

State of Colorado  
**Oil and Gas Conservation Commission**

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109



FOR OGCC USE ONLY

**RECEIVED**  
2/3/2012

**SPILL/RELEASE REPORT**

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

Spill report taken by:

FACILITY ID:

**OPERATOR INFORMATION**

Name of Operator: <u>Encana Oil &amp; Gas (USA) Inc.</u> OGCC Operator No: <u>100185</u>	Phone Numbers
Address: <u>1125 Escalante Dr</u>	No: <u>970-675-4414</u>
City: <u>Rangely</u> State: <u>CO</u> Zip: <u>81648</u>	Fax: <u>970-675-4433</u>
Contact Person: <u>Blake Ford-Environmental Field Coordinator</u>	E-Mail: <u>blake.ford@encana.com</u>

**DESCRIPTION OF SPILL OR RELEASE**

Date of Incident: <u>01/10/2012</u> Facility Name & No.: <u>315948</u> (Location ID)	County: <u>Rio Blanco</u>
Type of Facility (well, tank battery, flow line, pit): <u>Well pad</u>	QtrQtr: <u>SWNE</u> Section: <u>12</u>
Well Name and Number: <u>Park Mountain 9015</u>	Township: <u>3S</u> Range: <u>104W</u>
API Number: <u>05-103-09462</u>	Meridian: <u>6 PM</u>
Specify volume spilled and recovered (in bbls) for the following materials:	
Oil spilled: <u>0</u> Oil recov'd: <u>NA</u> Water spilled: <u>142</u> Water recov'd: <u>2</u> Other spilled: _____ Other recov'd: _____	
Ground Water impacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Surface Water impacted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Contained within berm? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Area and vertical extent of spill: <u>2112 sq ft</u> x <u>1 ft</u>
Current land use: <u>Rangeland</u>	Weather conditions: <u>Clear, cold</u>
Soil/geology description: <u>Patent Loam, 3 to 8 percent slopes</u>	
<b>IF LESS THAN A MILE</b> , report distance <b>IN FEET</b> to nearest.... Surface water: <u>262.37 ft</u> wetlands: <u>unknown</u> buildings: <u>50 ft</u>	
Livestock: <u>unknown</u> water wells: <u>2745 ft</u> Depth to shallowest ground water: <u>&gt;40 ft</u>	
Cause of spill (e.g., equipment failure, human error, etc.): <u>Equipment failure.</u> Detailed description of the spill/release incident: <u>See attached</u>	

**CORRECTIVE ACTION**

Describe immediate response (how stopped, contained and recovered):  
See attached

Describe any emergency pits constructed:  
See attached

How was the extent of contamination determined:  
See attached

Further remediation activities proposed (attach separate sheet if needed):  
See attached

Describe measures taken to prevent problem from reoccurring:  
See attached

**OTHER NOTIFICATIONS**

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other).

Date	Agency	Contact	Phone	Response
1/10/2012	COGCC	Chris Canfield	970-625-2497 x 3	Verbal, left message.

Spill/Release Tracking No: 2222663

# 9015 WELL PAD (315948 COGCC Location ID) – FORM 19 – NARRATIVE DOCUMENT

Date of Incident – 01/10/2012

## **Detailed description of the spill/release incident:**

During a routine well visit on the morning of Tuesday, 01/10/2012 the lease operator discovered that a frozen bradenhead valve had ruptured resulting in a release of water.

## **Describe immediate response (how stopped, contained and recovered):**

The well was immediately shut-in and the valve was replaced. A vacuum truck was deployed to the site, but the majority of the water was frozen and could not be recovered. As a precaution a catch basin was constructed to keep potential melt water from discharging into Texas creek while we awaited water analytical results. The amount of water released was calculated by a flow rate test and is estimated to be approximately 142 BBLs.

## **Describe any emergency pits constructed:**

No emergency pits were constructed.

## **How was the extent of contamination determined?:**

Visual observations and a handheld GPS unit.

