

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

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2199



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
1/2/2013

1. OGCC Operator Number	100185	4. Contact Name	Chris Hines
2. Name of Operator	Encana Oil & Gas (USA) Inc.	Phone:	(970) 285-2653
3. Address:	143 Diamond Ave	Fax:	(970) 285-2619
City:	Parachute	State:	CO
Zip:	81635		
5. API Number	05- 335794 (Location ID)	OGCC Facility ID Number	281088
6. Well/Facility Name	N Parachute	7. Well/Facility Number	J22 596
8. Location (Qtr/Sec, Twp, Rng, Meridian):	NWSE, Sec 22, T5S, R96W, 6th PM		
9. County:	Garfield	10. Field Name	Grand Valley
11. Federal, Indian or State Lease Number:	NA		

Complete the Attachment
Checklist

OP OGCC

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"/>	<input type="checkbox"/>
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"/>
Bottomhole location Qtr/Sec, Twp, Rng, Mer		
Latitude	Distance to nearest property line	Distance to nearest bldg, public rd, utility or RR
Longitude	Distance to nearest lease line	Is location in a High Density Area (rule 603b)? Yes/No
Ground Elevation	Distance to nearest well same formation	Surface owner consultation date
GPS DATA:		
Date of Measurement	PDOP Reading	Instrument Operator's Name
<input type="checkbox"/> CHANGE SPACING UNIT	Formation	Formation Code
	Spacing order number	Unit Acreage
	Unit configuration	
<input type="checkbox"/> CHANGE OF OPERATOR (prior to drilling):	<input type="checkbox"/> CHANGE WELL NAME	NUMBER
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 (6 mos from sale 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: March, 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 checked="" type="checkbox"/> E&P Waste Disposal
	<input type="checkbox"/> Beneficial Reuse of E&P Waste
	<input 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: Christopher C. Hines
Print Name: Christopher C. HinesDate: 01-02-13 Email: christopher.hines@encana.com
Title: Environmental Field Coordinator

COGCC Approved

Title

FOR

Date:

01/22/2013

CONDITIONS OF APPROVAL, IF ANY:

Chris Canfield
EPS NW Region

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: 100185 API Number: 335794 (Location ID)

2. Name of Operator: Encana Oil & Gas (USA) Inc. OGCC Facility ID #: 281088

3. Well/Facility Name: N Parachute Well/Facility Number: J22 596

4. Location (QtrQtr, Sec, Twp, Rng, Meridian): NWSE, Sec 22, T5S, R96W, 6th PM

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

REPORT OF WORK COMPLETED

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Sundry Notice (Form 4) in conjunction with the final closure and backfilling of a lined earthen pit (Facility #: 281088) on Encana's J22 well pad (Location ID: 335794) in Encana's North Parachute area of operation. In support of this effort, samples were collected in accordance with a Site Investigation and Remediation Workplan (Rem # 6983).

The J22 well pad is not found within any of the COGCC 317B, Public Water System Protection areas. The location is within a sensitive area based on distance to surface water, however depth to groundwater is greater than 20 feet. According to the soil survey for this area there is no frequency of flooding or ponding at this location.

In accordance with COGCC Rule 907 for the management of exploration and production (E&P) waste, Encana collects representative samples of potentially impacted material on each of its locations for the purpose of comparing constituent levels to the allowable limits identified by the COGCC. All samples collected on behalf of Encana's Parachute Field Office are collected and documented in accordance with the Environmental Department's Sampling Procedures. Location background samples are also collected to establish a baseline for naturally occurring concentrations/levels for applicable constituents of concern. Field sampling documentation and laboratory reports not provided with this form are kept on file at the Parachute Field Office and are available upon request.

Initial below-liner samples were collected on March 7, 2012. Laboratory results indicated that Total Petroleum Hydrocarbons (TPH), benzene, Sodium Absorption Ratio (SAR), and arsenic values were above the allowable concentrations identified in COGCC Table 910-1. In accordance with Rule 905.c, a Form 19 was submitted on March 29, 2012 to document the liner failure (Spill #2223744). Conventional excavation of impacted material using heavy equipment was conducted on March 7, 2012 to verify removal of TPH and benzene impacted material. Post-excavation samples indicated that SAR and arsenic values remained above the allowable levels identified in Table 910-1. Background arsenic values for the area range from 7.7 to 59 ppm and are included in the Laboratory Results Summary Table. Consistent with Footnote 1 to Table 910-1, Encana requests that the background values be considered as alternative to the limit identified in Table 910-1. Consistent with reclamation objectives and approved handling of material with high levels of EC, SAR, and pH, the pit bottom was covered by more than three feet (3') of clean native fill and topsoil during backfilling operations.

During conventional excavation of benzene and TPH impacted material, approximately 800 cubic yards of spoil was generated. The spoil was transported east-southeast 0.8 miles across Encana owned surface and roads to Encana's N23 well pad (Location # 335622) for remediation. Upon successful completion of remediation efforts, this material was buried in the open pit excavation on Encana's B26 well pad (Location # 335600), 0.5 miles southeast of the N23. Disposal in the B26 pit excavation will be documented in the Form 4 and Notification of Completion submitted as part of that pit closure.

NOTIFICATION OF COMPLETION

This Sundry Notice is also being submitted as the Notification of Completion for Remediation Project # 6983. If the information provided is satisfactory, please provide documentation of the closure of this remediation project and pit.

ATTACHMENTS

- Topographic Location Map
- J22 Site Diagram
- Laboratory Results Summary Table
- Laboratory Reports – Pit Investigation (Background Lab Reports available upon request)

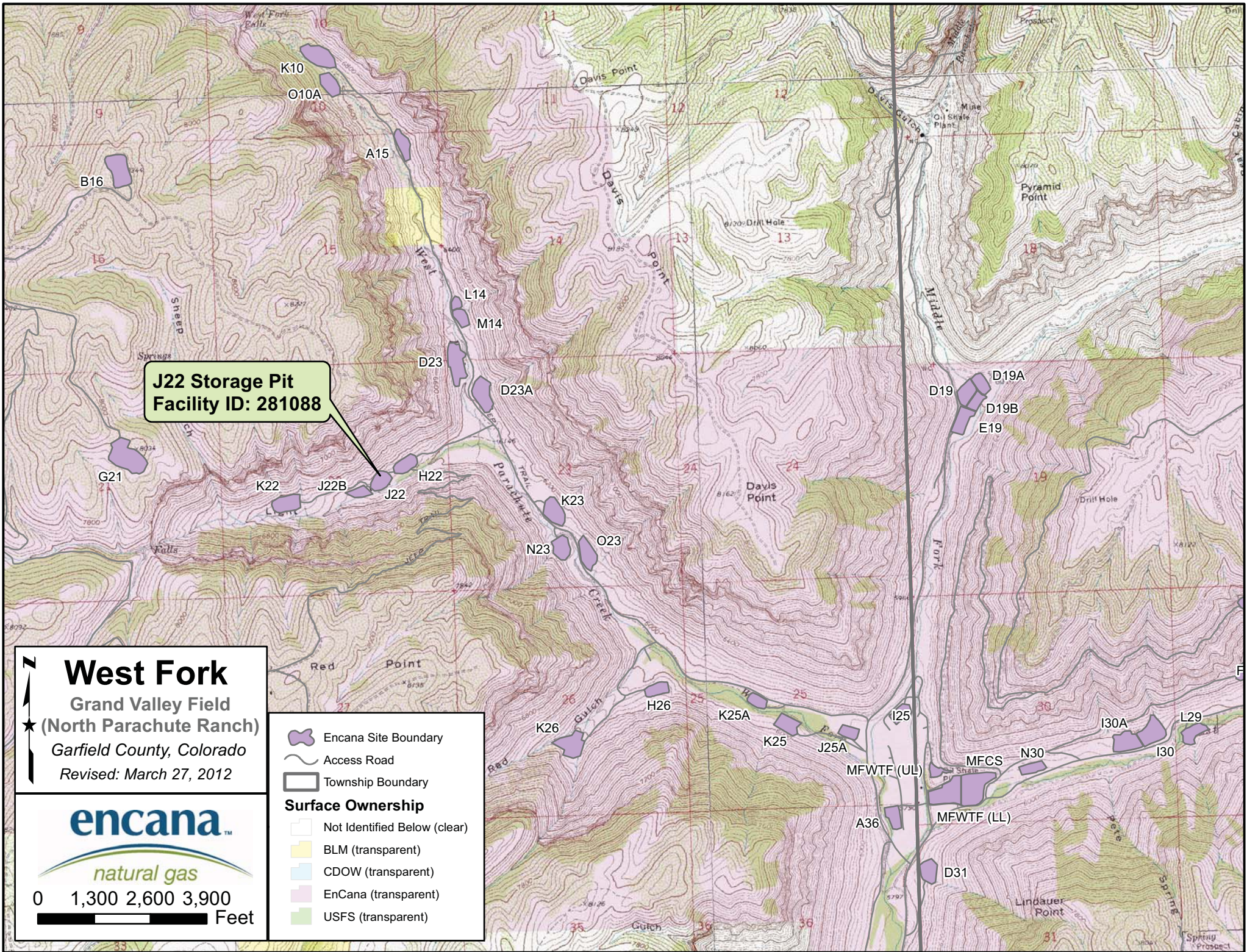
**J22 Storage Pit
Facility ID: 281088**

West Fork
Grand Valley Field
(North Parachute Ranch)
Garfield County, Colorado
Revised: March 27, 2012

encana
natural gas

0 1,300 2,600 3,900 Feet

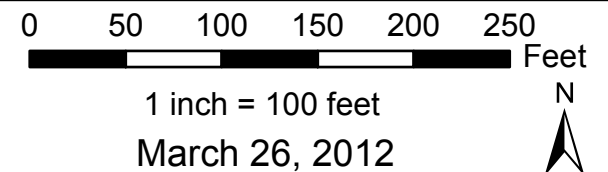
- Encana Site Boundary
- Access Road
- Township Boundary
- Surface Ownership**
 - Not Identified Below (clear)
 - BLM (transparent)
 - CDOW (transparent)
 - EnCana (transparent)
 - USFS (transparent)





Encana Oil and Gas

J22 Site Diagram
NWSE, Section 22, T5S, R96W, 6th PM
Garfield County, Colorado



Laboratory Results Summary Table

Analytes (BDL = Below Detection Limit; ND = Non Detect)

Allowable Concentration →				Organic Compounds in Soil (mg/kg [ppm])																	Inorganics in Soil			Metals in Soil (mg/kg [ppm])															
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	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	
J22	03/07/12	Pit	Center (910) PRE	4760	160	4600	0.88	6.8	0.88	13	0.3	0.29	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.3	BDL	0.76	BDL	2.1	55	8.1	5.4	1200	0.44	18	BDL	33	14	0.19	18	BDL	BDL	65
J22	03/07/12	Pit	X center (910) POST	9.2	BDL	9.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.8	23	8.3	6.6	280	0.48	12	BDL	16	9.7	BDL	14	BDL	BDL	70	
J22	03/07/12	Pit	Spoils	2140	140	2000	BDL	BDL	0.36	3	0.092	0.075	BDL	BDL	BDL	BDL	BDL	BDL	0.012	0.16	BDL	0.31	0.022	2.2	30	8.3	6.7	1000	0.36	15	BDL	19	10	0.031	11	BDL	BDL	51	
J22	03/07/12	Pit	E bottom PRE	102.8	2.8	100	0.0056	0.031	0.015	0.48																													
J22	03/07/12	Pit	N wall PRE	100	BDL	100	BDL	BDL	BDL	BDL																													
J22	03/07/12	Pit	W bottom PRE	470.83	0.83	470	BDL	BDL	BDL	0.074																													
J22	03/07/12	Pit	SE wall PRE	72	BDL	72	BDL	BDL	BDL	BDL																													
J22	03/07/12	Pit	X Ewall POST	100	BDL	100	BDL	BDL	BDL	BDL																													
J22	03/07/12	Pit	X Ebottom POST	BDL	BDL	BDL	BDL	BDL	BDL	BDL																													
J22	03/07/12	Pit	X Swall POST	85	BDL	85	BDL	BDL	BDL	BDL																													
H26	11/10/10	Background	SE																									7.7											
H15	12/29/11	Background	S																									9.7											
A15	05/17/11	Background	NE																									11											
K22	11/10/10	Background	SW																									13											
K22	11/10/10	Background	N																									13											
F23	08/29/11	Background	E																									14											
K22	07/22/09	Background		40.6			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.324	0.3	8.2	14.5		0.55	26.6	1	27.5	17.9	0.017	17.8	1.3	0.049	83.7	
A15	05/17/11	Background	E																									15											
F23	08/29/11	Background	SE																									15											
K22	11/10/10	Background	W																									15											
D23	06/29/10	Background	NW																									15.7											
A15	05/17/11	Background	NW																									16											
F23	08/29/11	Background	N																									16											
H15	12/29/11	Background	E																									16											
J22	07/17/09	Background		39			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.461	1.9	8.8	17.4		1.2	15.7	18.9	32.4	23.3	0.025	19.7	2.1	0.26	117	
A15	05/17/11	Background	S																									18											
H26A	08/26/11	Background	NW																									18											
H26A	08/26/11	Background	SW																									18											
A15	05/17/11	Background	N																									19											
H15	12/29/11	Background	NE																									19											
H26	11/10/10	Background	SW																									19											
H26	11/10/10	Background	SSE																									19											
F23	08/29/11	Background	NE																									20											
H26A	08/26/11	Background	W																									20											
H26A	08/26/11	Background	SE																									20											
H26	11/10/10	Background	S																									24											
H26A	08/26/11	Background	N																									26											
H26	11/10/10	Background	SSW																									27											
K22	11/10/10	Background	E																									28											
H15	12/29/11	Background	SE																									52											
H15	12/29/11	Background	N																									59											



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

Wednesday March 14, 2012

Report Number: L564123

Samples Received: 03/09/12

Client Project:

Description: J22 Pit Bottom

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.

