

Page 1
FORM
4
Rev 12/05State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 601, Denver, Colorado 80203 Phone (303)894-2100 Fax (303)894-2109



SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b)

RECEIVED
10/31/2012

1. OGCC Operator Number: 10341	4. Contact Name: Karen LeBaron	Complete the Attachment Checklist OP OGCC
2. Name of Operator: Puckett Land Company	Phone: (303) 763 - 1000	
3. Address: 5460 South Quebec Street, Suite 250 City: Greenwood Village State: CO Zip: 80111	Fax: (303) 763 - 1040	
5. API Number 05- 316608 (Location ID)	OGCC Facility ID Number 428036 & 428037	Survey Plat
6. Well/Facility Name: W. & E. RESERVE PITS	7. Well/Facility Number 499-14-67	Directional Survey
8. Location (Qtr/Sec, Twp, Rng, Meridian): SWSE, Sec 14, T4S-R99W, 6th PM		Surface Equipmt Diagram
9. County: Rio Blanco	10. Field Name: Wildcat	Technical Info Page
11. Federal, Indian or State Lease Number: NA		Other

General Notice

<input type="checkbox"/> CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)	
Change of Surface Footage from Exterior Section Lines	<input type="checkbox"/> FNU/FSL <input type="checkbox"/> FEL/FWL
Change of Surface Footage to Exterior Section Lines	<input type="checkbox"/> <input type="checkbox"/>
Change of Bottomhole Footage from Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/>
Change of Bottomhole Footage to Exterior Section Lines:	<input type="checkbox"/> <input type="checkbox"/> attach directional survey
Bottomhole location Qtr/Sec, Twp, Rng, Mer	
Latitude	Distance to nearest property line
Longitude	Distance to nearest lease line
Ground Elevation	Distance to nearest well same formation
	Distance to nearest bldg, public rd, utility or RR
	Is location in a High Density Area (rule 603b)? Yes/No
	Surface owner consultation date:
GPS DATA:	
Date of Measurement	PDOP Reading
	Instrument Operator's Name
<input type="checkbox"/> CHANGE SPACING UNIT	<input type="checkbox"/> Remove from surface bond
Formation	Signed surface use agreement attached
Formation Code	
Spacing order number	
Unit Acreage	
Unit configuration	
<input type="checkbox"/> CHANGE OF OPERATOR (prior to drilling):	<input type="checkbox"/> CHANGE WELL NAME
Effective Date:	From:
Plugging Bond: <input type="checkbox"/> Blanket <input type="checkbox"/> Individual	To:
	Effective Date:
<input type="checkbox"/> ABANDONED LOCATION:	<input type="checkbox"/> NOTICE OF CONTINUED SHUT IN STATUS
Was location ever built? <input type="checkbox"/> Yes <input type="checkbox"/> No	Date well shut in or temporarily abandoned:
Is site ready for inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No	Has Production Equipment been removed from site? <input type="checkbox"/> Yes <input type="checkbox"/> No
Date Ready for Inspection:	MIT required if shut in longer than two years. Date of last MIT
<input type="checkbox"/> SPUD DATE:	<input type="checkbox"/> REQUEST FOR CONFIDENTIAL STATUS 10 mos from date casing set
<input type="checkbox"/> SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK *submit cbl and cement job summaries	
Method used	Cementing tool setting/perf depth
	Cement volume
	Cement top
	Cement bottom
	Date
<input type="checkbox"/> RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004	
Final reclamation will commence on approximately	
<input type="checkbox"/> Final reclamation is completed and site is ready for inspection	

Technical Engineering/Environmental Notice

<input type="checkbox"/> Notice of Intent	<input checked="" type="checkbox"/> Report of Work Done
Approximate Start Date:	Date Work Completed: October, 2012
Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)	
<input type="checkbox"/> Intent to Recomplete (submit form 2)	<input type="checkbox"/> Request to Vent or Flare
<input type="checkbox"/> Change Drilling Plans	<input type="checkbox"/> Repair Well
<input type="checkbox"/> Gross Interval Changed?	<input type="checkbox"/> Rule 502 variance requested
<input type="checkbox"/> Casing/Cementing Program Change	<input checked="" type="checkbox"/> Other: Pit Closure
	<input type="checkbox"/> E&P Waste Disposal
	<input type="checkbox"/> Beneficial Reuse of E&P Waste
	<input checked="" type="checkbox"/> Status Update/Change of Remediation Plans for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Karen LeBaron Date: 10/31/12 Email: klebaron@puckettland.com
 Print Name: Karen LeBaron Title: Petroleum Landman

COGCC Approved

Title: FOR

Date: 01/18/2013

CONDITIONS OF APPROVAL, IF ANY

Chris Canfield
 EPS NW Region

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: _____ API Number: _____

2. Name of Operator: _____ OGCC Facility ID # _____

3. Well/Facility Name: _____ Well/Facility Number: _____

4. Location (QtrQtr, Sec, Twp, Rng, Meridian): _____

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5.