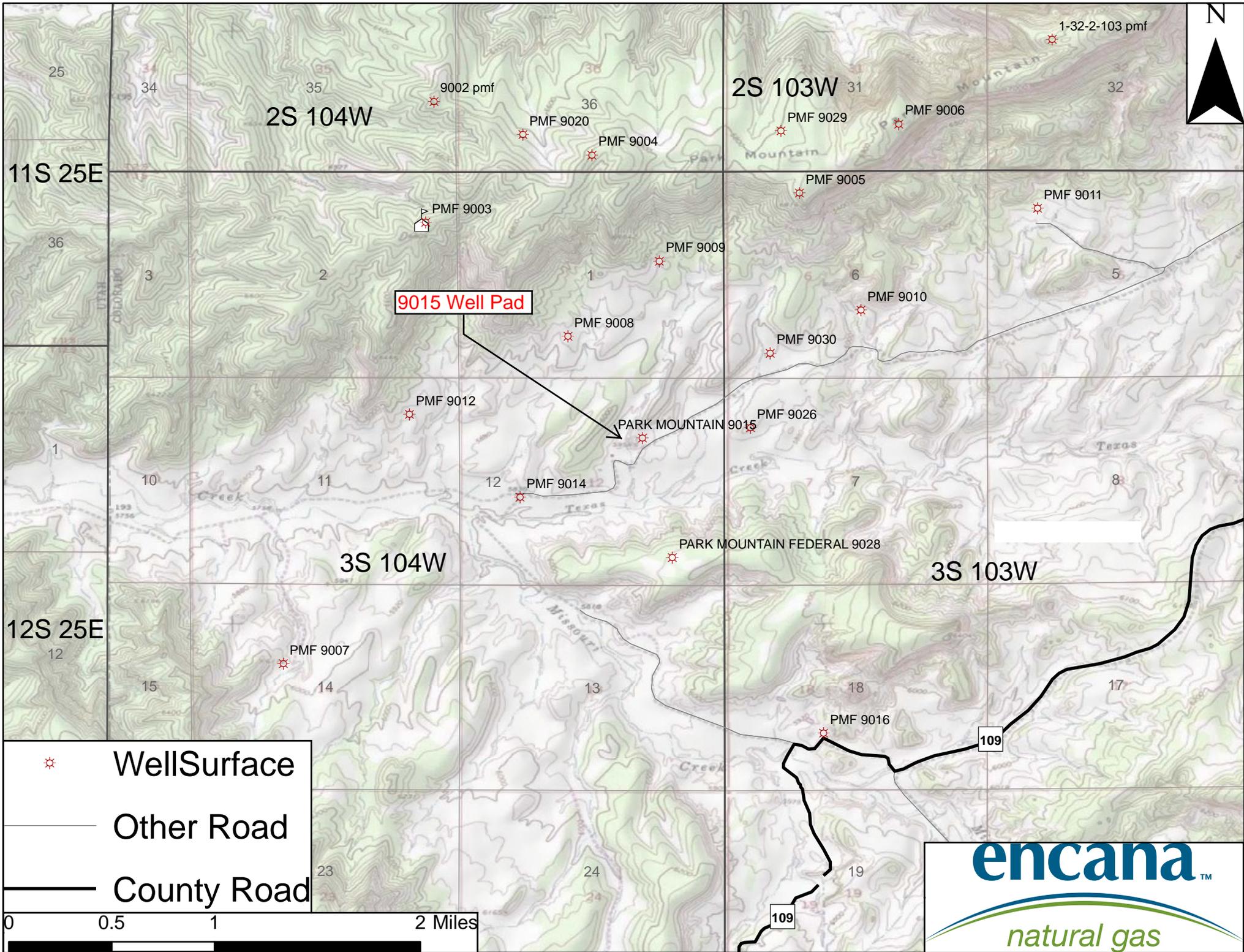
## **Further remediation activities proposed (attach separate sheet if needed):**

A water sample collected directly from the bradenhead valve did not have characteristics of produced water nor did it possess contaminants above drinking water standards. Soil samples were collected from the contact spill point and release path, with analytical results indicating sodium adsorption ratio (SAR) and arsenic levels that were in exceedance of 910-1 standards. Subsequent background sample results indicated that the surrounding soils possessed levels much greater than both results. The released water does not pose an environmental threat and it is our recommendation that no further action is needed.

## **Describe measures taken to prevent problem from reoccurring:**

An insulated housing unit will be placed over the wellhead during times of cold weather





2S 104W

2S 103W

11S 25E

9015 Well Pad

3S 104W

3S 103W

12S 25E

Well Surface

Other Road

County Road

0 0.5 1 2 Miles

encana™

natural gas



1-32-2-103 pmf

9002 pmf

PMF 9020

PMF 9004

PMF 9029

PMF 9006

PMF 9003

PMF 9005

PMF 9011

PMF 9009

PMF 9010

PMF 9008

PMF 9030

PMF 9012

PARK MOUNTAIN 9015

PMF 9026

PMF 9014

PARK MOUNTAIN FEDERAL 9028

PMF 9007

PMF 9016

109

109

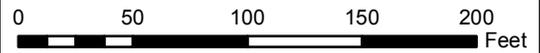
# 9015 Sample Location Aerial



## Legend

### Sample Location

- Point of Origin
- Background
- Release Path







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

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

## Report Summary

Thursday January 19, 2012

Report Number: L556004

Samples Received: 01/13/12

Client Project:

Description: 9015 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, 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.



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REPORT OF ANALYSIS

January 19, 2012

Blake Ford  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

ESC Sample # : L556004-01

Date Received : January 13, 2012  
 Description : 9015 Spill Response

Site ID :

Sample ID : 9015-SPILENTY-011012

Project # :

Collected By : Blake Ford  
 Collection Date : 01/10/12 16:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	01/19/12	1
Chromium,Trivalent	11.	2.0	mg/kg	Calc.	01/18/12	1
ORP	86.		mV	2580	01/18/12	1
pH	8.9		su	9045D	01/19/12	1
Sodium Adsorption Ratio	26.			Calc.	01/19/12	1
Specific Conductance	590		umhos/cm	9050AMod	01/18/12	1
Mercury	0.028	0.020	mg/kg	7471	01/18/12	1
Arsenic	1.8	1.0	mg/kg	6010B	01/18/12	1
Barium	540	0.25	mg/kg	6010B	01/18/12	1
Cadmium	0.37	0.25	mg/kg	6010B	01/18/12	1
Chromium	11.	0.50	mg/kg	6010B	01/18/12	1
Copper	25.	1.0	mg/kg	6010B	01/18/12	1
Lead	27.	0.25	mg/kg	6010B	01/18/12	1
Nickel	6.8	1.0	mg/kg	6010B	01/18/12	1
Selenium	3.1	1.0	mg/kg	6010B	01/18/12	1
Silver	BDL	0.50	mg/kg	6010B	01/18/12	1
Zinc	76.	1.5	mg/kg	6010B	01/18/12	1
Benzene	BDL	0.0025	mg/kg	8021/8015	01/17/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	01/17/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	01/17/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	01/17/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	01/17/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	103.		% Rec.	8021/8015	01/17/12	5
a,a,a-Trifluorotoluene(PID)	115.		% Rec.	8021/8015	01/17/12	5
TPH (GC/FID) High Fraction	5.2	4.0	mg/kg	3546/DRO	01/18/12	1
Surrogate recovery(%)						
o-Terphenyl	68.3		% Rec.	3546/DRO	01/18/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Benzo(a)anthracene	0.011	0.0060	mg/kg	8270C-SIM	01/18/12	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1

