



12065 Lebanon Rd.
Mt. Juliet, TN 37122
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Tax I.D. 62-0814289

Est. 1970

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
143 Diamond Avenue
Parachute, CO 81635

Report Summary

Wednesday April 24, 2013

Report Number: L630353


Samples Received: 04/12/13

Client Project: M14 PAD ASSESSMENT

Description: M14 Pad Assessment

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
143 Diamond Avenue
Parachute, CO 81635

April 24, 2013

Date Received : April 12, 2013
Description : M14 Pad Assessment
Sample ID : M14-SVES01-041013 40-42FT
Collected By : Chris McKisson
Collection Date : 04/10/13 10:50

ESC Sample # : L630353-01

Site ID : M14

Project # : M14 PAD ASSESSMENT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	04/14/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	04/14/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	04/14/13	5
Total Xylene	0.012	0.0075	mg/kg	8021/8015	04/14/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	04/14/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.5		% Rec.	8021/8015	04/14/13	5
a,a,a-Trifluorotoluene(PID)	99.4		% Rec.	8021/8015	04/14/13	5
TPH (GC/FID) High Fraction	BDL	80.	mg/kg	8015D/DRO	04/18/13	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	8015D/DRO	04/18/13	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
Surrogate Recovery						
Nitrobenzene-d5	104.		% Rec.	8270C-SIM	04/15/13	1
2-Fluorobiphenyl	93.5		% Rec.	8270C-SIM	04/15/13	1
p-Terphenyl-d14	84.7		% Rec.	8270C-SIM	04/15/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
143 Diamond Avenue
Parachute, CO 81635

April 24, 2013

Date Received : April 12, 2013
Description : M14 Pad Assessment
Sample ID : M14-SVESE-041013 15-17FT
Collected By : Chris McKisson
Collection Date : 04/10/13 13:30

ESC Sample # : L630353-02

Site ID : M14

Project # : M14 PAD ASSESSMENT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0071	0.0025	mg/kg	8021/8015	04/14/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	04/14/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	04/14/13	5
Total Xylene	0.017	0.0075	mg/kg	8021/8015	04/14/13	5
TPH (GC/FID) Low Fraction	1.3	0.50	mg/kg	GRO	04/14/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.9		% Rec.	8021/8015	04/14/13	5
a,a,a-Trifluorotoluene(PID)	99.9		% Rec.	8021/8015	04/14/13	5
TPH (GC/FID) High Fraction	BDL	80.	mg/kg	8015D/DRO	04/18/13	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	8015D/DRO	04/18/13	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
Surrogate Recovery						
Nitrobenzene-d5	101.		% Rec.	8270C-SIM	04/15/13	1
2-Fluorobiphenyl	94.1		% Rec.	8270C-SIM	04/15/13	1
p-Terphenyl-d14	89.4		% Rec.	8270C-SIM	04/15/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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143 Diamond Avenue
Parachute, CO 81635