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.



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

March 14, 2012

Date Received : March 09, 2012
Description : J22 Pit Bottom

Sample ID : J22A-PIT-C-030712

Collected By : Matt Kasten
Collection Date : 03/07/12 07:53

ESC Sample # : L564123-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	03/12/12	1
Chromium,Trivalent	18.	2.0	mg/kg	Calc.	03/11/12	1
ORP	-91.		mV	2580	03/09/12	1
pH	8.1		su	9045D	03/12/12	1
Sodium Adsorption Ratio	55.			Calc.	03/13/12	1
Specific Conductance	2100		umhos/cm	9050AMod	03/09/12	1
Mercury	0.19	0.020	mg/kg	7471	03/12/12	1
Arsenic	5.4	1.0	mg/kg	6010B	03/11/12	1
Barium	1200	0.25	mg/kg	6010B	03/11/12	1
Cadmium	0.44	0.25	mg/kg	6010B	03/11/12	1
Chromium	18.	0.50	mg/kg	6010B	03/11/12	1
Copper	33.	1.0	mg/kg	6010B	03/11/12	1
Lead	14.	0.25	mg/kg	6010B	03/11/12	1
Nickel	18.	2.0	mg/kg	6010B	03/12/12	2
Selenium	BDL	1.0	mg/kg	6010B	03/11/12	1
Silver	BDL	0.50	mg/kg	6010B	03/11/12	1
Zinc	65.	3.0	mg/kg	6010B	03/12/12	2

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: 03/14/12 10:42 Printed: 03/14/12 10:42
L564123-01 (PH) - 8.1@22.1c

REPORT OF ANALYSIS

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 Pit Bottom
Sample ID : J22A-PIT-EBOT-030712
Collected By : Matt Kasten
Collection Date : 03/07/12 07:58

ESC Sample # : L564123-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0056	0.0025	mg/kg	8021/8015	03/09/12	5
Toluene	0.031	0.025	mg/kg	8021/8015	03/09/12	5
Ethylbenzene	0.015	0.0025	mg/kg	8021/8015	03/09/12	5
Total Xylene	0.48	0.0075	mg/kg	8021/8015	03/09/12	5
TPH (GC/FID) Low Fraction	2.8	0.50	mg/kg	GRO	03/09/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	100.		% Rec.	8021/8015	03/09/12	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	03/09/12	5
TPH (GC/FID) High Fraction	100	4.0	mg/kg	3546/DRO	03/12/12	1
Surrogate recovery(%)						
o-Terphenyl	84.8		% Rec.	3546/DRO	03/12/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 03/14/12 10:42 Printed: 03/14/12 10:42

REPORT OF ANALYSIS

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 Pit Bottom
Sample ID : J22A-PIT-NWALL-030712
Collected By : Matt Kasten
Collection Date : 03/07/12 08:02

ESC Sample # : L564123-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	03/09/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	03/09/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	03/09/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.9		% Rec.	8021/8015	03/09/12	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	03/09/12	5
TPH (GC/FID) High Fraction	14.	4.0	mg/kg	3546/DRO	03/12/12	1
Surrogate recovery(%)						
o-Terphenyl	90.0		% Rec.	3546/DRO	03/12/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 03/14/12 10:42 Printed: 03/14/12 10:42

REPORT OF ANALYSIS

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 Pit Bottom
Sample ID : J22A-PIT-SEWALL-030712
Collected By : Matt Kasten
Collection Date : 03/07/12 08:06

ESC Sample # : L564123-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	03/09/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	03/09/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	03/09/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.9		% Rec.	8021/8015	03/09/12	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	03/09/12	5
TPH (GC/FID) High Fraction	72.	40.	mg/kg	3546/DRO	03/12/12	10
Surrogate recovery(%)						
o-Terphenyl	94.8		% Rec.	3546/DRO	03/12/12	10

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 Pit Bottom
Sample ID : J22A-PIT-WBOT-030712
Collected By : Matt Kasten
Collection Date : 03/07/12 08:11

ESC Sample # : L564123-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	03/09/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Total Xylene	0.074	0.0075	mg/kg	8021/8015	03/09/12	5
TPH (GC/FID) Low Fraction	0.83	0.50	mg/kg	GRO	03/09/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.5		% Rec.	8021/8015	03/09/12	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	03/09/12	5
TPH (GC/FID) High Fraction	470	20.	mg/kg	3546/DRO	03/13/12	5
Surrogate recovery(%)						
o-Terphenyl	85.2		% Rec.	3546/DRO	03/13/12	5

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 Pit Bottom
Sample ID : J22A-PIT-C-030712
Collected By : Matt Kasten
Collection Date : 03/07/12 07:53

ESC Sample # : L564123-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.88	0.12	mg/kg	8021/8015	03/09/12	250
Toluene	6.8	1.2	mg/kg	8021/8015	03/09/12	250
Ethylbenzene	0.88	0.12	mg/kg	8021/8015	03/09/12	250
Total Xylene	13.	0.38	mg/kg	8021/8015	03/09/12	250
TPH (GC/FID) Low Fraction	160	25.	mg/kg	GRO	03/09/12	250
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	101.		% Rec.	8021/8015	03/09/12	250
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	03/09/12	250
TPH (GC/FID) High Fraction	4600	80.	mg/kg	3546/DRO	03/12/12	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	03/12/12	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.29	0.12	mg/kg	8270C-SIM	03/13/12	20
Acenaphthene	0.30	0.12	mg/kg	8270C-SIM	03/13/12	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Chrysene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Fluorene	1.3	0.12	mg/kg	8270C-SIM	03/13/12	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Naphthalene	0.76	0.12	mg/kg	8270C-SIM	03/13/12	20
Phenanthrene	0.83	0.12	mg/kg	8270C-SIM	03/13/12	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
1-Methylnaphthalene	1.2	0.12	mg/kg	8270C-SIM	03/13/12	20
2-Methylnaphthalene	1.5	0.12	mg/kg	8270C-SIM	03/13/12	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	03/13/12	20
2-Fluorobiphenyl	0.00		% Rec.	8270C-SIM	03/13/12	20
p-Terphenyl-d14	0.00		% Rec.	8270C-SIM	03/13/12	20

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: 03/14/12 10:42 Printed: 03/14/12 10:42

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L564123-01	WG582279	SAMP	pH	R2068774	T8
L564123-06	WG582209	SAMP	Anthracene	R2068533	J3
	WG582209	SAMP	Benzo(a)anthracene	R2068533	J3
	WG582209	SAMP	Benzo(k)fluoranthene	R2068533	J3
	WG582209	SAMP	Chrysene	R2068533	J3
	WG582209	SAMP	Fluorene	R2068533	J3
	WG582209	SAMP	Phenanthrene	R2068533	J3
	WG582209	SAMP	Pyrene	R2068533	J3
	WG582209	SAMP	Nitrobenzene-d5	R2068533	J7
	WG582209	SAMP	2-Fluorobiphenyl	R2068533	J7
	WG582209	SAMP	p-Terphenyl-d14	R2068533	J7
	WG582013	SAMP	o-Terphenyl	R2069033	J7

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
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.

Summary of Remarks For Samples Printed
03/14/12 at 10:42:46

TSR Signing Reports: 358
R4 - Rush: Three 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: L564123-01 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/14/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564123-02 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564123-03 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564123-04 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564123-05 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564123-06 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42



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Quality Assurance Report
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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

March 14, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG582072	03/09/12 14:26
Ethylbenzene	< .0005	mg/kg			WG582072	03/09/12 14:26
Toluene	< .005	mg/kg			WG582072	03/09/12 14:26
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG582072	03/09/12 14:26
Total Xylene	< .0015	mg/kg			WG582072	03/09/12 14:26
a,a,a-Trifluorotoluene(FID)		% Rec.	98.49	59-128	WG582072	03/09/12 14:26
a,a,a-Trifluorotoluene(PID)		% Rec.	102.3	54-144	WG582072	03/09/12 14:26
Specific Conductance	2.36	umhos/cm			WG582089	03/09/12 19:49
Arsenic	< 1	mg/kg			WG582166	03/11/12 14:50
Barium	< .25	mg/kg			WG582166	03/11/12 14:50
Cadmium	< .25	mg/kg			WG582166	03/11/12 14:50
Chromium	< .5	mg/kg			WG582166	03/11/12 14:50
Copper	< 1	mg/kg			WG582166	03/11/12 14:50
Lead	< .25	mg/kg			WG582166	03/11/12 14:50
Nickel	< 1	mg/kg			WG582166	03/11/12 14:50
Selenium	< 1	mg/kg			WG582166	03/11/12 14:50
Silver	< .5	mg/kg			WG582166	03/11/12 14:50
Zinc	< 1.5	mg/kg			WG582166	03/11/12 14:50
Chromium,Hexavalent	< 2	mg/kg			WG581521	03/12/12 13:08
TPH (GC/FID) High Fraction	< 4	ppm			WG582206	03/12/12 11:06
o-Terphenyl		% Rec.	71.52	50-150	WG582206	03/12/12 11:06
Mercury	< .02	mg/kg			WG582127	03/12/12 09:07
1-Methylnaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Chloronaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Methylnaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
Acenaphthene	< .006	mg/kg			WG582209	03/11/12 17:15
Acenaphthylene	< .006	mg/kg			WG582209	03/11/12 17:15
Anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(a)anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(a)pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(b)fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(g,h,i)perylene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(k)fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Chrysene	< .006	mg/kg			WG582209	03/11/12 17:15
Dibenz(a,h)anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Fluorene	< .006	mg/kg			WG582209	03/11/12 17:15
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
Naphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
Phenanthrene	< .006	mg/kg			WG582209	03/11/12 17:15
Pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Fluorobiphenyl		% Rec.	86.78	34-129	WG582209	03/11/12 17:15
Nitrobenzene-d5		% Rec.	70.44	14-141	WG582209	03/11/12 17:15
p-Terphenyl-d14		% Rec.	98.59	25-139	WG582209	03/11/12 17:15
pH	5.00	su			WG582279	03/12/12 15:00

* Performance of this Analyte is outside of established criteria.