DESCRIBE PROPOSED OR COMPLETED OPERATIONS

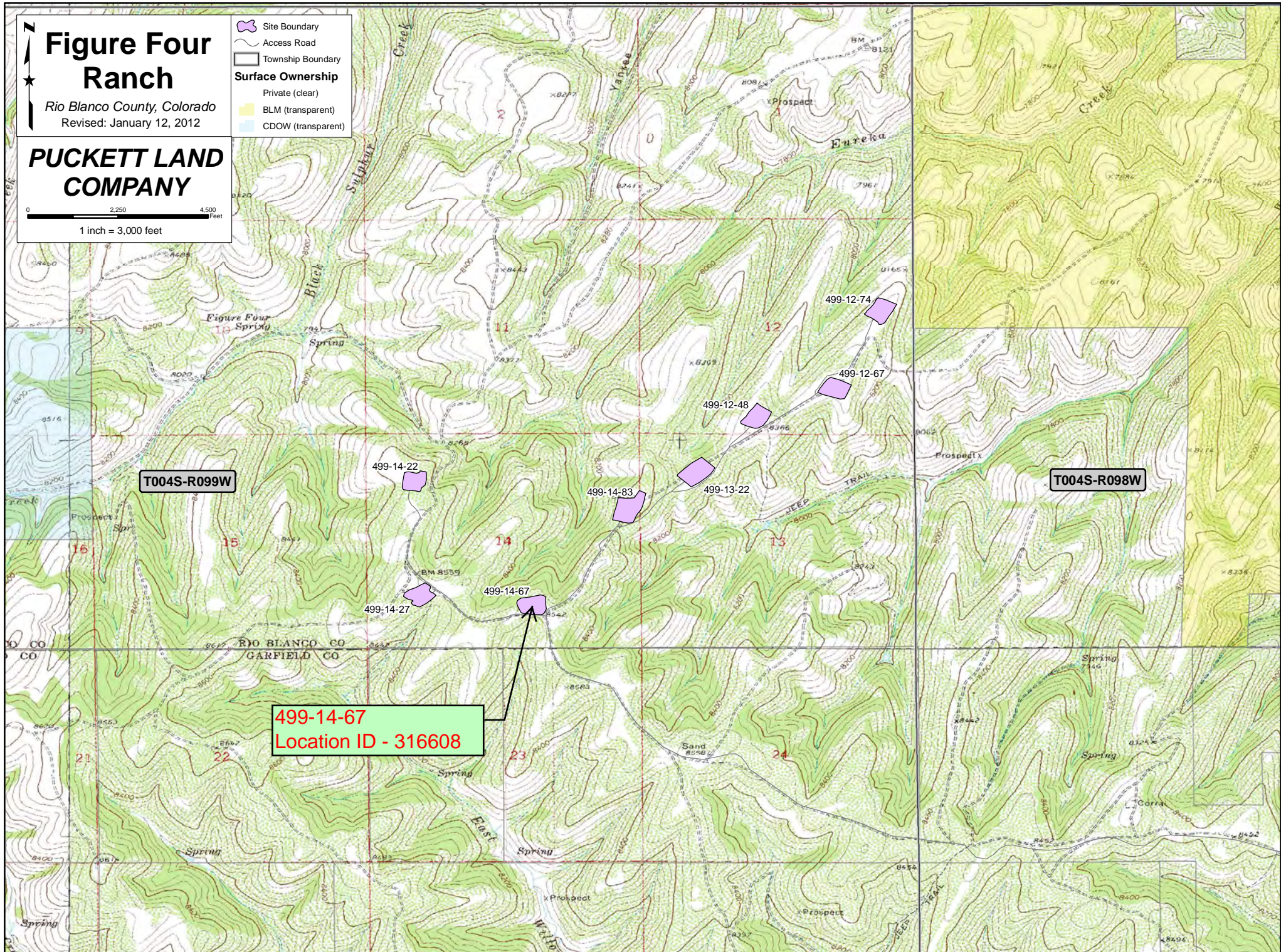
Figure Four Ranch

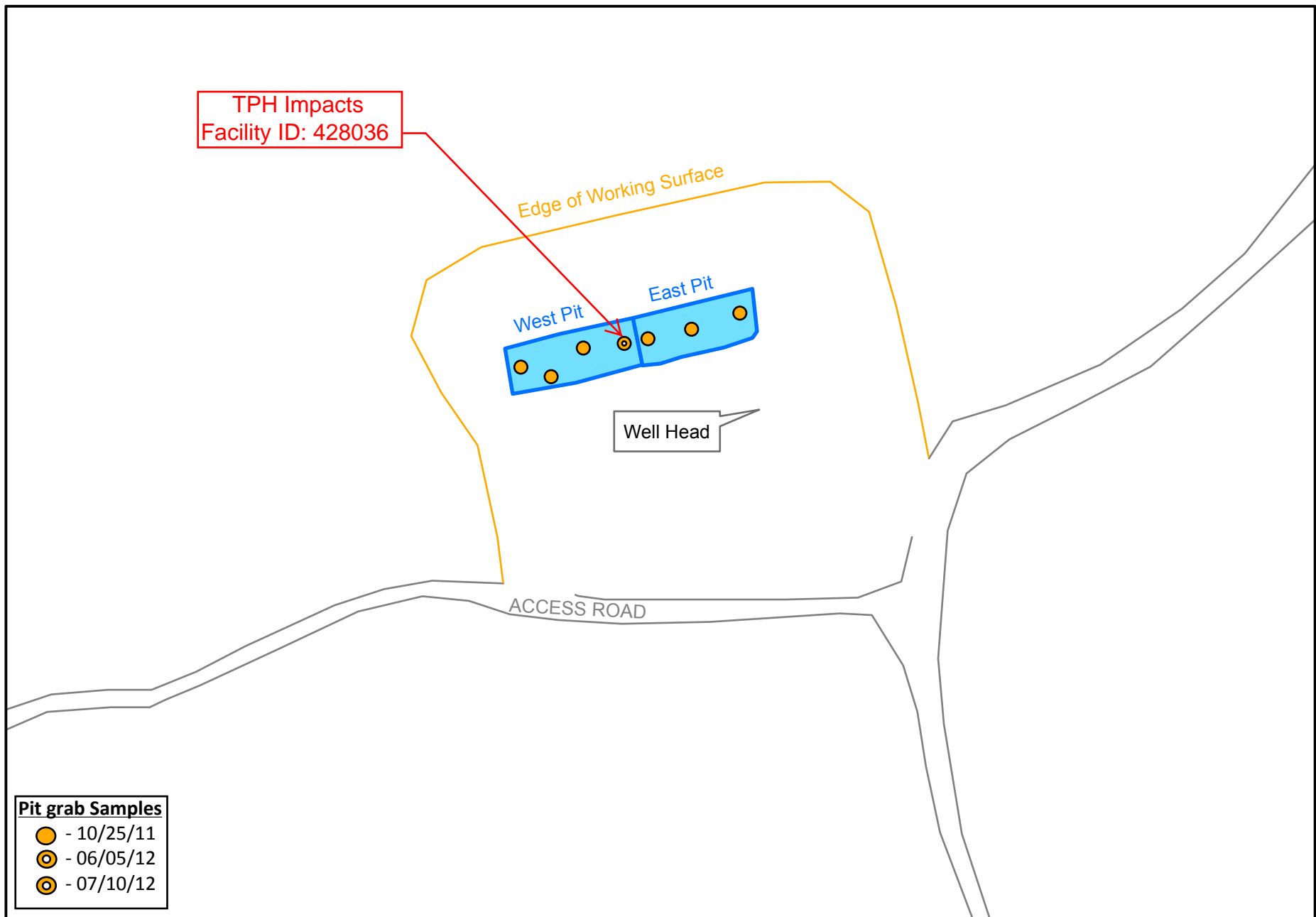
Rio Blanco County, Colorado
Revised: January 12, 2012

**PUCKETT LAND
COMPANY**

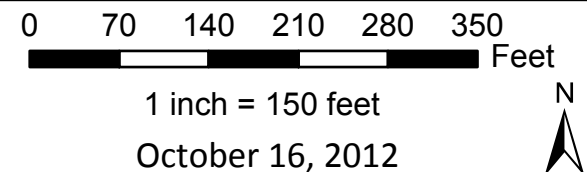
0 2,250 4,500 Feet
1 inch = 3,000 feet

- Site Boundary
- Access Road
- Township Boundary
- Surface Ownership
 - Private (clear)
 - BLM (transparent)
 - CDOW (transparent)





499-14-67 Site Diagram
SWSE, Section 14, T4S, R99W, 6th PM
Rio Blanco County, Colorado





Laboratory Results Summary Table

10/17/2012

				Organic Compounds in Soil (mg/kg [ppm])																			Inorganics in Soil			Metals in Soil (mg/kg [ppm])												
Allowable Concentration -->				500			0.17	85	100	175	1000	1000	0.22	0.22	2.2	0.022	22	0.022	1000	1000	0.22	23	1000		(<12)	(6-9)	0.39	15000	70	120000	23	3100	400	23	1600	390	390	23000
Location	Sample Date:	Sample Matrix	Matrix Notes	TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3,C,D)pyrene	Naphthalene	Pyrene	EC (<4 mmhos/cm or 2x background)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc
499-14-67	10/25/11	Pit	W Wbot	29	BDL	29	BDL	BDL	BDL	BDL																												
499-14-67	10/25/11	Pit	W Swall	BDL	BDL	BDL	BDL	BDL	BDL	BDL																												
499-14-67	10/25/11	Pit	W mid	39	BDL	BDL	BDL	BDL	BDL	BDL																												
499-14-67	10/25/11	Pit	W Etoe	15003.2	3.2	15000	BDL	BDL	BDL	BDL																												
499-14-67	10/25/11	Pit	E Wwall	BDL	BDL	BDL	BDL	BDL	BDL	BDL																												
499-14-67	10/25/11	Pit	E mid	48	BDL	48	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.006	BDL	0.37	6.6	9.2	2.2	1100	BDL	24	BDL	18	12	BDL	18	BDL	BDL	93
499-14-67	10/25/11	Pit	E Ebot	18	BDL	BDL	BDL	BDL	BDL	BDL																												
499-14-67	10/25/11	Pit	above-liner solids	72	BDL	72	BDL	BDL	BDL	BDL																												
499-14-67	06/05/12	Pit	W Etoe	16000	BDL	16000	BDL	BDL	BDL	BDL																												
499-14-67	07/10/12	Pit	W Etoe	1300	BDL	1300																																

