



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
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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 August 12, 2014

Report Number: L714298


Samples Received: 08/07/14

Client Project: G21 PIT

Description: G21 Pit Characterization

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, CAL - 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

August 12, 2014

Date Received : August 07, 2014
 Description : G21 Pit Characterization
 Sample ID : 20140806-G21 PIT (EWALL)
 Collected By : Matt Kasten
 Collection Date : 08/06/14 11:30

ESC Sample # : L714298-01
 Site ID : G21
 Project # : G21 PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Toluene	BDL	0.025	mg/kg	8021	08/08/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	08/08/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	08/08/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.0		% Rec.	8021/8015	08/08/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	08/08/14	5
TPH (GC/FID) High Fraction	8.9	4.0	mg/kg	8015D/DRO	08/11/14	1
Surrogate recovery(%)						
o-Terphenyl	79.5		% Rec.	8015D/DRO	08/11/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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143 Diamond Avenue
Parachute, CO 81635

August 12, 2014

Date Received : August 07, 2014
Description : G21 Pit Characterization
Sample ID : 20140806-G21 PIT (SWALL)
Collected By : Matt Kasten
Collection Date : 08/06/14 11:35

ESC Sample # : L714298-02
Site ID : G21
Project # : G21 PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Toluene	BDL	0.025	mg/kg	8021	08/08/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	08/08/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	08/08/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.3		% Rec.	8021/8015	08/08/14	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	08/08/14	5
TPH (GC/FID) High Fraction	35.	4.0	mg/kg	8015D/DRO	08/11/14	1
Surrogate recovery(%)						
o-Terphenyl	67.3		% Rec.	8015D/DRO	08/11/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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 Parachute, CO 81635

August 12, 2014

Date Received : August 07, 2014
 Description : G21 Pit Characterization
 Sample ID : 20140806-G21 PIT (BOT)
 Collected By : Matt Kasten
 Collection Date : 08/06/14 11:40

ESC Sample # : L714298-03
 Site ID : G21
 Project # : G21 PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	08/10/14	1
Chromium,Trivalent	21.	2.0	mg/kg	Calc.	08/12/14	1
ORP	-17.		mV	2580 B-2011	08/08/14	1
pH	8.3		su	9045D	08/08/14	1
Sodium Adsorption Ratio	0.67			Calc.	08/08/14	1
Specific Conductance	330		umhos/cm	9050AMod	08/09/14	1
Mercury	0.043	0.020	mg/kg	7471	08/08/14	1
Arsenic	14.	2.0	mg/kg	6010B	08/11/14	1
Barium	360	0.50	mg/kg	6010B	08/11/14	1
Cadmium	BDL	0.50	mg/kg	6010B	08/11/14	1
Chromium	21.	1.0	mg/kg	6010B	08/11/14	1
Copper	18.	2.0	mg/kg	6010B	08/11/14	1
Lead	13.	0.50	mg/kg	6010B	08/11/14	1
Nickel	18.	2.0	mg/kg	6010B	08/11/14	1
Selenium	BDL	2.0	mg/kg	6010B	08/11/14	1
Silver	BDL	1.0	mg/kg	6010B	08/11/14	1
Zinc	64.	5.0	mg/kg	6010B	08/11/14	1
Benzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Toluene	BDL	0.025	mg/kg	8021	08/08/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	08/08/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	08/08/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.2		% Rec.	8021/8015	08/08/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	08/08/14	5
TPH (GC/FID) High Fraction	4.6	4.0	mg/kg	8015D/DRO	08/11/14	1
Surrogate recovery(%)						
o-Terphenyl	74.4		% Rec.	8015D/DRO	08/11/14	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1

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 Det. Limit - Practical Quantitation Limit(PQL)
 L714298-03 (PH) - 8.34@19.3c



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August 12, 2014

Date Received : August 07, 2014
 Description : G21 Pit Characterization
 Sample ID : 20140806-G21 PIT (BOT)
 Collected By : Matt Kasten
 Collection Date : 08/06/14 11:40