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Est. 1970

March 14, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) High Fraction	< 4	ppm			WG582013	03/12/12 13:23
o-Terphenyl		% Rec.	86.10	50-150	WG582013	03/12/12 13:23

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
ORP	mV	0	0	0	20	L564123-01	WG582088
Specific Conductance	umhos/cm	2100	2100	0.957	20	L564123-01	WG582089
Arsenic	mg/kg	2.90	2.95	2.40	20	L564079-07	WG582166
Barium	mg/kg	140.	140.	2.90	20	L564079-07	WG582166
Cadmium	mg/kg	0.440	0.484	8.62	20	L564079-07	WG582166
Chromium	mg/kg	31.0	32.7	4.69	20	L564079-07	WG582166
Copper	mg/kg	41.0	40.1	1.24	20	L564079-07	WG582166
Lead	mg/kg	23.0	22.0	3.13	20	L564079-07	WG582166
Nickel	mg/kg	43.0	44.0	3.23	20	L564079-07	WG582166
Selenium	mg/kg	0	0	0	20	L564079-07	WG582166
Silver	mg/kg	0	0	0	20	L564079-07	WG582166
Zinc	mg/kg	81.0	69.4	15.1	20	L564079-07	WG582166
Chromium,Hexavalent	mg/kg	0	0	0	20	L563330-01	WG581521
Mercury	mg/kg	0	0	0	20	L564061-01	WG582127
pH	su	9.40	9.40	0.213	1	L564061-01	WG582279
pH	su	6.70	6.70	0.595	1	L564242-03	WG582279

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0525	105.	76-113	WG582072
Ethylbenzene	mg/kg	.05	0.0521	104.	78-115	WG582072
Toluene	mg/kg	.05	0.0517	103.	76-114	WG582072
Total Xylene	mg/kg	.15	0.157	105.	81-118	WG582072
a,a,a-Trifluorotoluene(FID)				100.6	59-128	WG582072
a,a,a-Trifluorotoluene(PID)				102.7	54-144	WG582072
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.73	104.	67-135	WG582072
a,a,a-Trifluorotoluene(FID)				104.9	59-128	WG582072
a,a,a-Trifluorotoluene(PID)				107.7	54-144	WG582072
ORP	mV	229	228.	99.6	95.6-104.37	WG582088
Specific Conductance	umhos/cm	350	345.	98.6	85-115	WG582089
Arsenic	mg/kg	92.6	90.8	98.1	82.9-117	WG582166
Barium	mg/kg	169	171.	101.	82.8-117	WG582166
Cadmium	mg/kg	61.8	59.8	96.8	83.3-117	WG582166
Chromium	mg/kg	71.3	68.9	96.6	81.8-118	WG582166
Copper	mg/kg	81.2	81.7	101.	83.9-116	WG582166
Lead	mg/kg	92.4	96.0	104.	83.3-117	WG582166

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Analyte	Units	Laboratory Control	Sample	% Rec	Limit	Batch
		Known Val	Result			
Nickel	mg/kg	59.1	57.3	97.0	83.8-116	WG582166
Selenium	mg/kg	89.5	87.3	97.5	79-121	WG582166
Silver	mg/kg	34.4	33.4	97.1	66.3-134	WG582166
Zinc	mg/kg	141	136.	96.5	80.9-119	WG582166
Chromium, Hexavalent	mg/kg	203	160.	78.8	50-150	WG581521
TPH (GC/FID) High Fraction	ppm	60	46.2	77.1	50-150	WG582206
o-Terphenyl				77.36	50-150	WG582206
Mercury	mg/kg	3.77	3.32	88.1	71.6-128	WG582127
1-Methylnaphthalene	mg/kg	.033	0.0229	69.4	48-113	WG582209
2-Chloronaphthalene	mg/kg	.033	0.0227	68.7	51-114	WG582209
2-Methylnaphthalene	mg/kg	.033	0.0239	72.5	44-109	WG582209
Acenaphthene	mg/kg	.033	0.0250	75.6	52-108	WG582209
Acenaphthylene	mg/kg	.033	0.0261	79.0	51-110	WG582209
Anthracene	mg/kg	.033	0.0262	79.4	58-120	WG582209
Benzo(a)anthracene	mg/kg	.033	0.0278	84.1	54-110	WG582209
Benzo(a)pyrene	mg/kg	.033	0.0279	84.6	56-118	WG582209
Benzo(b)fluoranthene	mg/kg	.033	0.0272	82.5	55-114	WG582209
Benzo(g,h,i)perylene	mg/kg	.033	0.0266	80.5	48-130	WG582209
Benzo(k)fluoranthene	mg/kg	.033	0.0269	81.4	55-122	WG582209
Chrysene	mg/kg	.033	0.0260	78.6	57-118	WG582209
Dibenz(a,h)anthracene	mg/kg	.033	0.0267	80.9	53-122	WG582209
Fluoranthene	mg/kg	.033	0.0263	79.6	58-118	WG582209
Fluorene	mg/kg	.033	0.0255	77.4	54-109	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0266	80.6	51-125	WG582209
Naphthalene	mg/kg	.033	0.0220	66.6	45-105	WG582209
Phenanthrene	mg/kg	.033	0.0242	73.4	53-114	WG582209
Pyrene	mg/kg	.033	0.0265	80.4	53-121	WG582209
2-Fluorobiphenyl				73.39	34-129	WG582209
Nitrobenzene-d5				60.30	14-141	WG582209
p-Terphenyl-d14				91.67	25-139	WG582209
pH	su	7.98	7.96	99.7	98-101	WG582279
TPH (GC/FID) High Fraction	ppm	60	38.9	64.8	50-150	WG582013
o-Terphenyl				75.34	50-150	WG582013

Analyte	Units	Laboratory Control		Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0509	0.0525	102.	76-113	3.11	20	WG582072
Ethylbenzene	mg/kg	0.0503	0.0521	101.	78-115	3.49	20	WG582072
Toluene	mg/kg	0.0499	0.0517	100.	76-114	3.61	20	WG582072
Total Xylene	mg/kg	0.152	0.157	101.	81-118	3.42	20	WG582072
a,a,a-Trifluorotoluene(FID)				99.28	59-128			WG582072
a,a,a-Trifluorotoluene(PID)				101.5	54-144			WG582072
TPH (GC/FID) Low Fraction	mg/kg	5.86	5.73	106.	67-135	2.23	20	WG582072
a,a,a-Trifluorotoluene(FID)				105.2	59-128			WG582072
a,a,a-Trifluorotoluene(PID)				108.3	54-144			WG582072

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March 14, 2012

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
ORP	mV	230.	228.	100.		95.6-104.37	0.873	20	WG582088
Specific Conductance	umhos/	342.	345.	98.0		85-115	0.873	20	WG582089
Chromium, Hexavalent	mg/kg	179.	160.	88.0		50-150	11.2	20	WG581521
TPH (GC/FID) High Fraction	ppm	49.0	46.2	82.0		50-150	5.77	25	WG582206
o-Terphenyl				84.17		50-150			WG582206
1-Methylnaphthalene	mg/kg	0.0283	0.0229	86.0		48-113	21.1	24	WG582209
2-Chloronaphthalene	mg/kg	0.0286	0.0227	87.0		51-114	23.2	24	WG582209
2-Methylnaphthalene	mg/kg	0.0281	0.0239	85.0		44-109	15.9	24	WG582209
Acenaphthene	mg/kg	0.0309	0.0250	94.0		52-108	21.3	22	WG582209
Acenaphthylene	mg/kg	0.0320	0.0261	97.0		51-110	20.6	21	WG582209
Anthracene	mg/kg	0.0323	0.0262	98.0		58-120	20.7*	20	WG582209
Benzo(a)anthracene	mg/kg	0.0353	0.0278	107.		54-110	23.8*	22	WG582209
Benzo(a)pyrene	mg/kg	0.0344	0.0279	104.		56-118	20.8	21	WG582209
Benzo(b)fluoranthene	mg/kg	0.0325	0.0272	98.0		55-114	17.6	20	WG582209
Benzo(g,h,i)perylene	mg/kg	0.0321	0.0266	97.0		48-130	18.8	20	WG582209
Benzo(k)fluoranthene	mg/kg	0.0346	0.0269	105.		55-122	25.3*	25	WG582209
Chrysene	mg/kg	0.0327	0.0260	99.0		57-118	22.9*	20	WG582209
Dibenz(a,h)anthracene	mg/kg	0.0325	0.0267	98.0		53-122	19.6	20	WG582209
Fluoranthene	mg/kg	0.0316	0.0263	96.0		58-118	18.4	20	WG582209
Fluorene	mg/kg	0.0314	0.0255	95.0		54-109	20.7*	20	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	0.0327	0.0266	99.0		51-125	20.5	21	WG582209
Naphthalene	mg/kg	0.0270	0.0220	82.0		45-105	20.6	24	WG582209
Phenanthrene	mg/kg	0.0302	0.0242	92.0		53-114	22.0*	20	WG582209
Pyrene	mg/kg	0.0333	0.0265	101.		53-121	22.6*	20	WG582209
2-Fluorobiphenyl				95.70		34-129			WG582209
Nitrobenzene-d5				76.14		14-141			WG582209
p-Terphenyl-d14				115.6		25-139			WG582209
pH	su	7.95	7.96	100.		98-101	0.126	20	WG582279
TPH (GC/FID) High Fraction	ppm	45.0	38.9	75.0		50-150	14.6	25	WG582013
o-Terphenyl				86.83		50-150			WG582013

Analyte	Units	MS Res	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
			Ref Res						
Benzene	mg/kg	0.230	0.00850	.05	88.6		32-137	L563777-02	WG582072
Ethylbenzene	mg/kg	0.242	0.0580	.05	73.6		10-150	L563777-02	WG582072
Toluene	mg/kg	0.242	0	.05	96.8		20-142	L563777-02	WG582072
Total Xylene	mg/kg	0.735	0.0590	.15	90.1		16-141	L563777-02	WG582072
a,a,a-Trifluorotoluene(FID)					97.62		59-128		WG582072
a,a,a-Trifluorotoluene(PID)					103.4		54-144		WG582072
TPH (GC/FID) Low Fraction	mg/kg	22.5	12.0	5.5	38.2*		55-109	L563777-02	WG582072
a,a,a-Trifluorotoluene(FID)					103.3		59-128		WG582072
a,a,a-Trifluorotoluene(PID)					106.2		54-144		WG582072
Arsenic	mg/kg	47.0	2.95	50	88.1		75-125	L564079-07	WG582166

* Performance of this Analyte is outside of established criteria.

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Barium	mg/kg	183.	140.	50	86.0	75-125	L564079-07	WG582166
Cadmium	mg/kg	44.0	0.484	50	87.0	75-125	L564079-07	WG582166
Chromium	mg/kg	77.0	32.7	50	88.6	75-125	L564079-07	WG582166
Copper	mg/kg	89.2	40.1	50	98.2	75-125	L564079-07	WG582166
Lead	mg/kg	67.5	22.0	50	91.0	75-125	L564079-07	WG582166
Nickel	mg/kg	85.8	44.0	50	83.6	75-125	L564079-07	WG582166
Selenium	mg/kg	38.0	0	50	76.0	75-125	L564079-07	WG582166
Silver	mg/kg	45.4	0	50	90.8	75-125	L564079-07	WG582166
Zinc	mg/kg	121.	69.4	50	103.	75-125	L564079-07	WG582166
Chromium, Hexavalent	mg/kg	12.5	0.840	20	58.3	50-150	L563339-01	WG581521
Mercury	mg/kg	0.243	0	.25	97.2	70-130	L564061-01	WG582127
1-Methylnaphthalene	mg/kg	0.0262	0	.033	79.5	25-155	L564234-06	WG582209
2-Chloronaphthalene	mg/kg	0.0267	0	.033	80.8	31-153	L564234-06	WG582209
2-Methylnaphthalene	mg/kg	0.0261	0	.033	79.0	22-172	L564234-06	WG582209
Acenaphthene	mg/kg	0.0289	0	.033	87.6	43-133	L564234-06	WG582209
Acenaphthylene	mg/kg	0.0311	0	.033	94.3	42-146	L564234-06	WG582209
Anthracene	mg/kg	0.0306	0	.033	92.7	38-153	L564234-06	WG582209
Benzo(a)anthracene	mg/kg	0.0332	0	.033	101.	31-142	L564234-06	WG582209
Benzo(a)pyrene	mg/kg	0.0314	0	.033	95.3	26-152	L564234-06	WG582209
Benzo(b)fluoranthene	mg/kg	0.0306	0	.033	92.7	10-188	L564234-06	WG582209
Benzo(g,h,i)perylene	mg/kg	0.0298	0	.033	90.2	10-176	L564234-06	WG582209
Benzo(k)fluoranthene	mg/kg	0.0305	0	.033	92.3	22-163	L564234-06	WG582209
Chrysene	mg/kg	0.0323	0	.033	98.0	26-146	L564234-06	WG582209
Dibenz(a,h)anthracene	mg/kg	0.0285	0	.033	86.4	10-160	L564234-06	WG582209
Fluoranthene	mg/kg	0.0298	0	.033	90.2	23-160	L564234-06	WG582209
Fluorene	mg/kg	0.0302	0	.033	91.4	44-143	L564234-06	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	0.0294	0	.033	89.0	10-157	L564234-06	WG582209
Naphthalene	mg/kg	0.0255	0	.033	77.2	22-156	L564234-06	WG582209
Phenanthrene	mg/kg	0.0282	0	.033	85.4	23-164	L564234-06	WG582209
Pyrene	mg/kg	0.0307	0	.033	93.1	12-170	L564234-06	WG582209
2-Fluorobiphenyl					91.05	34-129		WG582209
Nitrobenzene-d5					74.40	14-141		WG582209
p-Terphenyl-d14					104.2	25-139		WG582209
TPH (GC/FID) High Fraction	ppm	41.2	0	60	68.6	50-150	L564076-09	WG582013
o-Terphenyl					76.95	50-150		WG582013
TPH (GC/FID) High Fraction	ppm	39.3	0	60	65.6	50-150	L564228-02	WG582206
o-Terphenyl					64.19	50-150		WG582206