April 24, 2013

Date Received : April 12, 2013
Description : M14 Pad Assessment

Sample ID : M14-SVESE-041013 20-22FT

Collected By : Chris McKisson
Collection Date : 04/10/13 13:35

ESC Sample # : L630353-03

Site ID : M14

Project # : M14 PAD ASSESSMENT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	04/19/13	1
Chromium, Trivalent	20.	2.0	mg/kg	Calc.	04/24/13	1
ORP	91.		mV	2580 B-2011	04/16/13	1
pH	7.9		su	9045D	04/15/13	1
Sodium Adsorption Ratio	0.83			Calc.	04/20/13	1
Specific Conductance	3500		umhos/cm	9050AMod	04/14/13	1
Mercury	0.021	0.020	mg/kg	7471	04/15/13	1
Arsenic	16.	1.0	mg/kg	6010B	04/24/13	1
Barium	370	0.25	mg/kg	6010B	04/24/13	1
Cadmium	BDL	0.25	mg/kg	6010B	04/24/13	1
Chromium	20.	0.50	mg/kg	6010B	04/24/13	1
Copper	31.	1.0	mg/kg	6010B	04/24/13	1
Lead	17.	0.50	mg/kg	6010B	04/24/13	2
Nickel	18.	1.0	mg/kg	6010B	04/24/13	1
Selenium	1.5	1.0	mg/kg	6010B	04/24/13	1
Silver	BDL	1.0	mg/kg	6010B	04/24/13	2
Zinc	56.	1.5	mg/kg	6010B	04/24/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	04/14/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	04/14/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	04/14/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	04/14/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	04/14/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.8		% Rec.	8021/8015	04/14/13	5
a,a,a-Trifluorotoluene(PID)	99.4		% Rec.	8021/8015	04/14/13	5
TPH (GC/FID) High Fraction	BDL	80.	mg/kg	8015D/DRO	04/18/13	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	8015D/DRO	04/18/13	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L630353-03 (PH) - 7.9@22.5c



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April 24, 2013

Date Received : April 12, 2013
Description : M14 Pad Assessment

Sample ID : M14-SVESE-041013 20-22FT

Collected By : Chris McKisson
Collection Date : 04/10/13 13:35

ESC Sample # : L630353-03

Site ID : M14

Project # : M14 PAD ASSESSMENT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
Phenanthrene	0.0061	0.0060	mg/kg	8270C-SIM	04/15/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
Surrogate Recovery						
Nitrobenzene-d5	98.4		% Rec.	8270C-SIM	04/15/13	1
2-Fluorobiphenyl	88.3		% Rec.	8270C-SIM	04/15/13	1
p-Terphenyl-d14	82.4		% Rec.	8270C-SIM	04/15/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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L630353-03 (PH) - 7.9@22.5c



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REPORT OF ANALYSIS

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EnCana Oil & Gas Inc. - CO
143 Diamond Avenue
Parachute, CO 81635

April 24, 2013

Date Received : April 12, 2013
Description : M14 Pad Assessment
Sample ID : M14-SVESE-041013 40-42FT
Collected By : Chris McKisson
Collection Date : 04/10/13 14:30

ESC Sample # : L630353-04

Site ID : M14

Project # : M14 PAD ASSESSMENT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	04/14/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	04/14/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	04/14/13	5
Total Xylene	0.014	0.0075	mg/kg	8021/8015	04/14/13	5
TPH (GC/FID) Low Fraction	0.74	0.50	mg/kg	GRO	04/14/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.1		% Rec.	8021/8015	04/14/13	5
a,a,a-Trifluorotoluene(PID)	97.3		% Rec.	8021/8015	04/14/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	8015D/DRO	04/17/13	1
Surrogate recovery(%)						
o-Terphenyl	69.4		% Rec.	8015D/DRO	04/17/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	04/15/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	04/15/13	1
Surrogate Recovery						
Nitrobenzene-d5	96.2		% Rec.	8270C-SIM	04/15/13	1
2-Fluorobiphenyl	91.6		% Rec.	8270C-SIM	04/15/13	1
p-Terphenyl-d14	99.9		% Rec.	8270C-SIM	04/15/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L630353-01	WG656209	SAMP	TPH (GC/FID) High Fraction	R2623820	O
	WG656209	SAMP	o-Terphenyl	R2623820	J7
L630353-02	WG656209	SAMP	TPH (GC/FID) High Fraction	R2623820	O
	WG656209	SAMP	o-Terphenyl	R2623820	J7
L630353-03	WG656552	SAMP	Silver	R2634301	O
	WG656395	SAMP	ORP	R2621943	T8
	WG656209	SAMP	TPH (GC/FID) High Fraction	R2623820	O
	WG656209	SAMP	o-Terphenyl	R2623820	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

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

Definitions

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

Summary of Remarks For Samples Printed
04/24/13 at 17:28:38

TSR Signing Reports: 358
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. Try not to report benzene as BDL
above a 250x dilution.