BDL - Below Detection Limit  
 Det. Limit - Practical Quantitation Limit(PQL)  
 L556004-01 (PH) - 8.9@17.9c



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REPORT OF ANALYSIS

Blake Ford  
 EnCana Oil & Gas - Rangely, CO  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

January 19, 2012

Date Received : January 13, 2012  
 Description : 9015 Spill Response  
 Sample ID : 9015-SPILLENTRY-011012  
 Collected By : Blake Ford  
 Collection Date : 01/10/12 16:00

ESC Sample # : L556004-01  
 Site ID :  
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Naphthalene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Phenanthrene	0.0060	0.0060	mg/kg	8270C-SIM	01/18/12	1
Pyrene	0.0072	0.0060	mg/kg	8270C-SIM	01/18/12	1
1-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
2-Methylnaphthalene	0.0074	0.0060	mg/kg	8270C-SIM	01/18/12	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	01/18/12	1
Surrogate Recovery						
Nitrobenzene-d5	70.4		% Rec.	8270C-SIM	01/18/12	1
2-Fluorobiphenyl	73.2		% Rec.	8270C-SIM	01/18/12	1
p-Terphenyl-d14	90.0		% Rec.	8270C-SIM	01/18/12	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: 01/19/12 17:20 Printed: 01/19/12 17:21  
 L556004-01 (PH) - 8.9@17.9c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L556004-01	WG574413	SAMP	TPH (GC/FID) Low Fraction	R2003413	J5
	WG574427	SAMP	Arsenic	R2003854	P1
	WG574427	SAMP	Barium	R2003854	V
	WG574427	SAMP	Cadmium	R2003854	P1
	WG574427	SAMP	Copper	R2003854	J3J6
	WG574427	SAMP	Lead	R2003854	J3J6
	WG574427	SAMP	Nickel	R2003854	J3
	WG574427	SAMP	Selenium	R2003854	P1J6
	WG574525	SAMP	pH	R2006292	T8

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
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  
01/19/12 at 17:21:02

TSR Signing Reports: 358  
R4 - Rush: Three Day

Sample: L556004-01 Account: ENCANRCO Received: 01/13/12 09:00 Due Date: 01/19/12 00:00 RPT Date: 01/19/12 17:20



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EnCana Oil & Gas - Rangely, CO  
 Blake Ford  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

Quality Assurance Report  
 Level II

L556004

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January 19, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG574413	01/17/12 16:46
Ethylbenzene	< .0005	mg/kg			WG574413	01/17/12 16:46
Toluene	< .005	mg/kg			WG574413	01/17/12 16:46
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG574413	01/17/12 16:46
Total Xylene	< .0015	mg/kg			WG574413	01/17/12 16:46
a,a,a-Trifluorotoluene(FID)		% Rec.	104.0	59-128	WG574413	01/17/12 16:46
a,a,a-Trifluorotoluene(PID)		% Rec.	115.1	54-144	WG574413	01/17/12 16:46
Arsenic	< 1	mg/kg			WG574427	01/18/12 00:30
Barium	< .25	mg/kg			WG574427	01/18/12 00:30
Cadmium	< .25	mg/kg			WG574427	01/18/12 00:30
Chromium	< .5	mg/kg			WG574427	01/18/12 00:30
Copper	< 1	mg/kg			WG574427	01/18/12 00:30
Lead	< .25	mg/kg			WG574427	01/18/12 00:30
Nickel	< 1	mg/kg			WG574427	01/18/12 00:30
Selenium	< 1	mg/kg			WG574427	01/18/12 00:30
Silver	< .5	mg/kg			WG574427	01/18/12 00:30
Zinc	< 1.5	mg/kg			WG574427	01/18/12 00:30
Specific Conductance	0.920	umhos/cm			WG574486	01/18/12 13:42
Mercury	< .02	mg/kg			WG574496	01/18/12 18:05
TPH (GC/FID) High Fraction	< 4	ppm			WG574346	01/18/12 22:02
o-Terphenyl		% Rec.	75.67	50-150	WG574346	01/18/12 22:02
1-Methylnaphthalene	< .006	mg/kg			WG574348	01/18/12 11:16
2-Chloronaphthalene	< .006	mg/kg			WG574348	01/18/12 11:16
2-Methylnaphthalene	< .006	mg/kg			WG574348	01/18/12 11:16
Acenaphthene	< .006	mg/kg			WG574348	01/18/12 11:16
Acenaphthylene	< .006	mg/kg			WG574348	01/18/12 11:16
Anthracene	< .006	mg/kg			WG574348	01/18/12 11:16
Benzo(a)anthracene	< .006	mg/kg			WG574348	01/18/12 11:16
Benzo(a)pyrene	< .006	mg/kg			WG574348	01/18/12 11:16
Benzo(b)fluoranthene	< .006	mg/kg			WG574348	01/18/12 11:16
Benzo(g,h,i)perylene	< .006	mg/kg			WG574348	01/18/12 11:16
Benzo(k)fluoranthene	< .006	mg/kg			WG574348	01/18/12 11:16
Chrysene	< .006	mg/kg			WG574348	01/18/12 11:16
Dibenz(a,h)anthracene	< .006	mg/kg			WG574348	01/18/12 11:16
Fluoranthene	< .006	mg/kg			WG574348	01/18/12 11:16
Fluorene	< .006	mg/kg			WG574348	01/18/12 11:16
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG574348	01/18/12 11:16
Naphthalene	< .006	mg/kg			WG574348	01/18/12 11:16
Phenanthrene	< .006	mg/kg			WG574348	01/18/12 11:16
Pyrene	< .006	mg/kg			WG574348	01/18/12 11:16
2-Fluorobiphenyl		% Rec.	62.92	34-129	WG574348	01/18/12 11:16
Nitrobenzene-d5		% Rec.	67.33	14-141	WG574348	01/18/12 11:16
p-Terphenyl-d14		% Rec.	77.97	25-139	WG574348	01/18/12 11:16
Chromium,Hexavalent	< 2	mg/kg			WG574366	01/19/12 16:14
pH	5.35	su			WG574525	01/19/12 12:00