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.238	0.230	91.6	32-137	3.24	39	L563777-02	WG582072
Ethylbenzene	mg/kg	0.240	0.242	72.8	10-150	0.830	44	L563777-02	WG582072
Toluene	mg/kg	0.235	0.242	94.2	20-142	2.71	42	L563777-02	WG582072
Total Xylene	mg/kg	0.724	0.735	88.6	16-141	1.48	46	L563777-02	WG582072
a,a,a-Trifluorotoluene(FID)				100.1	59-128				WG582072
a,a,a-Trifluorotoluene(PID)				101.1	54-144				WG582072
TPH (GC/FID) Low Fraction	mg/kg	26.3	22.5	52.0*	55-109	15.6	20	L563777-02	WG582072
a,a,a-Trifluorotoluene(FID)				104.2	59-128				WG582072

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
a,a,a-Trifluorotoluene(PID)				107.8	54-144					
Arsenic	mg/kg	46.7	47.0	87.5	75-125	0.640	20	L564079-07		WG582166
Barium	mg/kg	190.	183.	100.	75-125	3.75	20	L564079-07		WG582166
Cadmium	mg/kg	43.7	44.0	86.4	75-125	0.684	20	L564079-07		WG582166
Chromium	mg/kg	76.4	77.0	87.4	75-125	0.782	20	L564079-07		WG582166
Copper	mg/kg	86.5	89.2	92.8	75-125	3.07	20	L564079-07		WG582166
Lead	mg/kg	64.8	67.5	85.6	75-125	4.08	20	L564079-07		WG582166
Nickel	mg/kg	86.1	85.8	84.2	75-125	0.349	20	L564079-07		WG582166
Selenium	mg/kg	38.4	38.0	76.8	75-125	1.05	20	L564079-07		WG582166
Silver	mg/kg	44.7	45.4	89.4	75-125	1.55	20	L564079-07		WG582166
Zinc	mg/kg	113.	121.	87.2	75-125	6.84	20	L564079-07		WG582166
Chromium,Hexavalent	mg/kg	12.7	12.5	59.3	50-150	1.59	20	L563339-01		WG581521
Mercury	mg/kg	0.244	0.243	97.6	70-130	0.411	20	L564061-01		WG582127
1-Methylnaphthalene	mg/kg	0.0302	0.0262	91.5	25-155	14.1	27	L564234-06		WG582209
2-Chloronaphthalene	mg/kg	0.0313	0.0267	95.0	31-153	16.2	22	L564234-06		WG582209
2-Methylnaphthalene	mg/kg	0.0323	0.0261	97.7	22-172	21.3	29	L564234-06		WG582209
Acenaphthene	mg/kg	0.0338	0.0289	102.	43-133	15.5	26	L564234-06		WG582209
Acenaphthylene	mg/kg	0.0360	0.0311	109.	42-146	14.6	22	L564234-06		WG582209
Anthracene	mg/kg	0.0345	0.0306	104.	38-153	12.0	27	L564234-06		WG582209
Benzo(a)anthracene	mg/kg	0.0386	0.0332	117.	31-142	15.0	31	L564234-06		WG582209
Benzo(a)pyrene	mg/kg	0.0360	0.0314	109.	26-152	13.6	32	L564234-06		WG582209
Benzo(b)fluoranthene	mg/kg	0.0365	0.0306	110.	10-188	17.6	33	L564234-06		WG582209
Benzo(g,h,i)perylene	mg/kg	0.0332	0.0298	101.	10-176	11.0	30	L564234-06		WG582209
Benzo(k)fluoranthene	mg/kg	0.0332	0.0305	100.	22-163	8.52	29	L564234-06		WG582209
Chrysene	mg/kg	0.0405	0.0323	123.	26-146	22.5	30	L564234-06		WG582209
Dibenz(a,h)anthracene	mg/kg	0.0323	0.0285	97.8	10-160	12.4	39	L564234-06		WG582209
Fluoranthene	mg/kg	0.0334	0.0298	101.	23-160	11.6	22	L564234-06		WG582209
Fluorene	mg/kg	0.0350	0.0302	106.	44-143	15.0	23	L564234-06		WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	0.0327	0.0294	99.2	10-157	10.9	40	L564234-06		WG582209
Naphthalene	mg/kg	0.0289	0.0255	87.7	22-156	12.7	27	L564234-06		WG582209
Phenanthrene	mg/kg	0.0323	0.0282	97.8	23-164	13.5	25	L564234-06		WG582209
Pyrene	mg/kg	0.0373	0.0307	113.	12-170	19.4	24	L564234-06		WG582209
2-Fluorobiphenyl				104.8	34-129					WG582209
Nitrobenzene-d5				82.47	14-141					WG582209
p-Terphenyl-d14				122.2	25-139					WG582209
TPH (GC/FID) High Fraction	ppm	43.8	41.2	73.0	50-150	6.19	25	L564076-09		WG582013
o-Terphenyl				81.96	50-150					WG582013
TPH (GC/FID) High Fraction	ppm	38.3	39.3	63.8	50-150	2.68	25	L564228-02		WG582206
o-Terphenyl				62.67	50-150					WG582206

Batch number /Run number / Sample number cross reference

WG582072: R2066633: L564123-02 03 04 05 06
WG582088: R2066973: L564123-01
WG582089: R2066993: L564123-01
WG582166: R2067097: L564123-01
WG581521: R2067976: L564123-01
WG582206: R2067994: L564123-05

* 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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WG582127: R2068134: L564123-01
WG582209: R2068533: L564123-06
WG582279: R2068774: L564123-01
WG582013: R2069033: L564123-02 03 04 06
WG582313: R2071653: L564123-01

* * 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
Parachute, CO 81635

Report Summary

Wednesday March 14, 2012

Report Number: L564176

Samples Received: 03/09/12

Client Project:

Description: J22 PitX

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

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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

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 PitX
Sample ID : J22A-PITX-EWALL-030712 6-12IN
Collected By : Matt Kasten
Collection Date : 03/07/12 10:45

ESC Sample # : L564176-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	03/09/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	03/09/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	03/09/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.1		% Rec.	8021/8015	03/09/12	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	03/09/12	5
TPH (GC/FID) High Fraction	50.	4.0	mg/kg	3546/DRO	03/13/12	1
Surrogate recovery(%)						
o-Terphenyl	74.1		% Rec.	3546/DRO	03/13/12	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: 03/14/12 10:42 Printed: 03/14/12 10:42



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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

March 14, 2012

Date Received : March 09, 2012
Description : J22 PitX
Sample ID : J22A-PITX-EBOT-030712 6-12IN
Collected By : Matt Kasten
Collection Date : 03/07/12 10:50

ESC Sample # : L564176-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	03/09/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	03/09/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	03/09/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.0		% Rec.	8021/8015	03/09/12	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	03/09/12	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	03/12/12	1
Surrogate recovery(%)						
o-Terphenyl	51.0		% Rec.	3546/DRO	03/12/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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2717 County Road 215, Suite 100
Parachute, CO 81635

March 14, 2012

Date Received : March 09, 2012
Description : J22 PitX
Sample ID : J22A-PITX-SWALL-030712 6-12IN
Collected By : Matt Kasten
Collection Date : 03/07/12 10:55

ESC Sample # : L564176-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	03/09/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	03/09/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	03/09/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.8		% Rec.	8021/8015	03/09/12	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	03/09/12	5
TPH (GC/FID) High Fraction	85.	4.0	mg/kg	3546/DRO	03/13/12	1
Surrogate recovery(%)						
o-Terphenyl	47.3		% Rec.	3546/DRO	03/13/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L564176-03 (DRO) - second extraction confirms low surrogate

REPORT OF ANALYSIS

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2717 County Road 215, Suite 100
Parachute, CO 81635

March 14, 2012

Date Received : March 09, 2012
Description : J22 PitX
Sample ID : J22A-PITX-CENTER-030712 6-12IN
Collected By : Matt Kasten
Collection Date : 03/07/12 15:40

ESC Sample # : L564176-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	03/12/12	1
Chromium, Trivalent	12.	2.0	mg/kg	Calc.	03/11/12	1
ORP	-47.		mV	2580	03/09/12	1
pH	8.3		su	9045D	03/12/12	1
Sodium Adsorption Ratio	23.			Calc.	03/13/12	1
Specific Conductance	3800		umhos/cm	9050AMod	03/09/12	1
Mercury	BDL	0.020	mg/kg	7471	03/12/12	1
Arsenic	6.6	1.0	mg/kg	6010B	03/11/12	1
Barium	280	0.25	mg/kg	6010B	03/11/12	1
Cadmium	0.48	0.25	mg/kg	6010B	03/11/12	1
Chromium	12.	0.50	mg/kg	6010B	03/11/12	1
Copper	16.	1.0	mg/kg	6010B	03/11/12	1
Lead	9.7	0.25	mg/kg	6010B	03/11/12	1
Nickel	14.	2.0	mg/kg	6010B	03/11/12	2
Selenium	BDL	1.0	mg/kg	6010B	03/11/12	1
Silver	BDL	0.50	mg/kg	6010B	03/11/12	1
Zinc	70.	3.0	mg/kg	6010B	03/11/12	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

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Reported: 03/14/12 10:42 Printed: 03/14/12 10:42
L564176-04 (PH) - 8.3@22.3c

REPORT OF ANALYSIS

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 PitX
Sample ID : J22A-PITX-CENTER-030712 6-12IN
Collected By : Matt Kasten
Collection Date : 03/07/12 15:40

ESC Sample # : L564176-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	03/09/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	03/09/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	03/09/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	03/09/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.2		% Rec.	8021/8015	03/09/12	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	03/09/12	5
TPH (GC/FID) High Fraction	9.2	4.0	mg/kg	3546/DRO	03/12/12	1
Surrogate recovery(%)						
o-Terphenyl	81.6		% Rec.	3546/DRO	03/12/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Naphthalene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
1-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
2-Methylnaphthalene	0.010	0.0060	mg/kg	8270C-SIM	03/11/12	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Surrogate Recovery						
Nitrobenzene-d5	79.1		% Rec.	8270C-SIM	03/11/12	1
2-Fluorobiphenyl	92.8		% Rec.	8270C-SIM	03/11/12	1
p-Terphenyl-d14	106.		% Rec.	8270C-SIM	03/11/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 03/14/12 10:42 Printed: 03/14/12 10:42

REPORT OF ANALYSIS

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 PitX
Sample ID : J22A-PITX-WBOT-030712 6-12IN
Collected By : Matt Kasten
Collection Date : 03/07/12 15:50

ESC Sample # : L564176-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0034	0.0025	mg/kg	8021/8015	03/10/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	03/10/12	5
Ethylbenzene	0.017	0.0025	mg/kg	8021/8015	03/10/12	5
Total Xylene	0.18	0.0075	mg/kg	8021/8015	03/10/12	5
TPH (GC/FID) Low Fraction	3.7	0.50	mg/kg	GRO	03/10/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.2		% Rec.	8021/8015	03/10/12	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	03/10/12	5
TPH (GC/FID) High Fraction	180	4.0	mg/kg	3546/DRO	03/12/12	1
Surrogate recovery(%)						
o-Terphenyl	66.1		% Rec.	3546/DRO	03/12/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 03/14/12 10:42 Printed: 03/14/12 10:42

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L564176-03	WG582337	SAMP	o-Terphenyl	R2069714	J2
L564176-04	WG582279	SAMP	pH	R2068774	T8
L564176-05	WG582209	SAMP	Anthracene	R2068533	J3
	WG582209	SAMP	Benzo(a)anthracene	R2068533	J3
	WG582209	SAMP	Benzo(k)fluoranthene	R2068533	J3
	WG582209	SAMP	Chrysene	R2068533	J3
	WG582209	SAMP	Fluorene	R2068533	J3
	WG582209	SAMP	Phenanthrene	R2068533	J3
	WG582209	SAMP	Pyrene	R2068533	J3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits
J3	The associated batch QC was outside the established quality control range for precision.
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.

