



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

Thursday May 10, 2012

Report Number: L572576

Samples Received: 05/01/12

Client Project:

Description: D31 Background

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

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May 10, 2012

Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGN-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:25

ESC Sample # : L572576-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.0	1.0	mg/kg	6010B	05/08/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGN-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:25

ESC Sample # : L572576-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.5	1.0	mg/kg	6010B	05/08/12	1

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Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGN-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:25

ESC Sample # : L572576-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.1	1.0	mg/kg	6010B	05/08/12	1

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May 10, 2012

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Description : D31 Background
Sample ID : D31-BGN-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:25

ESC Sample # : L572576-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.8	1.0	mg/kg	6010B	05/08/12	1

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Sample ID : D31-BGN-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:25

ESC Sample # : L572576-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.4	1.0	mg/kg	6010B	05/08/12	1

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Description : D31 Background
Sample ID : D31-BGE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:30

ESC Sample # : L572576-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	05/08/12	1

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Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:30

ESC Sample # : L572576-07

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	05/08/12	1

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May 10, 2012

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Description : D31 Background
Sample ID : D31-BGE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:30

ESC Sample # : L572576-08

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	13.	1.0	mg/kg	6010B	05/07/12	1

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May 10, 2012

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ESC Sample # : L572576-09

Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:30

Site ID :
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	05/07/12	1

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May 10, 2012

Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:30

ESC Sample # : L572576-10

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	10.	1.0	mg/kg	6010B	05/07/12	1

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Description : D31 Background
Sample ID : D31-BGSE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:35

ESC Sample # : L572576-11

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.6	1.0	mg/kg	6010B	05/07/12	1

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Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGSE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:35

ESC Sample # : L572576-12

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.7	1.0	mg/kg	6010B	05/07/12	1

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May 10, 2012

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Collected By : MATT KASTEN
Collection Date : 04/30/12 14:35

ESC Sample # : L572576-13

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.2	1.0	mg/kg	6010B	05/07/12	1

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May 10, 2012

Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGSE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:35

ESC Sample # : L572576-14

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.3	1.0	mg/kg	6010B	05/07/12	1

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Parachute, CO 81635

May 10, 2012

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Description : D31 Background
Sample ID : D31-BGSE-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:35

ESC Sample # : L572576-15

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.0	1.0	mg/kg	6010B	05/07/12	1

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Parachute, CO 81635

May 10, 2012

Date Received : May 01, 2012
Description : D31 Background
Sample ID : D31-BGSW-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:38

ESC Sample # : L572576-16

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.1	1.0	mg/kg	6010B	05/07/12	1

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May 10, 2012

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Description : D31 Background
Sample ID : D31-BGSW-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:38

ESC Sample # : L572576-17

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.5	1.0	mg/kg	6010B	05/07/12	1

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Description : D31 Background
Sample ID : D31-BGSW-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:38

ESC Sample # : L572576-18

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.8	1.0	mg/kg	6010B	05/07/12	1

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May 10, 2012

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Description : D31 Background
Sample ID : D31-BGSW-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:38

ESC Sample # : L572576-19

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.5	1.0	mg/kg	6010B	05/07/12	1

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May 10, 2012

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Description : D31 Background
Sample ID : D31-BGSW-043012 10 IN
Collected By : MATT KASTEN
Collection Date : 04/30/12 14:38

ESC Sample # : L572576-20

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	8.0	1.0	mg/kg	6010B	05/07/12	1

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Reported: 05/10/12 08:25 Printed: 05/10/12 08:25

Summary of Remarks For Samples Printed
05/10/12 at 08:25:50

TSR Signing Reports: 358
R5 - Desired TAT

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

Sample: L572576-01 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Sample: L572576-02 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -01
Sample: L572576-03 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -01
Sample: L572576-04 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -01
Sample: L572576-05 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -01
Sample: L572576-06 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Sample: L572576-07 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -06
Sample: L572576-08 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -06
Sample: L572576-09 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -06
Sample: L572576-10 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -06
Sample: L572576-11 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Sample: L572576-12 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -11
Sample: L572576-13 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -11
Sample: L572576-14 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -11
Sample: L572576-15 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -11
Sample: L572576-16 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Sample: L572576-17 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -16
Sample: L572576-18 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -16
Sample: L572576-19 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -16
Sample: L572576-20 Account: ENCANACO Received: 05/01/12 09:31 Due Date: 05/08/12 00:00 RPT Date: 05/10/12 08:25
Use container from -16