Sample: L630353-01 Account: ENCANACO Received: 04/12/13 09:00 Due Date: 04/19/13 00:00 RPT Date: 04/24/13 17:28

Sample: L630353-02 Account: ENCANACO Received: 04/12/13 09:00 Due Date: 04/19/13 00:00 RPT Date: 04/24/13 17:28

Sample: L630353-03 Account: ENCANACO Received: 04/12/13 09:00 Due Date: 04/24/13 00:00 RPT Date: 04/24/13 17:28

Sample: L630353-04 Account: ENCANACO Received: 04/12/13 09:00 Due Date: 04/19/13 00:00 RPT Date: 04/24/13 17:28



YOUR LAB OF CHOICE

EnCana Oil & Gas Inc. - CO
Chris Hines / Matt Kasten
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report
Level II

L630353

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Est. 1970

April 24, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Specific Conductance	1.52	umhos/cm			WG656114	04/14/13 08:15
Mercury	< .02	mg/kg			WG656043	04/15/13 12:34
Benzene	< .0005	mg/kg			WG656181	04/14/13 17:33
Ethylbenzene	< .0005	mg/kg			WG656181	04/14/13 17:33
Toluene	< .005	mg/kg			WG656181	04/14/13 17:33
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG656181	04/14/13 17:33
Total Xylene	< .0015	mg/kg			WG656181	04/14/13 17:33
a,a,a-Trifluorotoluene(FID)		% Rec.	99.92	59-128	WG656181	04/14/13 17:33
a,a,a-Trifluorotoluene(PID)		% Rec.	99.75	54-144	WG656181	04/14/13 17:33
1-Methylnaphthalene	< .02	mg/kg			WG656214	04/15/13 16:53
2-Chloronaphthalene	< .02	mg/kg			WG656214	04/15/13 16:53
2-Methylnaphthalene	< .02	mg/kg			WG656214	04/15/13 16:53
Acenaphthene	< .006	mg/kg			WG656214	04/15/13 16:53
Acenaphthylene	< .006	mg/kg			WG656214	04/15/13 16:53
Anthracene	< .006	mg/kg			WG656214	04/15/13 16:53
Benzo(a)anthracene	< .006	mg/kg			WG656214	04/15/13 16:53
Benzo(a)pyrene	< .006	mg/kg			WG656214	04/15/13 16:53
Benzo(b)fluoranthene	< .006	mg/kg			WG656214	04/15/13 16:53
Benzo(g,h,i)perylene	< .006	mg/kg			WG656214	04/15/13 16:53
Benzo(k)fluoranthene	< .006	mg/kg			WG656214	04/15/13 16:53
Chrysene	< .006	mg/kg			WG656214	04/15/13 16:53
Dibenz(a,h)anthracene	< .006	mg/kg			WG656214	04/15/13 16:53
Fluoranthene	< .006	mg/kg			WG656214	04/15/13 16:53
Fluorene	< .006	mg/kg			WG656214	04/15/13 16:53
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG656214	04/15/13 16:53
Naphthalene	< .02	mg/kg			WG656214	04/15/13 16:53
Phenanthrene	< .006	mg/kg			WG656214	04/15/13 16:53
Pyrene	< .006	mg/kg			WG656214	04/15/13 16:53
2-Fluorobiphenyl		% Rec.	86.80	70-130	WG656214	04/15/13 16:53
Nitrobenzene-d5		% Rec.	96.90	70-130	WG656214	04/15/13 16:53
p-Terphenyl-d14		% Rec.	101.0	70-130	WG656214	04/15/13 16:53
TPH (GC/FID) High Fraction	< 4	mg/kg			WG656209	04/17/13 12:08
o-Terphenyl		% Rec.	86.30	50-150	WG656209	04/17/13 12:08
Chromium,Hexavalent	< 2	mg/kg			WG656752	04/19/13 09:22
Arsenic	< 1	mg/kg			WG656552	04/24/13 09:06
Barium	< .25	mg/kg			WG656552	04/24/13 09:06
Cadmium	< .25	mg/kg			WG656552	04/24/13 09:06
Chromium	< .5	mg/kg			WG656552	04/24/13 09:06
Lead	< .25	mg/kg			WG656552	04/24/13 09:06
Nickel	< 1	mg/kg			WG656552	04/24/13 09:06
Selenium	< 1	mg/kg			WG656552	04/24/13 09:06
Silver	< .5	mg/kg			WG656552	04/24/13 09:06
Zinc	< 1.5	mg/kg			WG656552	04/24/13 09:06
Copper	< 1	mg/kg			WG656552	04/24/13 16:02