Summary of Remarks For Samples Printed
03/14/12 at 10:42:45

TSR Signing Reports: 358
R3 - Rush: Two 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: L564176-01 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564176-02 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564176-03 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564176-04 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/14/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564176-05 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564176-06 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42



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Quality Assurance Report
Level II

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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

March 14, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG582072	03/09/12 14:26
Ethylbenzene	< .0005	mg/kg			WG582072	03/09/12 14:26
Toluene	< .005	mg/kg			WG582072	03/09/12 14:26
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG582072	03/09/12 14:26
Total Xylene	< .0015	mg/kg			WG582072	03/09/12 14:26
a,a,a-Trifluorotoluene(FID)		% Rec.	98.49	59-128	WG582072	03/09/12 14:26
a,a,a-Trifluorotoluene(PID)		% Rec.	102.3	54-144	WG582072	03/09/12 14:26
Specific Conductance	2.36	umhos/cm			WG582089	03/09/12 19:49
Arsenic	< 1	mg/kg			WG582166	03/11/12 14:50
Barium	< .25	mg/kg			WG582166	03/11/12 14:50
Cadmium	< .25	mg/kg			WG582166	03/11/12 14:50
Chromium	< .5	mg/kg			WG582166	03/11/12 14:50
Copper	< 1	mg/kg			WG582166	03/11/12 14:50
Lead	< .25	mg/kg			WG582166	03/11/12 14:50
Nickel	< 1	mg/kg			WG582166	03/11/12 14:50
Selenium	< 1	mg/kg			WG582166	03/11/12 14:50
Silver	< .5	mg/kg			WG582166	03/11/12 14:50
Zinc	< 1.5	mg/kg			WG582166	03/11/12 14:50
Chromium,Hexavalent	< 2	mg/kg			WG581521	03/12/12 13:08
TPH (GC/FID) High Fraction	< 4	ppm			WG582206	03/12/12 11:06
o-Terphenyl		% Rec.	71.52	50-150	WG582206	03/12/12 11:06
Mercury	< .02	mg/kg			WG582127	03/12/12 09:07
1-Methylnaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Chloronaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Methylnaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
Acenaphthene	< .006	mg/kg			WG582209	03/11/12 17:15
Acenaphthylene	< .006	mg/kg			WG582209	03/11/12 17:15
Anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(a)anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(a)pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(b)fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(g,h,i)perylene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(k)fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Chrysene	< .006	mg/kg			WG582209	03/11/12 17:15
Dibenz(a,h)anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Fluorene	< .006	mg/kg			WG582209	03/11/12 17:15
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
Naphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
Phenanthrene	< .006	mg/kg			WG582209	03/11/12 17:15
Pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Fluorobiphenyl		% Rec.	86.78	34-129	WG582209	03/11/12 17:15
Nitrobenzene-d5		% Rec.	70.44	14-141	WG582209	03/11/12 17:15
p-Terphenyl-d14		% Rec.	98.59	25-139	WG582209	03/11/12 17:15
pH	5.00	su			WG582279	03/12/12 15:00

* 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

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Est. 1970

March 14, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) High Fraction	< 4	ppm			WG582013	03/12/12 13:23
o-Terphenyl		% Rec.	86.10	50-150	WG582013	03/12/12 13:23
TPH (GC/FID) High Fraction	< 4	ppm			WG582337	03/13/12 09:11
o-Terphenyl		% Rec.	83.25	50-150	WG582337	03/13/12 09:11

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
ORP	mV	0	0		0	20	L564123-01	WG582088
Specific Conductance	umhos/cm	2100	2100		0.957	20	L564123-01	WG582089
Arsenic	mg/kg	2.90	2.95		2.40	20	L564079-07	WG582166
Barium	mg/kg	140.	140.		2.90	20	L564079-07	WG582166
Cadmium	mg/kg	0.440	0.484		8.62	20	L564079-07	WG582166
Chromium	mg/kg	31.0	32.7		4.69	20	L564079-07	WG582166
Copper	mg/kg	41.0	40.1		1.24	20	L564079-07	WG582166
Lead	mg/kg	23.0	22.0		3.13	20	L564079-07	WG582166
Nickel	mg/kg	43.0	44.0		3.23	20	L564079-07	WG582166
Selenium	mg/kg	0	0		0	20	L564079-07	WG582166
Silver	mg/kg	0	0		0	20	L564079-07	WG582166
Zinc	mg/kg	81.0	69.4		15.1	20	L564079-07	WG582166
Chromium,Hexavalent	mg/kg	0	0		0	20	L563330-01	WG581521
Mercury	mg/kg	0	0		0	20	L564061-01	WG582127
pH	su	9.40	9.40		0.213	1	L564061-01	WG582279
pH	su	6.70	6.70		0.595	1	L564242-03	WG582279

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0525	105.	76-113	WG582072
Ethylbenzene	mg/kg	.05	0.0521	104.	78-115	WG582072
Toluene	mg/kg	.05	0.0517	103.	76-114	WG582072
Total Xylene	mg/kg	.15	0.157	105.	81-118	WG582072
a,a,a-Trifluorotoluene(FID)				100.6	59-128	WG582072
a,a,a-Trifluorotoluene(PID)				102.7	54-144	WG582072
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.73	104.	67-135	WG582072
a,a,a-Trifluorotoluene(FID)				104.9	59-128	WG582072
a,a,a-Trifluorotoluene(PID)				107.7	54-144	WG582072
ORP	mV	229	228.	99.6	95.6-104.37	WG582088
Specific Conductance	umhos/cm	350	345.	98.6	85-115	WG582089
Arsenic	mg/kg	92.6	90.8	98.1	82.9-117	WG582166
Barium	mg/kg	169	171.	101.	82.8-117	WG582166

* 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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Tax I.D. 62-0814289

Est. 1970

March 14, 2012

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Cadmium	mg/kg	61.8	59.8	96.8	83.3-117	WG582166
Chromium	mg/kg	71.3	68.9	96.6	81.8-118	WG582166
Copper	mg/kg	81.2	81.7	101.	83.9-116	WG582166
Lead	mg/kg	92.4	96.0	104.	83.3-117	WG582166
Nickel	mg/kg	59.1	57.3	97.0	83.8-116	WG582166
Selenium	mg/kg	89.5	87.3	97.5	79-121	WG582166
Silver	mg/kg	34.4	33.4	97.1	66.3-134	WG582166
Zinc	mg/kg	141	136.	96.5	80.9-119	WG582166
Chromium, Hexavalent	mg/kg	203	160.	78.8	50-150	WG581521
TPH (GC/FID) High Fraction	ppm	60	46.2	77.1	50-150	WG582206
o-Terphenyl				77.36	50-150	WG582206
Mercury	mg/kg	3.77	3.32	88.1	71.6-128	WG582127
1-Methylnaphthalene	mg/kg	.033	0.0229	69.4	48-113	WG582209
2-Chloronaphthalene	mg/kg	.033	0.0227	68.7	51-114	WG582209
2-Methylnaphthalene	mg/kg	.033	0.0239	72.5	44-109	WG582209
Acenaphthene	mg/kg	.033	0.0250	75.6	52-108	WG582209
Acenaphthylene	mg/kg	.033	0.0261	79.0	51-110	WG582209
Anthracene	mg/kg	.033	0.0262	79.4	58-120	WG582209
Benzo(a)anthracene	mg/kg	.033	0.0278	84.1	54-110	WG582209
Benzo(a)pyrene	mg/kg	.033	0.0279	84.6	56-118	WG582209
Benzo(b)fluoranthene	mg/kg	.033	0.0272	82.5	55-114	WG582209
Benzo(g,h,i)perylene	mg/kg	.033	0.0266	80.5	48-130	WG582209
Benzo(k)fluoranthene	mg/kg	.033	0.0269	81.4	55-122	WG582209
Chrysene	mg/kg	.033	0.0260	78.6	57-118	WG582209
Dibenz(a,h)anthracene	mg/kg	.033	0.0267	80.9	53-122	WG582209
Fluoranthene	mg/kg	.033	0.0263	79.6	58-118	WG582209
Fluorene	mg/kg	.033	0.0255	77.4	54-109	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0266	80.6	51-125	WG582209
Naphthalene	mg/kg	.033	0.0220	66.6	45-105	WG582209
Phenanthrene	mg/kg	.033	0.0242	73.4	53-114	WG582209
Pyrene	mg/kg	.033	0.0265	80.4	53-121	WG582209
2-Fluorobiphenyl				73.39	34-129	WG582209
Nitrobenzene-d5				60.30	14-141	WG582209
p-Terphenyl-d14				91.67	25-139	WG582209
pH	su	7.98	7.96	99.7	98-101	WG582279
TPH (GC/FID) High Fraction	ppm	60	38.9	64.8	50-150	WG582013
o-Terphenyl				75.34	50-150	WG582013
TPH (GC/FID) High Fraction	ppm	60	42.1	70.1	50-150	WG582337
o-Terphenyl				83.69	50-150	WG582337

Analyte	Units	Laboratory Control Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec			
Benzene	mg/kg	0.0509	0.0525	102.	76-113	3.11	WG582072
Ethylbenzene	mg/kg	0.0503	0.0521	101.	78-115	3.49	WG582072

* 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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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

March 14, 2012

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Toluene	mg/kg	0.0499	0.0517	100.		76-114	3.61	20	WG582072
Total Xylene	mg/kg	0.152	0.157	101.		81-118	3.42	20	WG582072
a,a,a-Trifluorotoluene(FID)				99.28		59-128			WG582072
a,a,a-Trifluorotoluene(PID)				101.5		54-144			WG582072
TPH (GC/FID) Low Fraction	mg/kg	5.86	5.73	106.		67-135	2.23	20	WG582072
a,a,a-Trifluorotoluene(FID)				105.2		59-128			WG582072
a,a,a-Trifluorotoluene(PID)				108.3		54-144			WG582072
ORP	mV	230.	228.	100.		95.6-104.37	0.873	20	WG582088
Specific Conductance	umhos/	342.	345.	98.0		85-115	0.873	20	WG582089
Chromium,Hexavalent	mg/kg	179.	160.	88.0		50-150	11.2	20	WG581521
TPH (GC/FID) High Fraction	ppm	49.0	46.2	82.0		50-150	5.77	25	WG582206
o-Terphenyl				84.17		50-150			WG582206
1-Methylnaphthalene	mg/kg	0.0283	0.0229	86.0		48-113	21.1	24	WG582209
2-Chloronaphthalene	mg/kg	0.0286	0.0227	87.0		51-114	23.2	24	WG582209
2-Methylnaphthalene	mg/kg	0.0281	0.0239	85.0		44-109	15.9	24	WG582209
Acenaphthene	mg/kg	0.0309	0.0250	94.0		52-108	21.3	22	WG582209
Acenaphthylene	mg/kg	0.0320	0.0261	97.0		51-110	20.6	21	WG582209
Anthracene	mg/kg	0.0323	0.0262	98.0		58-120	20.7*	20	WG582209
Benzo(a)anthracene	mg/kg	0.0353	0.0278	107.		54-110	23.8*	22	WG582209
Benzo(a)pyrene	mg/kg	0.0344	0.0279	104.		56-118	20.8	21	WG582209
Benzo(b)fluoranthene	mg/kg	0.0325	0.0272	98.0		55-114	17.6	20	WG582209
Benzo(g,h,i)perylene	mg/kg	0.0321	0.0266	97.0		48-130	18.8	20	WG582209
Benzo(k)fluoranthene	mg/kg	0.0346	0.0269	105.		55-122	25.3*	25	WG582209
Chrysene	mg/kg	0.0327	0.0260	99.0		57-118	22.9*	20	WG582209
Dibenz(a,h)anthracene	mg/kg	0.0325	0.0267	98.0		53-122	19.6	20	WG582209
Fluoranthene	mg/kg	0.0316	0.0263	96.0		58-118	18.4	20	WG582209
Fluorene	mg/kg	0.0314	0.0255	95.0		54-109	20.7*	20	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	0.0327	0.0266	99.0		51-125	20.5	21	WG582209
Naphthalene	mg/kg	0.0270	0.0220	82.0		45-105	20.6	24	WG582209
Phenanthrene	mg/kg	0.0302	0.0242	92.0		53-114	22.0*	20	WG582209
Pyrene	mg/kg	0.0333	0.0265	101.		53-121	22.6*	20	WG582209
2-Fluorobiphenyl				95.70		34-129			WG582209
Nitrobenzene-d5				76.14		14-141			WG582209
p-Terphenyl-d14				115.6		25-139			WG582209
pH	su	7.95	7.96	100.		98-101	0.126	20	WG582279
TPH (GC/FID) High Fraction	ppm	45.0	38.9	75.0		50-150	14.6	25	WG582013
o-Terphenyl				86.83		50-150			WG582013
TPH (GC/FID) High Fraction	ppm	43.4	42.1	72.0		50-150	3.15	25	WG582337
o-Terphenyl				81.58		50-150			WG582337