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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January 19, 2012

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Arsenic	mg/kg	3.00	1.80	50.0*	20	L556004-01	WG574427	
Barium	mg/kg	550.	540.	2.56	20	L556004-01	WG574427	
Cadmium	mg/kg	0.270	0.370	29.8*	20	L556004-01	WG574427	
Chromium	mg/kg	13.0	11.0	14.3	20	L556004-01	WG574427	
Copper	mg/kg	20.0	25.0	22.2*	20	L556004-01	WG574427	
Lead	mg/kg	18.0	27.0	42.2*	20	L556004-01	WG574427	
Nickel	mg/kg	8.90	6.80	26.8*	20	L556004-01	WG574427	
Selenium	mg/kg	1.40	3.10	72.5*	20	L556004-01	WG574427	
Silver	mg/kg	0	0	0	20	L556004-01	WG574427	
Zinc	mg/kg	68.0	76.0	11.3	20	L556004-01	WG574427	
Specific Conductance	umhos/cm	1600	1500	3.92	20	L555796-01	WG574486	
Specific Conductance	umhos/cm	600.	590.	1.68	20	L556004-01	WG574486	
ORP	mV	58.0	51.0	12.8	20	L556104-02	WG574606	
Mercury	mg/kg	0.0230	0.0270	16.0	20	L555849-07	WG574496	
Chromium,Hexavalent	mg/kg	0	0	0	20	L555973-09	WG574366	
Chromium,Hexavalent	mg/kg	0	0	0	20	L556104-04	WG574366	
pH	su	4.10	4.20	1.44*	1	L555722-01	WG574525	
pH	su	8.00	8.00	0.376	1	L556060-06	WG574525	

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0535	107.	76-113	WG574413
Ethylbenzene	mg/kg	.05	0.0565	113.	78-115	WG574413
Toluene	mg/kg	.05	0.0564	113.	76-114	WG574413
Total Xylene	mg/kg	.15	0.168	112.	81-118	WG574413
a,a,a-Trifluorotoluene(PID)				113.5	54-144	WG574413
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.94	126.	67-135	WG574413
a,a,a-Trifluorotoluene(FID)				109.6	59-128	WG574413
Arsenic	mg/kg	92.6	82.8	89.4	82.9-117	WG574427
Barium	mg/kg	169	160.	94.7	82.8-117	WG574427
Cadmium	mg/kg	61.8	54.9	88.8	83.3-117	WG574427
Chromium	mg/kg	71.3	65.1	91.3	81.8-118	WG574427
Copper	mg/kg	81.2	73.6	90.6	83.9-116	WG574427
Lead	mg/kg	92.4	85.6	92.6	83.3-117	WG574427
Nickel	mg/kg	59.1	51.3	86.8	83.8-116	WG574427
Selenium	mg/kg	89.5	85.1	95.1	79-121	WG574427
Silver	mg/kg	34.4	31.0	90.1	66.3-134	WG574427
Zinc	mg/kg	141	127.	90.1	80.9-119	WG574427
Specific Conductance	umhos/cm	350	353.	101.	85-115	WG574486
ORP	mV	229	228.	99.6	95.6-104.37	WG574606

\* Performance of this Analyte is outside of established criteria.  
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 Blake Ford  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

Quality Assurance Report  
 Level II

January 19, 2012

L556004

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Mercury	mg/kg	3.77	4.73	125.	71.6-128	WG574496
TPH (GC/FID) High Fraction	ppm	60	52.2	87.0	50-150	WG574346
o-Terphenyl				78.87	50-150	WG574346
1-Methylnaphthalene	mg/kg	.033	0.0207	62.7	48-113	WG574348
2-Chloronaphthalene	mg/kg	.033	0.0221	67.1	51-114	WG574348
2-Methylnaphthalene	mg/kg	.033	0.0206	62.5	44-109	WG574348
Acenaphthene	mg/kg	.033	0.0225	68.1	52-108	WG574348
Acenaphthylene	mg/kg	.033	0.0219	66.5	51-110	WG574348
Anthracene	mg/kg	.033	0.0259	78.5	58-120	WG574348
Benzo(a)anthracene	mg/kg	.033	0.0278	84.4	54-110	WG574348
Benzo(a)pyrene	mg/kg	.033	0.0253	76.8	56-118	WG574348
Benzo(b)fluoranthene	mg/kg	.033	0.0253	76.8	55-114	WG574348
Benzo(g,h,i)perylene	mg/kg	.033	0.0276	83.6	48-130	WG574348
Benzo(k)fluoranthene	mg/kg	.033	0.0271	82.1	55-122	WG574348
Chrysene	mg/kg	.033	0.0290	87.8	57-118	WG574348
Dibenz(a,h)anthracene	mg/kg	.033	0.0287	86.9	53-122	WG574348
Fluoranthene	mg/kg	.033	0.0291	88.3	58-118	WG574348
Fluorene	mg/kg	.033	0.0252	76.3	54-109	WG574348
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0283	85.8	51-125	WG574348
Naphthalene	mg/kg	.033	0.0199	60.4	45-105	WG574348
Phenanthrene	mg/kg	.033	0.0252	76.3	53-114	WG574348
Pyrene	mg/kg	.033	0.0263	79.7	53-121	WG574348
2-Fluorobiphenyl				70.25	34-129	WG574348
Nitrobenzene-d5				55.27	14-141	WG574348
p-Terphenyl-d14				86.85	25-139	WG574348
Chromium, Hexavalent	mg/kg	203	111.	54.7	50-150	WG574366
pH	su	7.98	8.02	101.	98-101	WG574525