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2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report
Level II

L572576

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

May 10, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed			
		Units	% Rec						
Arsenic	< 1	mg/kg			WG590589	05/07/12 11:34			
Arsenic	< 1	mg/kg			WG590503	05/08/12 23:03			
Analyte	Units	Duplicate			Limit	Ref Samp	Batch		
		Result	Duplicate	RPD					
Arsenic	mg/kg	9.20	8.00	14.2	20	L572576-20	WG590589		
Arsenic	mg/kg	3.40	3.30	2.69	20	L572656-01	WG590503		
Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch			
		Known Val	Result						
Arsenic	mg/kg	92.6	83.0	89.6	82.9-117	WG590589			
Arsenic	mg/kg	92.6	86.6	93.5	82.9-117	WG590503			
Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch	
		MS Res	Ref Res	TV					
Arsenic	mg/kg	54.3	8.00	50	92.6	75-125	L572576-20	WG590589	
Arsenic	mg/kg	47.3	3.30	50	88.0	75-125	L572656-01	WG590503	
Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Arsenic	mg/kg	53.5	54.3	91.0	75-125	1.48	20	L572576-20	WG590589
Arsenic	mg/kg	44.7	47.3	82.8	75-125	5.65	20	L572656-01	WG590503

Batch number /Run number / Sample number cross reference

WG590589: R2159857: L572576-08 09 10 11 12 13 14 15 16 17 18 19 20
WG590503: R2163113: L572576-01 02 03 04 05 06 07

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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

Report Summary

Tuesday June 12, 2012

Report Number: L578242


Samples Received: 06/02/12

Client Project:

Description: D31 Pit

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

June 12, 2012

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

ESC Sample # : L578242-01

Date Received : June 02, 2012
Description : D31 Pit

Site ID : D31 PIT

Sample ID : D31-S.PIT-N.BOT-060112 0-4 IN

Project # :

Collected By : Robert Stockton
Collection Date : 06/01/12 12:06

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include Benzene, Toluene, Ethylbenzene, Total Xylene, TPH (GC/FID) Low Fraction, Surrogate Recovery-%, a,a,a-Trifluorotoluene(FID), a,a,a-Trifluorotoluene(PID), TPH (GC/FID) High Fraction, Surrogate recovery(%), o-Terphenyl.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 06/12/12 11:48 Printed: 06/12/12 11:48



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REPORT OF ANALYSIS

June 12, 2012

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

ESC Sample # : L578242-02

Date Received : June 02, 2012
Description : D31 Pit

Site ID : D31 PIT

Sample ID : D31-S.PIT-H2O-060112

Project # :

Collected By : Robert Stockton
Collection Date : 06/01/12 12:19

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include Benzene, Toluene, Ethylbenzene, Total Xylene, TPH (GC/FID) Low Fraction, Surrogate Recovery-%, a,a,a-Trifluorotoluene(FID), a,a,a-Trifluorotoluene(PID), TPH (GC/FID) High Fraction, Surrogate recovery(%), o-Terphenyl.

