

Analytes (BDL = Below Detection Limit; ND = Non Detect)

Allowable Concentration -->				Organic Compounds in Soil (mg/kg [ppm])																	Inorganics in Soil			Metals in Soil (mg/kg [ppm])															
Location	Sample Date:	Sample Matrix	Matrix Notes	TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3,C,D)pyrene	Naphthalene	Pyrene	EC (<4 mmhos/cm or 2x background)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc	
K200U	09/16/09	Cuttings		1389	149	1240	0.145	4.72	0.025	0.433	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0874	ND	0.171	0.0449	0.713	35.1	9.3	5.3		0.41	13.7	1.2	26.4	13.7	0.03	15.6	0.89	0.32	60.9	
K200U	06/25/10	Cuttings	Rerun TPH	1690	ND	1690																																	
K200U	10/12/10	Cuttings		480	BDL	480	BDL	BDL	BDL	BDL	0.026	0.015	BDL	0.0073	BDL	BDL	BDL	0.017	BDL	0.014	0.055	BDL	0.23	0.025	1.7	21	8.8	6.3	6700	0.87	16	BDL	20	9	0.033	12	BDL	BDL	56
K200U	09/06/11	Cuttings		1102.2	2.2	1100	0.0032	BDL	0.0095	0.34	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.54	BDL	4.3	52	8.7	2.4	3300	0.77	10	BDL	18	7.1	0.053	7	BDL	BDL	41	
K200U	01/05/12	Cuttings	Resample for TPH	666.4	6.4	660																																	
K200U	01/19/12	Cuttings	N1 [N]	1006.6	6.6	1000																																	
K200U	01/19/12	Cuttings	N2 [N mid]	638.1	8.1	630																																	
K200U	01/19/12	Cuttings	N3 [S mid]	535.5	5.5	530																																	
K200U	01/19/12	Cuttings	N4 [S]	556.7	6.7	550																																	
K200U	06/27/12	Cuttings	composite 1	1400		1400																																	
K200U	06/27/12	Cuttings	composite 2	1500		1500																																	
K200U	06/27/12	Cuttings	composite 3	1500		1500																																	
K200U	09/04/14	Cuttings	SBE03 [5-10']	900		900																																	
K200U	09/04/14	Cuttings	SBE02 [10-15']	1100		1100																																	
K200U	09/04/14	Cuttings	SBE01 [10-15']	950		950																																	
K200U	09/04/14	Cuttings	SBW01 [10-15']	850		850																																	
K200U	09/04/14	Cuttings	SBW02 [10-15']	850		850																																	



10/15/09

## Technical Report for

**ENCANA**

**EnCana Oil & Gas (USA) Inc.**

**K200U Cuttings & Background**

**Accutest Job Number: T37855**

**Sampling Date: 09/16/09**

### Report to:

EnCana  
2717 Co. Rd. 215  
Parachute, CO 81635  
brett.middleton@encana.com; christopher.hines@encana.com  
  
ATTN: Chris Hines

**Total number of pages in report: 97**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

*Paul K Canevaro*

**Paul Canevaro**  
**Laboratory Director**

**Client Service contact: Sylvia Garza 713-271-4700**

Certifications: TX (T104704220-06-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004)  
OK (9103) UT(7132714700)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary .....</b>	<b>3</b>
<b>Section 2: Sample Results .....</b>	<b>4</b>
<b>2.1:</b> T37855-1: K20OU-CUTTINGS-091609 .....	5
<b>2.2:</b> T37855-1A: K20OU-CUTTINGS-091609 .....	11
<b>2.3:</b> T37855-1B: K20OU-CUTTINGS-091609 .....	12
<b>2.4:</b> T37855-1C: K20OU-CUTTINGS-091609 .....	13
<b>2.5:</b> T37855-2: K20OU-BACKGROUND-091609 .....	15
<b>2.6:</b> T37855-2A: K20OU-BACKGROUND-091609 .....	21
<b>2.7:</b> T37855-2B: K20OU-BACKGROUND-091609 .....	22
<b>2.8:</b> T37855-2C: K20OU-BACKGROUND-091609 .....	23
<b>Section 3: Misc. Forms .....</b>	<b>25</b>
<b>3.1:</b> Chain of Custody .....	26
<b>Section 4: GC/MS Volatiles - QC Data Summaries .....</b>	<b>30</b>
<b>4.1:</b> Method Blank Summary .....	31
<b>4.2:</b> Blank Spike Summary .....	34
<b>4.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	36
<b>Section 5: GC/MS Semi-volatiles - QC Data Summaries .....</b>	<b>39</b>
<b>5.1:</b> Method Blank Summary .....	40
<b>5.2:</b> Blank Spike Summary .....	42
<b>5.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	44
<b>Section 6: GC Volatiles - QC Data Summaries .....</b>	<b>46</b>
<b>6.1:</b> Method Blank Summary .....	47
<b>6.2:</b> Blank Spike Summary .....	49
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	51
<b>Section 7: GC Semi-volatiles - QC Data Summaries .....</b>	<b>53</b>
<b>7.1:</b> Method Blank Summary .....	54
<b>7.2:</b> Blank Spike Summary .....	56
<b>7.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	58
<b>Section 8: Metals Analysis - QC Data Summaries .....</b>	<b>60</b>
<b>8.1:</b> Prep QC MP10295: Ca,Mg,Na,Sodium Adsorption Ratio .....	61
<b>8.2:</b> Prep QC MP10296: B .....	63
<b>8.3:</b> Prep QC MP10297: Ba .....	68
<b>8.4:</b> Prep QC MP10369: As,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn .....	73
<b>8.5:</b> Prep QC MP10381: Hg .....	78
<b>8.6:</b> Prep QC MP10393: Ca,Mg,Na,Sodium Adsorption Ratio .....	82
<b>8.7:</b> Prep QC MP10395: Ba .....	84
<b>8.8:</b> Prep QC MP10403: B .....	89
<b>Section 9: General Chemistry - QC Data Summaries .....</b>	<b>94</b>
<b>9.1:</b> Method Blank and Spike Results Summary .....	95
<b>9.2:</b> Duplicate Results Summary .....	96
<b>9.3:</b> Matrix Spike Results Summary .....	97



Sample Summary

ENCANA

Job No: T37855

EnCana Oil & Gas (USA) Inc.  
Project No: K200U Cuttings & Background

Sample Number	Collected			Received	Matrix		Client Sample ID
	Date	Time	By		Code	Type	
T37855-1	09/16/09	13:00	DP	09/17/09	SO	Soil	K200U-CUTTINGS-091609
T37855-1A	09/16/09	13:00	DP	09/17/09	SO	Soil	K200U-CUTTINGS-091609
T37855-1B	09/16/09	13:00	DP	09/17/09	SO	Soil	K200U-CUTTINGS-091609
T37855-1C	09/16/09	13:00	DP	09/17/09	SO	Soil	K200U-CUTTINGS-091609
T37855-2	09/16/09	12:00	DP	09/17/09	SO	Soil	K200U-BACKGROUND-091609
T37855-2A	09/16/09	12:00	DP	09/17/09	SO	Soil	K200U-BACKGROUND-091609
T37855-2B	09/16/09	12:00	DP	09/17/09	SO	Soil	K200U-BACKGROUND-091609
T37855-2C	09/16/09	12:00	DP	09/17/09	SO	Soil	K200U-BACKGROUND-091609

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



## Sample Results

## Report of Analysis

## Report of Analysis

**Client Sample ID:** K20OU-CUTTINGS-091609  
**Lab Sample ID:** T37855-1  
**Matrix:** SO - Soil  
**Method:** SW846 8260B  
**Project:** EnCana Oil & Gas (USA) Inc.

**Date Sampled:** 09/16/09  
**Date Received:** 09/17/09  
**Percent Solids:** 75.4

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0020805.D	1	09/19/09	AH	n/a	n/a	VM836
Run #2	X0055492.D	1	09/21/09	AH	n/a	n/a	VX289

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.00 g	5.0 ml	
Run #2	5.14 g	5.0 ml	100 ul

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	145	6.6	0.93	ug/kg	
108-88-3	Toluene	4720 <sup>a</sup>	400	77	ug/kg	
100-41-4	Ethylbenzene	25.0	6.6	1.2	ug/kg	
1330-20-7	Xylene (total)	433	20	2.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	87%	78%	70-121%
2037-26-5	Toluene-D8	119%	102%	76-132%
460-00-4	4-Bromofluorobenzene	156%	92%	73-165%
17060-07-0	1,2-Dichloroethane-D4	99%	73%	57-122%

(a) Result is from Run# 2

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

Client Sample ID: K200U-CUTTINGS-091609

Lab Sample ID: T37855-1

Date Sampled: 09/16/09

Matrix: SO - Soil

Date Received: 09/17/09

Method: SW846 8270C SW846 3550B

Percent Solids: 75.4

Project: EnCana Oil &amp; Gas (USA) Inc.

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J13351.D	1	09/23/09	SC	09/18/09	OP13030	EJ616
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	220	60	ug/kg	
208-96-8	Acenaphthylene	ND	220	51	ug/kg	
120-12-7	Anthracene	ND	220	42	ug/kg	
56-55-3	Benzo(a)anthracene	ND	220	83	ug/kg	
50-32-8	Benzo(a)pyrene	ND	220	34	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	220	53	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	220	51	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	220	40	ug/kg	
218-01-9	Chrysene	ND	220	47	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	220	110	ug/kg	
206-44-0	Fluoranthene	ND	220	45	ug/kg	
86-73-7	Fluorene	87.4	220	59	ug/kg	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	220	77	ug/kg	
90-12-0	1-Methylnaphthalene	259	220	51	ug/kg	
91-57-6	2-Methylnaphthalene	465	220	68	ug/kg	
91-20-3	Naphthalene	171	220	43	ug/kg	J
85-01-8	Phenanthrene	174	220	58	ug/kg	J
129-00-0	Pyrene	44.9	220	42	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		26-124%
4165-62-2	Phenol-d5	71%		19-106%
118-79-6	2,4,6-Tribromophenol	79%		18-129%
4165-60-0	Nitrobenzene-d5	58%		18-104%
321-60-8	2-Fluorobiphenyl	49%		21-114%
1718-51-0	Terphenyl-d14	109%		24-149%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	K20OU-CUTTINGS-091609	
<b>Lab Sample ID:</b>	T37855-1	<b>Date Sampled:</b> 09/16/09
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 09/17/09
<b>Method:</b>	SW846 8015	<b>Percent Solids:</b> 75.4
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE047638.D	2	09/22/09	FI	n/a	n/a	GEE2420
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.14 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	149	16	0.97	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	112%		46-127%
98-08-8	aaa-Trifluorotoluene	114%		44-120%

ND = Not detected      MDL - Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound



# Report of Analysis

<b>Client Sample ID:</b>	K200U-CUTTINGS-091609			<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-1			<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil			<b>Percent Solids:</b>	75.4
<b>Method:</b>	SW846 8015 M SW846 3550B				
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC215141.D	20	09/22/09	SS	09/19/09	OP13044	GCC958
Run #2							

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	1240	220	72	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	0% <sup>a</sup>		33-115%		

(a) Outside control limits due to dilution.

ND = Not detected      MDL - Method Detection Limit      J = Indicates an estimated value  
 RL = Reporting Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

## Report of Analysis

**Client Sample ID:** K20OU-CUTTINGS-091609**Lab Sample ID:** T37855-1**Date Sampled:** 09/16/09**Matrix:** SO - Soil**Date Received:** 09/17/09**Percent Solids:** 75.4**Project:** EnCana Oil & Gas (USA) Inc.

## Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.3	0.79	0.16	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Cadmium	0.41	0.40	0.079	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Chromium	14.9	0.79	0.055	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Copper	26.4	2.0	0.10	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Lead	13.7	0.79	0.32	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Mercury	0.030	0.020	0.00078	mg/kg	1	10/02/09	10/02/09 TW	SW846 7471A <sup>1</sup>	SW846 7471A <sup>4</sup>
Nickel	15.6	3.2	0.10	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Selenium	0.89	0.79	0.19	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Silver	0.32 B	0.79	0.063	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Zinc	60.9	1.6	0.32	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>

(1) Instrument QC Batch: MA4319

(2) Instrument QC Batch: MA4328

(3) Prep QC Batch: MP10369

(4) Prep QC Batch: MP10381

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result &lt; MDL

B = Indicates a result &gt; = MDL but &lt; RL

Report of Analysis

<b>Client Sample ID:</b>	K20OU-CUTTINGS-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-1	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.4
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.2 B	2.0	mg/kg	1	09/25/09 13:00	KD	SW846 3060/7196A
Chromium, Trivalent <sup>a</sup>	13.7	2.8	mg/kg	1	10/09/09 23:07	NS	SW846 6010/7196A M
Solids, Percent	75.4		%	1	09/18/09	MR	SM 2540B M
Specific Conductivity	713	1.0	umhos/cm	1	09/25/09 08:30	KD	EPA 120.1
pH	9.3		su	1	09/22/09 11:30	EV	SW846 9045C

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	K20OU-CUTTINGS-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-1A	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.4
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Hot Water Soluble Boron Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	1.01	0.20	0.0042	mg/l	1	09/23/09	09/25/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4302  
(2) Prep QC Batch: MP10296

RL = Reporting Limit  
MDL = Method Detection Limit  
U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	K20OU-CUTTINGS-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-1B	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.4
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	10900	130	0.40	mg/kg	10	09/23/09	09/27/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4307  
(2) Prep QC Batch: MP10297

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	K20OU-CUTTINGS-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-1C	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.4
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	198	25	0.18	mg/l	5	09/23/09	09/23/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>
Magnesium	16.9 B	25	0.039	mg/l	5	09/23/09	09/23/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>
Sodium	1920	130	3.4	mg/l	25	09/23/09	09/23/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4300  
(2) Prep QC Batch: MP10295

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	K20OU-CUTTINGS-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-1C	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.4
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	35.1		ratio	1	09/23/09 18:32	NS	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b>	K20OU-BACKGROUND-091609			<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-2			<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil			<b>Percent Solids:</b>	86.6
<b>Method:</b>	SW846 8260B				
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M0021045.D	1	09/28/09	JL	n/a	n/a	VM846
Run #2							

	Initial Weight	Final Volume
Run #1	5.56 g	5.0 ml
Run #2		

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.2	0.73	ug/kg	J
108-88-3	Toluene	1.6	5.2	0.99	ug/kg	
100-41-4	Ethylbenzene	ND	5.2	0.94	ug/kg	
1330-20-7	Xylene (total)	ND	16	2.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		70-121%
2037-26-5	Toluene-D8	111%		76-132%
460-00-4	4-Bromofluorobenzene	110%		73-165%
17060-07-0	1,2-Dichloroethane-D4	84%		57-122%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



## Report of Analysis

**Client Sample ID:** K200U-BACKGROUND-091609**Lab Sample ID:** T37855-2**Date Sampled:** 09/16/09**Matrix:** SO - Soil**Date Received:** 09/17/09**Method:** SW846 8270C SW846 3550B**Percent Solids:** 86.6**Project:** EnCana Oil & Gas (USA) Inc.

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J13487.D	1	09/29/09	SC	09/26/09	OP13100	EJ620
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

## BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	190	53	ug/kg	
208-96-8	Acenaphthylene	ND	190	45	ug/kg	
120-12-7	Anthracene	ND	190	37	ug/kg	
56-55-3	Benzo(a)anthracene	ND	190	74	ug/kg	
50-32-8	Benzo(a)pyrene	ND	190	30	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	190	47	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	190	45	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	190	36	ug/kg	
218-01-9	Chrysene	ND	190	42	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	190	100	ug/kg	
206-44-0	Fluoranthene	ND	190	40	ug/kg	
86-73-7	Fluorene	ND	190	52	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	190	69	ug/kg	
90-12-0	1-Methylnaphthalene	ND	190	45	ug/kg	
91-57-6	2-Methylnaphthalene	ND	190	60	ug/kg	
91-20-3	Naphthalene	ND	190	38	ug/kg	
85-01-8	Phenanthrene	52.7	190	51	ug/kg	J
129-00-0	Pyrene	ND	190	37	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	43%		18-104%
321-60-8	2-Fluorobiphenyl	34%		21-114%
1718-51-0	Terphenyl-d14	101%		24-149%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

<b>Client Sample ID:</b>	K20OU-BACKGROUND-091609			<b>Date Sampled:</b>	09/16/09		
<b>Lab Sample ID:</b>	T37855-2			<b>Date Received:</b>	09/17/09		
<b>Matrix:</b>	SO - Soil			<b>Percent Solids:</b>	86.6		
<b>Method:</b>	SW846 8015						
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE047865.D	1	09/27/09	JL	n/a	n/a	GEE2430
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.09 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	4.43	6.4	0.39	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	114%		46-127%
98-08-8	aaa-Trifluorotoluene	106%		44-120%

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b>	K20OU-BACKGROUND-091609				
<b>Lab Sample ID:</b>	T37855-2		<b>Date Sampled:</b>	09/16/09	
<b>Matrix:</b>	SO - Soil		<b>Date Received:</b>	09/17/09	
<b>Method:</b>	SW846 8015 M SW846 3550B		<b>Percent Solids:</b>	86.6	
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC215351.D	1	09/30/09	SS	09/25/09	OP13084	GCC966
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	20.3	9.5	3.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	53%		33-115%		

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

MDL - Method Detection Limit

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

**Client Sample ID:** K20OU-BACKGROUND-091609**Lab Sample ID:** T37855-2**Date Sampled:** 09/16/09**Matrix:** SO - Soil**Date Received:** 09/17/09**Percent Solids:** 86.6**Project:** EnCana Oil & Gas (USA) Inc.

## Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.1	0.67	0.13	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Cadmium	0.53	0.34	0.067	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Chromium	18.2	0.67	0.047	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Copper	15.1	1.7	0.087	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Lead	10.7	0.67	0.27	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Mercury	0.025	0.018	0.00072	mg/kg	1	10/02/09	10/02/09 TW	SW846 7471A <sup>1</sup>	SW846 7471A <sup>4</sup>
Nickel	14.5	2.7	0.087	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Selenium	0.72	0.67	0.16	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Silver	0.12 B	0.67	0.054	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>
Zinc	40.1	1.3	0.27	mg/kg	1	09/30/09	10/09/09 NS	SW846 6010B <sup>2</sup>	SW846 3050B <sup>3</sup>

(1) Instrument QC Batch: MA4319

(2) Instrument QC Batch: MA4328

(3) Prep QC Batch: MP10369

(4) Prep QC Batch: MP10381

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result &lt; MDL

B = Indicates a result &gt; = MDL but &lt; RL

Report of Analysis

<b>Client Sample ID:</b>	K20OU-BACKGROUND-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-2	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	1.7 B	2.0	mg/kg	1	09/25/09 13:00	KD	SW846 3060/7196A
Chromium, Trivalent <sup>a</sup>	16.5	2.7	mg/kg	1	10/09/09 23:30	NS	SW846 6010/7196A M
Solids, Percent	86.6		%	1	10/01/09	JL	SM 2540 G
Specific Conductivity	117	1.0	umhos/cm	1	09/25/09 08:30	KD	EPA 120.1
pH	8.9		su	1	09/30/09 15:45	CV	SW846 9045C

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	K20OU-BACKGROUND-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-2A	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Hot Water Soluble Boron Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	2.14	0.20	0.0042	mg/l	1	10/07/09	10/10/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4328  
(2) Prep QC Batch: MP10403

RL = Reporting Limit  
MDL = Method Detection Limit  
U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	K20OU-BACKGROUND-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-2B	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	262	12	0.035	mg/kg	1	10/06/09	10/10/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4328  
(2) Prep QC Batch: MP10395

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

Report of Analysis

<b>Client Sample ID:</b>	K20OU-BACKGROUND-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-2C	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

SAR Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	1240	25	0.18	mg/l	5	10/07/09	10/10/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>
Magnesium	77.2	25	0.039	mg/l	5	10/07/09	10/10/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>
Sodium	9.46 B	25	0.67	mg/l	5	10/07/09	10/10/09 NS	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4328  
(2) Prep QC Batch: MP10393

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL



Report of Analysis

<b>Client Sample ID:</b>	K20OU-BACKGROUND-091609	<b>Date Sampled:</b>	09/16/09
<b>Lab Sample ID:</b>	T37855-2C	<b>Date Received:</b>	09/17/09
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.6
<b>Project:</b>	EnCana Oil & Gas (USA) Inc.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	0.0704		ratio	1	10/10/09 02:10	NS	LADNR29B

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit



## Misc. Forms

### Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody



**Table 1:**  
Contaminants of Concern: Allowable Concentrations and Sampling Methods (COGCC Table 910-1)

CONTAMINANT OF CONCERN	CONCENTRATIONS	ANALYTICAL METHOD (SW604)
<b>Compounds in Soil</b>		
TPH (total volatile and extractable petroleum hydrocarbons)	500 mg/kg	8015
Benzene	0.17 mg/kg <sup>2</sup>	8260B
Toluene	85 mg/kg <sup>2</sup>	8260B
Ethylbenzene	100 mg/kg <sup>2</sup>	8260B
Xylenes (total)	175 mg/kg <sup>2</sup>	8260B
Acenaphthene	1,000 mg/kg <sup>2</sup>	8270C
Anthracene	1,000 mg/kg <sup>2</sup>	8270C
Benzo(A)anthracene	0.22 mg/kg <sup>2</sup>	8270C
Benzo(B)fluoranthene	0.22 mg/kg <sup>2</sup>	8270C
Benzo(K)fluoranthene	2.2 mg/kg <sup>2</sup>	8270C
Benzo(A)pyrene	0.022 mg/kg <sup>2</sup>	8270C
Chrysene	22 mg/kg <sup>2</sup>	8270C
Fluorene	0.022 mg/kg <sup>2</sup>	8270C
Fluoranthene	1,000 mg/kg <sup>2</sup>	8270C
Indeno(1,2,3-C)Pyrene	1,000 mg/kg <sup>2</sup>	8270C
Naphthalene	0.22 mg/kg <sup>2</sup>	8270C
Pyrene	23 mg/kg <sup>2</sup>	8270C
<b>Inorganics in Soils</b>		
Electrical Conductivity (EC)	<4 mmhos/cm or 2x background	9050
Sodium Adsorption Ratio (SAR)	<12 <sup>a</sup>	LDNR24B
pH	6-9	8045C
<b>Metals in Soils</b>		
Arsenic	0.35 mg/kg <sup>2</sup>	6010B
Barium (LDNR True Total Barium)	15,000 mg/kg <sup>2</sup>	6010B
Boron (Hot Water Soluble)	2 mg/kg <sup>2</sup>	6010B
Cadmium	70 mg/kg <sup>2,a</sup>	6010B
Chromium (III)	120,000 mg/kg <sup>2</sup>	6010B
Chromium (VI)	23 mg/kg <sup>2</sup>	6010B
Copper	3,100 mg/kg <sup>2</sup>	6010B
Lead (Inorganic)	400 mg/kg <sup>2</sup>	6010B
Mercury	23 mg/kg <sup>2</sup>	6010B
Nickel (soluble salts)	1,800 mg/kg <sup>2,a</sup>	6010B
Selenium	390 mg/kg <sup>2,a</sup>	6010B
Silver	390 mg/kg <sup>2</sup>	6010B
Zinc	23,000 mg/kg <sup>2,a</sup>	6010B
<b>Liquid Hydrocarbons in Soils and Ground Water</b>		
Liquid hydrocarbons including condensate and oil	Below detection level	Visual

COGCC recommends that the latest version of EPA 821-346 analytical methods be used where possible and that analyses of samples be performed by laboratories that are approved by the Department of Environmental Protection.

<sup>a</sup> COGCC allowable concentrations based on Table 910-1. Consideration shall be given to background levels in native soils.

# SAMPLE INSPECTION FORM

Accutest Job Number: T37855 Client: EnCana 01/1/09 Date/Time Received: 09/17/09 0930  
 # of Coolers Received: 1 Thermometer #: 12-1 Temperature Adjustment Factor: +0.4  
 Cooler Temps: #1: 4.0 #2: \_\_\_\_\_ #3: \_\_\_\_\_ #4: \_\_\_\_\_ #5: \_\_\_\_\_ #6: \_\_\_\_\_ #7: \_\_\_\_\_ #8: \_\_\_\_\_  
 Method of Delivery: FEDEX UPS Accutest Courier Greyhound Delivery Other  
 Airbill Numbers: \_\_\_\_\_

## COOLER INFORMATION

- ☐ Custody seal missing or not intact
- ☐ Temperature criteria not met
- ☐ Wet ice received in cooler

## CHAIN OF CUSTODY

- ☐ Chain of Custody not received
- ☐ Sample D/T unclear or missing
- ☐ Analyses unclear or missing
- ☐ COC not properly executed

## SAMPLE INFORMATION

- ☐ Sample containers received broken
- ☐ VOC vials have headspace
- ☐ Sample labels missing or illegible
- ☐ ID on COC does not match label(s)
- ☐ D/T on COC does not match label(s)
- ☐ Sample/Bottles recd but no analysis on COC
- ☐ Sample listed on COC, but not received
- ☐ Bottles missing for requested analysis
- ☐ Insufficient volume for analysis
- ☐ Sample received improperly preserved

## TRIP BLANK INFORMATION

- ☐ Trip Blank on COC but not received
- ☐ Trip Blank received but not on COC
- ☐ Trip Blank not intact
- ☐ Received Water Trip Blank
- ☐ Received Soil TB

Number of Encores? \_\_\_\_\_  
 Number of 5035 kits? \_\_\_\_\_  
 Number of lab-filtered metals? \_\_\_\_\_

Summary of Discrepancies:

1. Did not receive 3 containers for each sample & only recd

TECHNICIAN SIGNATURE/DATE: \_\_\_\_\_

INFORMATION AND SAMPLE LABELING VERIFIED BY: \_\_\_\_\_

## CORRECTIVE ACTIONS

Client Representative Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Accutest Representative: \_\_\_\_\_

Via: Phone Email

Client Instructions:

T37855: Chain of Custody

Page 3 of 4

## 3.1 3

CLIENT: ENCANA oil & Gas INITIALS: FF

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NaOH 6: DI 7: MeOH 8: Other  
 LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer  
 Rev 8/13/01 ewp

Page 4 of 4



## GC/MS Volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM836-MB	M0020793.D	1	09/19/09	AH	n/a	n/a	VM836

The QC reported here applies to the following samples: Method: SW846 8260B

T37855-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.0	0.70	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	0.90	ug/kg	
1330-20-7	Xylene (total)	ND	15	2.1	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	92% 70-121%
2037-26-5	Toluene-D8	103% 76-132%
460-00-4	4-Bromofluorobenzene	108% 73-165%
17060-07-0	1,2-Dichloroethane-D4	104% 57-122%



Method Blank Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX289-MB	X0055486.D	1	09/21/09	AH	n/a	n/a	VX289

The QC reported here applies to the following samples: Method: SW846 8260B

T37855-1

CAS No.	Compound	Result	RL	MDL	Units	Q
108-88-3	Toluene	ND	6.3	1.2	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	83% 70-121%
2037-26-5	Toluene-D8	99% 76-132%
460-00-4	4-Bromofluorobenzene	92% 73-165%
17060-07-0	1,2-Dichloroethane-D4	77% 57-122%

## Method Blank Summary

Page 1 of 1

**Job Number:** T37855  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM846-MB	M0021031.D	1	09/27/09	JL	n/a	n/a	VM846

The QC reported here applies to the following samples:

Method: SW846 8260B

T37855-2

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	5.0	0.70	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	0.90	ug/kg	
108-88-3	Toluene	ND	5.0	0.95	ug/kg	
1330-20-7	Xylene (total)	ND	15	2.1	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	94% 70-121%
2037-26-5	Toluene-D8	106% 76-132%
460-00-4	4-Bromofluorobenzene	96% 73-165%
17060-07-0	1,2-Dichloroethane-D4	88% 57-122%

Blank Spike Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM836-BS	M0020791.D	1	09/19/09	AH	n/a	n/a	VM836

The QC reported here applies to the following samples: Method: SW846 8260B

T37855-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	51.3	103	70-114
100-41-4	Ethylbenzene	50	48.1	96	60-119
1330-20-7	Xylene (total)	150	148	99	61-115

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	91%	70-121%
2037-26-5	Toluene-D8	102%	76-132%
460-00-4	4-Bromofluorobenzene	108%	73-165%
17060-07-0	1,2-Dichloroethane-D4	102%	57-122%

Blank Spike Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VM846-BS	M0021029.D	1	09/27/09	JL	n/a	n/a	VM846

The QC reported here applies to the following samples: Method: SW846 8260B

T37855-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	43.5	87	70-114
100-41-4	Ethylbenzene	50	45.4	91	60-119
108-88-3	Toluene	50	44.8	90	68-115
1330-20-7	Xylene (total)	150	136	91	61-115

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	70-121%
2037-26-5	Toluene-D8	113%	76-132%
460-00-4	4-Bromofluorobenzene	104%	73-165%
17060-07-0	1,2-Dichloroethane-D4	98%	57-122%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** T37855  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T37850-3MS	M0020796.D	1	09/19/09	AH	n/a	n/a	VM836
T37850-3MSD	M0020797.D	1	09/19/09	AH	n/a	n/a	VM836
T37850-3 <sup>a</sup>	M0020795.D	1	09/19/09	AH	n/a	n/a	VM836

The QC reported here applies to the following samples:

Method: SW846 8260B

T37855-1

CAS No.	Compound	T37850-3 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		61	26.3	43*	27.8	45*	6	70-114/38
100-41-4	Ethylbenzene	ND		61	19.5	32*	21.1	34*	8	60-119/40
1330-20-7	Xylene (total)	ND		183	59.1	32*	64.0	34*	8	61-115/39

CAS No.	Surrogate Recoveries	MS	MSD	T37850-3	Limits
1868-53-7	Dibromofluoromethane	90%	89%	89%	70-121%
2037-26-5	Toluene-D8	110%	108%	105%	76-132%
460-00-4	4-Bromofluorobenzene	124%	122%	113%	73-165%
17060-07-0	1,2-Dichloroethane-D4	104%	104%	106%	57-122%

(a) Reported for QC purposes only. Sample was reanalyzed due to failing QC.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T37401-4MS	X0055489.D	1	09/21/09	AH	n/a	n/a	VX289
T37401-4MSD	X0055490.D	1	09/21/09	AH	n/a	n/a	VX289
T37401-4 <sup>a</sup>	X0055488.D	1	09/21/09	AH	n/a	n/a	VX289

The QC reported here applies to the following samples:

Method: SW846 8260B

T37855-1

CAS No.	Compound	T37401-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
108-88-3	Toluene	6.3	U	59.7	55.3	93	57.6	91	4	68-115/38

CAS No.	Surrogate Recoveries	MS	MSD	T37401-4	Limits
1868-53-7	Dibromofluoromethane	81%	83%	79%	70-121%
2037-26-5	Toluene-D8	106%	107%	103%	76-132%
460-00-4	4-Bromofluorobenzene	111%	108%	104%	73-165%
17060-07-0	1,2-Dichloroethane-D4	76%	76%	70%	57-122%

(a) Reported for QC purposes only.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T37848-4MS	M0021036.D	1	09/27/09	JL	n/a	n/a	VM846
T37848-4MSD	M0021037.D	1	09/27/09	JL	n/a	n/a	VM846
T37848-4	M0021035.D	1	09/27/09	JL	n/a	n/a	VM846

The QC reported here applies to the following samples: Method: SW846 8260B

T37855-2

CAS No.	Compound	T37848-4 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.8	J	64.6	52.3	78	46.7	77	11	70-114/38
100-41-4	Ethylbenzene	6.6	U	64.6	52.5	81	46.3	80	13	60-119/40
108-88-3	Toluene	2.7	J	64.6	53.3	78	48.2	79	10	68-115/38
1330-20-7	Xylene (total)	4.9	J	194	156	78	140	78	11	61-115/39

CAS No.	Surrogate Recoveries	MS	MSD	T37848-4	Limits
1868-53-7	Dibromofluoromethane	95%	95%	92%	70-121%
2037-26-5	Toluene-D8	107%	108%	107%	76-132%
460-00-4	4-Bromofluorobenzene	97%	101%	98%	73-165%
17060-07-0	1,2-Dichloroethane-D4	91%	92%	88%	57-122%



## GC/MS Semi-volatiles

5

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



## Method Blank Summary

Page 1 of 1

**Job Number:** T37855  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13030-MB	J13274.D	1	09/21/09	SC	09/18/09	OP13030	EJ613

The QC reported here applies to the following samples:

Method: SW846 8270C

T37855-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	170	46	ug/kg	
208-96-8	Acenaphthylene	ND	170	39	ug/kg	
120-12-7	Anthracene	ND	170	32	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	64	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	26	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	41	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	39	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	31	ug/kg	
218-01-9	Chrysene	ND	170	36	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	88	ug/kg	
206-44-0	Fluoranthene	ND	170	34	ug/kg	
86-73-7	Fluorene	ND	170	45	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	60	ug/kg	
90-12-0	1-Methylnaphthalene	ND	170	39	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	52	ug/kg	
91-20-3	Naphthalene	ND	170	33	ug/kg	
85-01-8	Phenanthrene	ND	170	45	ug/kg	
129-00-0	Pyrene	ND	170	32	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	59% 26-124%
4165-62-2	Phenol-d5	59% 19-106%
118-79-6	2,4,6-Tribromophenol	66% 18-129%
4165-60-0	Nitrobenzene-d5	57% 18-104%
321-60-8	2-Fluorobiphenyl	62% 21-114%
1718-51-0	Terphenyl-d14	84% 24-149%

## Method Blank Summary

Page 1 of 1

**Job Number:** T37855  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13100-MB	J13504.D	1	09/30/09	SC	09/26/09	OP13100	EJ621

The QC reported here applies to the following samples:

Method: SW846 8270C

T37855-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	170	46	ug/kg	
208-96-8	Acenaphthylene	ND	170	39	ug/kg	
120-12-7	Anthracene	ND	170	32	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	64	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	26	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	41	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	39	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	31	ug/kg	
218-01-9	Chrysene	ND	170	36	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	88	ug/kg	
206-44-0	Fluoranthene	ND	170	34	ug/kg	
86-73-7	Fluorene	ND	170	45	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	60	ug/kg	
90-12-0	1-Methylnaphthalene	ND	170	39	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	52	ug/kg	
91-20-3	Naphthalene	ND	170	33	ug/kg	
85-01-8	Phenanthrene	ND	170	45	ug/kg	
129-00-0	Pyrene	ND	170	32	ug/kg	

CAS No.	Surrogate Recoveries	Limits
367-12-4	2-Fluorophenol	60% 26-124%
4165-62-2	Phenol-d5	65% 19-106%
118-79-6	2,4,6-Tribromophenol	55% 18-129%
4165-60-0	Nitrobenzene-d5	62% 18-104%
321-60-8	2-Fluorobiphenyl	54% 21-114%
1718-51-0	Terphenyl-d14	83% 24-149%

## Blank Spike Summary

Page 1 of 1

**Job Number:** T37855**Account:** ENCACOP ENCANA**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13030-BS	J13276.D	1	09/21/09	SC	09/18/09	OP13030	EJ613

**The QC reported here applies to the following samples:****Method:** SW846 8270C

T37855-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	1670	1320	79	53-106
208-96-8	Acenaphthylene	1670	1400	84	61-121
120-12-7	Anthracene	1670	1400	84	66-105
56-55-3	Benzo(a)anthracene	1670	1400	84	62-113
50-32-8	Benzo(a)pyrene	1670	1270	76	61-118
205-99-2	Benzo(b)fluoranthene	1670	1510	91	67-110
191-24-2	Benzo(g,h,i)perylene	1670	1260	76	57-124
207-08-9	Benzo(k)fluoranthene	1670	1420	85	65-116
218-01-9	Chrysene	1670	1400	84	71-106
53-70-3	Dibenzo(a,h)anthracene	1670	1320	79	59-123
206-44-0	Fluoranthene	1670	1440	86	64-114
86-73-7	Fluorene	1670	1410	85	65-99
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1320	79	51-133
90-12-0	1-Methylnaphthalene	1670	1330	80	56-94
91-57-6	2-Methylnaphthalene	1670	1440	86	48-101
91-20-3	Naphthalene	1670	1210	73	57-94
85-01-8	Phenanthrene	1670	1390	83	66-102
129-00-0	Pyrene	1670	1590	95	49-117