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Tax I.D. 62-0814289

Est. 1970

April 24, 2013

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Specific Conductance	umhos/cm	420.	380.	11.2	20	L629779-01	WG656114
Specific Conductance	umhos/cm	3500	3500	0.570	20	L630353-03	WG656114
pH	su	8.30	8.40	0.837	1	L628748-02	WG656134
pH	su	7.60	7.60	0.660	1	L630410-01	WG656134
Mercury	mg/kg	0	0.00920	17.6	20	L630283-11	WG656043
ORP	mV	140.	140.	0.712	20	L629779-01	WG656395
ORP	mV	0	0	0	20	L630541-01	WG656395
Chromium, Hexavalent	mg/kg	0	0	0	20	L629964-01	WG656752
Arsenic	mg/kg	2.50	1.70	38.1*	20	L630359-03	WG656552
Barium	mg/kg	130.	146.	11.6	20	L630359-03	WG656552
Cadmium	mg/kg	0	0	0	20	L630359-03	WG656552
Chromium	mg/kg	8.10	8.80	8.28	20	L630359-03	WG656552
Lead	mg/kg	5.90	5.90	0	20	L630359-03	WG656552
Nickel	mg/kg	9.70	9.40	3.14	20	L630359-03	WG656552
Selenium	mg/kg	1.30	1.20	8.00	20	L630359-03	WG656552
Silver	mg/kg	0	0	0	20	L630359-03	WG656552
Zinc	mg/kg	26.0	26.0	0	20	L630359-03	WG656552
Copper	mg/kg	5.10	5.50	7.55	20	L630359-03	WG656552

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Specific Conductance	umhos/cm	878	887.	101.	85-115	WG656114
pH	su	5.79	5.83	101.	98.3-101.7	WG656134
Mercury	mg/kg	12.4	14.4	116.	71.6-127.7	WG656043
Benzene	mg/kg	.05	0.0481	96.2	76-113	WG656181
Ethylbenzene	mg/kg	.05	0.0500	100.	78-115	WG656181
Toluene	mg/kg	.05	0.0490	97.9	76-114	WG656181
Total Xylene	mg/kg	.15	0.154	102.	81-118	WG656181
a,a,a-Trifluorotoluene(PID)				101.4	54-144	WG656181
TPH (GC/FID) Low Fraction	mg/kg	5.5	4.54	82.5	67-135	WG656181
a,a,a-Trifluorotoluene(FID)				100.1	59-128	WG656181
1-Methylnaphthalene	mg/kg	.08	0.0717	89.6	70-130	WG656214
2-Chloronaphthalene	mg/kg	.08	0.0621	77.6	70-130	WG656214
2-Methylnaphthalene	mg/kg	.08	0.0708	88.5	70-130	WG656214
Acenaphthene	mg/kg	.08	0.0686	85.7	70-130	WG656214
Acenaphthylene	mg/kg	.08	0.0701	87.6	70-130	WG656214
Anthracene	mg/kg	.08	0.0705	88.2	70-130	WG656214
Benzo(a)anthracene	mg/kg	.08	0.0703	87.9	70-130	WG656214
Benzo(a)pyrene	mg/kg	.08	0.0667	83.4	70-130	WG656214
Benzo(b)fluoranthene	mg/kg	.08	0.0667	83.4	70-130	WG656214
Benzo(g,h,i)perylene	mg/kg	.08	0.0721	90.1	70-130	WG656214