Location	Sample Date:	Sample Matrix	Matrix Notes	Allowable Concentration -->	Metals i
					0.39
					Arsenic
499-12-67	07/10/12	Background	NE		3.1
499-12-67	07/10/12	Background	Nmid		3.1
499-12-67	07/10/12	Background	NE		3
499-12-67	07/10/12	Background	NE		2.7
499-12-67	07/10/12	Background	Nmid		2.7
499-12-67	07/10/12	Background	NW		2.6
499-12-67	07/10/12	Background	NW		2.5
499-12-67	07/10/12	Background	NE		2.4
499-12-67	07/10/12	Background	E		2.3
499-12-67	07/10/12	Background	Nmid		2.3
499-12-67	07/10/12	Background	NW		2.3
499-12-67	07/10/12	Background	E		2.2
499-12-67	07/10/12	Background	NE		2.2
499-12-67	07/10/12	Background	Nmid		2.2
499-12-67	07/10/12	Background	Nmid		2.2
499-12-67	07/10/12	Background	E		2.1
499-12-67	07/10/12	Background	NW		2.1
499-12-67	07/10/12	Background	W		2.1
499-12-67	07/10/12	Background	W		2.1
499-12-67	07/10/12	Background	E		2
499-12-67	07/10/12	Background	E		2
499-12-67	07/10/12	Background	NW		2
499-12-67	07/10/12	Background	W		2
499-12-67	07/10/12	Background	W		1.9
499-12-67	07/10/12	Background	W		1.7
499-12-74	07/10/12	Background	N		BDL
499-12-74	07/10/12	Background	N		BDL
499-12-74	07/10/12	Background	N		BDL
499-12-74	07/10/12	Background	N		BDL
499-12-74	07/10/12	Background	N		BDL
499-12-74	07/10/12	Background	E		BDL
499-12-74	07/10/12	Background	E		BDL
499-12-74	07/10/12	Background	E		BDL
499-12-74	07/10/12	Background	E		BDL
499-12-74	07/10/12	Background	E		BDL
499-12-74	07/10/12	Background	SE		BDL
499-12-74	07/10/12	Background	SE		BDL
499-12-74	07/10/12	Background	SE		BDL
499-12-74	07/10/12	Background	SE		BDL
499-12-74	07/10/12	Background	SE		BDL

Location	Sample Date:	Sample Matrix	Matrix Notes	Allowable Concentration -->	Metals i
					0.39
					Arsenic
499-12-74	07/10/12	Background	SW		BDL
499-12-74	07/10/12	Background	SW		BDL
499-12-74	07/10/12	Background	SW		BDL
499-12-74	07/10/12	Background	SW		BDL
499-12-74	07/10/12	Background	SW		BDL
499-12-74	07/10/12	Background	W		BDL
499-12-74	07/10/12	Background	W		BDL
499-12-74	07/10/12	Background	W		BDL
499-12-74	07/10/12	Background	W		BDL
499-12-74	07/10/12	Background	W		BDL
499-14-22	07/10/12	Background	W		BDL
499-14-22	07/10/12	Background	W		BDL
499-14-22	07/10/12	Background	W		BDL
499-14-22	07/10/12	Background	W		BDL
499-14-22	07/10/12	Background	SW		BDL
499-14-22	07/10/12	Background	SW		BDL
499-14-22	07/10/12	Background	S		9.1
499-14-22	07/10/12	Background	S		9.1
499-14-22	07/10/12	Background	SW		8
499-14-22	07/10/12	Background	S		8
499-14-22	07/10/12	Background	SW		7.9
499-14-22	07/10/12	Background	SW		7.1
499-14-22	07/10/12	Background	W		7
499-14-22	07/10/12	Background	NE		6.8
499-14-22	07/10/12	Background	W		6.4
499-14-22	07/10/12	Background	NE		6.2
499-14-22	07/10/12	Background	NE		6.1
499-14-22	07/10/12	Background	W		5.7
499-14-22	07/10/12	Background	W		5.7
499-14-22	07/10/12	Background	NE		5.6
499-14-22	07/10/12	Background	S		5.5
499-14-22	07/10/12	Background	NE		5.4
499-14-22	07/10/12	Background	S		5.1
499-14-22	07/10/12	Background	W		5.1
499-14-27	07/10/12	Background	SW		BDL
499-14-27	07/10/12	Background	SW		BDL
499-14-27	07/10/12	Background	SW		BDL
499-14-27	07/10/12	Background	SW		BDL
499-14-27	07/10/12	Background	SW		BDL

Location	Sample Date:	Sample Matrix	Matrix Notes	Allowable Concentration -->	Metals i
					0.39
					Arsenic
499-14-27	07/10/12	Background	W		BDL
499-14-27	07/10/12	Background	W		BDL
499-14-27	07/10/12	Background	W		BDL
499-14-27	07/10/12	Background	W		BDL
499-14-27	07/10/12	Background	W		BDL
499-14-27	07/10/12	Background	N		BDL
499-14-27	07/10/12	Background	N		BDL
499-14-27	07/10/12	Background	SE		12
499-14-27	07/10/12	Background	SE		11
499-14-27	07/10/12	Background	SE		10
499-14-27	07/10/12	Background	SE		10
499-14-27	07/10/12	Background	SE		9.8
499-14-27	07/10/12	Background	S		9.4
499-14-27	07/10/12	Background	S		8.7
499-14-27	07/10/12	Background	S		8.5
499-14-27	07/10/12	Background	S		8.2
499-14-27	07/10/12	Background	S		6.9
499-14-27	07/10/12	Background	N		3
499-14-27	07/10/12	Background	N		1.8
499-14-27	07/10/12	Background	N		1.3
499-14-67	07/10/12	Background	NE		BDL
499-14-67	07/10/12	Background	NE		BDL
499-14-67	07/10/12	Background	NE		BDL
499-14-67	07/10/12	Background	NE		BDL
499-14-67	07/10/12	Background	NE		BDL
499-14-67	07/10/12	Background	N		BDL
499-14-67	07/10/12	Background	N		BDL
499-14-67	07/10/12	Background	N		BDL
499-14-67	07/10/12	Background	N		BDL
499-14-67	07/10/12	Background	N		BDL
499-14-67	07/10/12	Background	NW		BDL
499-14-67	07/10/12	Background	NW		BDL
499-14-67	07/10/12	Background	NW		BDL
499-14-67	07/10/12	Background	NW		BDL
499-14-67	07/10/12	Background	NW		BDL
499-14-67	07/10/12	Background	W		BDL
499-14-67	07/10/12	Background	W		BDL
499-14-67	07/10/12	Background	W		BDL
499-14-67	07/10/12	Background	SW		BDL
499-14-67	07/10/12	Background	SW		BDL

Location	Sample Date:	Sample Matrix	Matrix Notes	Allowable Concentration -->	
				Metals i	0.39
				Arsenic	
499-14-67	07/10/12	Background	SW	BDL	
499-14-67	07/10/12	Background	SW	BDL	
499-14-67	07/10/12	Background	SW	BDL	
499-14-67	07/10/12	Background	W	1.4	
499-14-67	07/10/12	Background	W	1.3	



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

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

Report Summary

Monday November 07, 2011

Report Number: L543822

Samples Received: 10/27/11

Client Project:

Description: West Hawk

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:

Jayred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, 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.

REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-PB-W.W.BOT-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 11:43

ESC Sample # : L543822-01

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/28/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/28/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/28/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	93.9		% Rec.	8021/8015	10/28/11	5
a,a,a-Trifluorotoluene(PID)	95.0		% Rec.	8021/8015	10/28/11	5
TPH (GC/FID) High Fraction	29.	4.0	mg/kg	3546/DRO	11/03/11	1
Surrogate recovery(%)						
o-Terphenyl	59.2		% Rec.	3546/DRO	11/03/11	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.

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Reported: 11/07/11 14:45 Printed: 11/07/11 15:14

REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-PB-W.S.WALL-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 11:49

ESC Sample # : L543822-02

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/28/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/28/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/28/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	92.5		% Rec.	8021/8015	10/28/11	5
a,a,a-Trifluorotoluene(PID)	94.0		% Rec.	8021/8015	10/28/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/03/11	1
Surrogate recovery(%)						
o-Terphenyl	56.5		% Rec.	3546/DRO	11/03/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 11/07/11 14:45 Printed: 11/07/11 15:14

REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-PB-W.MID-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 11:55

ESC Sample # : L543822-03

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/28/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/28/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/28/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.0		% Rec.	8021/8015	10/28/11	5
a,a,a-Trifluorotoluene(PID)	96.9		% Rec.	8021/8015	10/28/11	5
TPH (GC/FID) High Fraction	39.	4.0	mg/kg	3546/DRO	11/03/11	1
Surrogate recovery(%)						
o-Terphenyl	58.1		% Rec.	3546/DRO	11/03/11	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: 11/07/11 14:45 Printed: 11/07/11 15:14



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

REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-PB-W.E.TOE-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 12:01

ESC Sample # : L543822-04

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/28/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/28/11	5
TPH (GC/FID) Low Fraction	3.2	0.50	mg/kg	GRO	10/28/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.5		% Rec.	8021/8015	10/28/11	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	10/28/11	5
TPH (GC/FID) High Fraction	15000	400	mg/kg	3546/DRO	11/03/11	100
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	11/03/11	100

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
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-PB-E.W.WALL-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 12:07

ESC Sample # : L543822-05

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/28/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/28/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/28/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	93.1		% Rec.	8021/8015	10/28/11	5
a,a,a-Trifluorotoluene(PID)	93.4		% Rec.	8021/8015	10/28/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	11/03/11	1
Surrogate recovery(%)						
o-Terphenyl	59.6		% Rec.	3546/DRO	11/03/11	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
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-PB-E.MID-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 12:12

ESC Sample # : L543822-06

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/01/11	1
Chromium, Trivalent	24.	2.0	mg/kg	Calc.	10/30/11	1
ORP	120		mV	2580	10/29/11	1
pH	9.2		su	9045D	10/28/11	1
Sodium Adsorption Ratio	6.6			Calc.	11/01/11	1
Specific Conductance	370		umhos/cm	9050AMod	10/30/11	1
Mercury	BDL	0.020	mg/kg	7471	10/28/11	1
Arsenic	2.2	1.0	mg/kg	6010B	10/30/11	1
Barium	1100	0.25	mg/kg	6010B	10/30/11	1
Cadmium	BDL	0.25	mg/kg	6010B	10/30/11	1
Chromium	24.	0.50	mg/kg	6010B	10/30/11	1
Copper	18.	1.0	mg/kg	6010B	10/30/11	1
Lead	12.	0.25	mg/kg	6010B	10/30/11	1
Nickel	18.	5.0	mg/kg	6010B	10/31/11	5
Selenium	BDL	5.0	mg/kg	6010B	10/31/11	5
Silver	BDL	0.50	mg/kg	6010B	10/30/11	1
Zinc	93.	7.5	mg/kg	6010B	10/31/11	5
Benzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/28/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/28/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/28/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	92.5		% Rec.	8021/8015	10/28/11	5
a,a,a-Trifluorotoluene(PID)	95.0		% Rec.	8021/8015	10/28/11	5
TPH (GC/FID) High Fraction	48.	4.0	mg/kg	3546/DRO	11/03/11	1
Surrogate recovery(%)						
o-Terphenyl	58.8		% Rec.	3546/DRO	11/03/11	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L543822-06 (PH) - 9.23@22.4c



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-PB-E.MID-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 12:12

ESC Sample # : L543822-06

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Naphthalene	0.0061	0.0060	mg/kg	8270C-SIM	11/03/11	1
Phenanthrene	0.0064	0.0060	mg/kg	8270C-SIM	11/03/11	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
1-Methylnaphthalene	0.0068	0.0060	mg/kg	8270C-SIM	11/03/11	1
2-Methylnaphthalene	0.014	0.0060	mg/kg	8270C-SIM	11/03/11	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	11/03/11	1
Surrogate Recovery						
Nitrobenzene-d5	95.6		% Rec.	8270C-SIM	11/03/11	1
2-Fluorobiphenyl	66.4		% Rec.	8270C-SIM	11/03/11	1
p-Terphenyl-d14	67.1		% Rec.	8270C-SIM	11/03/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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L543822-06 (PH) - 9.23@22.4c

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EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-PB-E.E.BOT-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 12:19

ESC Sample # : L543822-07

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/28/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/28/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/28/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.8		% Rec.	8021/8015	10/28/11	5
a,a,a-Trifluorotoluene(PID)	96.5		% Rec.	8021/8015	10/28/11	5
TPH (GC/FID) High Fraction	18.	4.0	mg/kg	3546/DRO	11/03/11	1
Surrogate recovery(%)						
o-Terphenyl	63.4		% Rec.	3546/DRO	11/03/11	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
2717 County Road 215, Suite 100
Parachute, CO 81635

November 07, 2011

Date Received : October 27, 2011
Description : West Hawk
Sample ID : WH-14-67-SPOILS-10252011
Collected By : Bob Stockton
Collection Date : 10/25/11 12:39

ESC Sample # : L543822-08

Site ID : 499-12-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/28/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/28/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/28/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/28/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	92.6		% Rec.	8021/8015	10/28/11	5
a,a,a-Trifluorotoluene(PID)	93.7		% Rec.	8021/8015	10/28/11	5
TPH (GC/FID) High Fraction	72.	4.0	mg/kg	3546/DRO	11/03/11	1
Surrogate recovery(%)						
o-Terphenyl	50.0		% Rec.	3546/DRO	11/03/11	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
L543822-03	WG562843	SAMP	TPH (GC/FID) Low Fraction	R1914172	J3
L543822-04	WG563222	SAMP	o-Terphenyl	R1919253	J7
L543822-06	WG562867	SAMP	Selenium	R1915452	O
	WG562618	SAMP	pH	R1913232	J3
	WG562990	SAMP	ORP	R1914773	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
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.



