



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

D Blake Ford  
EnCana Oil & Gas - Longmont, CO  
3601 Stagecoach Rd  
Longmont, CO 80504

## Report Summary

Friday February 28, 2014

Report Number: L684531

Samples Received: 02/22/14

Client Project: QUALLS 28H-M368

Description: Qualls Spill Response

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

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

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**YOUR LAB OF CHOICE**

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REPORT OF ANALYSIS

D Blake Ford  
 EnCana Oil & Gas - Longmont, CO  
 3601 Stagecoach Rd  
 Longmont, CO 80504

February 28, 2014

Date Received : February 22, 2014  
 Description : Qualls Spill Response  
 Sample ID : QUALLS-SPILLAREA-022114  
 Collected By : Blake Ford  
 Collection Date : 02/21/14 12:55

ESC Sample # : L684531-01  
 Site ID : QUALLS 28H-M368  
 Project # : QUALLS 28H-M368

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	20.	mg/kg	3060A/7196A	02/26/14	10
Chromium,Trivalent	21.	20.	mg/kg	Calc.	02/28/14	1
ORP	80.		mV	2580 B-2011	02/26/14	1
pH	7.3		su	9045D	02/26/14	1
Sodium Adsorption Ratio	0.84			Calc.	02/27/14	1
Specific Conductance	590		umhos/cm	9050AMod	02/28/14	1
Mercury	BDL	0.020	mg/kg	7471	02/26/14	1
Arsenic	8.4	1.0	mg/kg	6010B	02/25/14	1
Barium	150	0.25	mg/kg	6010B	02/25/14	1
Cadmium	0.55	0.25	mg/kg	6010B	02/25/14	1
Chromium	21.	0.50	mg/kg	6010B	02/25/14	1
Copper	15.	1.0	mg/kg	6010B	02/25/14	1
Lead	12.	0.25	mg/kg	6010B	02/25/14	1
Nickel	14.	1.0	mg/kg	6010B	02/25/14	1
Selenium	2.3	1.0	mg/kg	6010B	02/25/14	1
Silver	BDL	0.50	mg/kg	6010B	02/25/14	1
Zinc	53.	1.5	mg/kg	6010B	02/25/14	1
Benzene	0.11	0.025	mg/kg	8021/8015	02/25/14	50
Toluene	0.73	0.25	mg/kg	8021/8015	02/25/14	50
Ethylbenzene	0.28	0.025	mg/kg	8021/8015	02/25/14	50
Total Xylene	2.7	0.075	mg/kg	8021/8015	02/25/14	50
TPH (GC/FID) Low Fraction	81.	5.0	mg/kg	GRO	02/26/14	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	103.		% Rec.	8021/8015	02/26/14	50
a,a,a-Trifluorotoluene(PID)	99.5		% Rec.	8021/8015	02/25/14	50
TPH (GC/FID) High Fraction	320	4.0	mg/kg	3546/DRO	02/26/14	1
Surrogate recovery(%)						
o-Terphenyl	91.8		% Rec.	3546/DRO	02/26/14	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	02/27/14	1
Acenaphthene	0.19	0.0060	mg/kg	8270C-SIM	02/27/14	1
Acenaphthylene	0.017	0.0060	mg/kg	8270C-SIM	02/27/14	1
Benzo(a)anthracene	0.010	0.0060	mg/kg	8270C-SIM	02/27/14	1
Benzo(a)pyrene	0.0072	0.0060	mg/kg	8270C-SIM	02/27/14	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 L684531-01 (PH) - 7.3@22.3c  
 L684531-01 (CR6) - diluted due to sample color



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 Site ID : QUALLS 28H-M368  
 Project # : QUALLS 28H-M368

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	02/27/14	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	02/27/14	1
Benzo(k)fluoranthene	0.0062	0.0060	mg/kg	8270C-SIM	02/27/14	1
Chrysene	0.047	0.0060	mg/kg	8270C-SIM	02/27/14	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	02/27/14	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	02/27/14	1
Fluorene	0.55	0.0060	mg/kg	8270C-SIM	02/27/14	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	02/27/14	1
Naphthalene	1.7	1.0	mg/kg	8270C-SIM	02/27/14	50
Phenanthrene	0.80	0.0060	mg/kg	8270C-SIM	02/27/14	1
Pyrene	0.083	0.0060	mg/kg	8270C-SIM	02/27/14	1
1-Methylnaphthalene	3.2	1.0	mg/kg	8270C-SIM	02/27/14	50
2-Methylnaphthalene	6.2	1.0	mg/kg	8270C-SIM	02/27/14	50
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	02/27/14	1
Surrogate Recovery						
Nitrobenzene-d5	1080		% Rec.	8270C-SIM	02/27/14	50
2-Fluorobiphenyl	82.3		% Rec.	8270C-SIM	02/27/14	1
p-Terphenyl-d14	90.0		% Rec.	8270C-SIM	02/27/14	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/28/14 15:26 Printed: 02/28/14 15:26

L684531-01 (PH) - 7.3@22.3c

L684531-01 (CR6) - diluted due to sample color

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L684531-01	WG708168	SAMP	Fluoranthene	R2888900	J4
	WG708168	SAMP	Nitrobenzene-d5	R2888900	J7
	WG708230	SAMP	Chromium,Hexavalent	R2888227	O

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J4	The associated batch QC was outside the established quality control range for accuracy.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
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.

Summary of Remarks For Samples Printed  
02/28/14 at 15:26:18

TSR Signing Reports: 358  
R5 - Desired TAT

Log all BTEX waters as V8260BTEX unless specified otherwise. Try not to report benzene as BDL  
above a 5x dilution. Enter depths for all samples as part of sample ID.

Sample: L684531-01 Account: ENCANLCO Received: 02/22/14 09:30 Due Date: 02/28/14 00:00 RPT Date: 02/28/14 15:26