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzo(k)fluoranthene	mg/kg	.08	0.0704	88.1	70-130	WG656214
Chrysene	mg/kg	.08	0.0697	87.2	70-130	WG656214
Dibenz(a,h)anthracene	mg/kg	.08	0.0727	90.9	70-130	WG656214
Fluoranthene	mg/kg	.08	0.0684	85.5	70-130	WG656214
Fluorene	mg/kg	.08	0.0722	90.3	70-130	WG656214
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0733	91.6	70-130	WG656214
Naphthalene	mg/kg	.08	0.0681	85.1	70-130	WG656214
Phenanthrene	mg/kg	.08	0.0681	85.1	70-130	WG656214
Pyrene	mg/kg	.08	0.0698	87.3	70-130	WG656214
2-Fluorobiphenyl				80.60	70-130	WG656214
Nitrobenzene-d5				90.90	70-130	WG656214
p-Terphenyl-d14				86.50	70-130	WG656214
ORP	mV	228	237.	104.	95.6-104.	WG656395
TPH (GC/FID) High Fraction	mg/kg	60	47.5	79.2	50-150	WG656209
o-Terphenyl				83.20	50-150	WG656209
Chromium,Hexavalent	mg/kg	146	166.	114.	80-120	WG656752
Arsenic	mg/kg	237	233.	98.3	83.1-117	WG656552
Barium	mg/kg	252	273.	108.	84.1-116	WG656552
Cadmium	mg/kg	191	199.	104.	83.2-117	WG656552
Chromium	mg/kg	128	133.	104.	81.3-118	WG656552
Lead	mg/kg	103	99.7	96.8	83.1-117	WG656552
Nickel	mg/kg	118	111.	94.1	82-118	WG656552
Selenium	mg/kg	110	107.	97.3	78.7-122	WG656552
Silver	mg/kg	47.3	44.8	94.7	66.2-134	WG656552
Zinc	mg/kg	183	184.	101.	82-118	WG656552
Copper	mg/kg	123	135.	110.	83.7-116	WG656552

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Specific Conductance	umhos/	881.	887.	100.	85-115	0.679	20	WG656114
pH	su	5.84	5.83	101.	98.3-101.7	0.171	20	WG656134
Benzene	mg/kg	0.0452	0.0481	90.0	76-113	6.24	20	WG656181
Ethylbenzene	mg/kg	0.0467	0.0500	93.0	78-115	6.71	20	WG656181
Toluene	mg/kg	0.0456	0.0490	91.0	76-114	7.03	20	WG656181
Total Xylene	mg/kg	0.143	0.154	95.0	81-118	7.22	20	WG656181
a,a,a-Trifluorotoluene(PID)				101.7	54-144			WG656181
TPH (GC/FID) Low Fraction	mg/kg	4.71	4.54	86.0	67-135	3.67	20	WG656181
a,a,a-Trifluorotoluene(FID)				100.3	59-128			WG656181
1-Methylnaphthalene	mg/kg	0.0773	0.0717	96.0	70-130	7.54	25	WG656214
2-Chloronaphthalene	mg/kg	0.0668	0.0621	84.0	70-130	7.35	25	WG656214
2-Methylnaphthalene	mg/kg	0.0771	0.0708	96.0	70-130	8.59	25	WG656214
Acenaphthene	mg/kg	0.0749	0.0686	94.0	70-130	8.89	25	WG656214
Acenaphthylene	mg/kg	0.0763	0.0701	95.0	70-130	8.47	25	WG656214
Anthracene	mg/kg	0.0762	0.0705	95.0	70-130	7.66	25	WG656214