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0540	0.0535	108.	76-113	0.810	20	WG574413
Ethylbenzene	mg/kg	0.0569	0.0565	114.	78-115	0.760	20	WG574413
Toluene	mg/kg	0.0565	0.0564	113.	76-114	0.100	20	WG574413
Total Xylene	mg/kg	0.169	0.168	112.	81-118	0.350	20	WG574413
a,a,a-Trifluorotoluene(PID)				113.8	54-144			WG574413
TPH (GC/FID) Low Fraction	mg/kg	7.03	6.94	128.	67-135	1.25	20	WG574413
a,a,a-Trifluorotoluene(FID)				109.6	59-128			WG574413
Specific Conductance	umhos/	350.	353.	100.	85-115	0.853	20	WG574486
ORP	mV	226.	228.	99.0	95.6-104.37	0.881	20	WG574606
TPH (GC/FID) High Fraction	ppm	50.9	52.2	85.0	50-150	2.58	25	WG574346
o-Terphenyl				77.06	50-150			WG574346
1-Methylnaphthalene	mg/kg	0.0249	0.0207	76.0	48-113	18.5	24	WG574348

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 Level II

L556004

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January 19, 2012

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
2-Chloronaphthalene	mg/kg	0.0237	0.0221	72.0		51-114	6.96	24	WG574348
2-Methylnaphthalene	mg/kg	0.0230	0.0206	70.0		44-109	10.7	24	WG574348
Acenaphthene	mg/kg	0.0247	0.0225	75.0		52-108	9.30	22	WG574348
Acenaphthylene	mg/kg	0.0254	0.0219	77.0		51-110	14.6	21	WG574348
Anthracene	mg/kg	0.0283	0.0259	86.0		58-120	8.66	20	WG574348
Benzo(a)anthracene	mg/kg	0.0285	0.0278	86.0		54-110	2.14	22	WG574348
Benzo(a)pyrene	mg/kg	0.0266	0.0253	80.0		56-118	4.74	21	WG574348
Benzo(b)fluoranthene	mg/kg	0.0260	0.0253	79.0		55-114	2.47	20	WG574348
Benzo(g,h,i)perylene	mg/kg	0.0303	0.0276	92.0		48-130	9.42	20	WG574348
Benzo(k)fluoranthene	mg/kg	0.0279	0.0271	84.0		55-122	2.85	25	WG574348
Chrysene	mg/kg	0.0309	0.0290	94.0		57-118	6.25	20	WG574348
Dibenz(a,h)anthracene	mg/kg	0.0290	0.0287	88.0		53-122	1.29	20	WG574348
Fluoranthene	mg/kg	0.0301	0.0291	91.0		58-118	3.25	20	WG574348
Fluorene	mg/kg	0.0267	0.0252	81.0		54-109	5.74	20	WG574348
Indeno(1,2,3-cd)pyrene	mg/kg	0.0296	0.0283	90.0		51-125	4.55	21	WG574348
Naphthalene	mg/kg	0.0227	0.0199	69.0		45-105	12.8	24	WG574348
Phenanthrene	mg/kg	0.0279	0.0252	84.0		53-114	10.3	20	WG574348
Pyrene	mg/kg	0.0274	0.0263	83.0		53-121	4.17	20	WG574348
2-Fluorobiphenyl				76.72		34-129			WG574348
Nitrobenzene-d5				61.76		14-141			WG574348
p-Terphenyl-d14				81.01		25-139			WG574348
Chromium,Hexavalent	mg/kg	119.	111.	59.0		50-150	6.96	20	WG574366
pH	su	8.01	8.02	100.		98-101	0.125	20	WG574525

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.259	0	.05	103.	32-137	L556004-01	WG574413
Ethylbenzene	mg/kg	0.265	0	.05	106.	10-150	L556004-01	WG574413
Toluene	mg/kg	0.275	0	.05	110.	20-142	L556004-01	WG574413
Total Xylene	mg/kg	0.795	0	.15	106.	16-141	L556004-01	WG574413
a,a,a-Trifluorotoluene(PID)					113.1	54-144		WG574413
TPH (GC/FID) Low Fraction	mg/kg	28.9	0	5.5	105.	55-109	L556004-01	WG574413
a,a,a-Trifluorotoluene(FID)					108.1	59-128		WG574413
Arsenic	mg/kg	47.2	1.80	50	90.8	75-125	L556004-01	WG574427
Barium	mg/kg	540.	540.	50	0*	75-125	L556004-01	WG574427
Cadmium	mg/kg	41.3	0.370	50	81.9	75-125	L556004-01	WG574427
Chromium	mg/kg	53.1	11.0	50	84.2	75-125	L556004-01	WG574427
Copper	mg/kg	62.0	25.0	50	74.0*	75-125	L556004-01	WG574427
Lead	mg/kg	62.7	27.0	50	71.4*	75-125	L556004-01	WG574427
Nickel	mg/kg	48.8	6.80	50	84.0	75-125	L556004-01	WG574427
Selenium	mg/kg	41.3	3.10	50	76.4	75-125	L556004-01	WG574427
Silver	mg/kg	42.2	0	50	84.4	75-125	L556004-01	WG574427
Zinc	mg/kg	123.	76.0	50	94.0	75-125	L556004-01	WG574427
Mercury	mg/kg	0.285	0.0270	.25	103.	70-130	L555849-07	WG574496
Chromium,Hexavalent	mg/kg	16.3	0	20	81.5	50-150	L555973-11	WG574366