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	71%	26-124%
4165-62-2	Phenol-d5	75%	19-106%
118-79-6	2,4,6-Tribromophenol	83%	18-129%
4165-60-0	Nitrobenzene-d5	69%	18-104%
321-60-8	2-Fluorobiphenyl	75%	21-114%
1718-51-0	Terphenyl-d14	95%	24-149%

## Blank Spike Summary

Page 1 of 1

**Job Number:** T37855

**Account:** ENCACOP ENCANA

**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13100-BS	J13503.D	1	09/30/09	SC	09/26/09	OP13100	EJ621

The QC reported here applies to the following samples:

Method: SW846 8270C

T37855-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	1670	1240	74	53-106
208-96-8	Acenaphthylene	1670	1290	77	61-121
120-12-7	Anthracene	1670	1330	80	66-105
56-55-3	Benzo(a)anthracene	1670	1430	86	62-113
50-32-8	Benzo(a)pyrene	1670	1340	80	61-118
205-99-2	Benzo(b)fluoranthene	1670	1640	98	67-110
191-24-2	Benzo(g,h,i)perylene	1670	1300	78	57-124
207-08-9	Benzo(k)fluoranthene	1670	1720	103	65-116
218-01-9	Chrysene	1670	1460	88	71-106
53-70-3	Dibenzo(a,h)anthracene	1670	1260	76	59-123
206-44-0	Fluoranthene	1670	1360	82	64-114
86-73-7	Fluorene	1670	1200	72	65-99
193-39-5	Indeno(1,2,3-cd)pyrene	1670	1280	77	51-133
90-12-0	1-Methylnaphthalene	1670	1250	75	56-94
91-57-6	2-Methylnaphthalene	1670	1340	80	48-101
91-20-3	Naphthalene	1670	1300	78	57-94
85-01-8	Phenanthrene	1670	1320	79	66-102
129-00-0	Pyrene	1670	1820	109	49-117

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	78%	26-124%
4165-62-2	Phenol-d5	86%	19-106%
118-79-6	2,4,6-Tribromophenol	75%	18-129%
4165-60-0	Nitrobenzene-d5	77%	18-104%
321-60-8	2-Fluorobiphenyl	73%	21-114%
1718-51-0	Terphenyl-d14	104%	24-149%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** T37855  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13030-MS	J13358.D	1	09/23/09	SC	09/18/09	OP13030	EJ616
OP13030-MSD	J13359.D	1	09/23/09	SC	09/18/09	OP13030	EJ616
T37849-2 <sup>a</sup>	J13357.D	1	09/23/09	SC	09/18/09	OP13030	EJ616

The QC reported here applies to the following samples:

Method: SW846 8270C

T37855-1

CAS No.	Compound	T37849-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	240 U		2440	1640	67	1560	64	5	53-106/49
208-96-8	Acenaphthylene	240 U		2440	1670	68	1590	66	5	61-121/49
120-12-7	Anthracene	240 U		2440	1980	81	1890	78	5	66-105/40
56-55-3	Benzo(a)anthracene	121	J	2440	2080	80	1970	76	5	62-113/43
50-32-8	Benzo(a)pyrene	109	J	2440	1870	72	1740	67	7	61-118/44
205-99-2	Benzo(b)fluoranthene	184	J	2440	2530	96	2110	80	18	67-110/42
191-24-2	Benzo(g,h,i)perylene	240 U		2440	1940	79	2020	83	4	57-124/50
207-08-9	Benzo(k)fluoranthene	93.1	J	2440	2490	98	2180	86	13	65-116/37
218-01-9	Chrysene	153	J	2440	2170	83	2070	79	5	71-106/39
53-70-3	Dibenzo(a,h)anthracene	240 U		2440	1860	76	1920	79	3	59-123/37
206-44-0	Fluoranthene	213	J	2440	2190	81	2050	76	7	64-114/45
86-73-7	Fluorene	240 U		2440	1770	72	1680	69	5	65-99/42
193-39-5	Indeno(1,2,3-cd)pyrene	240 U		2440	1870	77	1910	79	2	51-133/55
90-12-0	1-Methylnaphthalene	240 U		2440	1390	57	1350	56	3	56-94/49
91-57-6	2-Methylnaphthalene	240 U		2440	1470	60	1410	58	4	48-101/48
91-20-3	Naphthalene	240 U		2440	1230	50*	1200	50*	2	57-94/49
85-01-8	Phenanthrene	240 U		2440	2070	85	1960	81	5	66-102/47
129-00-0	Pyrene	260		2440	3140	118*	3040	115	3	49-117/46

CAS No.	Surrogate Recoveries	MS	MSD	T37849-2	Limits
367-12-4	2-Fluorophenol	42%	42%	54%	26-124%
4165-62-2	Phenol-d5	51%	50%	63%	19-106%
118-79-6	2,4,6-Tribromophenol	70%	66%	81%	18-129%
4165-60-0	Nitrobenzene-d5	44%	43%	58%	18-104%
321-60-8	2-Fluorobiphenyl	46%	44%	58%	21-114%
1718-51-0	Terphenyl-d14	114%	111%	130%	24-149%

(a) Internal standards are not within the advisory limits due to a matrix interference. Confirmed by ms/msd.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** T37855  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13100-MS	J13787.D	20	10/13/09	SC	09/26/09	OP13100	EJ633
OP13100-MSD	J13788.D	20	10/13/09	SC	09/26/09	OP13100	EJ633
T37890-2	J13494.D	20	09/29/09	SC	09/26/09	OP13100	EJ620
T37890-2	J13507.D	80	09/30/09	SC	09/26/09	OP13100	EJ621

The QC reported here applies to the following samples:

Method: SW846 8270C

T37855-2

CAS No.	Compound	T37890-2 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	3140		1970	4320	60	4470	67	3	53-106/49
208-96-8	Acenaphthylene	ND		1970	ND	0*	ND	0*	nc	61-121/49
120-12-7	Anthracene	2360		1970	3280	47*	3280	47*	0	66-105/40
56-55-3	Benzo(a)anthracene	ND		1970	2040	104	1980	100	3	62-113/43
50-32-8	Benzo(a)pyrene	ND		1970	1560	79	1600	81	3	61-118/44
205-99-2	Benzo(b)fluoranthene	ND		1970	1720	87	1730	88	1	67-110/42
191-24-2	Benzo(g,h,i)perylene	ND		1970	1500	76	1530	77	2	57-124/50
207-08-9	Benzo(k)fluoranthene	ND		1970	1930	98	1950	99	1	65-116/37
218-01-9	Chrysene	ND		1970	1950	99	2020	102	4	71-106/39
53-70-3	Dibenzo(a,h)anthracene	ND		1970	ND	0*	ND	0*	nc	59-123/37
206-44-0	Fluoranthene	835		1970	3090	114	2800	99	10	64-114/45
86-73-7	Fluorene	4160		1970	5680	77	5520	69	3	65-99/42
193-39-5	Indeno(1,2,3-cd)pyrene	ND		1970	1470	75	1550	78	5	51-133/55
90-12-0	1-Methylnaphthalene	45600		1970	47100	76	47400	91	1	56-94/49
91-57-6	2-Methylnaphthalene	95700 <sup>b</sup>		1970	107000	573* <sup>a</sup>	108000	623* <sup>a</sup>	1	48-101/48
91-20-3	Naphthalene	77400		1970	71000	-325* <sup>a</sup>	77300	-5* <sup>a</sup>	8	57-94/49
85-01-8	Phenanthrene	12600		1970	13900	66	14200	81	2	66-102/47
129-00-0	Pyrene	1290		1970	3200	97	3290	101	3	49-117/46

CAS No.	Surrogate Recoveries	MS	MSD	T37890-2	T37890-2	Limits
367-12-4	2-Fluorophenol	36%	45%	58%	0% * <sup>c</sup>	26-124%
4165-62-2	Phenol-d5	71%	79%	70%	0% * <sup>c</sup>	19-106%
118-79-6	2,4,6-Tribromophenol	71%	69%	64%	0% * <sup>c</sup>	18-129%
4165-60-0	Nitrobenzene-d5	17% * <sup>c</sup>	22%	118% * <sup>c</sup>	0% * <sup>c</sup>	18-104%
321-60-8	2-Fluorobiphenyl	92%	91%	91%	0% * <sup>c</sup>	21-114%
1718-51-0	Terphenyl-d14	95%	90%	93%	0% * <sup>c</sup>	24-149%

(a) Outside control limits due to high level in sample relative to spike amount.

(b) Result is from Run #2.

(c) Outside control limits due to dilution.



## GC Volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2420-MB	EE047627.D	1	09/22/09	FI	n/a	n/a	GEE2420

The QC reported here applies to the following samples: Method: SW846 8015

T37855-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	5.0	0.30	mg/kg	

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	116%	46-127%
98-08-8	aaa-Trifluorotoluene	119%	44-120%



## Method Blank Summary

Page 1 of 1

**Job Number:** T37855  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2430-MB	EE047859.D	1	09/27/09	JL	n/a	n/a	GEE2430

The QC reported here applies to the following samples:

Method: SW846 8015

T37855-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	5.0	0.30	mg/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	101%
98-08-8	aaa-Trifluorotoluene	104%

Blank Spike Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2420-BS	EE047623.D	1	09/21/09	FI	n/a	n/a	GEE2420

The QC reported here applies to the following samples: Method: SW846 8015

T37855-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	0.4	0.443	111	78-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	115%	46-127%
98-08-8	aaa-Trifluorotoluene	118%	44-120%

Blank Spike Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GEE2430-BS	EE047856.D	1	09/27/09	JL	n/a	n/a	GEE2430

The QC reported here applies to the following samples: Method: SW846 8015

T37855-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	0.4	0.332	83	78-115

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	98%	46-127%
98-08-8	aaa-Trifluorotoluene	107%	44-120%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T37853-3MS	EE047632.D	1	09/22/09	FI	n/a	n/a	GEE2420
T37853-3MSD	EE047633.D	1	09/22/09	FI	n/a	n/a	GEE2420
T37853-3	EE047629.D	1	09/22/09	FI	n/a	n/a	GEE2420

The QC reported here applies to the following samples: Method: SW846 8015

T37855-1

CAS No.	Compound	T37853-3 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	9.84		24.8	37.1	110	36.9	109	1	78-115/14

CAS No.	Surrogate Recoveries	MS	MSD	T37853-3	Limits
460-00-4	4-Bromofluorobenzene	114%	116%	113%	46-127%
98-08-8	aaa-Trifluorotoluene	120%	119%	118%	44-120%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** T37855  
**Account:** ENCACOP ENCANA  
**Project:** EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
T37855-2MS	EE047866.D	1	09/27/09	JL	n/a	n/a	GEE2430
T37855-2MSD	EE047867.D	1	09/27/09	JL	n/a	n/a	GEE2430
T37855-2	EE047865.D	1	09/27/09	JL	n/a	n/a	GEE2430

The QC reported here applies to the following samples:

Method: SW846 8015

T37855-2

CAS No.	Compound	T37855-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	4.43	J	25.8	27.4	89	28.0	91	2	78-115/14

CAS No.	Surrogate Recoveries	MS	MSD	T37855-2	Limits
460-00-4	4-Bromofluorobenzene	115%	115%	114%	46-127%
98-08-8	aaa-Trifluorotoluene	111%	112%	106%	44-120%



## GC Semi-volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13044-MB	CC215105.D 1		09/21/09	SS	09/19/09	OP13044	GCC957

The QC reported here applies to the following samples: Method: SW846 8015 M

T37855-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	8.3	2.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	43% 33-115%

Method Blank Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13084-MB	CC215347.D	1	09/30/09	SS	09/25/09	OP13084	GCC966

The QC reported here applies to the following samples: Method: SW846 8015 M

T37855-2

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	8.2	2.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	49% 33-115%



Blank Spike Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13044-BS	CC215110.D	1	09/21/09	SS	09/19/09	OP13044	GCC957

The QC reported here applies to the following samples: Method: SW846 8015 M

T37855-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH (C10-C28)	33.2	24.5	74	45-107

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	48%	33-115%

Blank Spike Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13084-BS	CC215348.D	1	09/30/09	SS	09/25/09	OP13084	GCC966

The QC reported here applies to the following samples: Method: SW846 8015 M

T37855-2

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH (C10-C28)	33.1	24.6	74	45-107

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	52%	33-115%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13044-MS	CC215111.D	10	09/21/09	SS	09/19/09	OP13044	GCC957
OP13044-MSD	CC215112.D	10	09/21/09	SS	09/19/09	OP13044	GCC957
T37885-2	CC215113.D	10	09/21/09	SS	09/19/09	OP13044	GCC957

The QC reported here applies to the following samples:

Method: SW846 8015 M

T37855-1

CAS No.	Compound	T37885-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	416		45	339	-171* a	210	-449* a	47*	45-107/34

CAS No.	Surrogate Recoveries	MS	MSD	T37885-2	Limits
84-15-1	o-Terphenyl	0%* b	0%* b	0%* b	33-115%

- (a) Outside control limits due to high level in sample relative to spike amount.  
(b) Outside control limits due to dilution.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: T37855  
Account: ENCACOP ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP13084-MS	CC215349.D	1	09/30/09	SS	09/25/09	OP13084	GCC966
OP13084-MSD	CC215350.D	1	09/30/09	SS	09/25/09	OP13084	GCC966
T37855-2	CC215351.D	1	09/30/09	SS	09/25/09	OP13084	GCC966

The QC reported here applies to the following samples: Method: SW846 8015 M

T37855-2

CAS No.	Compound	T37855-2 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	20.3		38.3	50.8	80	55.5	92	9	45-107/34

CAS No.	Surrogate Recoveries	MS	MSD	T37855-2	Limits
84-15-1	o-Terphenyl	48%	46%	53%	33-115%



## Metals Analysis

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10295  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 09/23/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	16	17		
Antimony	5.0	2.3	3		
Arsenic	5.0	1.8	2		
Barium	200	.14	2.7		
Beryllium	5.0	.11	.2		
Boron	100	1.1	2.1		
Cadmium	4.0	.25	.3		
Calcium	5000	5.4	35	287	<5000
Chromium	10	1.1	1.9		
Cobalt	50	.5	.8		
Copper	25	.58	5.9		
Iron	100	13	13		
Lead	3.0	1.6	1.7		
Magnesium	5000	6.7	7.8	86.9	<5000
Manganese	15	.2	7.6		
Molybdenum	10	.96	1.3		
Nickel	40	.95	3.2		
Potassium	5000	53	53		
Selenium	5.0	3.2	3.2		
Silver	10	.85	.8		
Sodium	5000	130	130	24.4	<5000
Strontium	20	.17	.4		
Thallium	10	3.2	2.6		
Tin	20	1.8	2.9		
Titanium	20	.3	.3		
Vanadium	50	.6	.6		
Zinc	20	.49	4.1		

Associated samples MP10295: T37855-1C

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

8.1.1  
8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10295  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 09/23/09

Metal	T37834-2C Original	DUP	RPD	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	797000	1010000	23.6*(a)	0-20
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium	90300	105000	15.1	0-20
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium	225000	256000	12.9	0-20
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10295: T37855-1C

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested  
(a) High RPD due to possible sample nonhomogeneity.

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10296  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 09/23/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	400	33	34		
Antimony	10	4.5	6		
Arsenic	10	3.5	4		
Barium	400	.28	5.4		
Beryllium	10	.22	.4		
Boron	200	2.2	4.2	40.1	<200
Cadmium	8.0	.5	.6		
Calcium	10000	11	70		
Chromium	20	2.2	3.8		
Cobalt	100	1	1.6		
Copper	50	1.2	12		
Iron	200	26	26		
Lead	6.0	3.2	3.4		
Magnesium	10000	13	16		
Manganese	30	.4	15		
Molybdenum	20	1.9	2.6		
Nickel	80	1.9	6.4		
Potassium	10000	110	110		
Selenium	10	6.5	6.4		
Silver	20	1.7	1.6		
Sodium	10000	260	270		
Strontium	40	.34	.8		
Thallium	20	6.5	5.2		
Tin	40	3.6	5.8		
Titanium	40	.6	.6		
Vanadium	100	1.2	1.2		
Zinc	40	.98	8.2		

Associated samples MP10296: T37855-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10296  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date:

09/23/09

09/23/09

Metal	T37834-2A Original DUP		RPD	QC Limits	T37834-2A Original MS		Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Boron	610	726	17.4	0-20	610	2620	1000	100.7	80-120
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10296: T37855-1A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10296  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 09/23/09

Metal	T37834-2A Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	610	2610	1000	100.1	0.4	20
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10296: T37855-1A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

8.2.2  
8

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Methods: SW846 6010B  
Units: ug/l

Prep Date: 09/23/09

Associated samples MP10296: T37855-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10296  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 09/23/09

Metal		T37834-2A		QC	
		Original	SDL 1:5	%DIF	Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron	305	298	2.2	0-10	
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					

Associated samples MP10296: T37855-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

8.2.4  
8

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10297  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/23/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1		
Barium	10	.007	.03	0.36	<10
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05		
Calcium	250	.27	.86		
Chromium	0.50	.055	.035		
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065		
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2		
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065		
Potassium	250	2.7	16		
Selenium	0.50	.16	.12		
Silver	0.50	.043	.04		
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2		

Associated samples MP10297: T37855-1B

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10297  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/23/09

09/23/09

Metal	T37834-2B Original DUP		RPD	QC Limits	T37834-2B Original MS		Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium	289	319	9.9	0-20	289	389	2.11	4730.0(a	80-120
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10297: T37855-1B

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10297  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/23/09

Metal	T37834-2B Original MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic					
Barium	289	337	2.11	2270.4(a	14.3 20
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					

Associated samples MP10297: T37855-1B

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Prep Date: 09/23/09

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	17.9	2	89.3	80-120
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10297: T37855-1B

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested



SERIAL DILUTION RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10297  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 09/23/09

Metal	T37834-2B Original SDL 1:5		%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	5460	6360	16.4*(a)	0-10
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10297: T37855-1B

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (anr) Analyte not requested  
 (a) Serial dilution indicates possible matrix interference.

