



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

Est. 1970

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

Report Summary

Tuesday July 08, 2014

Report Number: L707493


Samples Received: 06/28/14

Client Project: USA 1-31LW

Description: USA 1-31LW PIT

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

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REPORT OF ANALYSIS

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

July 08, 2014

Date Received : June 28, 2014
Description : USA 1-31LW PIT
Sample ID : 2014627-USA 1-31 PIT (NWALL) 1FT
Collected By : Matt K.
Collection Date : 06/27/14 07:30

ESC Sample # : L707493-01

Site ID : USA 1-31LW

Project # : USA 1-31LW

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Toluene	BDL	0.025	mg/kg	8021	07/03/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	07/03/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	07/03/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.4		% Rec.	8021/8015	07/03/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	07/03/14	5
TPH (GC/FID) High Fraction	17.	4.0	mg/kg	8015D/DRO	07/05/14	1
Surrogate recovery(%)						
o-Terphenyl	63.2		% Rec.	8015D/DRO	07/05/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Reported: 07/08/14 09:12 Printed: 07/08/14 10:02



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REPORT OF ANALYSIS

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143 Diamond Avenue
Parachute, CO 81635

July 08, 2014

Date Received : June 28, 2014
Description : USA 1-31LW PIT
Sample ID : 20140627-USA- 1-31 PIT (BOT) 1FT
Collected By : Matt K.
Collection Date : 06/27/14 07:35

ESC Sample # : L707493-02

Site ID : USA 1-31LW

Project # : USA 1-31LW

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	06/29/14	1
Chromium, Trivalent	24.	5.0	mg/kg	Calc.	07/08/14	1
ORP	30.		mV	2580 B-2011	07/03/14	1
pH	7.8		su	9045D	06/30/14	1
Sodium Adsorption Ratio	11.			Calc.	07/06/14	1
Specific Conductance	3400		umhos/cm	9050AMod	07/05/14	1
Mercury	0.032	0.020	mg/kg	7471	07/01/14	1
Arsenic	BDL	10.	mg/kg	6010B	07/07/14	5
Barium	1300	2.5	mg/kg	6010B	07/07/14	5
Cadmium	BDL	2.5	mg/kg	6010B	07/07/14	5
Chromium	24.	5.0	mg/kg	6010B	07/07/14	5
Copper	4.4	2.0	mg/kg	6010B	07/07/14	1
Lead	16.	2.5	mg/kg	6010B	07/07/14	5
Nickel	3.6	2.0	mg/kg	6010B	07/07/14	1
Selenium	BDL	10.	mg/kg	6010B	07/07/14	5
Silver	BDL	5.0	mg/kg	6010B	07/07/14	5
Zinc	14.	3.0	mg/kg	6010B	07/07/14	1
Benzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Toluene	BDL	0.025	mg/kg	8021	07/03/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	07/03/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	07/03/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.8		% Rec.	8021/8015	07/03/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	07/03/14	5
TPH (GC/FID) High Fraction	96.	4.0	mg/kg	8015D/DRO	07/05/14	1
Surrogate recovery(%)						
o-Terphenyl	61.7		% Rec.	8015D/DRO	07/05/14	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L707493-02 (PH) - 7.8@21.3c



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July 08, 2014

Date Received : June 28, 2014
Description : USA 1-31LW PIT
Sample ID : 20140627-USA- 1-31 PIT (BOT) 1FT
Collected By : Matt K.
Collection Date : 06/27/14 07:35

ESC Sample # : L707493-02

Site ID : USA 1-31LW

Project # : USA 1-31LW

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Fluorene	0.0064	0.0060	mg/kg	8270C-SIM	07/03/14	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
Naphthalene	0.045	0.020	mg/kg	8270C-SIM	07/03/14	1
Phenanthrene	0.030	0.0060	mg/kg	8270C-SIM	07/03/14	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/14	1
1-Methylnaphthalene	0.056	0.020	mg/kg	8270C-SIM	07/03/14	1
2-Methylnaphthalene	0.10	0.020	mg/kg	8270C-SIM	07/03/14	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/14	1
Surrogate Recovery						
p-Terphenyl-d14	59.8		% Rec.	8270C-SIM	07/03/14	1
Nitrobenzene-d5	54.4		% Rec.	8270C-SIM	07/03/14	1
2-Fluorobiphenyl	60.1		% Rec.	8270C-SIM	07/03/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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L707493-02 (PH) - 7.8@21.3c



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July 08, 2014

Date Received : June 28, 2014
Description : USA 1-31LW PIT
Sample ID : 20140627-USA 1-31 PIT (WWALL) 1FT
Collected By : Matt K.
Collection Date : 06/27/14 07:40

ESC Sample # : L707493-03

Site ID : USA 1-31LW

Project # : USA 1-31LW

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Toluene	BDL	0.025	mg/kg	8021	07/03/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	07/03/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	07/03/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.5		% Rec.	8021/8015	07/03/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	07/03/14	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	8015D/DRO	07/05/14	1
Surrogate recovery(%)						
o-Terphenyl	72.4		% Rec.	8015D/DRO	07/05/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Date Received : June 28, 2014
Description : USA 1-31LW PIT
Sample ID : 20140627-USA 1-31 PIT (EWALL) 1FT
Collected By : Matt K.
Collection Date : 06/27/14 07:45

ESC Sample # : L707493-04

Site ID : USA 1-31LW

Project # : USA 1-31LW

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Toluene	BDL	0.025	mg/kg	8021	07/03/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	07/03/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	07/03/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.5		% Rec.	8021/8015	07/03/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	07/03/14	5
TPH (GC/FID) High Fraction	24.	4.0	mg/kg	8015D/DRO	07/05/14	1
Surrogate recovery(%)						
o-Terphenyl	68.8		% Rec.	8015D/DRO	07/05/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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

July 08, 2014

Date Received : June 28, 2014
Description : USA 1-31LW PIT
Sample ID : 20140627-USA 1-31 PIT (SWALL) 1FT
Collected By : Matt K.
Collection Date : 06/27/14 07:50

ESC Sample # : L707493-05

Site ID : USA 1-31LW

Project # : USA 1-31LW

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Toluene	BDL	0.025	mg/kg	8021	07/03/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	07/03/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	07/03/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	07/03/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.9		% Rec.	8021/8015	07/03/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	07/03/14	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	8015D/DRO	07/05/14	1
Surrogate recovery(%)						
o-Terphenyl	74.3		% Rec.	8015D/DRO	07/05/14	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
L707493-02	WG729741	SAMP	Arsenic	R2956666	0
	WG729741	SAMP	Cadmium	R2956666	0
	WG729741	SAMP	Selenium	R2956666	0
	WG729741	SAMP	Silver	R2956666	0

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
0	(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.

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.