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Parachute, CO 81635

Quality Assurance Report
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Tax I.D. 62-0814289

Est. 1970

November 07, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
pH	5.60	su			WG562618	10/28/11 12:50
Benzene	< .0005	mg/kg			WG562843	10/28/11 08:19
Ethylbenzene	< .0005	mg/kg			WG562843	10/28/11 08:19
Toluene	< .005	mg/kg			WG562843	10/28/11 08:19
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG562843	10/28/11 08:19
Total Xylene	< .0015	mg/kg			WG562843	10/28/11 08:19
a,a,a-Trifluorotoluene(FID)		% Rec.	101.0	59-128	WG562843	10/28/11 08:19
a,a,a-Trifluorotoluene(PID)		% Rec.	102.3	54-144	WG562843	10/28/11 08:19
Mercury	< .02	mg/kg			WG562820	10/28/11 20:48
Specific Conductance	1.80	umhos/cm			WG563012	10/30/11 10:00
Arsenic	< 1	mg/kg			WG562867	10/30/11 23:31
Barium	< .25	mg/kg			WG562867	10/30/11 23:31
Cadmium	< .25	mg/kg			WG562867	10/30/11 23:31
Chromium	< .5	mg/kg			WG562867	10/30/11 23:31
Copper	< 1	mg/kg			WG562867	10/30/11 23:31
Lead	< .25	mg/kg			WG562867	10/30/11 23:31
Nickel	< 1	mg/kg			WG562867	10/30/11 23:31
Selenium	< 1	mg/kg			WG562867	10/30/11 23:31
Silver	< .5	mg/kg			WG562867	10/30/11 23:31
Zinc	< 1.5	mg/kg			WG562867	10/30/11 23:31
Chromium,Hexavalent	< 2	mg/kg			WG562385	11/01/11 11:44
TPH (GC/FID) High Fraction	< 4	ppm			WG563222	11/02/11 17:29
o-Terphenyl		% Rec.	80.14	50-150	WG563222	11/02/11 17:29
1-Methylnaphthalene	< .006	mg/kg			WG563275	11/02/11 11:08
2-Chloronaphthalene	< .006	mg/kg			WG563275	11/02/11 11:08
2-Methylnaphthalene	< .006	mg/kg			WG563275	11/02/11 11:08
Acenaphthene	< .006	mg/kg			WG563275	11/02/11 11:08
Acenaphthylene	< .006	mg/kg			WG563275	11/02/11 11:08
Anthracene	< .006	mg/kg			WG563275	11/02/11 11:08
Benzo(a)anthracene	< .006	mg/kg			WG563275	11/02/11 11:08
Benzo(a)pyrene	< .006	mg/kg			WG563275	11/02/11 11:08
Benzo(b)fluoranthene	< .006	mg/kg			WG563275	11/02/11 11:08
Benzo(g,h,i)perylene	< .006	mg/kg			WG563275	11/02/11 11:08
Benzo(k)fluoranthene	< .006	mg/kg			WG563275	11/02/11 11:08
Chrysene	< .006	mg/kg			WG563275	11/02/11 11:08
Dibenz(a,h)anthracene	< .006	mg/kg			WG563275	11/02/11 11:08
Fluoranthene	< .006	mg/kg			WG563275	11/02/11 11:08
Fluorene	< .006	mg/kg			WG563275	11/02/11 11:08
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG563275	11/02/11 11:08
Naphthalene	< .006	mg/kg			WG563275	11/02/11 11:08
Phenanthrene	< .006	mg/kg			WG563275	11/02/11 11:08
Pyrene	< .006	mg/kg			WG563275	11/02/11 11:08
2-Fluorobiphenyl		% Rec.	66.49	34-129	WG563275	11/02/11 11:08
Nitrobenzene-d5		% Rec.	61.06	14-141	WG563275	11/02/11 11:08
p-Terphenyl-d14		% Rec.	80.15	25-139	WG563275	11/02/11 11:08

* 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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Est. 1970

November 07, 2011

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate	Duplicate				
pH	su	7.00	7.00	7.00	0.428	1	L543521-01	WG562618
pH	su	9.00	9.20	9.20	1.98*	1	L543822-06	WG562618
Mercury	mg/kg	0	0	0	0	20	L543822-06	WG562820
ORP	mV	200.	200.	200.	0	20	L543240-01	WG562990
ORP	mV	0	0	0	0	20	L544020-03	WG562990
Specific Conductance	umhos/cm	370.	370.	370.	0	20	L543822-06	WG563012
Specific Conductance	umhos/cm	160.	160.	160.	0	20	L544028-05	WG563012
Arsenic	mg/kg	2.70	4.70	4.70	54.1*	20	L543859-01	WG562867
Barium	mg/kg	73.0	83.5	83.5	12.9	20	L543859-01	WG562867
Cadmium	mg/kg	0	0	0	0	20	L543859-01	WG562867
Chromium	mg/kg	33.0	47.0	47.0	35.0*	20	L543859-01	WG562867
Copper	mg/kg	18.0	20.0	20.0	12.8	20	L543859-01	WG562867
Lead	mg/kg	30.0	33.0	33.0	10.5	20	L543859-01	WG562867
Nickel	mg/kg	13.0	13.0	13.0	3.13	20	L543859-01	WG562867
Silver	mg/kg	1.30	1.20	1.20	8.00	20	L543859-01	WG562867
Zinc	mg/kg	52.0	60.0	60.0	13.5	20	L543859-01	WG562867
Selenium	mg/kg	0	0	0	0	20	L543859-01	WG562867
Chromium, Hexavalent	mg/kg	0	0	0	0	20	L544020-03	WG562385
Chromium, Hexavalent	mg/kg	0	0	0	0	20	L543240-01	WG562385

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
pH	su	7.98	8.00	100.	98-101	WG562618
Benzene	mg/kg	.05	0.0427	85.3	76-113	WG562843
Ethylbenzene	mg/kg	.05	0.0468	93.6	78-115	WG562843
Toluene	mg/kg	.05	0.0464	92.8	76-114	WG562843
Total Xylene	mg/kg	.15	0.138	91.9	81-118	WG562843
a,a,a-Trifluorotoluene(PID)				97.73	54-144	WG562843
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.36	116.	67-135	WG562843
a,a,a-Trifluorotoluene(FID)				102.3	59-128	WG562843
Mercury	mg/kg	3.77	4.27	113.	71.6-128	WG562820
ORP	mV	229	230.	100.	95.6-104.37	WG562990
Specific Conductance	umhos/cm	427	430.	101.	85-115	WG563012
Arsenic	mg/kg	92.6	87.0	94.0	82.9-117	WG562867
Barium	mg/kg	169	168.	99.4	82.8-117	WG562867
Cadmium	mg/kg	61.8	59.4	96.1	83.3-117	WG562867
Chromium	mg/kg	71.3	68.8	96.5	81.8-118	WG562867
Copper	mg/kg	81.2	84.3	104.	83.9-116	WG562867

* Performance of this Analyte is outside of established criteria.