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

June 12, 2012

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 EnCana Oil & Gas Inc. - CO
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 Parachute, CO 81635

Date Received : June 02, 2012
 Description : D31 Pit
 Sample ID : D31-N.PIT-H2O-060112
 Collected By : Robert Stockton
 Collection Date : 06/01/12 12:30

ESC Sample # : L578242-03
 Site ID : D31 PIT
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.00050	mg/l	8021/8015	06/05/12	1
Toluene	BDL	0.0050	mg/l	8021/8015	06/05/12	1
Ethylbenzene	BDL	0.00050	mg/l	8021/8015	06/05/12	1
Total Xylene	BDL	0.0015	mg/l	8021/8015	06/05/12	1
TPH (GC/FID) Low Fraction	BDL	0.10	mg/l	GRO	06/05/12	1
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.7		% Rec.	8021/8015	06/05/12	1
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	06/05/12	1
TPH (GC/FID) High Fraction	0.10	0.10	mg/l	3510C/DRO	06/08/12	1
Surrogate recovery(%)						
o-Terphenyl	63.5		% Rec.	3510C/DRO	06/08/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

June 12, 2012

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

Date Received : June 02, 2012
 Description : D31 Pit
 Sample ID : D31-N.PIT-CENTER-060112 0-4 IN
 Collected By : Robert Stockton
 Collection Date : 06/01/12 12:46

ESC Sample # : L578242-04
 Site ID : D31 PIT
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	06/04/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	06/04/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	06/04/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	06/04/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	06/04/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.4		% Rec.	8021/8015	06/04/12	5
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021/8015	06/04/12	5
TPH (GC/FID) High Fraction	340	4.0	mg/kg	3546/DRO	06/11/12	1
Surrogate recovery(%)						
o-Terphenyl	104.		% Rec.	3546/DRO	06/11/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L578242-01	WG595885	SAMP	TPH (GC/FID) Low Fraction	R2195873	J3

Attachment B
Explanation of QC Qualifier Codes

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

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
06/12/12 at 11:48:30

TSR Signing Reports: 358
R5 - Desired TAT

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

Sample: L578242-01 Account: ENCANACO Received: 06/02/12 09:00 Due Date: 06/08/12 00:00 RPT Date: 06/12/12 11:48

Sample: L578242-02 Account: ENCANACO Received: 06/02/12 09:00 Due Date: 06/08/12 00:00 RPT Date: 06/12/12 11:48

Sample: L578242-03 Account: ENCANACO Received: 06/02/12 09:00 Due Date: 06/08/12 00:00 RPT Date: 06/12/12 11:48

Sample: L578242-04 Account: ENCANACO Received: 06/02/12 09:00 Due Date: 06/08/12 00:00 RPT Date: 06/12/12 11:48



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June 12, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG595885	06/03/12 23:36
Ethylbenzene	< .0005	mg/kg			WG595885	06/03/12 23:36
Toluene	< .005	mg/kg			WG595885	06/03/12 23:36
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG595885	06/03/12 23:36
Total Xylene	< .0015	mg/kg			WG595885	06/03/12 23:36
a,a,a-Trifluorotoluene(FID)		% Rec.	99.54	59-128	WG595885	06/03/12 23:36
a,a,a-Trifluorotoluene(PID)		% Rec.	107.0	54-144	WG595885	06/03/12 23:36
Benzene	< .0005	mg/l			WG595880	06/04/12 21:22
Ethylbenzene	< .0005	mg/l			WG595880	06/04/12 21:22
Toluene	< .005	mg/l			WG595880	06/04/12 21:22
TPH (GC/FID) Low Fraction	< .1	mg/l			WG595880	06/04/12 21:22
Total Xylene	< .0015	mg/l			WG595880	06/04/12 21:22
a,a,a-Trifluorotoluene(FID)		% Rec.	97.46	62-128	WG595880	06/04/12 21:22
a,a,a-Trifluorotoluene(PID)		% Rec.	105.9	55-122	WG595880	06/04/12 21:22
TPH (GC/FID) High Fraction	< .1	ppm			WG596272	06/06/12 23:07
o-Terphenyl		% Rec.	92.12	50-150	WG596272	06/06/12 23:07
TPH (GC/FID) High Fraction	< .1	ppm			WG596278	06/08/12 09:01
o-Terphenyl		% Rec.	55.04	50-150	WG596278	06/08/12 09:01
TPH (GC/FID) High Fraction	< 4	ppm			WG595902	06/11/12 13:39
o-Terphenyl		% Rec.	90.11	50-150	WG595902	06/11/12 13:39