8.3.4  
8

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10369  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/30/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1	0.0055	<0.50
Barium	10	.007	.03		
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05	-0.0030	<0.25
Calcium	250	.27	.86		
Chromium	0.50	.055	.035	-0.018	<0.50
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065	0.026	<1.3
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2	0.051	<0.50
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065	-0.026	<2.0
Potassium	250	2.7	16		
Selenium	0.50	.16	.12	-0.0030	<0.50
Silver	0.50	.043	.04	-0.014	<0.50
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2	0.0035	<1.0

Associated samples MP10369: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10369  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

09/30/09

09/30/09

	T37884-1			QC	T37884-1		Spikelot		QC
Metal	Original	DUP	RPD	Limits	Original	MS	MPTW4	% Rec	Limits
Aluminum									
Antimony									
Arsenic	4.8	4.6	4.3	0-20	4.8	29.1	25.8	94.1	80-120
Barium	anr								
Beryllium									
Boron									
Cadmium	0.59	0.67	12.7	0-20	0.59	23.2	25.8	87.6	80-120
Calcium									
Chromium	15.8	16.6	4.9	0-20	15.8	40.0	25.8	93.7	80-120
Cobalt									
Copper	14.2	15.4	8.1	0-20	14.2	40.5	25.8	101.9	80-120
Iron									
Lead	9.4	9.1	3.2	0-20	9.4	33.1	25.8	91.8	80-120
Magnesium									
Manganese									
Molybdenum	anr								
Nickel	15.9	22.7	35.2*(a)	0-20	15.9	40.4	25.8	94.9	80-120
Potassium	anr								
Selenium	0.41	0.51	21.7 (b)	0-20	0.41	22.9	25.8	87.1	80-120
Silver	0.16	0.21	27.0 (b)	0-20	0.16	4.0	25.8	14.9N	80-120
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	44.5	42.6	4.4	0-20	44.5	72.4	25.8	108.1	80-120

Associated samples MP10369: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) High RPD due to possible sample nonhomogeneity.

(b) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10369  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/30/09

Metal	T37884-1 Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	4.8	30.2	27	94.0	3.7	20
Barium	anr					
Beryllium						
Boron						
Cadmium	0.59	24.5	27	88.5	5.5	20
Calcium						
Chromium	15.8	41.4	27	94.8	3.4	20
Cobalt						
Copper	14.2	42.2	27	103.7	4.1	20
Iron						
Lead	9.4	34.2	27	91.8	3.3	20
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	15.9	41.8	27	95.9	3.4	20
Potassium	anr					
Selenium	0.41	24.4	27	88.8	6.3	20
Silver	0.16	4.3	27	15.3N	7.2	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	44.5	72.9	27	105.1	0.7	20

Associated samples MP10369: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10369  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/30/09

Metal	LCS Result	Spikelot MPLCD054	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	154	158	97.5	82-118
Barium	anr			
Beryllium				
Boron				
Cadmium	178	187	95.2	82-118
Calcium				
Chromium	88.8	89.5	99.2	79-121
Cobalt				
Copper	132	129	102.3	84-117
Iron				
Lead	162	172	94.2	79-120
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	95.4	99	96.4	81-119
Potassium	anr			
Selenium	143	148	96.6	78-121
Silver	63.9	66	96.8	66-134
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	376	394	95.4	80-119

Associated samples MP10369: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

# SERIAL DILUTION RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10369  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 09/30/09

Metal	T37884-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	75.8	83.8	10.6 (a)	0-10
Barium	anr			
Beryllium				
Boron				
Cadmium	9.45	8.81	6.8	0-10
Calcium				
Chromium	253	283	12.1*(b)	0-10
Cobalt				
Copper	226	242	7.0	0-10
Iron				
Lead	150	173	15.0*(b)	0-10
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	253	290	14.4*(b)	0-10
Potassium	anr			
Selenium	6.57	0.00	100.0(a)	0-10
Silver	2.49	0.00	100.0(a)	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	710	815	14.9*(b)	0-10

Associated samples MP10369: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

(b) Serial dilution indicates possible matrix interference.

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10381  
Matrix Type: SOLID

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 10/02/09

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.017	.0041	.00066	0.0028	<0.017

Associated samples MP10381: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

85.1

8

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10381  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 10/02/09 10/02/09

Metal	T37853-1		QC	T37853-1		Spikelot	% Rec	QC
	Original	DUP	RPD	Original	MS	HGTXWS1		Limits
Mercury	0.023	0.028	19.6	0-20	0.023 0.29	0.245	109.1	75-125

Associated samples MP10381: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

8.5.2

8



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10381  
 Matrix Type: SOLID

Methods: SW846 7471A  
 Units: mg/kg

Prep Date: 10/02/09

Metal	T37853-1 Original	MSD	Spikelot HGTXWS1	% Rec	MSD RPD	QC Limit
-------	----------------------	-----	---------------------	-------	------------	-------------

Mercury	0.023	0.27	0.241	102.5	7.1	
---------	-------	------	-------	-------	-----	--

Associated samples MP10381: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Methods: SW846 7471A  
Units: mg/kg

Prep Date: 10/02/09

Metal	LCS Result	Spikelot HGLCD054 % Rec	QC Limits
Mercury	7.0	7.34	95.4 72-128

Associated samples MP10381: T37855-1, T37855-2

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10393  
Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
Units: ug/l

Prep Date: 10/07/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	16	17		
Antimony	5.0	2.3	3		
Arsenic	5.0	1.8	2		
Barium	200	.14	2.7		
Beryllium	5.0	.11	.2		
Boron	100	1.1	2.1		
Cadmium	4.0	.25	.3		
Calcium	5000	5.4	35	1050	<5000
Chromium	10	1.1	1.9		
Cobalt	50	.5	.8		
Copper	25	.58	5.9		
Iron	100	13	13		
Lead	3.0	1.6	1.7		
Magnesium	5000	6.7	7.8	261	<5000
Manganese	15	.2	7.6		
Molybdenum	10	.96	1.3		
Nickel	40	.95	3.2		
Potassium	5000	53	53		
Selenium	5.0	3.2	3.2		
Silver	10	.85	.8		
Sodium	5000	130	130	427	<5000
Strontium	20	.17	.4		
Thallium	10	3.2	2.6		
Tin	20	1.8	2.9		
Titanium	20	.3	.3		
Vanadium	50	.6	.6		
Zinc	20	.49	4.1		

Associated samples MP10393: T37855-2C

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10393  
 Matrix Type: AQUEOUS

Methods: LADNR29B, SW846 6010B  
 Units: ug/l

Prep Date: 10/07/09

Metal	T37909-1C Original DUP		RPD	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	458000	498000	8.4	0-20
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium	24100	20700	15.2	0-20
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium	2040000	2010000	7.2	0-20
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10393: T37855-2C

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10395  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 10/06/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1		
Barium	10	.007	.03	0.78	<10
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05		
Calcium	250	.27	.86		
Chromium	0.50	.055	.035		
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065		
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2		
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065		
Potassium	250	2.7	16		
Selenium	0.50	.16	.12		
Silver	0.50	.043	.04		
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2		

Associated samples MP10395: T37855-2B

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10395  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 10/06/09

10/06/09

Metal	T37909-1B Original	DUP	RPD	QC Limits	T37909-1B Original	MS	Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium	20900	20300	2.9	0-20	20900	21500	2.4	25020.0a	80-120
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10395: T37855-2B

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10395  
 Matrix Type: SOLID

Methods: SW846 6010B  
 Units: mg/kg

Prep Date: 10/06/09

Metal	T37909-1B Original MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic					
Barium	20900	21700	0.48	166800.0a0.9	20
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					

Associated samples MP10395: T37855-2B

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Prep Date: 10/06/09

Metal	LCS Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested



SERIAL DILUTION RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10395  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date: 10/06/09

Metal	T37909-1B		QC	
	Original	SDL 25:125%DIF	Limits	

Aluminum				
Antimony				
Arsenic				
Barium	349000	371000	6.5	0-10
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10395: T37855-2B

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

8.7.4  
8

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10403  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 10/07/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	400	33	34		
Antimony	10	4.5	6		
Arsenic	10	3.5	4		
Barium	400	.28	5.4		
Beryllium	10	.22	.4		
Boron	200	2.2	4.2	14.5	<200
Cadmium	8.0	.5	.6		
Calcium	10000	11	70		
Chromium	20	2.2	3.8		
Cobalt	100	1	1.6		
Copper	50	1.2	12		
Iron	200	26	26		
Lead	6.0	3.2	3.4		
Magnesium	10000	13	16		
Manganese	30	.4	15		
Molybdenum	20	1.9	2.6		
Nickel	80	1.9	6.4		
Potassium	10000	110	110		
Selenium	10	6.5	6.4		
Silver	20	1.7	1.6		
Sodium	10000	260	270		
Strontium	40	.34	.8		
Thallium	20	6.5	5.2		
Tin	40	3.6	5.8		
Titanium	40	.6	.6		
Vanadium	100	1.2	1.2		
Zinc	40	.98	8.2		

Associated samples MP10403: T37855-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10403  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date:

10/07/09

10/07/09

Metal	T37909-1A Original	DUP	RPD	QC Limits	T37909-1A Original MS	Spikelot MPTW4	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Boron	1290	930	32.4*(a)	0-20	1290	2570	1000	64.0N 80-120
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Molybdenum								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc								

Associated samples MP10403: T37855-2A

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) High RPD due to possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T37855  
 Account: ENCACOP - ENCANA  
 Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10403  
 Matrix Type: AQUEOUS

Methods: SW846 6010B  
 Units: ug/l

Prep Date: 10/07/09

Metal	T37909-1A Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	1290	2470	1000	59.2N	4.0	20
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10403: T37855-2A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits  
 (N) Matrix Spike Rec. outside of QC limits  
 (anr) Analyte not requested

8.8.2  
8

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Methods: SW846 6010B  
Units: ug/l

Prep Date: 10/07/09

Metal	LCS Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	2400	1000	120.0	80-120
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

QC Batch ID: MP10403  
Matrix Type: AQUEOUS

Methods: SW846 6010B  
Units: ug/l

Prep Date: 10/07/09

Metal	T37909-1A		QC	
	Original	SDL 1:5	%DIF	Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	643	615	4.3	0-10
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10403: T37855-2A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

8.8.4  
8



## General Chemistry

### QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GN18084	2.0	<2.0	mg/kg	40	41.5	103.8	80-120%
Specific Conductivity	GN18090	1.0	<1.0	umhos/cm				

Associated Samples:  
Batch GN18084: T37855-1, T37855-2  
Batch GN18090: T37855-1, T37855-2  
(\*) Outside of QC limits



DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GN18084	T37834-1	mg/kg	1.7 B	<2.0	11.2	0-20%
Solids, Percent	GN18046	T37731-1	%	77.4	75.8	2.1	0-20%
Solids, Percent	GN18175	T37855-2	%	86.6	86.1	0.6	0-5%
Specific Conductivity	GN18090	T37379-1	umhos/cm	714	714	0.0	0-20%
pH	GN18063	T37909-2	su	8.3	8.3	0.2	0-20%
pH	GN18168	T37855-2	su	8.9	8.9	0.0	0-20%

Associated Samples:

Batch GN18046: T37855-1

Batch GN18063: T37855-1

Batch GN18084: T37855-1, T37855-2

Batch GN18090: T37855-1, T37855-2

Batch GN18168: T37855-2

Batch GN18175: T37855-2

(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: T37855  
Account: ENCACOP - ENCANA  
Project: EnCana Oil & Gas (USA) Inc.

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GN18084	T37834-1	mg/kg	1.7 B	40	41.5	99.4	75-125%

Associated Samples:

Batch GN18084: T37855-1, T37855-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



IT'S ALL IN THE CHEMISTRY

07/09/10

## Technical Report for

EnCana

K200U Cuttings

Accutest Job Number: D14661

Sampling Date: 06/25/10

Report to:

EnCana

christopher.hines@encana.com

ATTN: Chris Hines

Total number of pages in report: **17**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Jesse L. Smith  
Laboratory Director

Client Service contact: Amanda Kissell 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
Test results relate only to samples analyzed.

# Table of Contents

-1-

**Section 1: Sample Summary ..... 3**

**Section 2: Case Narrative/Conformance Summary ..... 4**

**Section 3: Sample Results ..... 5**

**3.1: D14661-1: K200U-CUTTINGS-062510 ..... 6**

**Section 4: Misc. Forms ..... 8**

**4.1: Chain of Custody ..... 9**

**Section 5: GC Volatiles - QC Data Summaries ..... 10**

**5.1: Method Blank Summary ..... 11**

**5.2: Blank Spike Summary ..... 12**

**5.3: Matrix Spike/Matrix Spike Duplicate Summary ..... 13**

**Section 6: GC Semi-volatiles - QC Data Summaries ..... 14**

**6.1: Method Blank Summary ..... 15**

**6.2: Blank Spike Summary ..... 16**

**6.3: Matrix Spike/Matrix Spike Duplicate Summary ..... 17**



Sample Summary

EnCana

Job No: D14661

K20OU Cuttings

Sample Number	Collected		Matrix			Client Sample ID
	Date	Time By	Received	Code	Type	
D14661-1	06/25/10	08:40 BR	06/26/10	SO	Soil	K20OU-CUTTINGS-062510

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** EnCana**Job No** D14661**Site:** K200U Cuttings**Report Dat** 7/9/2010 10:50:31 AM

On 06/26/2010, 1 sample(s), 0 Trip Blank(s) and 0 Field Blank(s) was received at Accutest Mountain States (AMS) at a temperature of 3 °C. The sample was intact and properly preserved, unless noted below. An AMS Job Number of D14661 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GC By Method SW846 8015B

**Matrix** SO**Batch ID:** GGB306

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D14670-1MS, D14670-1MSD were used as the QC samples indicated.
- Matrix Spike and Matrix Spike Duplicate Recovery(s) for TPH-GRO (C6-C10) are outside control limits. Outside control limits due to matrix interference.

### Extractables by GC By Method SW846-8015B

**Matrix** SO**Batch ID:** OP2112

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D14764-1MS, D14764-1MSD were used as the QC samples indicated.

### Wet Chemistry By Method SM19 2540B M

**Matrix** SO**Batch ID:** GN5122

- The data for SM19 2540B M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.



## Sample Results

## Report of Analysis

## Report of Analysis

<b>Client Sample ID:</b>	K200U-CUTTINGS-062510		
<b>Lab Sample ID:</b>	D14661-1	<b>Date Sampled:</b>	06/25/10
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	06/26/10
<b>Method:</b>	SW846 8015B	<b>Percent Solids:</b>	80.5
<b>Project:</b>	K200U Cuttings		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB5635.D	1	07/07/10	DG	n/a	n/a	GGB306
Run #2							

	Initial Weight
Run #1	1.0 g
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	1.2	1.2	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	125%		60-140%		

ND = Not detected      MDL - Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound



Report of Analysis

<b>Client Sample ID:</b>	K20OU-CUTTINGS-062510					<b>Date Sampled:</b>	06/25/10
<b>Lab Sample ID:</b>	D14661-1					<b>Date Received:</b>	06/26/10
<b>Matrix:</b>	SO - Soil					<b>Percent Solids:</b>	80.5
<b>Method:</b>	SW846-8015B SW846 3550B						
<b>Project:</b>	K20OU Cuttings						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD2432.D	1	07/03/10	CP	07/02/10	OP2112	GFD131
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	1690	17	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
84-15-1	o-Terphenyl	106%		63-130%	

ND = Not detected  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound



## Misc. Forms

### Custody Documents and Other Forms

---

Includes the following where applicable:

- Chain of Custody

# CHAIN OF CUSTODY

10165 Harwin, Suite 150 - Houston, TX 77036 - 713-271-4700 fax: 713-271-4770

<b>FED-EX Tracking #</b> 		<b>Bottle Order Control #</b> 	
<b>Accutest Quote #</b> 		<b>Accutest Job #</b> <span style="font-size: 1.2em;">D14661</span>	

Client / Reporting Information		Project Information	
<b>Company Name</b> EnCana Oil & Gas (USA) Inc.		<b>Project Name / No.</b> K200U Cuttings	
<b>Project Contact</b> Chris Hines Address: 2717 County Road 215, Suite 100 City: Parachute, CO 81635 State: Zip: Phone No.: 970.285.2653 Fax No.:		<b>Bill to</b> Invoice Attn.: Address: City: State: Zip: Phone No.: Fax No.:	
<b>E-Mail</b> christopher.hines@encana.com		<b>Client Purchase Order #</b> Blair Rollins	

Requested Analyses		Matrix Codes	
DW - Drinking Water GW - Ground Water WW - Wastewater SO - Soil SL - Sludge LIQ - Other Liquid SOL - Other Solid		LAB USE ONLY <span style="font-size: 1.2em;">01</span>	

Accutest Sample #		Field ID / Point of Collection		Collection		Number of preserved bottles	
		Date	Time	Matrix	# of bottles	HC	Other
	K200U - Cuttings - 062510	06/25/10	8:40	SS	1		X

Turnaround Time (Business days)		Data Deliverable Information		Comments / Remarks	
14 Day STANDARD 5 Day RUSH <span style="font-size: 1.5em; border: 1px solid black; border-radius: 50%; padding: 2px;">5 DAY</span> 4 Day RUSH 3 Day EMERGENCY 2 Day EMERGENCY 1 Day EMERGENCY Other		Approved By / Date: _____ _____ _____ _____ _____ _____		Commercial "A" = Results Only Commercial "B" = Results & Standard QC State Forms EDD Format Other	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY					
Relinquished by: <span style="font-size: 1.2em;">[Signature]</span> Date Time: 06/25/10 1800		Received By: 1 Date Time:		Relinquished By: 2 Date Time:	
Relinquished by: 3 Date Time:		Received By: 3 Date Time:		Relinquished By: 4 Date Time:	
Relinquished by: 5 Date Time:		Received By: 5 Date Time:		Relinquished By: 4 Date Time:	

Custody Seal # <span style="font-size: 1.2em;">1</span> Preserved where applicable <input checked="" type="checkbox"/> On Ice <input checked="" type="checkbox"/> Cooler Temp. <span style="font-size: 1.2em;">3.0</span>	
--	--

D14661: Chain of Custody

Page 1 of 1



## GC Volatiles

5

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** D14661  
**Account:** ENCACOP EnCana  
**Project:** K200U Cuttings

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB306-MB	GB5626.D	1	07/07/10	DG	n/a	n/a	GGB306

The QC reported here applies to the following samples:

Method: SW846 8015B

D14661-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	1.0	1.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	116% 60-140%

Blank Spike Summary

Job Number: D14661  
Account: ENCACOP EnCana  
Project: K200U Cuttings

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB306-BS	GB5627.D	1	07/07/10	DG	n/a	n/a	GGB306

The QC reported here applies to the following samples:

Method: SW846 8015B

D14661-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	11	9.76	89	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	137%	60-140%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D14661  
**Account:** ENCACOP EnCana  
**Project:** K200U Cuttings

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D14670-1MS	GB5629.D	1	07/07/10	DG	n/a	n/a	GGB306
D14670-1MSD	GB5630.D	1	07/07/10	DG	n/a	n/a	GGB306
D14670-1	GB5628.D	1	07/07/10	DG	n/a	n/a	GGB306

The QC reported here applies to the following samples:

Method: SW846 8015B

D14661-1

CAS No.	Compound	D14670-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	4.57		19.1	11.6	37* a	14.9	54* a	4	62-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D14670-1	Limits
120-82-1	1,2,4-Trichlorobenzene	104%	104%	99%	60-140%

(a) Outside control limits due to matrix interference.