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzo(a)anthracene	mg/kg	0.0783	0.0703	98.0	70-130	10.8	25	WG656214
Benzo(a)pyrene	mg/kg	0.0716	0.0667	89.0	70-130	7.02	25	WG656214
Benzo(b)fluoranthene	mg/kg	0.0732	0.0667	92.0	70-130	9.26	25	WG656214
Benzo(g,h,i)perylene	mg/kg	0.0776	0.0721	97.0	70-130	7.42	25	WG656214
Benzo(k)fluoranthene	mg/kg	0.0764	0.0704	95.0	70-130	8.10	25	WG656214
Chrysene	mg/kg	0.0754	0.0697	94.0	70-130	7.85	25	WG656214
Dibenz(a,h)anthracene	mg/kg	0.0784	0.0727	98.0	70-130	7.49	25	WG656214
Fluoranthene	mg/kg	0.0732	0.0684	92.0	70-130	6.78	25	WG656214
Fluorene	mg/kg	0.0805	0.0722	100.	70-130	10.8	25	WG656214
Indeno(1,2,3-cd)pyrene	mg/kg	0.0786	0.0733	98.0	70-130	7.02	25	WG656214
Naphthalene	mg/kg	0.0736	0.0681	92.0	70-130	7.69	25	WG656214
Phenanthrene	mg/kg	0.0732	0.0681	91.0	70-130	7.17	25	WG656214
Pyrene	mg/kg	0.0762	0.0698	95.0	70-130	8.76	25	WG656214
2-Fluorobiphenyl				86.20	70-130			WG656214
Nitrobenzene-d5				94.90	70-130			WG656214
p-Terphenyl-d14				91.70	70-130			WG656214
ORP	mV	236.	237.	104.	95.6-104.	0.423	20	WG656395
TPH (GC/FID) High Fraction	mg/kg	44.0	47.5	73.0	50-150	7.75	20	WG656209
o-Terphenyl				75.60	50-150			WG656209
Chromium, Hexavalent	mg/kg	163.	166.	112.	80-120	1.82	20	WG656752

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Mercury	mg/kg	0.259	0.00920	.25	99.8	80-120	L630283-11	WG656043
Benzene	mg/kg	0.189	0	.05	75.7	32-137	L630541-02	WG656181
Ethylbenzene	mg/kg	0.155	0	.05	62.1	10-150	L630541-02	WG656181
Toluene	mg/kg	0.176	0	.05	70.4	20-142	L630541-02	WG656181
Total Xylene	mg/kg	0.482	0.00550	.15	63.6	16-141	L630541-02	WG656181
a,a,a-Trifluorotoluene(PID)					101.1	54-144		WG656181
TPH (GC/FID) Low Fraction	mg/kg	15.1	0.0927	5.5	54.4*	55-109	L630541-02	WG656181
a,a,a-Trifluorotoluene(FID)					98.81	59-128		WG656181
1-Methylnaphthalene	mg/kg	0.0827	0	.08	103.	70-130	L630467-13	WG656214
2-Chloronaphthalene	mg/kg	0.0725	0	.08	90.7	70-130	L630467-13	WG656214
2-Methylnaphthalene	mg/kg	0.0822	0.000506	.08	102.	70-130	L630467-13	WG656214
Acenaphthene	mg/kg	0.0801	0	.08	100.	70-130	L630467-13	WG656214
Acenaphthylene	mg/kg	0.0845	0	.08	106.	70-130	L630467-13	WG656214
Anthracene	mg/kg	0.0825	0	.08	103.	70-130	L630467-13	WG656214
Benzo(a)anthracene	mg/kg	0.0846	0.000878	.08	105.	70-130	L630467-13	WG656214
Benzo(a)pyrene	mg/kg	0.0801	0.000625	.08	99.4	70-130	L630467-13	WG656214
Benzo(b)fluoranthene	mg/kg	0.0772	0.00122	.08	94.9	70-130	L630467-13	WG656214
Benzo(g,h,i)perylene	mg/kg	0.0825	0.000570	.08	102.	70-130	L630467-13	WG656214
Benzo(k)fluoranthene	mg/kg	0.0778	0.000648	.08	96.4	70-130	L630467-13	WG656214
Chrysene	mg/kg	0.0806	0.00114	.08	99.4	70-130	L630467-13	WG656214
Dibenz(a,h)anthracene	mg/kg	0.0830	0	.08	104.	70-130	L630467-13	WG656214
Fluoranthene	mg/kg	0.0797	0.00227	.08	96.8	70-130	L630467-13	WG656214
Fluorene	mg/kg	0.0840	0	.08	105.	70-130	L630467-13	WG656214
Indeno(1,2,3-cd)pyrene	mg/kg	0.0843	0	.08	105.	70-130	L630467-13	WG656214
Naphthalene	mg/kg	0.0772	0.00233	.08	93.6	70-130	L630467-13	WG656214