\* Performance of this Analyte is outside of established criteria.  
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Est. 1970

January 19, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.260	0.259	104.	32-137	0.680	39	L556004-01	WG574413
Ethylbenzene	mg/kg	0.264	0.265	106.	10-150	0.380	44	L556004-01	WG574413
Toluene	mg/kg	0.269	0.275	108.	20-142	2.03	42	L556004-01	WG574413
Total Xylene	mg/kg	0.787	0.795	105.	16-141	1.01	46	L556004-01	WG574413
a,a,a-Trifluorotoluene(PID)				113.1	54-144				WG574413
TPH (GC/FID) Low Fraction	mg/kg	31.5	28.9	114.*	55-109	8.46	20	L556004-01	WG574413
a,a,a-Trifluorotoluene(FID)				109.5	59-128				WG574413
Arsenic	mg/kg	45.9	47.2	88.2	75-125	2.79	20	L556004-01	WG574427
Barium	mg/kg	610.	540.	140.*	75-125	12.2	20	L556004-01	WG574427
Cadmium	mg/kg	40.9	41.3	81.1	75-125	0.973	20	L556004-01	WG574427
Chromium	mg/kg	53.2	53.1	84.4	75-125	0.188	20	L556004-01	WG574427
Copper	mg/kg	62.2	62.0	74.4*	75-125	0.322	20	L556004-01	WG574427
Lead	mg/kg	72.4	62.7	90.8	75-125	14.4	20	L556004-01	WG574427
Nickel	mg/kg	48.6	48.8	83.6	75-125	0.411	20	L556004-01	WG574427
Selenium	mg/kg	39.9	41.3	73.6*	75-125	3.45	20	L556004-01	WG574427
Silver	mg/kg	41.4	42.2	82.8	75-125	1.91	20	L556004-01	WG574427
Zinc	mg/kg	138.	123.	124.	75-125	11.5	20	L556004-01	WG574427
Mercury	mg/kg	0.269	0.285	96.8	70-130	5.78	20	L555849-07	WG574496
Chromium,Hexavalent	mg/kg	15.0	16.3	75.0	50-150	8.31	20	L555973-11	WG574366

Batch number /Run number / Sample number cross reference

WG574413: R2003413: L556004-01  
 WG574427: R2003854: L556004-01  
 WG574486: R2004335: L556004-01  
 WG574606: R2004572: L556004-01  
 WG574496: R2005036: L556004-01  
 WG574346: R2005112: L556004-01  
 WG574348: R2005373: L556004-01  
 WG574462: R2005559: L556004-01  
 WG574366: R2006214: L556004-01  
 WG574525: R2006292: L556004-01

\* \* Calculations are performed prior to rounding of reported values.  
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 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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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.



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Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

## Report Summary

Thursday January 26, 2012

Report Number: L557166

Samples Received: 01/25/12

Client Project:

Description: 9015 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, 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.

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REPORT OF ANALYSIS

January 26, 2012

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG01-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:14

ESC Sample # : L557166-01  
Site ID :  
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	10.	5.0	mg/kg	6010B	01/26/12	5

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: 01/26/12 16:41 Printed: 01/26/12 16:42



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REPORT OF ANALYSIS

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

January 26, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG02-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:19

ESC Sample # : L557166-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	6.6	1.0	mg/kg	6010B	01/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/26/12 16:41 Printed: 01/26/12 16:42



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REPORT OF ANALYSIS

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EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

January 26, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG03-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:22

ESC Sample # : L557166-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	1.7	1.0	mg/kg	6010B	01/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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1125 Escalante Drive  
Rangely, CO 81648-3600

January 26, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG04-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:24

ESC Sample # : L557166-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.3	1.0	mg/kg	6010B	01/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Blake Ford  
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1125 Escalante Drive  
Rangely, CO 81648-3600

January 26, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG05-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:28

ESC Sample # : L557166-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.4	1.0	mg/kg	6010B	01/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/26/12 16:41 Printed: 01/26/12 16:42



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Quality Assurance Report  
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L557166

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January 26, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Arsenic	< 1	mg/kg			WG575647	01/26/12 10:29

Analyte	Units	Duplicate			Limit	Ref Samp	Batch
		Result	Duplicate	RPD			
Arsenic	mg/kg	9.00	10.0	10.1	20	L557166-01	WG575647

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Arsenic	mg/kg	92.6	88.0	95.0	82.9-117	WG575647

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Arsenic	mg/kg	58.7	10.0	10	97.4	75-125	L557166-01	WG575647

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Arsenic	mg/kg	60.2	58.7	100.	75-125	2.52	20	L557166-01	WG575647

Batch number /Run number / Sample number cross reference

WG575647: R2014073: L557166-01 02 03 04 05

\* \* 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 - Rangely, CO  
Blake Ford  
1125 Escalante Drive  
Rangely, CO 81648-3600

Quality Assurance Report  
Level II

L557166

12065 Lebanon Rd.  
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Tax I.D. 62-0814289

Est. 1970

January 26, 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.