## GC Semi-volatiles

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary

Job Number: D14661  
Account: ENCACOP EnCana  
Project: K200U Cuttings

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2112-MB	FD2427.D	1	07/03/10	CP	07/02/10	OP2112	GFD131

The QC reported here applies to the following samples: Method: SW846-8015B

D14661-1

CAS No.	Compound	Result	RL	Units	Q
	TPH-DRO (C10-C28)	ND	13	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	80% 63-130%

Blank Spike Summary

Job Number: D14661  
Account: ENCACOP EnCana  
Project: K200U Cuttings

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2112-BS	FD2428.D	1	07/03/10	CP	07/02/10	OP2112	GFD131

The QC reported here applies to the following samples:

Method: SW846-8015B

D14661-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	581	87	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	81%	63-130%

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D14661  
**Account:** ENCACOP EnCana  
**Project:** K200U Cuttings

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP2112-MS	FD2430.D	1	07/03/10	CP	07/02/10	OP2112	GFD131
OP2112-MSD	FD2431.D	1	07/03/10	CP	07/02/10	OP2112	GFD131
D14764-1	FD2429.D	1	07/03/10	CP	07/02/10	OP2112	GFD131

The QC reported here applies to the following samples:

Method: SW846-8015B

D14661-1

CAS No.	Compound	D14764-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	1040		754	1670	84	1630	78	2	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D14764-1	Limits
84-15-1	o-Terphenyl	76%	81%	81%	63-130%



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

Chris Hines or Brad Kieding  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

## Report Summary

Monday October 25, 2010

Report Number: L483740

Samples Received: 10/13/10

Client Project:

Description: K200U Cuttings

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:

T. Alan Harvill , 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

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.



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

Chris Hines or Brad Kieding  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 25, 2010

Date Received : October 13, 2010  
Description : K200U Cuttings  
Sample ID : K200U-SW BACK-101210  
Collected By : Blair Rollins  
Collection Date : 10/12/10 08:30

ESC Sample # : L483740-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	25.	1.0	mg/kg	6010B	10/22/10	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: 10/25/10 12:47 Printed: 10/25/10 12:48



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

Chris Hines or Brad Kieding  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 25, 2010

Date Received : October 13, 2010  
Description : K200U Cuttings  
Sample ID : K200U-S BACK-101210  
Collected By : Blair Rollins  
Collection Date : 10/12/10 08:40

ESC Sample # : L483740-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	15.	1.0	mg/kg	6010B	10/22/10	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: 10/25/10 12:47 Printed: 10/25/10 12:48



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

Chris Hines or Brad Kieding  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 25, 2010

Date Received : October 13, 2010  
Description : K200U Cuttings  
Sample ID : K200U-SE BACK-101210  
Collected By : Blair Rollins  
Collection Date : 10/12/10 08:45

ESC Sample # : L483740-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	5.5	1.0	mg/kg	6010B	10/22/10	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: 10/25/10 12:47 Printed: 10/25/10 12:48

REPORT OF ANALYSIS

Chris Hines or Brad Kieding  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 25, 2010

Date Received : October 13, 2010  
Description : K200U Cuttings  
Sample ID : K200U-CUTTINGS-101210  
Collected By : Blair Rollins  
Collection Date : 10/12/10 09:00

ESC Sample # : L483740-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	10/20/10	1
Chromium, Trivalent	16.	0.50	mg/kg	Calc.	10/21/10	1
ORP	24.		mV	2580	10/19/10	1
pH	8.8		su	9045D	10/15/10	1
Sodium Adsorption Ratio	21.			Calc.	10/20/10	1
Specific Conductance	1700		umhos/cm	9050AMod	10/19/10	1
Mercury	0.033	0.020	mg/kg	7471	10/15/10	1
Arsenic	6.3	1.0	mg/kg	6010B	10/21/10	1
Barium	6700	1.2	mg/kg	6010B	10/21/10	5
Cadmium	0.87	0.25	mg/kg	6010B	10/21/10	1
Chromium	16.	0.50	mg/kg	6010B	10/21/10	1
Copper	20.	1.0	mg/kg	6010B	10/21/10	1
Lead	9.0	0.25	mg/kg	6010B	10/21/10	1
Nickel	12.	1.0	mg/kg	6010B	10/24/10	1
Selenium	BDL	1.0	mg/kg	6010B	10/21/10	1
Silver	BDL	0.50	mg/kg	6010B	10/21/10	1
Zinc	56.	7.5	mg/kg	6010B	10/21/10	5
Benzene	BDL	0.0025	mg/kg	8021/8015	10/14/10	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/14/10	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/14/10	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/14/10	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/14/10	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.4		% Rec.	8021/8015	10/14/10	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	10/14/10	5
TPH (GC/FID) High Fraction	480	20.	mg/kg	3546/DRO	10/16/10	5
Surrogate recovery(%)						
o-Terphenyl	50.7		% Rec.	3546/DRO	10/16/10	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.015	0.0060	mg/kg	8270C-SIM	10/16/10	1
Acenaphthene	0.026	0.0060	mg/kg	8270C-SIM	10/16/10	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	10/16/10	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	10/16/10	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	10/16/10	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L483740-04 (PH) - 8.8@19.3c





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

Chris Hines or Brad Kieding  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 25, 2010

Date Received : October 13, 2010  
Description : K200U Cuttings  
Sample ID : K200U-CUTTINGS-101210  
Collected By : Blair Rollins  
Collection Date : 10/12/10 09:00

ESC Sample # : L483740-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	0.0073	0.0060	mg/kg	8270C-SIM	10/16/10	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	10/16/10	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	10/16/10	1
Chrysene	0.017	0.0060	mg/kg	8270C-SIM	10/16/10	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	10/16/10	1
Fluoranthene	0.014	0.0060	mg/kg	8270C-SIM	10/16/10	1
Fluorene	0.055	0.0060	mg/kg	8270C-SIM	10/16/10	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	10/16/10	1
Naphthalene	0.23	0.0060	mg/kg	8270C-SIM	10/16/10	1
Phenanthrene	0.087	0.0060	mg/kg	8270C-SIM	10/16/10	1
Pyrene	0.025	0.0060	mg/kg	8270C-SIM	10/16/10	1
1-Methylnaphthalene	0.22	0.0060	mg/kg	8270C-SIM	10/16/10	1
2-Methylnaphthalene	0.45	0.0060	mg/kg	8270C-SIM	10/16/10	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	10/16/10	1
Surrogate Recovery						
Nitrobenzene-d5	107.		% Rec.	8270C-SIM	10/16/10	1
2-Fluorobiphenyl	87.2		% Rec.	8270C-SIM	10/16/10	1
p-Terphenyl-d14	78.7		% Rec.	8270C-SIM	10/16/10	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: 10/25/10 12:47 Printed: 10/25/10 12:48  
L483740-04 (PH) - 8.8@19.3c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L483740-04	WG503761	SAMP	Barium	R1439769	J3V
	WG503513	SAMP	2-Methylnaphthalene	R1429988	E
	WG503513	SAMP	2-Chloronaphthalene	R1429988	J3

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
E	GTL (EPA) - Greater than upper calibration limit: Actual value is known to be greater than the upper calibration range.
J3	The associated batch QC was outside the established quality control range for precision.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

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  
10/25/10 at 12:48:04

TSR Signing Reports: 358  
R5 - Desired TAT

Log all samples beginning with different sample numbers to separate reports. Example- M34 N  
PIT and M34 S PIT go on one L# together, but M34 S PIT and E34 S PIT would go on separate L #s.

Sample: L483740-01 Account: ENCANACO Received: 10/13/10 09:00 Due Date: 10/20/10 00:00 RPT Date: 10/25/10 12:47

Sample: L483740-02 Account: ENCANACO Received: 10/13/10 09:00 Due Date: 10/20/10 00:00 RPT Date: 10/25/10 12:47

Sample: L483740-03 Account: ENCANACO Received: 10/13/10 09:00 Due Date: 10/20/10 00:00 RPT Date: 10/25/10 12:47

Sample: L483740-04 Account: ENCANACO Received: 10/13/10 09:00 Due Date: 10/20/10 00:00 RPT Date: 10/25/10 12:47



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines or Brad Kieding  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L483740

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

October 25, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG503337	10/14/10 14:37
Ethylbenzene	< .0005	mg/kg			WG503337	10/14/10 14:37
Toluene	< .005	mg/kg			WG503337	10/14/10 14:37
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG503337	10/14/10 14:37
Total Xylene	< .0015	mg/kg			WG503337	10/14/10 14:37
a,a,a-Trifluorotoluene(FID)		% Rec.	98.02	59-128	WG503337	10/14/10 14:37
a,a,a-Trifluorotoluene(PID)		% Rec.	103.4	54-144	WG503337	10/14/10 14:37
Mercury	< .02	mg/kg			WG503293	10/15/10 11:49
TPH (GC/FID) High Fraction	< 4	ppm			WG503505	10/15/10 21:56
o-Terphenyl		% Rec.	95.71	50-150	WG503505	10/15/10 21:56
1-Methylnaphthalene	< .006	mg/kg			WG503513	10/16/10 08:08
2-Chloronaphthalene	< .006	mg/kg			WG503513	10/16/10 08:08
2-Methylnaphthalene	< .006	mg/kg			WG503513	10/16/10 08:08
Acenaphthene	< .006	mg/kg			WG503513	10/16/10 08:08
Acenaphthylene	< .006	mg/kg			WG503513	10/16/10 08:08
Anthracene	< .006	mg/kg			WG503513	10/16/10 08:08
Benzo(a)anthracene	< .006	mg/kg			WG503513	10/16/10 08:08
Benzo(a)pyrene	< .006	mg/kg			WG503513	10/16/10 08:08
Benzo(b)fluoranthene	< .006	mg/kg			WG503513	10/16/10 08:08
Benzo(g,h,i)perylene	< .006	mg/kg			WG503513	10/16/10 08:08
Benzo(k)fluoranthene	< .006	mg/kg			WG503513	10/16/10 08:08
Chrysene	< .006	mg/kg			WG503513	10/16/10 08:08
Dibenz(a,h)anthracene	< .006	mg/kg			WG503513	10/16/10 08:08
Fluoranthene	< .006	mg/kg			WG503513	10/16/10 08:08
Fluorene	< .006	mg/kg			WG503513	10/16/10 08:08
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG503513	10/16/10 08:08
Naphthalene	< .006	mg/kg			WG503513	10/16/10 08:08
Phenanthrene	< .006	mg/kg			WG503513	10/16/10 08:08
Pyrene	< .006	mg/kg			WG503513	10/16/10 08:08
2-Fluorobiphenyl		% Rec.	56.13	21-120	WG503513	10/16/10 08:08
Nitrobenzene-d5		% Rec.	55.74	33-114	WG503513	10/16/10 08:08
p-Terphenyl-d14		% Rec.	69.78	18-142	WG503513	10/16/10 08:08
pH	5.40	su			WG503444	10/15/10 14:46
Specific Conductance	0.790	umhos/cm			WG503381	10/19/10 13:00
Chromium,Hexavalent	< 2	mg/kg			WG503666	10/20/10 08:58
Arsenic	< 1	mg/kg			WG503761	10/21/10 17:43
Barium	< .25	mg/kg			WG503761	10/21/10 17:43
Cadmium	< .25	mg/kg			WG503761	10/21/10 17:43
Chromium	< .5	mg/kg			WG503761	10/21/10 17:43
Copper	< 1	mg/kg			WG503761	10/21/10 17:43
Lead	< .25	mg/kg			WG503761	10/21/10 17:43
Selenium	< 1	mg/kg			WG503761	10/21/10 17:43
Silver	< .5	mg/kg			WG503761	10/21/10 17:43
Zinc	< 1.5	mg/kg			WG503761	10/21/10 17:43

\* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines or Brad Kieding  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L483740

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

October 25, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Arsenic	< 1	mg/kg			WG503952	10/22/10 17:06

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0.0320	0.0330	3.08	20	L483669-13	WG503293
pH	su	8.10	8.10	0	1	L483725-48	WG503444
pH	su	8.80	8.80	0	1	L483797-04	WG503444
Specific Conductance	umhos/cm	120.	100.	19.5	20	L483725-105	WG503381
ORP	mV	8.00	6.00	28.6*	20	L483979-01	WG503951
ORP	mV	0	0	0	20	L484411-01	WG503951
Chromium,Hexavalent	mg/kg	0	0	0	20	L484041-03	WG503666
Chromium,Hexavalent	mg/kg	23.0	24.0	2.96	20	L482930-93	WG503666
Arsenic	mg/kg	6.10	6.30	2.57	20	L483740-04	WG503761
Cadmium	mg/kg	0.930	0.870	6.45	20	L483740-04	WG503761
Chromium	mg/kg	16.0	16.0	0	20	L483740-04	WG503761
Copper	mg/kg	18.0	20.0	9.97	20	L483740-04	WG503761
Lead	mg/kg	8.60	9.00	5.01	20	L483740-04	WG503761
Selenium	mg/kg	0	0	0	20	L483740-04	WG503761
Silver	mg/kg	0	0	0	20	L483740-04	WG503761
Barium	mg/kg	6300	6700	6.63	20	L483740-04	WG503761
Zinc	mg/kg	55.0	56.0	2.35	20	L483740-04	WG503761
Arsenic	mg/kg	3.50	3.20	8.38	20	L483996-05	WG503952

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0484	96.8	76-113	WG503337
Ethylbenzene	mg/kg	.05	0.0497	99.3	78-115	WG503337
Toluene	mg/kg	.05	0.0492	98.5	76-114	WG503337
Total Xylene	mg/kg	.15	0.150	100.	81-118	WG503337
a,a,a-Trifluorotoluene(PID)				100.9	54-144	WG503337
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.57	101.	67-135	WG503337
a,a,a-Trifluorotoluene(FID)				89.33	59-128	WG503337
Mercury	mg/kg	8.77	10.3	117.	71.6-127.7	WG503293
TPH (GC/FID) High Fraction	ppm	60	52.8	88.0	50-150	WG503505
o-Terphenyl				108.8	50-150	WG503505
1-Methylnaphthalene	mg/kg	.033	0.0227	68.7	41-110	WG503513
2-Chloronaphthalene	mg/kg	.033	0.0231	70.0	43-109	WG503513
2-Methylnaphthalene	mg/kg	.033	0.0219	66.2	38-104	WG503513

\* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines or Brad Kieding  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L483740

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

October 25, 2010

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Acenaphthene	mg/kg	.033	0.0227	68.8	48-103	WG503513
Acenaphthylene	mg/kg	.033	0.0231	69.9	43-106	WG503513
Anthracene	mg/kg	.033	0.0243	73.5	51-110	WG503513
Benzo(a)anthracene	mg/kg	.033	0.0227	68.9	38-126	WG503513
Benzo(a)pyrene	mg/kg	.033	0.0221	67.1	47-118	WG503513
Benzo(b)fluoranthene	mg/kg	.033	0.0222	67.3	47-118	WG503513
Benzo(g,h,i)perylene	mg/kg	.033	0.0245	74.2	40-125	WG503513
Benzo(k)fluoranthene	mg/kg	.033	0.0224	68.0	45-121	WG503513
Chrysene	mg/kg	.033	0.0241	73.0	35-135	WG503513
Dibenz(a,h)anthracene	mg/kg	.033	0.0216	65.6	41-124	WG503513
Fluoranthene	mg/kg	.033	0.0256	77.7	50-114	WG503513
Fluorene	mg/kg	.033	0.0223	67.6	49-109	WG503513
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0235	71.1	40-126	WG503513
Naphthalene	mg/kg	.033	0.0205	62.2	36-100	WG503513
Phenanthrene	mg/kg	.033	0.0234	70.8	46-108	WG503513
Pyrene	mg/kg	.033	0.0231	70.0	30-136	WG503513
2-Fluorobiphenyl				70.17	21-120	WG503513
Nitrobenzene-d5				66.38	33-114	WG503513
p-Terphenyl-d14				78.50	18-142	WG503513
pH	su	6.92	7.00	101.	97.98-102.02	WG503444
Specific Conductance	umhos/cm	406	420.	103.	85-115	WG503381
ORP	mV	229	220.	96.1	95.6-104.37	WG503951
Chromium, Hexavalent	mg/kg	100	59.6	59.6	50-143	WG503666
Arsenic	mg/kg	192	178.	92.7	78.6-120.8	WG503761
Barium	mg/kg	420	405.	96.4	78.8-121.4	WG503761
Cadmium	mg/kg	70.1	65.0	92.7	78.5-121.5	WG503761
Chromium	mg/kg	168	165.	98.2	80.4-120.2	WG503761
Copper	mg/kg	122	124.	102.	81.6-119.7	WG503761
Lead	mg/kg	113	107.	94.7	77.3-122.1	WG503761
Selenium	mg/kg	176	165.	93.8	75.6-125.0	WG503761
Silver	mg/kg	115	108.	93.9	66-133.9	WG503761
Zinc	mg/kg	437	410.	93.8	78.5-121.7	WG503761
Arsenic	mg/kg	192	172.	89.6	78.6-120.8	WG503952