* 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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Chris Hines / Matt Kasten
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Parachute, CO 81635

Quality Assurance Report
Level II

L564176

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Tax I.D. 62-0814289

Est. 1970

March 14, 2012

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.230	0.00850	.05	88.6	32-137	L563777-02	WG582072
Ethylbenzene	mg/kg	0.242	0.0580	.05	73.6	10-150	L563777-02	WG582072
Toluene	mg/kg	0.242	0	.05	96.8	20-142	L563777-02	WG582072
Total Xylene	mg/kg	0.735	0.0590	.15	90.1	16-141	L563777-02	WG582072
a,a,a-Trifluorotoluene(FID)					97.62	59-128		WG582072
a,a,a-Trifluorotoluene(PID)					103.4	54-144		WG582072
TPH (GC/FID) Low Fraction	mg/kg	22.5	12.0	5.5	38.2*	55-109	L563777-02	WG582072
a,a,a-Trifluorotoluene(FID)					103.3	59-128		WG582072
a,a,a-Trifluorotoluene(PID)					106.2	54-144		WG582072
Arsenic	mg/kg	47.0	2.95	50	88.1	75-125	L564079-07	WG582166
Barium	mg/kg	183.	140.	50	86.0	75-125	L564079-07	WG582166
Cadmium	mg/kg	44.0	0.484	50	87.0	75-125	L564079-07	WG582166
Chromium	mg/kg	77.0	32.7	50	88.6	75-125	L564079-07	WG582166
Copper	mg/kg	89.2	40.1	50	98.2	75-125	L564079-07	WG582166
Lead	mg/kg	67.5	22.0	50	91.0	75-125	L564079-07	WG582166
Nickel	mg/kg	85.8	44.0	50	83.6	75-125	L564079-07	WG582166
Selenium	mg/kg	38.0	0	50	76.0	75-125	L564079-07	WG582166
Silver	mg/kg	45.4	0	50	90.8	75-125	L564079-07	WG582166
Zinc	mg/kg	121.	69.4	50	103.	75-125	L564079-07	WG582166
Chromium,Hexavalent	mg/kg	12.5	0.840	20	58.3	50-150	L563339-01	WG581521
Mercury	mg/kg	0.243	0	.25	97.2	70-130	L564061-01	WG582127
1-Methylnaphthalene	mg/kg	0.0262	0	.033	79.5	25-155	L564234-06	WG582209
2-Chloronaphthalene	mg/kg	0.0267	0	.033	80.8	31-153	L564234-06	WG582209
2-Methylnaphthalene	mg/kg	0.0261	0	.033	79.0	22-172	L564234-06	WG582209
Acenaphthene	mg/kg	0.0289	0	.033	87.6	43-133	L564234-06	WG582209
Acenaphthylene	mg/kg	0.0311	0	.033	94.3	42-146	L564234-06	WG582209
Anthracene	mg/kg	0.0306	0	.033	92.7	38-153	L564234-06	WG582209
Benzo(a)anthracene	mg/kg	0.0332	0	.033	101.	31-142	L564234-06	WG582209
Benzo(a)pyrene	mg/kg	0.0314	0	.033	95.3	26-152	L564234-06	WG582209
Benzo(b)fluoranthene	mg/kg	0.0306	0	.033	92.7	10-188	L564234-06	WG582209
Benzo(g,h,i)perylene	mg/kg	0.0298	0	.033	90.2	10-176	L564234-06	WG582209
Benzo(k)fluoranthene	mg/kg	0.0305	0	.033	92.3	22-163	L564234-06	WG582209
Chrysene	mg/kg	0.0323	0	.033	98.0	26-146	L564234-06	WG582209
Dibenz(a,h)anthracene	mg/kg	0.0285	0	.033	86.4	10-160	L564234-06	WG582209
Fluoranthene	mg/kg	0.0298	0	.033	90.2	23-160	L564234-06	WG582209
Fluorene	mg/kg	0.0302	0	.033	91.4	44-143	L564234-06	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	0.0294	0	.033	89.0	10-157	L564234-06	WG582209
Naphthalene	mg/kg	0.0255	0	.033	77.2	22-156	L564234-06	WG582209
Phenanthrene	mg/kg	0.0282	0	.033	85.4	23-164	L564234-06	WG582209
Pyrene	mg/kg	0.0307	0	.033	93.1	12-170	L564234-06	WG582209
2-Fluorobiphenyl					91.05	34-129		WG582209
Nitrobenzene-d5					74.40	14-141		WG582209
p-Terphenyl-d14					104.2	25-139		WG582209
TPH (GC/FID) High Fraction	ppm	41.2	0	60	68.6	50-150	L564076-09	WG582013
o-Terphenyl					76.95	50-150		WG582013
TPH (GC/FID) High Fraction	ppm	39.3	0	60	65.6	50-150	L564228-02	WG582206
o-Terphenyl					64.19	50-150		WG582206

* 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

March 14, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.238	0.230	91.6	32-137	3.24	39	L563777-02	WG582072
Ethylbenzene	mg/kg	0.240	0.242	72.8	10-150	0.830	44	L563777-02	WG582072
Toluene	mg/kg	0.235	0.242	94.2	20-142	2.71	42	L563777-02	WG582072
Total Xylene	mg/kg	0.724	0.735	88.6	16-141	1.48	46	L563777-02	WG582072
a,a,a-Trifluorotoluene(FID)				100.1	59-128				WG582072
a,a,a-Trifluorotoluene(PID)				101.1	54-144				WG582072
TPH (GC/FID) Low Fraction	mg/kg	26.3	22.5	52.0*	55-109	15.6	20	L563777-02	WG582072
a,a,a-Trifluorotoluene(FID)				104.2	59-128				WG582072
a,a,a-Trifluorotoluene(PID)				107.8	54-144				WG582072
Arsenic	mg/kg	46.7	47.0	87.5	75-125	0.640	20	L564079-07	WG582166
Barium	mg/kg	190.	183.	100.	75-125	3.75	20	L564079-07	WG582166
Cadmium	mg/kg	43.7	44.0	86.4	75-125	0.684	20	L564079-07	WG582166
Chromium	mg/kg	76.4	77.0	87.4	75-125	0.782	20	L564079-07	WG582166
Copper	mg/kg	86.5	89.2	92.8	75-125	3.07	20	L564079-07	WG582166
Lead	mg/kg	64.8	67.5	85.6	75-125	4.08	20	L564079-07	WG582166
Nickel	mg/kg	86.1	85.8	84.2	75-125	0.349	20	L564079-07	WG582166
Selenium	mg/kg	38.4	38.0	76.8	75-125	1.05	20	L564079-07	WG582166
Silver	mg/kg	44.7	45.4	89.4	75-125	1.55	20	L564079-07	WG582166
Zinc	mg/kg	113.	121.	87.2	75-125	6.84	20	L564079-07	WG582166
Chromium,Hexavalent	mg/kg	12.7	12.5	59.3	50-150	1.59	20	L563339-01	WG581521
Mercury	mg/kg	0.244	0.243	97.6	70-130	0.411	20	L564061-01	WG582127
1-Methylnaphthalene	mg/kg	0.0302	0.0262	91.5	25-155	14.1	27	L564234-06	WG582209
2-Chloronaphthalene	mg/kg	0.0313	0.0267	95.0	31-153	16.2	22	L564234-06	WG582209
2-Methylnaphthalene	mg/kg	0.0323	0.0261	97.7	22-172	21.3	29	L564234-06	WG582209
Acenaphthene	mg/kg	0.0338	0.0289	102.	43-133	15.5	26	L564234-06	WG582209
Acenaphthylene	mg/kg	0.0360	0.0311	109.	42-146	14.6	22	L564234-06	WG582209
Anthracene	mg/kg	0.0345	0.0306	104.	38-153	12.0	27	L564234-06	WG582209
Benzo(a)anthracene	mg/kg	0.0386	0.0332	117.	31-142	15.0	31	L564234-06	WG582209
Benzo(a)pyrene	mg/kg	0.0360	0.0314	109.	26-152	13.6	32	L564234-06	WG582209
Benzo(b)fluoranthene	mg/kg	0.0365	0.0306	110.	10-188	17.6	33	L564234-06	WG582209
Benzo(g,h,i)perylene	mg/kg	0.0332	0.0298	101.	10-176	11.0	30	L564234-06	WG582209
Benzo(k)fluoranthene	mg/kg	0.0332	0.0305	100.	22-163	8.52	29	L564234-06	WG582209
Chrysene	mg/kg	0.0405	0.0323	123.	26-146	22.5	30	L564234-06	WG582209
Dibenz(a,h)anthracene	mg/kg	0.0323	0.0285	97.8	10-160	12.4	39	L564234-06	WG582209
Fluoranthene	mg/kg	0.0334	0.0298	101.	23-160	11.6	22	L564234-06	WG582209
Fluorene	mg/kg	0.0350	0.0302	106.	44-143	15.0	23	L564234-06	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	0.0327	0.0294	99.2	10-157	10.9	40	L564234-06	WG582209
Naphthalene	mg/kg	0.0289	0.0255	87.7	22-156	12.7	27	L564234-06	WG582209
Phenanthrene	mg/kg	0.0323	0.0282	97.8	23-164	13.5	25	L564234-06	WG582209
Pyrene	mg/kg	0.0373	0.0307	113.	12-170	19.4	24	L564234-06	WG582209
2-Fluorobiphenyl				104.8	34-129				WG582209
Nitrobenzene-d5				82.47	14-141				WG582209
p-Terphenyl-d14				122.2	25-139				WG582209
TPH (GC/FID) High Fraction	ppm	43.8	41.2	73.0	50-150	6.19	25	L564076-09	WG582013
o-Terphenyl				81.96	50-150				WG582013
TPH (GC/FID) High Fraction	ppm	38.3	39.3	63.8	50-150	2.68	25	L564228-02	WG582206
o-Terphenyl				62.67	50-150				WG582206

* Performance of this Analyte is outside of established criteria.
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March 14, 2012

Batch number /Run number / Sample number cross reference

WG582072: R2066633: L564176-01 02 03 05 06
WG582088: R2066973: L564176-04
WG582089: R2066993: L564176-04
WG582166: R2067097: L564176-04
WG581521: R2067976: L564176-04
WG582206: R2067994: L564176-02 06
WG582127: R2068134: L564176-04
WG582209: R2068533: L564176-05
WG582279: R2068774: L564176-04
WG582013: R2069033: L564176-05
WG582337: R2069714: L564176-01 03
WG582313: R2071653: L564176-04

* * 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
Parachute, CO 81635

Report Summary

Wednesday March 14, 2012

Report Number: L564170

Samples Received: 03/09/12

Client Project:

Description: J22 Pit Spoils

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

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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

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 Pit Spoils
Sample ID : J22A-SPOILS-030712 10FT
Collected By : Matt Kasten
Collection Date : 03/07/12 16:05

ESC Sample # : L564170-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.025	mg/kg	8021/8015	03/11/12	50
Toluene	BDL	0.25	mg/kg	8021/8015	03/11/12	50
Ethylbenzene	0.36	0.025	mg/kg	8021/8015	03/11/12	50
Total Xylene	3.0	0.075	mg/kg	8021/8015	03/11/12	50
TPH (GC/FID) Low Fraction	140	5.0	mg/kg	GRO	03/11/12	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.9		% Rec.	8021/8015	03/11/12	50
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021/8015	03/11/12	50
TPH (GC/FID) High Fraction	2000	80.	mg/kg	3546/DRO	03/12/12	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	03/12/12	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.075	0.0060	mg/kg	8270C-SIM	03/11/12	1
Acenaphthene	0.092	0.0060	mg/kg	8270C-SIM	03/11/12	1
Acenaphthylene	0.12	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Fluoranthene	0.012	0.0060	mg/kg	8270C-SIM	03/11/12	1
Fluorene	0.16	0.0060	mg/kg	8270C-SIM	03/11/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	03/11/12	1
Naphthalene	0.31	0.12	mg/kg	8270C-SIM	03/13/12	20
Phenanthrene	0.18	0.0060	mg/kg	8270C-SIM	03/11/12	1
Pyrene	0.022	0.0060	mg/kg	8270C-SIM	03/11/12	1
1-Methylnaphthalene	0.58	0.12	mg/kg	8270C-SIM	03/13/12	20
2-Methylnaphthalene	1.4	0.12	mg/kg	8270C-SIM	03/13/12	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	03/13/12	20
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	03/13/12	20
2-Fluorobiphenyl	95.6		% Rec.	8270C-SIM	03/11/12	1
p-Terphenyl-d14	130.		% Rec.	8270C-SIM	03/11/12	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: 03/14/12 10:42 Printed: 03/14/12 10:42