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Phenanthrene	mg/kg	0.0782	0.00104	.08	96.5	70-130	L630467-13	WG656214
Pyrene	mg/kg	0.0833	0.00227	.08	101.	70-130	L630467-13	WG656214
2-Fluorobiphenyl					95.00	70-130		WG656214
Nitrobenzene-d5					103.0	70-130		WG656214
p-Terphenyl-d14					100.0	70-130		WG656214
TPH (GC/FID) High Fraction	mg/kg	41.4	4.42	12	61.6	50-150	L630253-03	WG656209
o-Terphenyl					62.00	50-150		WG656209
Chromium,Hexavalent	mg/kg	3.52	0	20	1.76*	75-125	L629964-01	WG656752
Arsenic	mg/kg	45.1	1.70	50	86.8	75-125	L630359-03	WG656552
Barium	mg/kg	173.	146.	50	54.0*	75-125	L630359-03	WG656552
Cadmium	mg/kg	47.5	0	50	95.0	75-125	L630359-03	WG656552
Chromium	mg/kg	51.8	8.80	50	86.0	75-125	L630359-03	WG656552
Lead	mg/kg	48.9	5.90	50	86.0	75-125	L630359-03	WG656552
Nickel	mg/kg	47.7	9.40	50	76.6	75-125	L630359-03	WG656552
Selenium	mg/kg	43.4	1.20	50	84.4	75-125	L630359-03	WG656552
Silver	mg/kg	43.7	0	50	87.4	75-125	L630359-03	WG656552
Zinc	mg/kg	66.1	26.0	50	80.2	75-125	L630359-03	WG656552
Copper	mg/kg	51.7	5.50	50	92.4	75-125	L630359-03	WG656552