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Lead	mg/kg	92.4	91.3	98.8	83.3-117	WG562867
Nickel	mg/kg	59.1	58.0	98.1	83.8-116	WG562867
Selenium	mg/kg	89.5	82.8	92.5	79-121	WG562867
Silver	mg/kg	34.4	33.3	96.8	66.3-134	WG562867
Zinc	mg/kg	141	141.	100.	80.9-119	WG562867
Chromium,Hexavalent	mg/kg	132	153.	116.	50-150	WG562385
TPH (GC/FID) High Fraction	ppm	60	50.8	84.7	50-150	WG563222
o-Terphenyl				79.36	50-150	WG563222
1-Methylnaphthalene	mg/kg	.033	0.0335	102.	48-113	WG563275
2-Chloronaphthalene	mg/kg	.033	0.0330	100.	51-114	WG563275
2-Methylnaphthalene	mg/kg	.033	0.0281	85.2	44-109	WG563275
Acenaphthene	mg/kg	.033	0.0314	95.1	52-108	WG563275
Acenaphthylene	mg/kg	.033	0.0311	94.2	51-110	WG563275
Anthracene	mg/kg	.033	0.0323	98.0	58-120	WG563275
Benzo(a)anthracene	mg/kg	.033	0.0283	85.8	54-110	WG563275
Benzo(a)pyrene	mg/kg	.033	0.0323	97.8	56-118	WG563275
Benzo(b)fluoranthene	mg/kg	.033	0.0308	93.4	55-114	WG563275
Benzo(g,h,i)perylene	mg/kg	.033	0.0303	91.8	48-130	WG563275
Benzo(k)fluoranthene	mg/kg	.033	0.0322	97.7	55-122	WG563275
Chrysene	mg/kg	.033	0.0311	94.1	57-118	WG563275
Dibenz(a,h)anthracene	mg/kg	.033	0.0301	91.2	53-122	WG563275
Fluoranthene	mg/kg	.033	0.0326	98.7	58-118	WG563275
Fluorene	mg/kg	.033	0.0292	88.5	54-109	WG563275
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0303	91.7	51-125	WG563275
Naphthalene	mg/kg	.033	0.0298	90.2	45-105	WG563275
Phenanthrene	mg/kg	.033	0.0284	86.1	53-114	WG563275
Pyrene	mg/kg	.033	0.0307	92.9	53-121	WG563275
2-Fluorobiphenyl				97.44	34-129	WG563275
Nitrobenzene-d5				89.94	14-141	WG563275
p-Terphenyl-d14				95.24	25-139	WG563275

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
pH	su	8.00	8.00	100.	98-101	0	20	WG562618
Benzene	mg/kg	0.0473	0.0427	95.0	76-113	10.4	20	WG562843
Ethylbenzene	mg/kg	0.0515	0.0468	103.	78-115	9.61	20	WG562843
Toluene	mg/kg	0.0513	0.0464	102.	76-114	9.98	20	WG562843
Total Xylene	mg/kg	0.153	0.138	102.	81-118	10.4	20	WG562843
a,a,a-Trifluorotoluene(PID)				100.4	54-144			WG562843
TPH (GC/FID) Low Fraction	mg/kg	6.47	6.36	118.	67-135	1.73	20	WG562843
a,a,a-Trifluorotoluene(FID)				101.8	59-128			WG562843
ORP	mV	230.	230.	100.	95.6-104.37	0	20	WG562990
Specific Conductance	umhos/	430.	430.	101.	85-115	0	20	WG563012
Chromium,Hexavalent	mg/kg	161.	153.	122.	50-150	5.10	20	WG562385

* 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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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
TPH (GC/FID) High Fraction	ppm	49.7	50.8	83.0		50-150	2.24	25	WG563222
o-Terphenyl				77.90		50-150			WG563222
1-Methylnaphthalene	mg/kg	0.0308	0.0335	93.0		48-113	8.42	24	WG563275
2-Chloronaphthalene	mg/kg	0.0306	0.0330	93.0		51-114	7.68	24	WG563275
2-Methylnaphthalene	mg/kg	0.0262	0.0281	79.0		44-109	7.06	24	WG563275
Acenaphthene	mg/kg	0.0299	0.0314	91.0		52-108	4.79	22	WG563275
Acenaphthylene	mg/kg	0.0293	0.0311	89.0		51-110	6.05	21	WG563275
Anthracene	mg/kg	0.0326	0.0323	99.0		58-120	0.657	20	WG563275
Benzo(a)anthracene	mg/kg	0.0288	0.0283	87.0		54-110	1.74	22	WG563275
Benzo(a)pyrene	mg/kg	0.0317	0.0323	96.0		56-118	1.64	21	WG563275
Benzo(b)fluoranthene	mg/kg	0.0288	0.0308	87.0		55-114	6.91	20	WG563275
Benzo(g,h,i)perylene	mg/kg	0.0298	0.0303	90.0		48-130	1.62	20	WG563275
Benzo(k)fluoranthene	mg/kg	0.0330	0.0322	100.		55-122	2.49	25	WG563275
Chrysene	mg/kg	0.0294	0.0311	89.0		57-118	5.35	20	WG563275
Dibenz(a,h)anthracene	mg/kg	0.0298	0.0301	90.0		53-122	1.02	20	WG563275
Fluoranthene	mg/kg	0.0333	0.0326	101.		58-118	2.22	20	WG563275
Fluorene	mg/kg	0.0276	0.0292	84.0		54-109	5.73	20	WG563275
Indeno(1,2,3-cd)pyrene	mg/kg	0.0300	0.0303	91.0		51-125	0.897	21	WG563275
Naphthalene	mg/kg	0.0272	0.0298	82.0		45-105	9.05	24	WG563275
Phenanthrene	mg/kg	0.0278	0.0284	84.0		53-114	2.20	20	WG563275
Pyrene	mg/kg	0.0298	0.0307	90.0		53-121	2.85	20	WG563275
2-Fluorobiphenyl				87.71		34-129			WG563275
Nitrobenzene-d5				80.17		14-141			WG563275
p-Terphenyl-d14				90.65		25-139			WG563275

Analyte	Units	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res					
Benzene	mg/kg	0.197	0	.05	79.0	32-137	L543822-03	WG562843
Ethylbenzene	mg/kg	0.177	0	.05	71.0	10-150	L543822-03	WG562843
Toluene	mg/kg	0.198	0	.05	79.3	20-142	L543822-03	WG562843
Total Xylene	mg/kg	0.524	0	.15	69.8	16-141	L543822-03	WG562843
a,a,a-Trifluorotoluene(PID)					97.35	54-144		WG562843
TPH (GC/FID) Low Fraction	mg/kg	20.8	0	5.5	75.5	55-109	L543822-03	WG562843
a,a,a-Trifluorotoluene(FID)					101.6	59-128		WG562843
Mercury	mg/kg	0.256	0	.25	102.	70-130	L543822-06	WG562820
Arsenic	mg/kg	46.2	4.70	50	83.0	75-125	L543859-01	WG562867
Barium	mg/kg	125.	83.5	50	83.0	75-125	L543859-01	WG562867
Cadmium	mg/kg	44.0	0	50	88.0	75-125	L543859-01	WG562867
Chromium	mg/kg	80.1	47.0	50	66.2*	75-125	L543859-01	WG562867
Copper	mg/kg	63.6	20.0	50	87.2	75-125	L543859-01	WG562867
Lead	mg/kg	81.1	33.0	50	96.2	75-125	L543859-01	WG562867
Nickel	mg/kg	54.1	13.0	50	82.2	75-125	L543859-01	WG562867
Silver	mg/kg	40.2	1.20	50	78.0	75-125	L543859-01	WG562867
Zinc	mg/kg	101.	60.0	50	82.0	75-125	L543859-01	WG562867
Selenium	mg/kg	17.3	0	50	6.92*	75-125	L543859-01	WG562867
Chromium,Hexavalent	mg/kg	9.24	0	20	46.2*	50-150	L543608-01	WG562385
TPH (GC/FID) High Fraction	ppm	47.1	9.10	60	63.4	50-150	L544085-13	WG563222
o-Terphenyl					63.04	50-150		WG563222