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
TPH (GC/FID) Low Fraction	mg/kg	5.67	5.57	103.	67-135	1.81	20	WG503337
a,a,a-Trifluorotoluene(FID)				89.49	59-128			WG503337
Benzene	mg/kg	0.0470	0.0484	94.0	76-113	2.99	20	WG503337
Ethylbenzene	mg/kg	0.0478	0.0497	96.0	78-115	3.71	20	WG503337
Toluene	mg/kg	0.0474	0.0492	95.0	76-114	3.81	20	WG503337
Total Xylene	mg/kg	0.148	0.150	98.0	81-118	1.60	20	WG503337
a,a,a-Trifluorotoluene(PID)				100.5	54-144			WG503337

TPH (GC/FID) High Fraction	ppm	52.4	52.8	87.0	50-150	0.744	20	WG503505
----------------------------	-----	------	------	------	--------	-------	----	----------

\* 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

EnCana Oil & Gas Inc. - CO  
Chris Hines or Brad Kieding  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L483740

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

October 25, 2010

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
o-Terphenyl				98.86	50-150			
1-Methylnaphthalene	mg/kg	0.0191	0.0227	58.0	41-110	17.0	24	WG503513
2-Chloronaphthalene	mg/kg	0.0169	0.0231	51.0	43-109	31.2*	21	WG503513
2-Methylnaphthalene	mg/kg	0.0183	0.0219	55.0	38-104	17.8	24	WG503513
Acenaphthene	mg/kg	0.0192	0.0227	58.0	48-103	16.9	20	WG503513
Acenaphthylene	mg/kg	0.0192	0.0231	58.0	43-106	18.2	20	WG503513
Anthracene	mg/kg	0.0217	0.0243	66.0	51-110	11.2	22	WG503513
Benzo(a)anthracene	mg/kg	0.0209	0.0227	63.0	38-126	8.15	20	WG503513
Benzo(a)pyrene	mg/kg	0.0209	0.0221	63.0	47-118	5.57	20	WG503513
Benzo(b)fluoranthene	mg/kg	0.0221	0.0222	67.0	47-118	0.384	29	WG503513
Benzo(g,h,i)perylene	mg/kg	0.0226	0.0245	68.0	40-125	7.94	20	WG503513
Benzo(k)fluoranthene	mg/kg	0.0203	0.0224	62.0	45-121	9.95	31	WG503513
Chrysene	mg/kg	0.0221	0.0241	67.0	35-135	8.65	20	WG503513
Dibenz(a,h)anthracene	mg/kg	0.0200	0.0216	60.0	41-124	7.97	20	WG503513
Fluoranthene	mg/kg	0.0231	0.0256	70.0	50-114	10.6	20	WG503513
Fluorene	mg/kg	0.0198	0.0223	60.0	49-109	12.1	19	WG503513
Indeno(1,2,3-cd)pyrene	mg/kg	0.0213	0.0235	64.0	40-126	9.62	20	WG503513
Naphthalene	mg/kg	0.0179	0.0205	54.0	36-100	13.6	24	WG503513
Phenanthrene	mg/kg	0.0217	0.0234	66.0	46-108	7.33	21	WG503513
Pyrene	mg/kg	0.0216	0.0231	65.0	30-136	6.72	20	WG503513
2-Fluorobiphenyl				63.52	21-120			WG503513
Nitrobenzene-d5				46.33	33-114			WG503513
p-Terphenyl-d14				68.40	18-142			WG503513
pH	su	7.00	7.00	101.	97.98-102.02	0	20	WG503444
Specific Conductance	umhos/	420.	420.	103.	85-115	0	20	WG503381
ORP	mV	220.	220.	96.0	95.6-104.37	0	20	WG503951
Chromium,Hexavalent	mg/kg	60.3	59.6	60.0	50-143	1.17	20	WG503666

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.216	0	.05	86.5	32-137	L483743-02	WG503337
Ethylbenzene	mg/kg	0.215	0	.05	85.9	10-150	L483743-02	WG503337
Toluene	mg/kg	0.223	0	.05	89.3	20-142	L483743-02	WG503337
Total Xylene	mg/kg	0.661	0	.15	88.1	16-141	L483743-02	WG503337
a,a,a-Trifluorotoluene(PID)					101.0	54-144		WG503337
TPH (GC/FID) Low Fraction	mg/kg	22.7	0	5.5	82.5	55-109	L483743-02	WG503337
a,a,a-Trifluorotoluene(FID)					91.98	59-128		WG503337
Mercury	mg/kg	0.297	0.0330	.25	106.	70-130	L483669-13	WG503293
1-Methylnaphthalene	mg/kg	0.145	0.0430	.033	308.*	19-131	L483743-01	WG503513
2-Chloronaphthalene	mg/kg	0.0281	0	.033	85.1	38-117	L483743-01	WG503513
2-Methylnaphthalene	mg/kg	0.397	0.110	.033	869.*	18-125	L483743-01	WG503513
Acenaphthene	mg/kg	0.0590	0.0100	.033	148.*	31-120	L483743-01	WG503513
Acenaphthylene	mg/kg	0.0296	0	.033	89.7	34-116	L483743-01	WG503513
Anthracene	mg/kg	0.316	0.0280	.033	874.*	32-131	L483743-01	WG503513
Benzo(a)anthracene	mg/kg	0.134	0.0640	.033	211.*	32-131	L483743-01	WG503513
Chrysene	mg/kg	0.186	0.0840	.033	310.*	25-137	L483743-01	WG503513

\* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines or Brad Kieding  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L483740

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

October 25, 2010

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Fluoranthene	mg/kg	0.253	0.120	.033	403.*	27-138	L483743-01	WG503513
Fluorene	mg/kg	0.103	0.0280	.033	227.*	26-136	L483743-01	WG503513
Naphthalene	mg/kg	0.211	0.0700	.033	427.*	22-121	L483743-01	WG503513
Phenanthrene	mg/kg	0.334	0.140	.033	587.*	27-133	L483743-01	WG503513
Pyrene	mg/kg	0.117	0.0530	.033	194.*	22-133	L483743-01	WG503513
2-Fluorobiphenyl					84.65	21-120		WG503513
Nitrobenzene-d5					55.24	33-114		WG503513
p-Terphenyl-d14					89.37	18-142		WG503513
Benzo(a)pyrene	mg/kg	0.0704	0	.033	213.*	28-130	L483743-01	WG503513
Benzo(b)fluoranthene	mg/kg	0.191	0.0880	.033	312.*	37-130	L483743-01	WG503513
Benzo(g,h,i)perylene	mg/kg	0.0464	0	.033	140.*	10-134	L483743-01	WG503513
Benzo(k)fluoranthene	mg/kg	0.0470	0	.033	142.*	31-129	L483743-01	WG503513
Dibenz(a,h)anthracene	mg/kg	0.0350	0	.033	106.	20-134	L483743-01	WG503513
Indeno(1,2,3-cd)pyrene	mg/kg	0.0464	0	.033	140.*	16-135	L483743-01	WG503513
Chromium,Hexavalent	mg/kg	-1.47	0	20	0*	50-150	L483743-01	WG503666
Arsenic	mg/kg	50.4	6.30	50	88.2	75-125	L483740-04	WG503761
Cadmium	mg/kg	41.0	0.870	50	80.3	75-125	L483740-04	WG503761
Chromium	mg/kg	57.3	16.0	50	82.6	75-125	L483740-04	WG503761
Copper	mg/kg	66.4	20.0	50	92.8	75-125	L483740-04	WG503761
Lead	mg/kg	49.4	9.00	50	80.8	75-125	L483740-04	WG503761
Selenium	mg/kg	43.6	0	50	87.2	75-125	L483740-04	WG503761
Silver	mg/kg	46.0	0	50	92.0	75-125	L483740-04	WG503761
Barium	mg/kg	5700	6700	10	0*	75-125	L483740-04	WG503761
Zinc	mg/kg	104.	56.0	10	96.0	75-125	L483740-04	WG503761
Arsenic	mg/kg	48.0	3.20	50	89.6	75-125	L483996-05	WG503952

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.220	0.216	88.2	32-137	1.95	39	L483743-02	WG503337
Ethylbenzene	mg/kg	0.210	0.215	83.8	10-150	2.46	44	L483743-02	WG503337
Toluene	mg/kg	0.219	0.223	87.5	20-142	2.00	42	L483743-02	WG503337
Total Xylene	mg/kg	0.640	0.661	85.3	16-141	3.24	46	L483743-02	WG503337
a,a,a-Trifluorotoluene(PID)				100.3	54-144				WG503337
TPH (GC/FID) Low Fraction	mg/kg	22.9	22.7	83.1	55-109	0.690	20	L483743-02	WG503337
a,a,a-Trifluorotoluene(FID)				90.36	59-128				WG503337
Mercury	mg/kg	0.269	0.297	94.4	70-130	9.89	20	L483669-13	WG503293
1-Methylnaphthalene	mg/kg	0.111	0.145	205.*	19-131	26.6	30	L483743-01	WG503513
2-Chloronaphthalene	mg/kg	0.0304	0.0281	92.1	38-117	7.94	26	L483743-01	WG503513
2-Methylnaphthalene	mg/kg	0.259	0.397	451.*	18-125	42.0*	29	L483743-01	WG503513
Acenaphthene	mg/kg	0.0535	0.0590	132.*	31-120	9.76	30	L483743-01	WG503513
Acenaphthylene	mg/kg	0.0311	0.0296	94.2	34-116	4.81	29	L483743-01	WG503513
Anthracene	mg/kg	0.0761	0.316	146.*	32-131	122.*	26	L483743-01	WG503513
Benzo(a)anthracene	mg/kg	0.149	0.134	259.*	32-131	11.1	31	L483743-01	WG503513
Chrysene	mg/kg	0.203	0.186	362.*	25-137	8.78	22	L483743-01	WG503513
Fluoranthene	mg/kg	0.271	0.253	457.*	27-138	6.86	35	L483743-01	WG503513
Fluorene	mg/kg	0.0834	0.103	168.*	26-136	21.1	30	L483743-01	WG503513
Naphthalene	mg/kg	0.161	0.211	275.*	22-121	27.1	30	L483743-01	WG503513
Phenanthrene	mg/kg	0.288	0.334	449.*	27-133	14.6	36	L483743-01	WG503513

\* 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

EnCana Oil & Gas Inc. - CO  
Chris Hines or Brad Kieding  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L483740

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

October 25, 2010

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Pyrene	mg/kg	0.132	0.117	240.*	22-133	12.1	33	L483743-01	WG503513
2-Fluorobiphenyl				89.28	21-120				WG503513
Nitrobenzene-d5				129.8*	33-114				WG503513
p-Terphenyl-d14				90.62	18-142				WG503513
Benzo(a)pyrene	mg/kg	0.0984	0.0704	298.*	28-130	33.2*	28	L483743-01	WG503513
Benzo(b)fluoranthene	mg/kg	0.259	0.191	519.*	37-130	30.2	41	L483743-01	WG503513
Benzo(g,h,i)perylene	mg/kg	0.0655	0.0464	198.*	10-134	34.2*	26	L483743-01	WG503513
Benzo(k)fluoranthene	mg/kg	0.0940	0.0470	285.*	31-129	66.6*	42	L483743-01	WG503513
Dibenz(a,h)anthracene	mg/kg	0.0469	0.0350	142.*	20-134	28.9*	25	L483743-01	WG503513
Indeno(1,2,3-cd)pyrene	mg/kg	0.0657	0.0464	199.*	16-135	34.4*	26	L483743-01	WG503513
Chromium,Hexavalent	mg/kg	-0.156	-1.47	0*	50-150	-162.*	20	L483743-01	WG503666
Arsenic	mg/kg	49.4	50.4	86.2	75-125	2.00	20	L483740-04	WG503761
Cadmium	mg/kg	40.9	41.0	80.1	75-125	0.244	20	L483740-04	WG503761
Chromium	mg/kg	59.6	57.3	87.2	75-125	3.93	20	L483740-04	WG503761
Copper	mg/kg	66.3	66.4	92.6	75-125	0.151	20	L483740-04	WG503761
Lead	mg/kg	50.5	49.4	83.0	75-125	2.20	20	L483740-04	WG503761
Selenium	mg/kg	41.9	43.6	83.8	75-125	3.98	20	L483740-04	WG503761
Silver	mg/kg	44.8	46.0	89.6	75-125	2.64	20	L483740-04	WG503761
Barium	mg/kg	8340	5700	3280*	75-125	37.6*	20	L483740-04	WG503761
Zinc	mg/kg	110.	104.	108.	75-125	5.61	20	L483740-04	WG503761
Arsenic	mg/kg	51.4	48.0	96.4	75-125	6.84	20	L483996-05	WG503952

Batch number /Run number / Sample number cross reference

WG503337: R1428508: L483740-04  
WG503293: R1429050: L483740-04  
WG503505: R1429829: L483740-04  
WG503513: R1429988: L483740-04  
WG503444: R1430709: L483740-04  
WG503381: R1434509: L483740-04  
WG503951: R1434550: L483740-04  
WG503666: R1435529: L483740-04  
WG503737: R1436909: L483740-04  
WG503761: R1439769: L483740-04  
WG503952: R1440971: L483740-01 02 03  
WG504779: R1442050: L483740-04

\* \* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines or Brad Kieding  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L483740

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

October 25, 2010

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.



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

Chris Hines / Jake Harris  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

## Report Summary

Thursday September 15, 2011

Report Number: L534866

Samples Received: 09/08/11

Client Project:

Description: K200U-Cuttings

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

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

Chris Hines / Jake Harris  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

September 15, 2011

Date Received : September 08, 2011  
Description : K200U-Cuttings  
Sample ID : K200U-CUT-090711  
Collected By : Brennan Graff  
Collection Date : 09/06/11 08:49

ESC Sample # : L534866-01

Site ID : K200U

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	09/14/11	1
Chromium, Trivalent	10.	2.0	mg/kg	Calc.	09/13/11	1
pH	8.7		su	9045D	09/13/11	1
Sodium Adsorption Ratio	52.			Calc.	09/13/11	1
Specific Conductance	4300		umhos/cm	9050AMod	09/11/11	1
Mercury	0.053	0.020	mg/kg	7471	09/12/11	1
Arsenic	2.4	1.0	mg/kg	6010B	09/13/11	1
Barium	3300	0.25	mg/kg	6010B	09/13/11	1
Cadmium	0.77	0.25	mg/kg	6010B	09/13/11	1
Chromium	10.	0.50	mg/kg	6010B	09/13/11	1
Copper	18.	1.0	mg/kg	6010B	09/13/11	1
Lead	7.1	0.25	mg/kg	6010B	09/13/11	1
Nickel	7.0	1.0	mg/kg	6010B	09/13/11	1
Selenium	BDL	1.0	mg/kg	6010B	09/13/11	1
Silver	BDL	0.50	mg/kg	6010B	09/13/11	1
Zinc	41.	1.5	mg/kg	6010B	09/13/11	1
Benzene	0.0032	0.0025	mg/kg	8021/8015	09/09/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	09/09/11	5
Ethylbenzene	0.0095	0.0025	mg/kg	8021/8015	09/09/11	5
Total Xylene	0.34	0.0075	mg/kg	8021/8015	09/09/11	5
TPH (GC/FID) Low Fraction	2.2	0.50	mg/kg	GRO	09/09/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.8		% Rec.	8021/8015	09/09/11	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	09/09/11	5
TPH (GC/FID) High Fraction	1100	20.	mg/kg	3546/DRO	09/14/11	5
Surrogate recovery(%)						
o-Terphenyl	118.		% Rec.	3546/DRO	09/14/11	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Acenaphthene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Acenaphthylene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Benzo(a)anthracene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Benzo(a)pyrene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Benzo(b)fluoranthene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Benzo(g,h,i)perylene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L534866-01 (PH) - 8.70@20.9c



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

Chris Hines / Jake Harris  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

September 15, 2011

Date Received : September 08, 2011  
Description : K200U-Cuttings  
Sample ID : K200U-CUT-090711  
Collected By : Brennan Graff  
Collection Date : 09/06/11 08:49

ESC Sample # : L534866-01

Site ID : K200U

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(k)fluoranthene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Chrysene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Dibenz(a,h)anthracene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Fluoranthene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Fluorene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Indeno(1,2,3-cd)pyrene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Naphthalene	0.54	0.30	mg/kg	8270C-SIM	09/11/11	50
Phenanthrene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Pyrene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
1-Methylnaphthalene	0.48	0.30	mg/kg	8270C-SIM	09/11/11	50
2-Methylnaphthalene	0.64	0.30	mg/kg	8270C-SIM	09/11/11	50
2-Chloronaphthalene	BDL	0.30	mg/kg	8270C-SIM	09/11/11	50
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	09/11/11	50
2-Fluorobiphenyl	0.00		% Rec.	8270C-SIM	09/11/11	50
p-Terphenyl-d14	0.00		% Rec.	8270C-SIM	09/11/11	50

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: 09/15/11 16:36 Printed: 09/15/11 16:36  
L534866-01 (PH) - 8.70@20.9c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L534866-01	WG554382	SAMP	Nitrobenzene-d5	R1852432	J7
	WG554382	SAMP	2-Fluorobiphenyl	R1852432	J7
	WG554382	SAMP	p-Terphenyl-d14	R1852432	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out

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  
09/15/11 at 16:36:39

TSR Signing Reports: 358  
R5 - Desired TAT

Sample: L534866-01 Account: ENCANACO Received: 09/08/11 09:00 Due Date: 09/15/11 00:00 RPT Date: 09/15/11 16:36



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Jake Harris  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L534866