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Mercury	mg/kg	0.255	0.259	98.2	80-120	1.61	20	L630283-11	WG656043
Benzene	mg/kg	0.206	0.189	82.4	32-137	8.46	39	L630541-02	WG656181
Ethylbenzene	mg/kg	0.188	0.155	75.3	10-150	19.2	44	L630541-02	WG656181
Toluene	mg/kg	0.198	0.176	79.1	20-142	11.6	42	L630541-02	WG656181
Total Xylene	mg/kg	0.577	0.482	76.2	16-141	17.9	46	L630541-02	WG656181
a,a,a-Trifluorotoluene(PID)				100.7	54-144				WG656181
TPH (GC/FID) Low Fraction	mg/kg	15.8	15.1	57.0	55-109	4.51	20	L630541-02	WG656181
a,a,a-Trifluorotoluene(FID)				99.05	59-128				WG656181
1-Methylnaphthalene	mg/kg	0.0896	0.0827	112.	70-130	8.00	25	L630467-13	WG656214
2-Chloronaphthalene	mg/kg	0.0794	0.0725	99.2	70-130	8.99	25	L630467-13	WG656214
2-Methylnaphthalene	mg/kg	0.0887	0.0822	110.	70-130	7.53	25	L630467-13	WG656214
Acenaphthene	mg/kg	0.0868	0.0801	108.	70-130	8.01	25	L630467-13	WG656214
Acenaphthylene	mg/kg	0.0923	0.0845	115.	70-130	8.83	25	L630467-13	WG656214
Anthracene	mg/kg	0.0914	0.0825	114.	70-130	10.3	25	L630467-13	WG656214
Benzo(a)anthracene	mg/kg	0.0906	0.0846	112.	70-130	6.95	25	L630467-13	WG656214
Benzo(a)pyrene	mg/kg	0.0859	0.0801	107.	70-130	7.01	25	L630467-13	WG656214
Benzo(b)fluoranthene	mg/kg	0.0820	0.0772	101.	70-130	6.04	25	L630467-13	WG656214
Benzo(g,h,i)perylene	mg/kg	0.0891	0.0825	111.	70-130	7.65	25	L630467-13	WG656214
Benzo(k)fluoranthene	mg/kg	0.0838	0.0778	104.	70-130	7.38	25	L630467-13	WG656214
Chrysene	mg/kg	0.0879	0.0806	108.	70-130	8.62	25	L630467-13	WG656214
Dibenz(a,h)anthracene	mg/kg	0.0913	0.0830	114.	70-130	9.48	25	L630467-13	WG656214
Fluoranthene	mg/kg	0.0848	0.0797	103.	70-130	6.19	25	L630467-13	WG656214
Fluorene	mg/kg	0.0920	0.0840	115.	70-130	9.00	25	L630467-13	WG656214
Indeno(1,2,3-cd)pyrene	mg/kg	0.0907	0.0843	113.	70-130	7.37	25	L630467-13	WG656214
Naphthalene	mg/kg	0.0820	0.0772	99.6	70-130	6.02	25	L630467-13	WG656214
Phenanthrene	mg/kg	0.0845	0.0782	104.	70-130	7.70	25	L630467-13	WG656214
Pyrene	mg/kg	0.0868	0.0833	106.	70-130	4.02	25	L630467-13	WG656214

* 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
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report
Level II

L630353

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

April 24, 2013

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
2-Fluorobiphenyl				104.0	70-130					
Nitrobenzene-d5				114.0	70-130					
p-Terphenyl-d14				107.0	70-130					
TPH (GC/FID) High Fraction	mg/kg	38.9	41.4	57.5	50-150	6.02	20	L630253-03		WG656209
o-Terphenyl				58.80	50-150					WG656209
Chromium,Hexavalent	mg/kg	3.08	3.52	15.4*	75-125	13.3	20	L629964-01		WG656752
Arsenic	mg/kg	47.0	45.1	90.6	75-125	4.13	20	L630359-03		WG656552
Barium	mg/kg	182.	173.	72.0*	75-125	5.07	20	L630359-03		WG656552
Cadmium	mg/kg	49.5	47.5	99.0	75-125	4.12	20	L630359-03		WG656552
Chromium	mg/kg	54.2	51.8	90.8	75-125	4.53	20	L630359-03		WG656552
Lead	mg/kg	51.0	48.9	90.2	75-125	4.20	20	L630359-03		WG656552
Nickel	mg/kg	50.3	47.7	81.8	75-125	5.31	20	L630359-03		WG656552
Selenium	mg/kg	44.9	43.4	87.4	75-125	3.40	20	L630359-03		WG656552
Silver	mg/kg	45.4	43.7	90.8	75-125	3.82	20	L630359-03		WG656552
Zinc	mg/kg	71.5	66.1	91.0	75-125	7.85	20	L630359-03		WG656552
Copper	mg/kg	54.6	51.7	98.2	75-125	5.46	20	L630359-03		WG656552

Serial Dilution

Batch number /Run number / Sample number cross reference

WG656114: R2617640: L630353-03
WG656134: R2618481: L630353-03
WG656043: R2618622: L630353-03
WG656181: R2619021: L630353-01 02 03 04
WG656214: R2620342: L630353-01 02 03 04
WG656395: R2621943: L630353-03
WG656209: R2623820: L630353-01 02 03 04
WG656752: R2627723: L630353-03
WG656990: R2630025: L630353-03
WG656552: R2634301: L630353-03

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.