ESC Sample # : L714298-03
 Site ID : G21
 Project # : G21 PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	08/08/14	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/08/14	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	08/08/14	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	08/08/14	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	08/08/14	1
Surrogate Recovery						
p-Terphenyl-d14	62.8		% Rec.	8270C-SIM	08/08/14	1
Nitrobenzene-d5	62.6		% Rec.	8270C-SIM	08/08/14	1
2-Fluorobiphenyl	61.6		% Rec.	8270C-SIM	08/08/14	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
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 L714298-03 (PH) - 8.34@19.3c



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August 12, 2014

Date Received : August 07, 2014
 Description : G21 Pit Characterization
 Sample ID : 20140806-G21 PIT (NWALL)
 Collected By : Matt Kasten
 Collection Date : 08/06/14 11:45

ESC Sample # : L714298-04
 Site ID : G21
 Project # : G21 PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Toluene	BDL	0.025	mg/kg	8021	08/08/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	08/08/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	08/08/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.2		% Rec.	8021/8015	08/08/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	08/08/14	5
TPH (GC/FID) High Fraction	9.0	4.0	mg/kg	8015D/DRO	08/11/14	1
Surrogate recovery(%)						
o-Terphenyl	65.6		% Rec.	8015D/DRO	08/11/14	1

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 143 Diamond Avenue
 Parachute, CO 81635

August 12, 2014

Date Received : August 07, 2014
 Description : G21 Pit Characterization
 Sample ID : 20140806-G21 PIT (WWALL)
 Collected By : Matt Kasten
 Collection Date : 08/06/14 11:50

ESC Sample # : L714298-05
 Site ID : G21
 Project # : G21 PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Toluene	BDL	0.025	mg/kg	8021	08/08/14	5
Ethylbenzene	BDL	0.0025	mg/kg	8021	08/08/14	5
Total Xylene	BDL	0.0075	mg/kg	8021	08/08/14	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015	08/08/14	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.0		% Rec.	8021/8015	08/08/14	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	08/08/14	5
TPH (GC/FID) High Fraction	82.	4.0	mg/kg	8015D/DRO	08/11/14	1
Surrogate recovery(%)						
o-Terphenyl	67.2		% Rec.	8015D/DRO	08/11/14	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
L714298-03	WG736112	SAMP	Anthracene	R2973596	J3
	WG736112	SAMP	Acenaphthene	R2973596	J3
	WG736112	SAMP	Acenaphthylene	R2973596	J3
	WG736112	SAMP	Benzo(a)anthracene	R2973596	J3
	WG736112	SAMP	Chrysene	R2973596	J3
	WG736112	SAMP	Fluoranthene	R2973596	J3
	WG736112	SAMP	Fluorene	R2973596	J3
	WG736112	SAMP	Naphthalene	R2973596	J3
	WG736112	SAMP	Phenanthrene	R2973596	J3
	WG736112	SAMP	Pyrene	R2973596	J3
	WG736112	SAMP	1-Methylnaphthalene	R2973596	J3
	WG736112	SAMP	2-Methylnaphthalene	R2973596	J3
	WG736112	SAMP	2-Chloronaphthalene	R2973596	J3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.

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
08/12/14 at 16:08:44

TSR Signing Reports: 358
R4 - Rush: Three Day

Log all PAHs as PAHSIM. Log all BTEX waters by 8260. Log ALL samples for EDD (COGCC EDD).

Sample: L714298-01 Account: ENCANACO Received: 08/07/14 09:00 Due Date: 08/12/14 00:00 RPT Date: 08/12/14 16:08

Sample: L714298-02 Account: ENCANACO Received: 08/07/14 09:00 Due Date: 08/12/14 00:00 RPT Date: 08/12/14 16:08

Sample: L714298-03 Account: ENCANACO Received: 08/07/14 09:00 Due Date: 08/12/14 00:00 RPT Date: 08/12/14 16:08

Sample: L714298-04 Account: ENCANACO Received: 08/07/14 09:00 Due Date: 08/12/14 00:00 RPT Date: 08/12/14 16:08

Sample: L714298-05 Account: ENCANACO Received: 08/07/14 09:00 Due Date: 08/12/14 00:00 RPT Date: 08/12/14 16:08