REPORT OF ANALYSIS

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

March 14, 2012

Date Received : March 09, 2012
Description : J22 Pit Spoils
Sample ID : J22A-SPOILS-030712 10FT
Collected By : Matt Kasten
Collection Date : 03/07/12 16:05

ESC Sample # : L564170-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	03/12/12	1
Chromium, Trivalent	15.	2.0	mg/kg	Calc.	03/11/12	1
ORP	-73.		mV	2580	03/09/12	1
pH	8.3		su	9045D	03/12/12	1
Sodium Adsorption Ratio	30.			Calc.	03/13/12	1
Specific Conductance	2200		umhos/cm	9050AMod	03/09/12	1
Mercury	0.031	0.020	mg/kg	7471	03/12/12	1
Arsenic	6.7	1.0	mg/kg	6010B	03/11/12	1
Barium	1000	0.25	mg/kg	6010B	03/11/12	1
Cadmium	0.36	0.25	mg/kg	6010B	03/11/12	1
Chromium	15.	0.50	mg/kg	6010B	03/11/12	1
Copper	19.	1.0	mg/kg	6010B	03/11/12	1
Lead	10.	0.25	mg/kg	6010B	03/11/12	1
Nickel	11.	1.0	mg/kg	6010B	03/11/12	1
Selenium	BDL	1.0	mg/kg	6010B	03/11/12	1
Silver	BDL	0.50	mg/kg	6010B	03/11/12	1
Zinc	51.	1.5	mg/kg	6010B	03/11/12	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: 03/14/12 10:42 Printed: 03/14/12 10:42
L564170-02 (PH) - 8.3@22.2c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L564170-01	WG582362	SAMP	TPH (GC/FID) Low Fraction	R2066736	J5
	WG582209	SAMP	Anthracene	R2068533	J3
	WG582209	SAMP	Benzo(a)anthracene	R2068533	J3
	WG582209	SAMP	Benzo(k)fluoranthene	R2068533	J3
	WG582209	SAMP	Chrysene	R2068533	J3
	WG582209	SAMP	Fluorene	R2068533	J3
	WG582209	SAMP	Phenanthrene	R2068533	J3
	WG582209	SAMP	Pyrene	R2068533	J3
	WG582209	SAMP	Nitrobenzene-d5	R2068533	J7
	WG582013	SAMP	o-Terphenyl	R2069033	J7
	WG582279	SAMP	pH	R2068774	T8
L564170-02					

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
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
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.

Summary of Remarks For Samples Printed
03/14/12 at 10:42:43

TSR Signing Reports: 358
R3 - Rush: Two 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: L564170-01 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/13/12 00:00 RPT Date: 03/14/12 10:42

Sample: L564170-02 Account: ENCANACO Received: 03/09/12 09:00 Due Date: 03/14/12 00:00 RPT Date: 03/14/12 10:42



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Quality Assurance Report
Level II

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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

March 14, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG582362	03/11/12 22:48
Ethylbenzene	< .0005	mg/kg			WG582362	03/11/12 22:48
Toluene	< .005	mg/kg			WG582362	03/11/12 22:48
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG582362	03/11/12 22:48
Total Xylene	< .0015	mg/kg			WG582362	03/11/12 22:48
a,a,a-Trifluorotoluene(FID)		% Rec.	98.58	59-128	WG582362	03/11/12 22:48
a,a,a-Trifluorotoluene(PID)		% Rec.	105.1	54-144	WG582362	03/11/12 22:48
Specific Conductance	2.36	umhos/cm			WG582089	03/09/12 19:49
Arsenic	< 1	mg/kg			WG582166	03/11/12 14:50
Barium	< .25	mg/kg			WG582166	03/11/12 14:50
Cadmium	< .25	mg/kg			WG582166	03/11/12 14:50
Chromium	< .5	mg/kg			WG582166	03/11/12 14:50
Copper	< 1	mg/kg			WG582166	03/11/12 14:50
Lead	< .25	mg/kg			WG582166	03/11/12 14:50
Nickel	< 1	mg/kg			WG582166	03/11/12 14:50
Selenium	< 1	mg/kg			WG582166	03/11/12 14:50
Silver	< .5	mg/kg			WG582166	03/11/12 14:50
Zinc	< 1.5	mg/kg			WG582166	03/11/12 14:50
Chromium,Hexavalent	< 2	mg/kg			WG581521	03/12/12 13:08
Mercury	< .02	mg/kg			WG582127	03/12/12 09:07
1-Methylnaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Chloronaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Methylnaphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
Acenaphthene	< .006	mg/kg			WG582209	03/11/12 17:15
Acenaphthylene	< .006	mg/kg			WG582209	03/11/12 17:15
Anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(a)anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(a)pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(b)fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(g,h,i)perylene	< .006	mg/kg			WG582209	03/11/12 17:15
Benzo(k)fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Chrysene	< .006	mg/kg			WG582209	03/11/12 17:15
Dibenz(a,h)anthracene	< .006	mg/kg			WG582209	03/11/12 17:15
Fluoranthene	< .006	mg/kg			WG582209	03/11/12 17:15
Fluorene	< .006	mg/kg			WG582209	03/11/12 17:15
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
Naphthalene	< .006	mg/kg			WG582209	03/11/12 17:15
Phenanthrene	< .006	mg/kg			WG582209	03/11/12 17:15
Pyrene	< .006	mg/kg			WG582209	03/11/12 17:15
2-Fluorobiphenyl		% Rec.	86.78	34-129	WG582209	03/11/12 17:15
Nitrobenzene-d5		% Rec.	70.44	14-141	WG582209	03/11/12 17:15
p-Terphenyl-d14		% Rec.	98.59	25-139	WG582209	03/11/12 17:15
pH	5.00	su			WG582279	03/12/12 15:00
TPH (GC/FID) High Fraction	< 4	ppm			WG582013	03/12/12 13:23
o-Terphenyl		% Rec.	86.10	50-150	WG582013	03/12/12 13:23

* Performance of this Analyte is outside of established criteria.

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Est. 1970

March 14, 2012

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
ORP	mV	0	0	0	20	L564123-01	WG582088
Specific Conductance	umhos/cm	2100	2100	0.957	20	L564123-01	WG582089
Arsenic	mg/kg	2.90	2.95	2.40	20	L564079-07	WG582166
Barium	mg/kg	140.	140.	2.90	20	L564079-07	WG582166
Cadmium	mg/kg	0.440	0.484	8.62	20	L564079-07	WG582166
Chromium	mg/kg	31.0	32.7	4.69	20	L564079-07	WG582166
Copper	mg/kg	41.0	40.1	1.24	20	L564079-07	WG582166
Lead	mg/kg	23.0	22.0	3.13	20	L564079-07	WG582166
Nickel	mg/kg	43.0	44.0	3.23	20	L564079-07	WG582166
Selenium	mg/kg	0	0	0	20	L564079-07	WG582166
Silver	mg/kg	0	0	0	20	L564079-07	WG582166
Zinc	mg/kg	81.0	69.4	15.1	20	L564079-07	WG582166
Chromium,Hexavalent	mg/kg	0	0	0	20	L563330-01	WG581521
Mercury	mg/kg	0	0	0	20	L564061-01	WG582127
pH	su	9.40	9.40	0.213	1	L564061-01	WG582279
pH	su	6.70	6.70	0.595	1	L564242-03	WG582279

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0499	99.7	76-113	WG582362
Ethylbenzene	mg/kg	.05	0.0507	101.	78-115	WG582362
Toluene	mg/kg	.05	0.0513	103.	76-114	WG582362
Total Xylene	mg/kg	.15	0.157	104.	81-118	WG582362
a,a,a-Trifluorotoluene(PID)				104.1	54-144	WG582362
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.93	126.	67-135	WG582362
a,a,a-Trifluorotoluene(FID)				104.5	59-128	WG582362
ORP	mV	229	228.	99.6	95.6-104.37	WG582088
Specific Conductance	umhos/cm	350	345.	98.6	85-115	WG582089
Arsenic	mg/kg	92.6	90.8	98.1	82.9-117	WG582166
Barium	mg/kg	169	171.	101.	82.8-117	WG582166
Cadmium	mg/kg	61.8	59.8	96.8	83.3-117	WG582166
Chromium	mg/kg	71.3	68.9	96.6	81.8-118	WG582166
Copper	mg/kg	81.2	81.7	101.	83.9-116	WG582166
Lead	mg/kg	92.4	96.0	104.	83.3-117	WG582166
Nickel	mg/kg	59.1	57.3	97.0	83.8-116	WG582166
Selenium	mg/kg	89.5	87.3	97.5	79-121	WG582166
Silver	mg/kg	34.4	33.4	97.1	66.3-134	WG582166
Zinc	mg/kg	141	136.	96.5	80.9-119	WG582166
Chromium,Hexavalent	mg/kg	203	160.	78.8	50-150	WG581521

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March 14, 2012

Analyte	Units	Laboratory Control	Sample	% Rec	Limit	Batch
		Known Val	Result			
Mercury	mg/kg	3.77	3.32	88.1	71.6-128	WG582127
1-Methylnaphthalene	mg/kg	.033	0.0229	69.4	48-113	WG582209
2-Chloronaphthalene	mg/kg	.033	0.0227	68.7	51-114	WG582209
2-Methylnaphthalene	mg/kg	.033	0.0239	72.5	44-109	WG582209
Acenaphthene	mg/kg	.033	0.0250	75.6	52-108	WG582209
Acenaphthylene	mg/kg	.033	0.0261	79.0	51-110	WG582209
Anthracene	mg/kg	.033	0.0262	79.4	58-120	WG582209
Benzo(a)anthracene	mg/kg	.033	0.0278	84.1	54-110	WG582209
Benzo(a)pyrene	mg/kg	.033	0.0279	84.6	56-118	WG582209
Benzo(b)fluoranthene	mg/kg	.033	0.0272	82.5	55-114	WG582209
Benzo(g,h,i)perylene	mg/kg	.033	0.0266	80.5	48-130	WG582209
Benzo(k)fluoranthene	mg/kg	.033	0.0269	81.4	55-122	WG582209
Chrysene	mg/kg	.033	0.0260	78.6	57-118	WG582209
Dibenz(a,h)anthracene	mg/kg	.033	0.0267	80.9	53-122	WG582209
Fluoranthene	mg/kg	.033	0.0263	79.6	58-118	WG582209
Fluorene	mg/kg	.033	0.0255	77.4	54-109	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0266	80.6	51-125	WG582209
Naphthalene	mg/kg	.033	0.0220	66.6	45-105	WG582209
Phenanthrene	mg/kg	.033	0.0242	73.4	53-114	WG582209
Pyrene	mg/kg	.033	0.0265	80.4	53-121	WG582209
2-Fluorobiphenyl				73.39	34-129	WG582209
Nitrobenzene-d5				60.30	14-141	WG582209
p-Terphenyl-d14				91.67	25-139	WG582209
pH	su	7.98	7.96	99.7	98-101	WG582279
TPH (GC/FID) High Fraction	ppm	60	38.9	64.8	50-150	WG582013
o-Terphenyl				75.34	50-150	WG582013

Analyte	Units	Laboratory Control	Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref				
Benzene	mg/kg	0.0498	0.0499	100.	76-113	0.140	WG582362
Ethylbenzene	mg/kg	0.0507	0.0507	101.	78-115	0.0400	WG582362
Toluene	mg/kg	0.0508	0.0513	102.	76-114	0.900	WG582362
Total Xylene	mg/kg	0.155	0.157	103.	81-118	0.940	WG582362
a,a,a-Trifluorotoluene(PID)				104.3	54-144		WG582362
TPH (GC/FID) Low Fraction	mg/kg	7.25	6.93	132.	67-135	4.43	WG582362
a,a,a-Trifluorotoluene(FID)				105.0	59-128		WG582362
ORP	mV	230.	228.	100.	95.6-104.37	0.873	WG582088
Specific Conductance	umhos/	342.	345.	98.0	85-115	0.873	WG582089
Chromium,Hexavalent	mg/kg	179.	160.	88.0	50-150	11.2	WG581521
1-Methylnaphthalene	mg/kg	0.0283	0.0229	86.0	48-113	21.1	WG582209
2-Chloronaphthalene	mg/kg	0.0286	0.0227	87.0	51-114	23.2	WG582209
2-Methylnaphthalene	mg/kg	0.0281	0.0239	85.0	44-109	15.9	WG582209
Acenaphthene	mg/kg	0.0309	0.0250	94.0	52-108	21.3	WG582209

* Performance of this Analyte is outside of established criteria.