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Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

## Report Summary

Tuesday January 31, 2012

Report Number: L557783

Samples Received: 01/25/12

Client Project:

Description: 9015 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, 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.

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REPORT OF ANALYSIS

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

January 31, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG01-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:14

ESC Sample # : L557783-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	1.0			Calc.	01/30/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/31/12 10:57 Printed: 01/31/12 10:57



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REPORT OF ANALYSIS

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

January 31, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG02-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:19

ESC Sample # : L557783-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	1.5			Calc.	01/30/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

January 31, 2012

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
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Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG03-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:22

ESC Sample # : L557783-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	56.			Calc.	01/30/12	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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REPORT OF ANALYSIS

January 31, 2012

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
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Rangely, CO 81648-3600

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG04-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:24

ESC Sample # : L557783-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	50.			Calc.	01/30/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

January 31, 2012

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-BG05-012412 9 IN  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:28

ESC Sample # : L557783-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	33.			Calc.	01/30/12	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: 01/31/12 10:57 Printed: 01/31/12 10:57

Summary of Remarks For Samples Printed  
01/31/12 at 10:57:48

TSR Signing Reports: 358  
R5 - Desired TAT

Sample: L557783-01 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 02/03/12 00:00 RPT Date: 01/31/12 10:57  
Relogged from L557166-01  
Sample: L557783-02 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 02/03/12 00:00 RPT Date: 01/31/12 10:57  
Relogged from L557166-02  
Sample: L557783-03 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 02/03/12 00:00 RPT Date: 01/31/12 10:57  
Relogged from L557166-03  
Sample: L557783-04 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 02/03/12 00:00 RPT Date: 01/31/12 10:57  
Relogged from L557166-04  
Sample: L557783-05 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 02/03/12 00:00 RPT Date: 01/31/12 10:57  
Relogged from L557166-05



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EnCana Oil & Gas - Rangely, CO  
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Quality Assurance Report  
Level II

L557783

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Est. 1970

January 31, 2012

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Batch number /Run number / Sample number cross reference

WG576162: R2018794: L557783-01 02 03 04 05

\* \* 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.'



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January 31, 2012

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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.



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Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

## Report Summary

Friday January 27, 2012

Report Number: L557173

Samples Received: 01/25/12

Client Project:

Description: 9015 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, 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

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Est. 1970

REPORT OF ANALYSIS

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

January 27, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-RELEASEPATH01-012412  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:37

ESC Sample # : L557173-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	12.			Calc.	01/26/12	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: 01/26/12 16:36 Revised: 01/27/12 15:45



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Est. 1970

REPORT OF ANALYSIS

January 27, 2012

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-RELEASEPATH02-012412  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:34

ESC Sample # : L557173-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	6.0			Calc.	01/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/26/12 16:36 Revised: 01/27/12 15:45



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REPORT OF ANALYSIS

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

January 27, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-RELEASEPATH03-012412  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:31

ESC Sample # : L557173-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	13.			Calc.	01/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 01/26/12 16:36 Revised: 01/27/12 15:45



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REPORT OF ANALYSIS

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

January 27, 2012

Date Received : January 25, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-RELEASEPATH04-012412  
Collected By : Blake Ford  
Collection Date : 01/24/12 10:28

ESC Sample # : L557173-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Sodium Adsorption Ratio	20.			Calc.	01/26/12	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: 01/26/12 16:36 Revised: 01/27/12 15:45

Summary of Remarks For Samples Printed  
01/27/12 at 15:45:19

TSR Signing Reports: 358  
R4 - Rush: Three Day

Sample: L557173-01 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 01/30/12 00:00 RPT Date: 01/26/12 16:36

Sample: L557173-02 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 01/30/12 00:00 RPT Date: 01/26/12 16:36

Sample: L557173-03 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 01/30/12 00:00 RPT Date: 01/26/12 16:36

Sample: L557173-04 Account: ENCANRCO Received: 01/25/12 09:00 Due Date: 01/30/12 00:00 RPT Date: 01/26/12 16:36



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Quality Assurance Report  
Level II

L557173

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Est. 1970

January 27, 2012

---

Batch number /Run number / Sample number cross reference

WG575594: R2014076: L557173-01 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 - Rangely, CO  
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January 27, 2012

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Est. 1970

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

## Report Summary

Monday January 16, 2012

Report Number: L555663

Samples Received: 01/13/12

Client Project:

Description: 9015 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:

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

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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

January 16, 2012

Blake Ford
EnCana Oil & Gas - Rangely, CO
1125 Escalante Drive
Rangely, CO 81648-3600

Date Received : January 13, 2012
Description : 9015 Spill Response
Sample ID : 9015-SPILLWS-011012
Collected By : Blake Ford
Collection Date : 01/10/12 17:15

ESC Sample # : L555663-01

Site ID :

Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include Benzene, Toluene, Ethylbenzene, Total Xylenes, Surrogate Recovery, Toluene-d8, Dibromofluoromethane, a,a,a-Trifluorotoluene, 4-Bromofluorobenzene.