* Performance of this Analyte is outside of established criteria.
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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.207	0.197	82.9	32-137	4.90	39	L543822-03	WG562843
Ethylbenzene	mg/kg	0.188	0.177	75.0	10-150	5.57	44	L543822-03	WG562843
Toluene	mg/kg	0.205	0.198	82.2	20-142	3.55	42	L543822-03	WG562843
Total Xylene	mg/kg	0.550	0.524	73.3	16-141	4.78	46	L543822-03	WG562843
a,a,a-Trifluorotoluene(PID)	mg/kg	16.2	20.8	99.23	54-144	24.6*	20	L543822-03	WG562843
TPH (GC/FID) Low Fraction				58.9	55-109				WG562843
a,a,a-Trifluorotoluene(FID)				93.08	59-128				WG562843
Mercury	mg/kg	0.250	0.256	100.	70-130	2.37	20	L543822-06	WG562820
Arsenic	mg/kg	52.8	46.2	96.2	75-125	13.3	20	L543859-01	WG562867
Barium	mg/kg	163.	125.	159.*	75-125	26.4*	20	L543859-01	WG562867
Cadmium	mg/kg	49.4	44.0	98.8	75-125	11.6	20	L543859-01	WG562867
Chromium	mg/kg	87.9	80.1	81.8	75-125	9.29	20	L543859-01	WG562867
Copper	mg/kg	67.8	63.6	95.6	75-125	6.39	20	L543859-01	WG562867
Lead	mg/kg	89.6	81.1	113.	75-125	9.96	20	L543859-01	WG562867
Nickel	mg/kg	59.7	54.1	93.4	75-125	9.84	20	L543859-01	WG562867
Silver	mg/kg	44.9	40.2	87.4	75-125	11.0	20	L543859-01	WG562867
Zinc	mg/kg	105.	101.	90.0	75-125	3.88	20	L543859-01	WG562867
Selenium	mg/kg	25.2	17.3	10.1*	75-125	37.2*	20	L543859-01	WG562867
Chromium,Hexavalent	mg/kg	9.48	9.24	47.4*	50-150	2.56	20	L543608-01	WG562385
TPH (GC/FID) High Fraction	ppm	37.2	47.1	46.9*	50-150	23.4	25	L544085-13	WG563222
o-Terphenyl				47.54*	50-150				WG563222

Batch number /Run number / Sample number cross reference

WG562618: R1913232: L543822-06
WG562843: R1914172: L543822-01 02 03 04 05 06 07 08
WG562820: R1914303: L543822-06
WG562990: R1914773: L543822-06
WG563012: R1914814: L543822-06
WG562867: R1915452: L543822-06
WG562385: R1916637: L543822-06
WG563179: R1918074: L543822-06
WG563222: R1919253: L543822-01 02 03 04 05 06 07 08
WG563275: R1921792: L543822-06

* * 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.



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Chris Hines / Matt Kasten
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2717 County Road 215, Suite 100
Parachute, CO 81635

Report Summary

Tuesday June 12, 2012

Report Number: L579054

Samples Received: 06/07/12

Client Project: 499-14-67

Description: West Hawk 499-14-67

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:

Jayred 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

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

June 12, 2012

Date Received : June 07, 2012
Description : West Hawk 499-14-67
Sample ID : 499-14-67-W.PIT-E.TOE-060512
Collected By : Bob Stockton
Collection Date : 06/05/12 15:23

ESC Sample # : L579054-01

Site ID : 499-14-67

Project # : 499-14-67

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	06/08/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	06/08/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	06/08/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	06/08/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	06/08/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	86.5		% Rec.	8021/8015	06/08/12	5
a,a,a-Trifluorotoluene(PID)	91.6		% Rec.	8021/8015	06/08/12	5
TPH (GC/FID) High Fraction	16000	400	mg/kg	3546/DRO	06/12/12	100
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	06/12/12	100

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: 06/12/12 14:43 Printed: 06/12/12 14:43

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L579054-01	WG596823	SAMP	o-Terphenyl	R2205833	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to 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
06/12/12 at 14:43:42

TSR Signing Reports: 358
R2 - Rush: Next Day

Try not to report benzene as BDL above a 250x dilution. ONLY log soil samples under this account. Waters get logged under ENCRCO.

Sample: L579054-01 Account: ENCANACO Received: 06/07/12 09:00 Due Date: 06/11/12 00:00 RPT Date: 06/12/12 14:43
Changed due date per JW. AV 6/8



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG596795	06/07/12 23:22
Ethylbenzene	< .0005	mg/kg			WG596795	06/07/12 23:22
Toluene	< .005	mg/kg			WG596795	06/07/12 23:22
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG596795	06/07/12 23:22
Total Xylene	< .0015	mg/kg			WG596795	06/07/12 23:22
a,a,a-Trifluorotoluene(FID)		% Rec.	90.96	59-128	WG596795	06/07/12 23:22
a,a,a-Trifluorotoluene(PID)		% Rec.	96.46	54-144	WG596795	06/07/12 23:22
TPH (GC/FID) High Fraction	< 4	ppm			WG596823	06/11/12 22:51
o-Terphenyl		% Rec.	71.79	50-150	WG596823	06/11/12 22:51

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0416	83.1	76-113	WG596795
Ethylbenzene	mg/kg	.05	0.0427	85.4	78-115	WG596795
Toluene	mg/kg	.05	0.0417	83.4	76-114	WG596795
Total Xylene	mg/kg	.15	0.126	83.7	81-118	WG596795
a,a,a-Trifluorotoluene(PID)				96.61	54-144	WG596795
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.66	121.	67-135	WG596795
a,a,a-Trifluorotoluene(FID)				96.98	59-128	WG596795
TPH (GC/FID) High Fraction	ppm	60	55.2	92.1	50-150	WG596823
o-Terphenyl				61.75	50-150	WG596823

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0407	0.0416	81.0	76-113	2.19	20	WG596795
Ethylbenzene	mg/kg	0.0415	0.0427	83.0	78-115	2.71	20	WG596795
Toluene	mg/kg	0.0406	0.0417	81.0	76-114	2.69	20	WG596795
Total Xylene	mg/kg	0.122	0.126	81.0	81-118	2.89	20	WG596795
a,a,a-Trifluorotoluene(PID)				95.90	54-144			WG596795
TPH (GC/FID) Low Fraction	mg/kg	6.64	6.66	121.	67-135	0.290	20	WG596795
a,a,a-Trifluorotoluene(FID)				96.84	59-128			WG596795
TPH (GC/FID) High Fraction	ppm	59.0	55.2	98.0	50-150	6.58	25	WG596823
o-Terphenyl				71.56	50-150			WG596823