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

September 15, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
1-Methylnaphthalene	< .006	mg/kg			WG554382	09/10/11 11:47
2-Chloronaphthalene	< .006	mg/kg			WG554382	09/10/11 11:47
2-Methylnaphthalene	< .006	mg/kg			WG554382	09/10/11 11:47
Acenaphthene	< .006	mg/kg			WG554382	09/10/11 11:47
Acenaphthylene	< .006	mg/kg			WG554382	09/10/11 11:47
Anthracene	< .006	mg/kg			WG554382	09/10/11 11:47
Benzo(a)anthracene	< .006	mg/kg			WG554382	09/10/11 11:47
Benzo(a)pyrene	< .006	mg/kg			WG554382	09/10/11 11:47
Benzo(b)fluoranthene	< .006	mg/kg			WG554382	09/10/11 11:47
Benzo(g,h,i)perylene	< .006	mg/kg			WG554382	09/10/11 11:47
Benzo(k)fluoranthene	< .006	mg/kg			WG554382	09/10/11 11:47
Chrysene	< .006	mg/kg			WG554382	09/10/11 11:47
Dibenz(a,h)anthracene	< .006	mg/kg			WG554382	09/10/11 11:47
Fluoranthene	< .006	mg/kg			WG554382	09/10/11 11:47
Fluorene	< .006	mg/kg			WG554382	09/10/11 11:47
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG554382	09/10/11 11:47
Naphthalene	< .006	mg/kg			WG554382	09/10/11 11:47
Phenanthrene	< .006	mg/kg			WG554382	09/10/11 11:47
Pyrene	< .006	mg/kg			WG554382	09/10/11 11:47
2-Fluorobiphenyl		% Rec.	75.41	34-129	WG554382	09/10/11 11:47
Nitrobenzene-d5		% Rec.	69.65	14-141	WG554382	09/10/11 11:47
p-Terphenyl-d14		% Rec.	85.73	25-139	WG554382	09/10/11 11:47
Benzene	< .0005	mg/kg			WG554267	09/09/11 19:43
Ethylbenzene	< .0005	mg/kg			WG554267	09/09/11 19:43
Toluene	< .005	mg/kg			WG554267	09/09/11 19:43
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG554267	09/09/11 19:43
Total Xylene	< .0015	mg/kg			WG554267	09/09/11 19:43
a,a,a-Trifluorotoluene(FID)		% Rec.	96.43	59-128	WG554267	09/09/11 19:43
a,a,a-Trifluorotoluene(PID)		% Rec.	101.4	54-144	WG554267	09/09/11 19:43
Mercury	< .02	mg/kg			WG554377	09/12/11 01:39
Specific Conductance	1.40	umhos/cm			WG554533	09/11/11 13:11
Arsenic	< 1	mg/kg			WG554389	09/13/11 12:58
Barium	< .25	mg/kg			WG554389	09/13/11 12:58
Cadmium	< .25	mg/kg			WG554389	09/13/11 12:58
Chromium	< .5	mg/kg			WG554389	09/13/11 12:58
Copper	< 1	mg/kg			WG554389	09/13/11 12:58
Lead	< .25	mg/kg			WG554389	09/13/11 12:58
Nickel	< 1	mg/kg			WG554389	09/13/11 12:58
Selenium	< 1	mg/kg			WG554389	09/13/11 12:58
Silver	< .5	mg/kg			WG554389	09/13/11 12:58
Zinc	< 1.5	mg/kg			WG554389	09/13/11 12:58
pH	5.50	su			WG554535	09/13/11 10:40
Chromium,Hexavalent	< 2	mg/kg			WG554538	09/14/11 14:19
TPH (GC/FID) High Fraction	< 4	ppm			WG555104	09/14/11 17:16
o-Terphenyl		% Rec.	71.82	50-150	WG555104	09/14/11 17:16

\* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Jake Harris  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L534866

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

September 15, 2011

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0.0310	0.0320	2.21	20	L535153-03	WG554377
Specific Conductance	umhos/cm	2400	2600	8.00	20	L534278-01	WG554533
Specific Conductance	umhos/cm	180.	160.	11.8	20	L535339-07	WG554533
Arsenic	mg/kg	0	0	0	20	L535179-01	WG554389
Barium	mg/kg	19.0	12.0	45.7*	20	L535179-01	WG554389
Cadmium	mg/kg	0	0.280	NA	20	L535179-01	WG554389
Chromium	mg/kg	5.00	6.90	31.0*	20	L535179-01	WG554389
Copper	mg/kg	12.0	18.0	44.1*	20	L535179-01	WG554389
Lead	mg/kg	16.0	18.0	10.5	20	L535179-01	WG554389
Nickel	mg/kg	5.20	7.00	28.9*	20	L535179-01	WG554389
Selenium	mg/kg	0	0	0	20	L535179-01	WG554389
Silver	mg/kg	0	0	0	20	L535179-01	WG554389
Zinc	mg/kg	23.0	23.0	0.873	20	L535179-01	WG554389
pH	su	6.20	6.20	0.647	1	L534516-01	WG554535
pH	su	8.70	8.70	0.344	1	L535339-07	WG554535
Chromium, Hexavalent	mg/kg	0	0	0	20	L534871-01	WG554538
Chromium, Hexavalent	mg/kg	0	0	0	20	L535339-06	WG554538

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1-Methylnaphthalene	mg/kg	.033	0.0239	72.3	48-113	WG554382
2-Chloronaphthalene	mg/kg	.033	0.0256	77.7	51-114	WG554382
2-Methylnaphthalene	mg/kg	.033	0.0245	74.2	44-109	WG554382
Acenaphthene	mg/kg	.033	0.0238	72.2	52-108	WG554382
Acenaphthylene	mg/kg	.033	0.0253	76.6	51-110	WG554382
Anthracene	mg/kg	.033	0.0263	79.6	58-120	WG554382
Benzo(a)anthracene	mg/kg	.033	0.0284	86.1	54-110	WG554382
Benzo(a)pyrene	mg/kg	.033	0.0283	85.7	56-118	WG554382
Benzo(b)fluoranthene	mg/kg	.033	0.0291	88.3	55-114	WG554382
Benzo(g,h,i)perylene	mg/kg	.033	0.0212	64.4	48-130	WG554382
Benzo(k)fluoranthene	mg/kg	.033	0.0285	86.3	55-122	WG554382
Chrysene	mg/kg	.033	0.0272	82.5	57-118	WG554382
Dibenz(a,h)anthracene	mg/kg	.033	0.0211	64.0	53-122	WG554382
Fluoranthene	mg/kg	.033	0.0283	85.9	58-118	WG554382
Fluorene	mg/kg	.033	0.0271	82.1	54-109	WG554382
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0217	65.6	51-125	WG554382
Naphthalene	mg/kg	.033	0.0219	66.4	45-105	WG554382
Phenanthrene	mg/kg	.033	0.0263	79.8	53-114	WG554382
Pyrene	mg/kg	.033	0.0275	83.2	53-121	WG554382
2-Fluorobiphenyl				69.48	34-129	WG554382
Nitrobenzene-d5				66.70	14-141	WG554382
p-Terphenyl-d14				80.23	25-139	WG554382
Benzene	mg/kg	.05	0.0527	105.	76-113	WG554267
Ethylbenzene	mg/kg	.05	0.0539	108.	78-115	WG554267
Toluene	mg/kg	.05	0.0555	111.	76-114	WG554267
Total Xylene	mg/kg	.15	0.159	106.	81-118	WG554267
a,a,a-Trifluorotoluene(FID)				96.38	59-128	WG554267
a,a,a-Trifluorotoluene(PID)				99.02	54-144	WG554267

\* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Jake Harris  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L534866

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

September 15, 2011

Analyte	Units	Laboratory Control		Sample	% Rec	Limit	Batch
		Known Val	Result	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.49		118.	67-135	WG554267
a,a,a-Trifluorotoluene(FID)					96.89	59-128	WG554267
a,a,a-Trifluorotoluene(PID)					103.3	54-144	WG554267
Mercury	mg/kg	3.77	4.12		109.	71.6-128	WG554377
Specific Conductance	umhos/cm	427	430.		101.	85-115	WG554533
Arsenic	mg/kg	92.6	84.1		90.8	82.9-117	WG554389
Barium	mg/kg	169	165.		97.6	82.8-117	WG554389
Cadmium	mg/kg	61.8	55.4		89.6	83.3-117	WG554389
Chromium	mg/kg	71.3	66.3		93.0	81.8-118	WG554389
Copper	mg/kg	81.2	80.5		99.1	83.9-116	WG554389
Lead	mg/kg	92.4	85.3		92.3	83.3-117	WG554389
Nickel	mg/kg	59.1	54.7		92.6	83.8-116	WG554389
Selenium	mg/kg	89.5	78.5		87.7	79-121	WG554389
Silver	mg/kg	34.4	32.6		94.8	66.3-134	WG554389
Zinc	mg/kg	141	127.		90.1	80.9-119	WG554389
pH	su	9.04	9.00		99.6	98-101	WG554535
Chromium,Hexavalent	mg/kg	132	103.		78.0	50-150	WG554538
TPH (GC/FID) High Fraction	ppm	60	46.8		78.0	50-150	WG555104
o-Terphenyl					75.90	50-150	WG555104

Analyte	Units	Laboratory Control		Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1-Methylnaphthalene	mg/kg	0.0231	0.0239	70.0	48-113	3.29	24	WG554382
2-Chloronaphthalene	mg/kg	0.0248	0.0256	75.0	51-114	3.40	24	WG554382
2-Methylnaphthalene	mg/kg	0.0244	0.0245	74.0	44-109	0.556	24	WG554382
Acenaphthene	mg/kg	0.0237	0.0238	72.0	52-108	0.555	22	WG554382
Acenaphthylene	mg/kg	0.0247	0.0253	75.0	51-110	2.13	21	WG554382
Anthracene	mg/kg	0.0284	0.0263	86.0	58-120	7.64	20	WG554382
Benzo(a)anthracene	mg/kg	0.0299	0.0284	90.0	54-110	5.07	22	WG554382
Benzo(a)pyrene	mg/kg	0.0301	0.0283	91.0	56-118	6.23	21	WG554382
Benzo(b)fluoranthene	mg/kg	0.0319	0.0291	97.0	55-114	9.10	20	WG554382
Benzo(g,h,i)perylene	mg/kg	0.0235	0.0212	71.0	48-130	10.1	20	WG554382
Benzo(k)fluoranthene	mg/kg	0.0294	0.0285	89.0	55-122	3.29	25	WG554382
Chrysene	mg/kg	0.0289	0.0272	88.0	57-118	5.96	20	WG554382
Dibenz(a,h)anthracene	mg/kg	0.0232	0.0211	70.0	53-122	9.50	20	WG554382
Fluoranthene	mg/kg	0.0298	0.0283	90.0	58-118	4.83	20	WG554382
Fluorene	mg/kg	0.0265	0.0271	80.0	54-109	2.19	20	WG554382
Indeno(1,2,3-cd)pyrene	mg/kg	0.0242	0.0217	73.0	51-125	11.2	21	WG554382
Naphthalene	mg/kg	0.0218	0.0219	66.0	45-105	0.565	24	WG554382
Phenanthrene	mg/kg	0.0283	0.0263	86.0	53-114	7.36	20	WG554382
Pyrene	mg/kg	0.0294	0.0275	89.0	53-121	6.75	20	WG554382
2-Fluorobiphenyl				70.16	34-129			WG554382
Nitrobenzene-d5				62.88	14-141			WG554382
p-Terphenyl-d14				80.52	25-139			WG554382

\* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Jake Harris  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L534866

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

September 15, 2011

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Benzene	mg/kg	0.0535	0.0527	107.		76-113	1.54	20	WG554267
Ethylbenzene	mg/kg	0.0529	0.0539	106.		78-115	1.83	20	WG554267
Toluene	mg/kg	0.0550	0.0555	110.		76-114	0.890	20	WG554267
Total Xylene	mg/kg	0.155	0.159	103.		81-118	2.73	20	WG554267
a,a,a-Trifluorotoluene(FID)				97.09		59-128			WG554267
a,a,a-Trifluorotoluene(PID)				99.84		54-144			WG554267
TPH (GC/FID) Low Fraction	mg/kg	6.31	6.49	115.		67-135	2.79	20	WG554267
a,a,a-Trifluorotoluene(FID)				96.67		59-128			WG554267
a,a,a-Trifluorotoluene(PID)				103.2		54-144			WG554267
Specific Conductance	umhos/	420.	430.	98.0		85-115	2.35	20	WG554533
pH	su	9.00	9.00	100.		98-101	0	20	WG554535
Chromium,Hexavalent	mg/kg	92.8	103.	70.0		50-150	10.4	20	WG554538
TPH (GC/FID) High Fraction	ppm	46.3	46.8	77.0		50-150	0.985	25	WG555104
o-Terphenyl				76.80		50-150			WG555104

Analyte	Units	MS Res	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
			Ref	Res					
Benzene	mg/kg	0.215	0		.05	85.9	32-137	L535005-01	WG554267
Ethylbenzene	mg/kg	0.193	0		.05	77.1	10-150	L535005-01	WG554267
Toluene	mg/kg	0.217	0		.05	86.8	20-142	L535005-01	WG554267
Total Xylene	mg/kg	0.573	0		.15	76.4	16-141	L535005-01	WG554267
a,a,a-Trifluorotoluene(FID)						95.38	59-128		WG554267
a,a,a-Trifluorotoluene(PID)						98.18	54-144		WG554267
TPH (GC/FID) Low Fraction	mg/kg	21.4	0		5.5	77.8	55-109	L535005-01	WG554267
a,a,a-Trifluorotoluene(FID)						99.55	59-128		WG554267
a,a,a-Trifluorotoluene(PID)						102.1	54-144		WG554267
Mercury	mg/kg	0.253	0.0320		.25	88.4	70-130	L535153-03	WG554377
Arsenic	mg/kg	49.3	0		50	98.6	75-125	L535179-01	WG554389
Barium	mg/kg	60.9	12.0		50	97.8	75-125	L535179-01	WG554389
Cadmium	mg/kg	46.3	0.280		50	92.0	75-125	L535179-01	WG554389
Chromium	mg/kg	55.1	6.90		50	96.4	75-125	L535179-01	WG554389
Copper	mg/kg	75.9	18.0		50	116.	75-125	L535179-01	WG554389
Lead	mg/kg	76.3	18.0		50	117.	75-125	L535179-01	WG554389
Nickel	mg/kg	52.6	7.00		50	91.2	75-125	L535179-01	WG554389
Selenium	mg/kg	46.0	0		50	92.0	75-125	L535179-01	WG554389
Silver	mg/kg	49.1	0		50	98.2	75-125	L535179-01	WG554389
Zinc	mg/kg	73.4	23.0		50	101.	75-125	L535179-01	WG554389
Chromium,Hexavalent	mg/kg	13.7	0		20	68.5	50-150	L535339-01	WG554538
TPH (GC/FID) High Fraction	ppm	48.9	0		60	81.5	50-150	L535282-01	WG555104
o-Terphenyl						69.99	50-150		WG555104

\* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Jake Harris  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L534866

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

September 15, 2011

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.195	0.215	77.9	32-137	9.74	39	L535005-01	WG554267
Ethylbenzene	mg/kg	0.165	0.193	65.9	10-150	15.6	44	L535005-01	WG554267
Toluene	mg/kg	0.189	0.217	75.7	20-142	13.7	42	L535005-01	WG554267
Total Xylene	mg/kg	0.486	0.573	64.8	16-141	16.3	46	L535005-01	WG554267
a,a,a-Trifluorotoluene(FID)				94.98	59-128				WG554267
a,a,a-Trifluorotoluene(PID)				97.51	54-144				WG554267
TPH (GC/FID) Low Fraction	mg/kg	22.0	21.4	80.1	55-109	2.90	20	L535005-01	WG554267
a,a,a-Trifluorotoluene(FID)				100.1	59-128				WG554267
a,a,a-Trifluorotoluene(PID)				101.9	54-144				WG554267
Mercury	mg/kg	0.250	0.253	87.2	70-130	1.19	20	L535153-03	WG554377
Arsenic	mg/kg	51.8	49.3	104.	75-125	4.95	20	L535179-01	WG554389
Barium	mg/kg	64.8	60.9	106.	75-125	6.21	20	L535179-01	WG554389
Cadmium	mg/kg	49.2	46.3	97.8	75-125	6.07	20	L535179-01	WG554389
Chromium	mg/kg	58.1	55.1	102.	75-125	5.30	20	L535179-01	WG554389
Copper	mg/kg	80.0	75.9	124.	75-125	5.26	20	L535179-01	WG554389
Lead	mg/kg	93.6	76.3	151.*	75-125	20.4*	20	L535179-01	WG554389
Nickel	mg/kg	55.7	52.6	97.4	75-125	5.72	20	L535179-01	WG554389
Selenium	mg/kg	48.3	46.0	96.6	75-125	4.88	20	L535179-01	WG554389
Silver	mg/kg	51.8	49.1	104.	75-125	5.35	20	L535179-01	WG554389
Zinc	mg/kg	74.4	73.4	103.	75-125	1.35	20	L535179-01	WG554389
Chromium,Hexavalent	mg/kg	13.2	13.7	66.0	50-150	3.72	20	L535339-01	WG554538
TPH (GC/FID) High Fraction	ppm	47.3	48.9	78.9	50-150	3.27	25	L535282-01	WG555104
o-Terphenyl				69.00	50-150				WG555104

Batch number /Run number / Sample number cross reference

WG554382: R1852432: L534866-01  
WG554267: R1852792: L534866-01  
WG554377: R1853012: L534866-01  
WG554533: R1853658: L534866-01  
WG554389: R1856252: L534866-01  
WG554535: R1856296: L534866-01  
WG554628: R1857192: L534866-01  
WG554538: R1857912: L534866-01  
WG555104: R1858212: L534866-01

\* \* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Jake Harris  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L534866

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

September 15, 2011

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.



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

## Report Summary

Thursday January 12, 2012

Report Number: L554679

Samples Received: 01/06/12

Client Project:

Description: K200U-Cuttings

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.





