453-01	WG564626
Arsenic	mg/kg	51.9	50.3	92.2	75-125	3.13	20	L545376-01	WG564294
Barium	mg/kg	215.	212.	76.0	75-125	1.41	20	L545376-01	WG564294
Cadmium	mg/kg	42.8	42.9	85.6	75-125	0.233	20	L545376-01	WG564294
Chromium	mg/kg	63.2	64.2	96.4	75-125	1.57	20	L545376-01	WG564294
Copper	mg/kg	60.6	60.6	103.	75-125	0	20	L545376-01	WG564294
Lead	mg/kg	97.3	96.6	101.	75-125	0.722	20	L545376-01	WG564294
Nickel	mg/kg	56.4	56.7	94.1	75-125	0.531	20	L545376-01	WG564294
Selenium	mg/kg	43.6	44.7	85.5	75-125	2.49	20	L545376-01	WG564294
Silver	mg/kg	49.8	49.6	98.2	75-125	0.402	20	L545376-01	WG564294
Zinc	mg/kg	86.6	87.8	97.2	75-125	1.38	20	L545376-01	WG564294
Chromium, Hexavalent	mg/kg	13.6	13.5	68.0	50-150	0.738	20	L545207-02	WG564219
1-Methylnaphthalene	mg/kg	0.0272	0.0273	82.3	25-155	0.625	27	L546434-01	WG565250
2-Chloronaphthalene	mg/kg	0.0263	0.0321	79.7	31-153	19.8	22	L546434-01	WG565250
2-Methylnaphthalene	mg/kg	0.0223	0.0229	67.5	22-172	2.56	29	L546434-01	WG565250
Acenaphthene	mg/kg	0.0261	0.0245	75.4	43-133	6.27	26	L546434-01	WG565250
Acenaphthylene	mg/kg	0.0269	0.0242	78.5	42-146	10.3	22	L546434-01	WG565250
Anthracene	mg/kg	0.0299	0.0275	90.7	38-153	8.52	27	L546434-01	WG565250
Benzo(a)anthracene	mg/kg	0.0241	0.0237	68.8	31-142	1.82	31	L546434-01	WG565250
Benzo(a)pyrene	mg/kg	0.0276	0.0272	83.6	26-152	1.32	32	L546434-01	WG565250
Benzo(b)fluoranthene	mg/kg	0.0271	0.0265	79.3	10-188	2.24	33	L546434-01	WG565250
Benzo(g,h,i)perylene	mg/kg	0.0264	0.0257	80.1	10-176	2.85	30	L546434-01	WG565250
Benzo(k)fluoranthene	mg/kg	0.0260	0.0248	78.8	22-163	4.56	29	L546434-01	WG565250
Chrysene	mg/kg	0.0244	0.0236	74.0	26-146	3.36	30	L546434-01	WG565250
Dibenz(a,h)anthracene	mg/kg	0.0269	0.0263	81.4	10-160	2.14	39	L546434-01	WG565250
Fluoranthene	mg/kg	0.0273	0.0267	73.8	23-160	2.13	22	L546434-01	WG565250
Fluorene	mg/kg	0.0262	0.0231	43.0*	44-143	12.7	23	L546434-01	WG565250
Indeno(1,2,3-cd)pyrene	mg/kg	0.0267	0.0262	81.0	10-157	2.13	40	L546434-01	WG565250
Naphthalene	mg/kg	0.0219	0.0218	61.2	22-156	0.215	27	L546434-01	WG565250
Phenanthrene	mg/kg	0.0244	0.0228	74.0	23-164	7.02	25	L546434-01	WG565250
Pyrene	mg/kg	0.0251	0.0242	69.5	12-170	3.59	24	L546434-01	WG565250
2-Fluorobiphenyl				74.75	34-129				WG565250
Nitrobenzene-d5				71.17	14-141				WG565250
p-Terphenyl-d14				74.06	25-139				WG565250

Batch number / Run number / Sample number cross reference

WG564295: R1925014: L545408-01
WG564608: R1926072: L545408-01
WG564407: R1926372: L545408-01 02 03 04 05 06
WG564413: R1926914: L545408-01 02 03 04 05 06
WG564651: R1927072: L545408-07 08 09 10 11
WG564626: R1927299: L545408-01
WG564618: R1927303: L545408-01
WG564294: R1928273: L545408-01
WG564219: R1928873: L545408-01
WG565090: R1928893: L545408-01
WG565250: R1930132: L545408-01

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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.



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Blake Ford and Kate Ramsay
EnCana Oil & Gas - Rangely, CO
1125 Escalante Drive
Rangely, CO 81648-3600

Report Summary

Monday August 06, 2012

Report Number: L587813


Samples Received: 08/02/12

Client Project: 10-418

Description: Pit Closures

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:


Jarred Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-IN-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.

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REPORT OF ANALYSIS

Blake Ford and Kate Ramsay
EnCana Oil & Gas - Rangely, CO
1125 Escalante Drive
Rangely, CO 81648-3600

August 06, 2012

Date Received : August 02, 2012
Description : Pit Closures
Sample ID : 6001-SPOILS-08012012 .5-2 FT
Collected By : DAP
Collection Date : 08/01/12 09:50

ESC Sample # : L587813-01

Site ID : SWR-6001

Project # : 10-418

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	08/02/12	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	99.1		% Rec.	602/8015	08/02/12	5
TPH (GC/FID) High Fraction	120	4.0	mg/kg	3546/DRO	08/03/12	1
Surrogate recovery(%)						
o-Terphenyl	52.1		% Rec.	3546/DRO	08/03/12	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: 08/06/12 13:36 Printed: 08/06/12 13:58



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1125 Escalante Drive

Rangely, CO 81648-3600

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August 06, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) High Fraction	< 4	ppm			WG605762	08/03/12 09:38
o-Terphenyl		% Rec.	68.87	50-150	WG605762	08/03/12 09:38
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG605789	08/02/12 22:11
a,a,a-Trifluorotoluene(FID)		% Rec.	101.3	59-128	WG605789	08/02/12 22:11

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) High Fraction	ppm	60	52.0	86.6	50-150	WG605762
o-Terphenyl				71.80	50-150	WG605762
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.14	112.	67-135	WG605789
a,a,a-Trifluorotoluene(FID)				105.3	59-128	WG605789

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) High Fraction	ppm	54.2	52.0	90.0	50-150	4.21	25	WG605762
o-Terphenyl				72.60	50-150			WG605762
TPH (GC/FID) Low Fraction	mg/kg	5.92	6.14	108.	67-135	3.65	20	WG605789
a,a,a-Trifluorotoluene(FID)				106.4	59-128			WG605789

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
TPH (GC/FID) Low Fraction	mg/kg	23.5	0	5.5	85.4	55-109	L587813-01	WG605789
a,a,a-Trifluorotoluene(FID)					102.8	59-128		WG605789
TPH (GC/FID) High Fraction	ppm	46.3	0	60	77.2	50-150	L587800-05	WG605762
o-Terphenyl					60.07	50-150		WG605762

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	28.6	23.5	104.	55-109	19.7	20	L587813-01	WG605789
a,a,a-Trifluorotoluene(FID)				104.9	59-128				WG605789
TPH (GC/FID) High Fraction	ppm	47.8	46.3	79.6	50-150	3.19	25	L587800-05	WG605762
o-Terphenyl				61.20	50-150				WG605762

Batch number /Run number / Sample number cross reference

WG605762: R2286733: L587813-01
WG605789: R2287174: L587813-01

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