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Acenaphthylene	mg/kg	0.0320	0.0261	97.0		51-110	20.6	21	WG582209
Anthracene	mg/kg	0.0323	0.0262	98.0		58-120	20.7*	20	WG582209
Benzo(a)anthracene	mg/kg	0.0353	0.0278	107.		54-110	23.8*	22	WG582209
Benzo(a)pyrene	mg/kg	0.0344	0.0279	104.		56-118	20.8	21	WG582209
Benzo(b)fluoranthene	mg/kg	0.0325	0.0272	98.0		55-114	17.6	20	WG582209
Benzo(g,h,i)perylene	mg/kg	0.0321	0.0266	97.0		48-130	18.8	20	WG582209
Benzo(k)fluoranthene	mg/kg	0.0346	0.0269	105.		55-122	25.3*	25	WG582209
Chrysene	mg/kg	0.0327	0.0260	99.0		57-118	22.9*	20	WG582209
Dibenz(a,h)anthracene	mg/kg	0.0325	0.0267	98.0		53-122	19.6	20	WG582209
Fluoranthene	mg/kg	0.0316	0.0263	96.0		58-118	18.4	20	WG582209
Fluorene	mg/kg	0.0314	0.0255	95.0		54-109	20.7*	20	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	0.0327	0.0266	99.0		51-125	20.5	21	WG582209
Naphthalene	mg/kg	0.0270	0.0220	82.0		45-105	20.6	24	WG582209
Phenanthrene	mg/kg	0.0302	0.0242	92.0		53-114	22.0*	20	WG582209
Pyrene	mg/kg	0.0333	0.0265	101.		53-121	22.6*	20	WG582209
2-Fluorobiphenyl				95.70		34-129			WG582209
Nitrobenzene-d5				76.14		14-141			WG582209
p-Terphenyl-d14				115.6		25-139			WG582209
pH	su	7.95	7.96	100.		98-101	0.126	20	WG582279
TPH (GC/FID) High Fraction	ppm	45.0	38.9	75.0		50-150	14.6	25	WG582013
o-Terphenyl				86.83		50-150			WG582013

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	2.35	0	.05	94.0	32-137	L564170-01	WG582362
Ethylbenzene	mg/kg	2.67	0.360	.05	92.5	10-150	L564170-01	WG582362
Toluene	mg/kg	3.13	0	.05	125.	20-142	L564170-01	WG582362
Total Xylene	mg/kg	10.2	3.00	.15	96.5	16-141	L564170-01	WG582362
a,a,a-Trifluorotoluene(PID)					104.4	54-144		WG582362
TPH (GC/FID) Low Fraction	mg/kg	416.	140.	5.5	100.	55-109	L564170-01	WG582362
a,a,a-Trifluorotoluene(FID)					96.00	59-128		WG582362
Arsenic	mg/kg	47.0	2.95	50	88.1	75-125	L564079-07	WG582166
Barium	mg/kg	183.	140.	50	86.0	75-125	L564079-07	WG582166
Cadmium	mg/kg	44.0	0.484	50	87.0	75-125	L564079-07	WG582166
Chromium	mg/kg	77.0	32.7	50	88.6	75-125	L564079-07	WG582166
Copper	mg/kg	89.2	40.1	50	98.2	75-125	L564079-07	WG582166
Lead	mg/kg	67.5	22.0	50	91.0	75-125	L564079-07	WG582166
Nickel	mg/kg	85.8	44.0	50	83.6	75-125	L564079-07	WG582166
Selenium	mg/kg	38.0	0	50	76.0	75-125	L564079-07	WG582166
Silver	mg/kg	45.4	0	50	90.8	75-125	L564079-07	WG582166
Zinc	mg/kg	121.	69.4	50	103.	75-125	L564079-07	WG582166
Chromium, Hexavalent	mg/kg	12.5	0.840	20	58.3	50-150	L563339-01	WG581521
Mercury	mg/kg	0.243	0	.25	97.2	70-130	L564061-01	WG582127
1-Methylnaphthalene	mg/kg	0.0262	0	.033	79.5	25-155	L564234-06	WG582209
2-Chloronaphthalene	mg/kg	0.0267	0	.033	80.8	31-153	L564234-06	WG582209
2-Methylnaphthalene	mg/kg	0.0261	0	.033	79.0	22-172	L564234-06	WG582209

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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

March 14, 2012

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Acenaphthene	mg/kg	0.0289	0	.033	87.6	43-133	L564234-06	WG582209
Acenaphthylene	mg/kg	0.0311	0	.033	94.3	42-146	L564234-06	WG582209
Anthracene	mg/kg	0.0306	0	.033	92.7	38-153	L564234-06	WG582209
Benzo(a)anthracene	mg/kg	0.0332	0	.033	101.	31-142	L564234-06	WG582209
Benzo(a)pyrene	mg/kg	0.0314	0	.033	95.3	26-152	L564234-06	WG582209
Benzo(b)fluoranthene	mg/kg	0.0306	0	.033	92.7	10-188	L564234-06	WG582209
Benzo(g,h,i)perylene	mg/kg	0.0298	0	.033	90.2	10-176	L564234-06	WG582209
Benzo(k)fluoranthene	mg/kg	0.0305	0	.033	92.3	22-163	L564234-06	WG582209
Chrysene	mg/kg	0.0323	0	.033	98.0	26-146	L564234-06	WG582209
Dibenz(a,h)anthracene	mg/kg	0.0285	0	.033	86.4	10-160	L564234-06	WG582209
Fluoranthene	mg/kg	0.0298	0	.033	90.2	23-160	L564234-06	WG582209
Fluorene	mg/kg	0.0302	0	.033	91.4	44-143	L564234-06	WG582209
Indeno(1,2,3-cd)pyrene	mg/kg	0.0294	0	.033	89.0	10-157	L564234-06	WG582209
Naphthalene	mg/kg	0.0255	0	.033	77.2	22-156	L564234-06	WG582209
Phenanthrene	mg/kg	0.0282	0	.033	85.4	23-164	L564234-06	WG582209
Pyrene	mg/kg	0.0307	0	.033	93.1	12-170	L564234-06	WG582209
2-Fluorobiphenyl					91.05	34-129		WG582209
Nitrobenzene-d5					74.40	14-141		WG582209
p-Terphenyl-d14					104.2	25-139		WG582209
TPH (GC/FID) High Fraction	ppm	41.2	0	60	68.6	50-150	L564076-09	WG582013
o-Terphenyl					76.95	50-150		WG582013

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	2.50	2.35	100.	32-137	6.36	39	L564170-01	WG582362
Ethylbenzene	mg/kg	2.83	2.67	98.6	10-150	5.54	44	L564170-01	WG582362
Toluene	mg/kg	2.86	3.13	114.	20-142	9.11	42	L564170-01	WG582362
Total Xylene	mg/kg	10.4	10.2	98.8	16-141	1.69	46	L564170-01	WG582362
a,a,a-Trifluorotoluene(PID)				105.0	54-144				WG582362
TPH (GC/FID) Low Fraction	mg/kg	462.	416.	117.*	55-109	10.6	20	L564170-01	WG582362
a,a,a-Trifluorotoluene(FID)				95.80	59-128				WG582362
Arsenic	mg/kg	46.7	47.0	87.5	75-125	0.640	20	L564079-07	WG582166
Barium	mg/kg	190.	183.	100.	75-125	3.75	20	L564079-07	WG582166
Cadmium	mg/kg	43.7	44.0	86.4	75-125	0.684	20	L564079-07	WG582166
Chromium	mg/kg	76.4	77.0	87.4	75-125	0.782	20	L564079-07	WG582166
Copper	mg/kg	86.5	89.2	92.8	75-125	3.07	20	L564079-07	WG582166
Lead	mg/kg	64.8	67.5	85.6	75-125	4.08	20	L564079-07	WG582166
Nickel	mg/kg	86.1	85.8	84.2	75-125	0.349	20	L564079-07	WG582166
Selenium	mg/kg	38.4	38.0	76.8	75-125	1.05	20	L564079-07	WG582166
Silver	mg/kg	44.7	45.4	89.4	75-125	1.55	20	L564079-07	WG582166
Zinc	mg/kg	113.	121.	87.2	75-125	6.84	20	L564079-07	WG582166
Chromium, Hexavalent	mg/kg	12.7	12.5	59.3	50-150	1.59	20	L563339-01	WG581521
Mercury	mg/kg	0.244	0.243	97.6	70-130	0.411	20	L564061-01	WG582127
1-Methylnaphthalene	mg/kg	0.0302	0.0262	91.5	25-155	14.1	27	L564234-06	WG582209
2-Chloronaphthalene	mg/kg	0.0313	0.0267	95.0	31-153	16.2	22	L564234-06	WG582209
2-Methylnaphthalene	mg/kg	0.0323	0.0261	97.7	22-172	21.3	29	L564234-06	WG582209
Acenaphthene	mg/kg	0.0338	0.0289	102.	43-133	15.5	26	L564234-06	WG582209
Acenaphthylene	mg/kg	0.0360	0.0311	109.	42-146	14.6	22	L564234-06	WG582209

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Analyte	Units	MSD	Matrix Spike	Duplicate	Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Anthracene	mg/kg	0.0345	0.0306	104.	38-153	12.0	27	L564234-06	WG582209	
Benzo(a)anthracene	mg/kg	0.0386	0.0332	117.	31-142	15.0	31	L564234-06	WG582209	
Benzo(a)pyrene	mg/kg	0.0360	0.0314	109.	26-152	13.6	32	L564234-06	WG582209	
Benzo(b)fluoranthene	mg/kg	0.0365	0.0306	110.	10-188	17.6	33	L564234-06	WG582209	
Benzo(g,h,i)perylene	mg/kg	0.0332	0.0298	101.	10-176	11.0	30	L564234-06	WG582209	
Benzo(k)fluoranthene	mg/kg	0.0332	0.0305	100.	22-163	8.52	29	L564234-06	WG582209	
Chrysene	mg/kg	0.0405	0.0323	123.	26-146	22.5	30	L564234-06	WG582209	
Dibenz(a,h)anthracene	mg/kg	0.0323	0.0285	97.8	10-160	12.4	39	L564234-06	WG582209	
Fluoranthene	mg/kg	0.0334	0.0298	101.	23-160	11.6	22	L564234-06	WG582209	
Fluorene	mg/kg	0.0350	0.0302	106.	44-143	15.0	23	L564234-06	WG582209	
Indeno(1,2,3-cd)pyrene	mg/kg	0.0327	0.0294	99.2	10-157	10.9	40	L564234-06	WG582209	
Naphthalene	mg/kg	0.0289	0.0255	87.7	22-156	12.7	27	L564234-06	WG582209	
Phenanthrene	mg/kg	0.0323	0.0282	97.8	23-164	13.5	25	L564234-06	WG582209	
Pyrene	mg/kg	0.0373	0.0307	113.	12-170	19.4	24	L564234-06	WG582209	
2-Fluorobiphenyl				104.8	34-129				WG582209	
Nitrobenzene-d5				82.47	14-141				WG582209	
p-Terphenyl-d14				122.2	25-139				WG582209	
TPH (GC/FID) High Fraction	ppm	43.8	41.2	73.0	50-150	6.19	25	L564076-09	WG582013	
o-Terphenyl				81.96	50-150				WG582013	

Batch number /Run number / Sample number cross reference

WG582362: R2066736: L564170-01
WG582088: R2066973: L564170-02
WG582089: R2066993: L564170-02
WG582166: R2067097: L564170-02
WG581521: R2067976: L564170-02
WG582127: R2068134: L564170-02
WG582209: R2068533: L564170-01
WG582279: R2068774: L564170-02
WG582013: R2069033: L564170-01
WG582313: R2071653: L564170-02

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