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
TPH (GC/FID) Low Fraction	mg/kg	2.92	0	5.5	53.2*	55-109	L579091-03	WG596795
a,a,a-Trifluorotoluene(FID)					92.74	59-128		WG596795
Benzene	mg/kg	0.178	0	.05	71.0	32-137	L579054-01	WG596795
Ethylbenzene	mg/kg	0.0890	0	.05	35.6	10-150	L579054-01	WG596795
Toluene	mg/kg	0.130	0	.05	51.9	20-142	L579054-01	WG596795
Total Xylene	mg/kg	0.241	0	.15	32.1	16-141	L579054-01	WG596795
a,a,a-Trifluorotoluene(PID)					86.65	54-144		WG596795

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	3.61	2.92	65.7	55-109	21.2*	20	L579091-03	WG596795
a,a,a-Trifluorotoluene(FID)				93.63	59-128				WG596795
Benzene	mg/kg	0.161	0.178	64.3	32-137	9.93	39	L579054-01	WG596795

* 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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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Ethylbenzene	mg/kg	0.0597	0.0890	23.9	10-150	39.4	44	L579054-01	WG596795
Toluene	mg/kg	0.102	0.130	40.7	20-142	24.3	42	L579054-01	WG596795
Total Xylene	mg/kg	0.160	0.241	21.3	16-141	40.4	46	L579054-01	WG596795
a,a,a-Trifluorotoluene(PID)				84.13	54-144				WG596795

Batch number /Run number / Sample number cross reference

WG596795: R2202213: L579054-01
WG596823: R2205833: L579054-01

* * 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.



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Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
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Report Summary

Monday July 16, 2012

Report Number: L584553

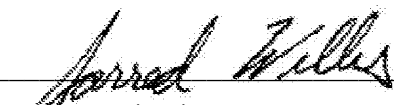
Samples Received: 07/12/12

Client Project:

Description: West Hawk

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:


Jayred 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

Chris Hines / Matt Kasten
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

July 16, 2012

Date Received : July 12, 2012
Description : West Hawk
Sample ID : 499-14-67-WPIT-E.TOE-071012
Collected By : Bob Stockton
Collection Date : 07/10/12 12:01

ESC Sample # : L584553-01

Site ID : 14-67

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	07/13/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/13/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/13/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/13/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/13/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.5		% Rec.	8021/8015	07/13/12	5
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	07/13/12	5
TPH (GC/FID) High Fraction	1300	80.	mg/kg	3546/DRO	07/16/12	20
Surrogate recovery(%)						
o-Terphenyl	31.7		% Rec.	3546/DRO	07/16/12	20

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: 07/16/12 17:07 Printed: 07/16/12 17:08

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L584553-01	WG602313	SAMP	o-Terphenyl	R2253695	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to 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
07/16/12 at 17:08:08

TSR Signing Reports: 358
R5 - Desired TAT

Try not to report benzene as BDL above a 250x dilution. ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM.

Sample: L584553-01 Account: ENCANACO Received: 07/12/12 09:00 Due Date: 07/19/12 00:00 RPT Date: 07/16/12 17:07



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG602322	07/12/12 16:41
Ethylbenzene	< .0005	mg/kg			WG602322	07/12/12 16:41
Toluene	< .005	mg/kg			WG602322	07/12/12 16:41
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG602322	07/12/12 16:41
Total Xylene	< .0015	mg/kg			WG602322	07/12/12 16:41
a,a,a-Trifluorotoluene(FID)		% Rec.	95.06	59-128	WG602322	07/12/12 16:41
a,a,a-Trifluorotoluene(PID)		% Rec.	101.6	54-144	WG602322	07/12/12 16:41
TPH (GC/FID) High Fraction	< 4	ppm			WG602313	07/13/12 08:51
o-Terphenyl		% Rec.	76.21	50-150	WG602313	07/13/12 08:51

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0501	100.	76-113	WG602322
Ethylbenzene	mg/kg	.05	0.0495	99.0	78-115	WG602322
Toluene	mg/kg	.05	0.0495	99.1	76-114	WG602322
Total Xylene	mg/kg	.15	0.155	103.	81-118	WG602322
a,a,a-Trifluorotoluene(PID)				101.7	54-144	WG602322
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.55	119.	67-135	WG602322
a,a,a-Trifluorotoluene(FID)				101.1	59-128	WG602322
TPH (GC/FID) High Fraction	ppm	60	57.0	95.0	50-150	WG602313
o-Terphenyl				92.16	50-150	WG602313

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0502	0.0501	100.	76-113	0.250	20	WG602322
Ethylbenzene	mg/kg	0.0492	0.0495	98.0	78-115	0.550	20	WG602322
Toluene	mg/kg	0.0491	0.0495	98.0	76-114	0.850	20	WG602322
Total Xylene	mg/kg	0.153	0.155	102.	81-118	1.28	20	WG602322
a,a,a-Trifluorotoluene(PID)				101.5	54-144			WG602322
TPH (GC/FID) Low Fraction	mg/kg	6.54	6.55	119.	67-135	0.0800	20	WG602322
a,a,a-Trifluorotoluene(FID)				101.4	59-128			WG602322
TPH (GC/FID) High Fraction	ppm	53.1	57.0	88.0	50-150	7.06	25	WG602313
o-Terphenyl				83.04	50-150			WG602313

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.245	0	.05	97.9	32-137	L584393-01	WG602322
Ethylbenzene	mg/kg	0.244	0	.05	97.7	10-150	L584393-01	WG602322
Toluene	mg/kg	0.252	0	.05	101.	20-142	L584393-01	WG602322
Total Xylene	mg/kg	0.764	0	.15	102.	16-141	L584393-01	WG602322
a,a,a-Trifluorotoluene(PID)					101.6	54-144		WG602322
TPH (GC/FID) Low Fraction	mg/kg	29.4	0	5.5	107.	55-109	L584393-01	WG602322
a,a,a-Trifluorotoluene(FID)					101.0	59-128		WG602322
TPH (GC/FID) High Fraction	ppm	49.0	0	60	81.7	50-150	L584354-01	WG602313
o-Terphenyl					63.40	50-150		WG602313

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.244	0.245	97.7	32-137	0.180	39	L584393-01	WG602322
Ethylbenzene	mg/kg	0.241	0.244	96.4	10-150	1.28	44	L584393-01	WG602322
Toluene	mg/kg	0.241	0.252	96.6	20-142	4.14	42	L584393-01	WG602322
Total Xylene	mg/kg	0.750	0.764	100.	16-141	1.90	46	L584393-01	WG602322
a,a,a-Trifluorotoluene(PID)	mg/kg	28.4	29.4	101.2	54-144	3.62	20	L584393-01	WG602322
TPH (GC/FID) Low Fraction				103.	55-109				WG602322
a,a,a-Trifluorotoluene(FID)				100.6	59-128				WG602322
TPH (GC/FID) High Fraction	ppm	58.1	49.0	96.8	50-150	16.8	40	L584354-01	WG602313
o-Terphenyl				76.39	50-150				WG602313

Batch number /Run number / Sample number cross reference

WG602322: R2253053: L584553-01
WG602313: R2253695: L584553-01

* * Calculations are performed prior to rounding of reported values.
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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.