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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

January 12, 2012

Date Received : January 06, 2012  
Description : K200U-Cuttings  
Sample ID : K200U-CUT-010512 12-14 IN  
Collected By : Brennen Graff  
Collection Date : 01/05/12 10:26

ESC Sample # : L554679-01

Site ID : K200U

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	6.4	0.50	mg/kg	8015D/GRO	01/07/12	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	84.4		% Rec.	602/8015	01/07/12	5
TPH (GC/FID) High Fraction	660	20.	mg/kg	3546/DRO	01/11/12	5
Surrogate recovery(%) o-Terphenyl	28.5		% Rec.	3546/DRO	01/11/12	5

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: 01/12/12 15:19 Printed: 01/12/12 15:30

L554679-01 (DRO) - Previous run also had low SURR recovery. Matrix effect.

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L554679-01	WG573544	SAMP	o-Terphenyl	R1996993	J2

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits

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  
01/12/12 at 15:30:51

TSR Signing Reports: 358  
R5 - Desired TAT

Try not to report benzene as BDL above a 250x dilution. ONLY log soil samples under this account. Waters get logged under ENCRCO.

Sample: L554679-01 Account: ENCANACO Received: 01/06/12 09:00 Due Date: 01/13/12 00:00 RPT Date: 01/12/12 15:19



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L554679

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

January 12, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG573175	01/07/12 21:42
a,a,a-Trifluorotoluene(FID)		% Rec.	94.65	59-128	WG573175	01/07/12 21:42
TPH (GC/FID) High Fraction	< 4	ppm			WG573544	01/11/12 19:24
o-Terphenyl		% Rec.	69.29	50-150	WG573544	01/11/12 19:24

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.10	92.8	67-135	WG573175
a,a,a-Trifluorotoluene(FID)				100.6	59-128	WG573175
TPH (GC/FID) High Fraction	ppm	60	48.3	80.5	50-150	WG573544
o-Terphenyl				69.59	50-150	WG573544

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	4.99	5.10	91.0	67-135	2.22	20	WG573175
a,a,a-Trifluorotoluene(FID)				100.6	59-128			WG573175
TPH (GC/FID) High Fraction	ppm	46.8	48.3	78.0	50-150	3.12	20	WG573544
o-Terphenyl				66.45	50-150			WG573544

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
TPH (GC/FID) Low Fraction	mg/kg	18.6	0.157	5.5	67.1	55-109	L554750-01	WG573175
a,a,a-Trifluorotoluene(FID)					96.87	59-128		WG573175
TPH (GC/FID) High Fraction	ppm	216.	200.	60	27.0*	50-150	L554746-02	WG573544
o-Terphenyl					2395.*	50-150		WG573544

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	17.8	18.6	64.3	55-109	4.23	20	L554750-01	WG573175
a,a,a-Trifluorotoluene(FID)				96.47	59-128				WG573175
TPH (GC/FID) High Fraction	ppm	219.	216.	31.8*	50-150	1.32	20	L554746-02	WG573544
o-Terphenyl				2335.*	50-150				WG573544

Batch number /Run number / Sample number cross reference

WG573175: R1992614: L554679-01  
WG573544: R1996993: L554679-01

\* \* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L554679

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

January 12, 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.



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

## Report Summary

Wednesday January 25, 2012

Report Number: L556822

Samples Received: 01/20/12

Client Project:

Description: K200U-Cuttings

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.



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

January 25, 2012

Date Received : January 20, 2012  
Description : K200U-Cuttings  
Sample ID : K200U-CUT1-011912  
Collected By : Brennen Graff  
Collection Date : 01/19/12 11:13

ESC Sample # : L556822-01

Site ID : K200U

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	6.6	0.50	mg/kg	8015D/GRO	01/22/12	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	89.9		% Rec.	602/8015	01/22/12	5
TPH (GC/FID) High Fraction	1000	80.	mg/kg	3546/DRO	01/25/12	20
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	01/25/12	20

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: 01/25/12 13:56 Printed: 01/25/12 13:56





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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

January 25, 2012

Date Received : January 20, 2012  
Description : K200U-Cuttings  
Sample ID : K200U-CUT2-011912  
Collected By : Brennen Graff  
Collection Date : 01/19/12 11:33

ESC Sample # : L556822-02

Site ID : K200U

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	8.1	0.50	mg/kg	8015D/GRO	01/22/12	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	88.6		% Rec.	602/8015	01/22/12	5
TPH (GC/FID) High Fraction	630	80.	mg/kg	3546/DRO	01/25/12	20
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	01/25/12	20

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: 01/25/12 13:56 Printed: 01/25/12 13:56  
L556822-02 (DRO) - no lower dilution due to matrix



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

January 25, 2012

Date Received : January 20, 2012  
Description : K200U-Cuttings  
Sample ID : K200U-CUT3-011912  
Collected By : Brennen Graff  
Collection Date : 01/19/12 11:49

ESC Sample # : L556822-03

Site ID : K200U

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	5.5	0.50	mg/kg	8015D/GRO	01/22/12	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	91.0		% Rec.	602/8015	01/22/12	5
TPH (GC/FID) High Fraction	530	80.	mg/kg	3546/DRO	01/25/12	20
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	01/25/12	20

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: 01/25/12 13:56 Printed: 01/25/12 13:56  
L556822-03 (DRO) - no lower dilution due to matrix



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

January 25, 2012

Date Received : January 20, 2012  
Description : K200U-Cuttings  
Sample ID : K200U-CUT4-011912  
Collected By : Brennen Graff  
Collection Date : 01/19/12 12:10

ESC Sample # : L556822-04

Site ID : K200U

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	6.7	0.50	mg/kg	8015D/GRO	01/22/12	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	89.9		% Rec.	602/8015	01/22/12	5
TPH (GC/FID) High Fraction	550	80.	mg/kg	3546/DRO	01/25/12	20
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	01/25/12	20

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: 01/25/12 13:56 Printed: 01/25/12 13:56  
L556822-04 (DRO) - no lower dilution due to matrix

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L556822-01	WG575197	SAMP	o-Terphenyl	R2011957	J7
L556822-02	WG575197	SAMP	o-Terphenyl	R2011957	J7
L556822-03	WG575197	SAMP	o-Terphenyl	R2011957	J7
L556822-04	WG575197	SAMP	o-Terphenyl	R2011957	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out

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  
01/25/12 at 13:56:41

TSR Signing Reports: 358  
R5 - Desired TAT

Try not to report benzene as BDL above a 250x dilution. ONLY log soil samples under this account. Waters get logged under ENCRCO.

Sample: L556822-01 Account: ENCANACO Received: 01/20/12 09:00 Due Date: 01/27/12 00:00 RPT Date: 01/25/12 13:56

Sample: L556822-02 Account: ENCANACO Received: 01/20/12 09:00 Due Date: 01/27/12 00:00 RPT Date: 01/25/12 13:56

Sample: L556822-03 Account: ENCANACO Received: 01/20/12 09:00 Due Date: 01/27/12 00:00 RPT Date: 01/25/12 13:56

Sample: L556822-04 Account: ENCANACO Received: 01/20/12 09:00 Due Date: 01/27/12 00:00 RPT Date: 01/25/12 13:56



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L556822

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

January 25, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG575078	01/21/12 21:35
a,a,a-Trifluorotoluene(FID)		% Rec.	99.54	59-128	WG575078	01/21/12 21:35
TPH (GC/FID) High Fraction	< 4	ppm			WG575197	01/24/12 19:45
o-Terphenyl		% Rec.	59.66	50-150	WG575197	01/24/12 19:45

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.07	92.1	67-135	WG575078
a,a,a-Trifluorotoluene(FID)				104.7	59-128	WG575078
TPH (GC/FID) High Fraction	ppm	60	41.8	69.6	50-150	WG575197
o-Terphenyl				67.95	50-150	WG575197

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	5.32	5.07	97.0	67-135	4.95	20	WG575078
a,a,a-Trifluorotoluene(FID)				105.9	59-128			WG575078
TPH (GC/FID) High Fraction	ppm	43.9	41.8	73.0	50-150	5.02	20	WG575197
o-Terphenyl				70.38	50-150			WG575197

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
TPH (GC/FID) Low Fraction	mg/kg	30.3	8.80	5.5	78.4	55-109	L556817-01	WG575078
a,a,a-Trifluorotoluene(FID)					94.32	59-128		WG575078
TPH (GC/FID) High Fraction	ppm	46.1	0.793	60	75.5	50-150	L556865-26	WG575197
o-Terphenyl					76.74	50-150		WG575197

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	31.5	30.3	82.7	55-109	3.86	20	L556817-01	WG575078
a,a,a-Trifluorotoluene(FID)				96.24	59-128				WG575078
TPH (GC/FID) High Fraction	ppm	41.2	46.1	67.3	50-150	11.2	20	L556865-26	WG575197
o-Terphenyl				70.38	50-150				WG575197

Batch number /Run number / Sample number cross reference

WG575078: R2010753: L556822-01 02 03 04  
WG575197: R2011957: L556822-01 02 03 04

\* \* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L556822

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

January 25, 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.





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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

## Report Summary

Tuesday July 03, 2012

Report Number: L582494

Samples Received: 06/28/12

Client Project:

Description: K200U Cuttings

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:

T. Alan Harvill , 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.



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

July 03, 2012

Date Received : June 28, 2012  
Description : K200U Cuttings  
Sample ID : K200U-CUT1-062712 0-6IN  
Collected By : Chris Bak  
Collection Date : 06/27/12 13:18

ESC Sample # : L582494-01

Site ID : PF29

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) High Fraction	1400	80.	mg/kg	3546/DRO	06/29/12	20
Surrogate recovery(%) o-Terphenyl	54.7		% Rec.	3546/DRO	06/29/12	20

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: 07/03/12 16:13 Printed: 07/03/12 16:32



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

July 03, 2012

Date Received : June 28, 2012  
Description : K200U Cuttings  
Sample ID : K200U-CUT2-062712 0-6IN  
Collected By : Chris Bak  
Collection Date : 06/27/12 13:45

ESC Sample # : L582494-02

Site ID : PF29

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) High Fraction	1500	80.	mg/kg	3546/DRO	06/29/12	20
Surrogate recovery(%) o-Terphenyl	61.2		% Rec.	3546/DRO	06/29/12	20

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: 07/03/12 16:13 Printed: 07/03/12 16:32



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

July 03, 2012

Date Received : June 28, 2012  
Description : K200U Cuttings  
Sample ID : K200U-CUT3-062712 0-6IN  
Collected By : Chris Bak  
Collection Date : 06/27/12 14:05

ESC Sample # : L582494-03

Site ID : PF29

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) High Fraction	1500	80.	mg/kg	3546/DRO	06/29/12	20
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	06/29/12	20

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: 07/03/12 16:13 Printed: 07/03/12 16:32



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

July 03, 2012

Date Received : June 28, 2012  
Description : K200U Cuttings  
Sample ID : K200U-CUT1-062712 0-6IN  
Collected By : Chris Bak  
Collection Date : 06/27/12 13:18

ESC Sample # : L582494-04

Site ID : PF29

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
SPLP Extraction	-			1312	07/01/12	1
TPH (GC/FID) High Fraction	0.90	0.10	mg/l	3510C / DRO	07/03/12	1
Surrogate recovery(%) o-Terphenyl	69.7		% Rec.	3510C / DRO	07/03/12	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: 07/03/12 16:13 Printed: 07/03/12 16:32



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

July 03, 2012

Date Received : June 28, 2012  
Description : K200U Cuttings  
Sample ID : K200U-CUT2-062712 0-6IN  
Collected By : Chris Bak  
Collection Date : 06/27/12 13:45

ESC Sample # : L582494-05

Site ID : PF29

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
SPLP Extraction	-			1312	07/01/12	1
TPH (GC/FID) High Fraction	0.97	0.10	mg/l	3510C / DRO	07/03/12	1
Surrogate recovery(%) o-Terphenyl	58.8		% Rec.	3510C / DRO	07/03/12	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: 07/03/12 16:13 Printed: 07/03/12 16:32



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

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

July 03, 2012

Date Received : June 28, 2012  
Description : K200U Cuttings  
Sample ID : K200U-CUT3-062712 0-6IN  
Collected By : Chris Bak  
Collection Date : 06/27/12 14:05

ESC Sample # : L582494-06

Site ID : PF29

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
SPLP Extraction	-			1312	07/01/12	1
TPH (GC/FID) High Fraction	0.99	0.10	mg/l	3510C / DRO	07/03/12	1
Surrogate recovery(%) o-Terphenyl	56.4		% Rec.	3510C / DRO	07/03/12	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: 07/03/12 16:13 Printed: 07/03/12 16:32

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L582494-01	WG600325	SAMP	o-Terphenyl	R2233474	J7
L582494-02	WG600325	SAMP	o-Terphenyl	R2233474	J7
L582494-03	WG600325	SAMP	o-Terphenyl	R2233474	J7



Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

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.



YOUR LAB OF CHOICE

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L582494

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

July 03, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed		
		Units	% Rec					
TPH (GC/FID) High Fraction o-Terphenyl	< 4	ppm			WG600325	06/29/12 11:01		
		% Rec.	63.92	50-150	WG600325	06/29/12 11:01		
TPH (GC/FID) High Fraction o-Terphenyl	< .1	ppm			WG600810	07/03/12 13:44		
		% Rec.	74.80	50-150	WG600810	07/03/12 13:44		
Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch		
		Known Val	Result					
TPH (GC/FID) High Fraction o-Terphenyl	ppm	60	37.4	62.3	50-150	WG600325		
				60.57	50-150	WG600325		
TPH (GC/FID) High Fraction o-Terphenyl	ppm	1.5	1.11	73.8	50-150	WG600810		
				75.77	50-150	WG600810		
Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) High Fraction o-Terphenyl	ppm	37.4	37.4	62.0	50-150	0.152	25	WG600325
				66.36	50-150			WG600325
TPH (GC/FID) High Fraction o-Terphenyl	ppm	1.26	1.11	84.0	50-150	12.7	25	WG600810
				81.67	50-150			WG600810

Batch number /Run number / Sample number cross reference

WG600325: R2233474: L582494-01 02 03  
WG600414: R2236893: L582494-04 05 06  
WG600810: R2238993: L582494-04 05 06

\* \* 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**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L582494

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

July 03, 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.



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

Chris Hines  
EnCana Oil & Gas - Parachute, CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday September 09, 2014

Report Number: L720029


Samples Received: 09/05/14

Client Project: K200U

Description: K200U

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:

  
Jared 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, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

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.



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

Chris Hines  
EnCana Oil & Gas - Parachute, CO  
143 Diamond Avenue  
Parachute, CO 81635

September 09, 2014

Date Received : September 05, 2014  
Description : K200U  
Sample ID : 20140904-K200U (SBE03) 5-10FT  
Collected By : Ryan Zernis  
Collection Date : 09/04/14 09:20

ESC Sample # : L720029-01

Site ID : K200U

Project # : K200U

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) High Fraction	900	80.	mg/kg	8015D/DRO	09/08/14	20
Surrogate recovery(%) o-Terphenyl	41.7		% Rec.	8015D/DRO	09/08/14	20

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: 09/09/14 12:27 Printed: 09/09/14 13:15



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

September 09, 2014

Chris Hines  
EnCana Oil & Gas - Parachute, CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : September 05, 2014  
Description : K200U  
Sample ID : 20140904-K200U (SBE02) 10-15FT  
Collected By : Ryan Zernis  
Collection Date : 09/04/14 09:35

ESC Sample # : L720029-02

Site ID : K200U

Project # : K200U

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) High Fraction	1100	80.	mg/kg	8015D/DRO	09/08/14	20
Surrogate recovery(%) o-Terphenyl	55.6		% Rec.	8015D/DRO	09/08/14	20

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: 09/09/14 12:27 Printed: 09/09/14 13:15



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

Chris Hines  
EnCana Oil & Gas - Parachute, CO  
143 Diamond Avenue  
Parachute, CO 81635

September 09, 2014

Date Received : September 05, 2014  
Description : K200U  
Sample ID : 20140904-K200U (SBE01) 10-15FT  
Collected By : Ryan Zernis  
Collection Date : 09/04/14 09:50

ESC Sample # : L720029-03

Site ID : K200U

Project # : K200U

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) High Fraction	950	80.	mg/kg	8015D/DRO	09/08/14	20
Surrogate recovery(%) o-Terphenyl	36.7		% Rec.	8015D/DRO	09/08/14	20

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: 09/09/14 12:27 Printed: 09/09/14 13:15



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

September 09, 2014

Chris Hines  
EnCana Oil & Gas - Parachute, CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : September 05, 2014  
Description : K200U  
Sample ID : 20140904-K200U (SBW01) 10-15FT  
Collected By : Ryan Zernis  
Collection Date : 09/04/14 10:05

ESC Sample # : L720029-04

Site ID : K200U

Project # : K200U

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) High Fraction	850	80.	mg/kg	8015D/DRO	09/08/14	20
Surrogate recovery(%) o-Terphenyl	33.3		% Rec.	8015D/DRO	09/08/14	20

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: 09/09/14 12:27 Printed: 09/09/14 13:15





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

Chris Hines  
EnCana Oil & Gas - Parachute, CO  
143 Diamond Avenue  
Parachute, CO 81635

September 09, 2014

Date Received : September 05, 2014  
Description : K200U  
Sample ID : 20140904-K200U (SBW02) 10-15FT  
Collected By : Ryan Zernis  
Collection Date : 09/04/14 10:25

ESC Sample # : L720029-05

Site ID : K200U

Project # : K200U

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) High Fraction	850	80.	mg/kg	8015D/DRO	09/08/14	20
Surrogate recovery(%) o-Terphenyl	63.4		% Rec.	8015D/DRO	09/08/14	20

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: 09/09/14 12:27 Printed: 09/09/14 13:15

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L720029-01	WG741452	SAMP	o-Terphenyl	R2987042	J7
L720029-02	WG741452	SAMP	o-Terphenyl	R2987042	J7
L720029-03	WG741452	SAMP	o-Terphenyl	R2987042	J7
L720029-04	WG741452	SAMP	o-Terphenyl	R2987042	J7
L720029-05	WG741452	SAMP	o-Terphenyl	R2987042	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

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.