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: 01/16/12 11:40 Printed: 01/16/12 11:40



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Est. 1970

REPORT OF ANALYSIS

January 16, 2012

Blake Ford  
EnCana Oil & Gas - Rangely, CO  
1125 Escalante Drive  
Rangely, CO 81648-3600

Date Received : January 13, 2012  
Description : 9015 Spill Response  
Sample ID : 9015-SPILLWS-011012  
Collected By : Blake Ford  
Collection Date : 01/10/12 17:15

ESC Sample # : L555663-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	19.	1.0	mg/l	9056	01/13/12	1
Dissolved Solids	970	10.	mg/l	2540C	01/16/12	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: 01/16/12 11:40 Printed: 01/16/12 11:40

Summary of Remarks For Samples Printed  
01/16/12 at 11:40:44

TSR Signing Reports: 358  
R1 - Rush: Sameday

Sample: L555663-01 Account: ENCANRCO Received: 01/13/12 09:00 Due Date: 01/13/12 00:00 RPT Date: 01/16/12 11:40

Sample: L555663-02 Account: ENCANRCO Received: 01/13/12 09:00 Due Date: 01/16/12 00:00 RPT Date: 01/16/12 11:40



**YOUR LAB OF CHOICE**

EnCana Oil & Gas - Rangely, CO  
 Blake Ford  
 1125 Escalante Drive  
 Rangely, CO 81648-3600

Quality Assurance Report  
 Level II

L555663

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 16, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .001	mg/l			WG573714	01/13/12 06:09
Ethylbenzene	< .001	mg/l			WG573714	01/13/12 06:09
Toluene	< .005	mg/l			WG573714	01/13/12 06:09
Total Xylenes	< .003	mg/l			WG573714	01/13/12 06:09
4-Bromofluorobenzene		% Rec.	103.5	82-120	WG573714	01/13/12 06:09
Dibromofluoromethane		% Rec.	95.90	82-126	WG573714	01/13/12 06:09
Toluene-d8		% Rec.	100.8	92-112	WG573714	01/13/12 06:09
a,a,a-Trifluorotoluene		% Rec.	102.4	90-116	WG573714	01/13/12 06:09
Chloride	< 1	mg/l			WG573973	01/13/12 08:56
Dissolved Solids	< 10	mg/l			WG573989	01/16/12 11:15

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Chloride	mg/l	19.0	19.0	1.06	20	L555663-02	WG573973
Dissolved Solids	mg/l	970.	973.	0	5	L555663-02	WG573989

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/l	.025	0.0233	93.0	72-119	WG573714
Ethylbenzene	mg/l	.025	0.0242	96.6	77-124	WG573714
Toluene	mg/l	.025	0.0233	93.0	75-114	WG573714
Total Xylenes	mg/l	.075	0.0737	98.3	77-123	WG573714
4-Bromofluorobenzene				99.31	82-120	WG573714
Dibromofluoromethane				98.91	82-126	WG573714
Toluene-d8				100.8	92-112	WG573714
a,a,a-Trifluorotoluene				104.3	90-116	WG573714
Chloride	mg/l	40	40.3	101.	90-110	WG573973
Dissolved Solids	mg/l	8800	8610	97.9	85-115	WG573989

Analyte	Units	Laboratory Control Sample Duplicate		Limit	RPD	Limit	Batch	
		Result	Ref %Rec					
Benzene	mg/l	0.0240	0.0233	96.0	72-119	2.98	20	WG573714
Ethylbenzene	mg/l	0.0244	0.0242	98.0	77-124	1.13	20	WG573714
Toluene	mg/l	0.0236	0.0233	94.0	75-114	1.59	20	WG573714
Total Xylenes	mg/l	0.0731	0.0737	98.0	77-123	0.790	20	WG573714
4-Bromofluorobenzene				96.60	82-120			WG573714
Dibromofluoromethane				98.57	82-126			WG573714
Toluene-d8				100.4	92-112			WG573714
a,a,a-Trifluorotoluene				102.2	90-116			WG573714
Chloride	mg/l	40.1	40.3	100.	90-110	0.498	20	WG573973
Dissolved Solids	mg/l	8390	8610	95.0	85-115	2.59	20	WG573989

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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 Level II

L555663

January 16, 2012

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/l	0.0239	0	.025	95.6	51-134	L555338-01	WG573714
Ethylbenzene	mg/l	0.0249	0	.025	99.6	64-135	L555338-01	WG573714
Toluene	mg/l	0.0246	0	.025	98.5	61-126	L555338-01	WG573714
Total Xylenes	mg/l	0.0748	0	.075	99.8	64-133	L555338-01	WG573714
4-Bromofluorobenzene					99.85	82-120		WG573714
Dibromofluoromethane					80.27*	82-126		WG573714
Toluene-d8					99.85	92-112		WG573714
a,a,a-Trifluorotoluene					100.6	90-116		WG573714

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/l	0.0232	0.0239	92.8	51-134	3.01	20	L555338-01	WG573714
Ethylbenzene	mg/l	0.0243	0.0249	97.3	64-135	2.34	20	L555338-01	WG573714
Toluene	mg/l	0.0239	0.0246	95.7	61-126	2.84	20	L555338-01	WG573714
Total Xylenes	mg/l	0.0725	0.0748	96.7	64-133	3.13	20	L555338-01	WG573714
4-Bromofluorobenzene				98.89	82-120				WG573714
Dibromofluoromethane				73.86*	82-126				WG573714
Toluene-d8				100.9	92-112				WG573714
a,a,a-Trifluorotoluene				100.6	90-116				WG573714

Batch number /Run number / Sample number cross reference

WG573714: R1998873: L555663-01  
 WG573973: R1999592: L555663-02  
 WG573989: R2000632: L555663-02

\* \* 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.'



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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.