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0457	91.3	76-113	WG595885
Ethylbenzene	mg/kg	.05	0.0461	92.2	78-115	WG595885
Toluene	mg/kg	.05	0.0464	92.7	76-114	WG595885
Total Xylene	mg/kg	.15	0.144	96.0	81-118	WG595885
a,a,a-Trifluorotoluene(PID)				106.2	54-144	WG595885
TPH (GC/FID) Low Fraction	mg/kg	5.5	7.07	129.	67-135	WG595885
a,a,a-Trifluorotoluene(FID)				106.4	59-128	WG595885
Benzene	mg/l	.05	0.0463	92.5	79-114	WG595880
Ethylbenzene	mg/l	.05	0.0459	91.8	80-116	WG595880
Toluene	mg/l	.05	0.0456	91.3	79-112	WG595880
Total Xylene	mg/l	.15	0.133	88.9	84-118	WG595880
a,a,a-Trifluorotoluene(PID)				104.1	55-122	WG595880
TPH (GC/FID) Low Fraction	mg/l	5.5	5.78	105.	70-124	WG595880
a,a,a-Trifluorotoluene(FID)				105.5	62-128	WG595880
TPH (GC/FID) High Fraction	ppm	1.5	1.50	100.	50-150	WG596272
o-Terphenyl				100.9	50-150	WG596272
TPH (GC/FID) High Fraction	mg/l	1.5	0.945	63.0	50-150	WG596278
o-Terphenyl				65.26*	0-0	WG596278
TPH (GC/FID) High Fraction	ppm	60	52.4	87.3	50-150	WG595902

* 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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June 12, 2012

Analyte	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
	Units	Result	Ref	%Rec				
o-Terphenyl					84.37		50-150	

Analyte	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
	Units	Result	Ref	%Rec				
Benzene	mg/kg	0.0463	0.0457	93.0	76-113	1.44	20	WG595885
Ethylbenzene	mg/kg	0.0467	0.0461	93.0	78-115	1.32	20	WG595885
Toluene	mg/kg	0.0462	0.0464	92.0	76-114	0.390	20	WG595885
Total Xylene	mg/kg	0.146	0.144	97.0	81-118	1.10	20	WG595885
a,a,a-Trifluorotoluene(PID)				106.1	54-144			WG595885
TPH (GC/FID) Low Fraction	mg/kg	7.08	7.07	129.	67-135	0.0600	20	WG595885
a,a,a-Trifluorotoluene(FID)				106.8	59-128			WG595885
Benzene	mg/l	0.0457	0.0463	91.0	79-114	1.33	20	WG595880
Ethylbenzene	mg/l	0.0455	0.0459	91.0	80-116	0.800	20	WG595880
Toluene	mg/l	0.0448	0.0456	90.0	79-112	1.74	20	WG595880
Total Xylene	mg/l	0.132	0.133	88.0	84-118	0.810	20	WG595880
a,a,a-Trifluorotoluene(PID)				104.1	55-122			WG595880
TPH (GC/FID) Low Fraction	mg/l	5.70	5.78	104.	70-124	1.43	20	WG595880
a,a,a-Trifluorotoluene(FID)				104.2	62-128			WG595880
TPH (GC/FID) High Fraction	ppm	1.60	1.50	107.	50-150	6.45	20	WG596272
o-Terphenyl				101.1	50-150			WG596272
TPH (GC/FID) High Fraction	mg/l	0.827	0.945	55.0	50-150	13.3	20	WG596278
o-Terphenyl				57.57*	0-0			WG596278
TPH (GC/FID) High Fraction	ppm	50.4	52.4	84.0	50-150	3.99	23	WG595902
o-Terphenyl				81.63	50-150			WG595902

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.189	0	.05	75.6	32-137	L578242-01	WG595885
Ethylbenzene	mg/kg	0.166	0	.05	66.5	10-150	L578242-01	WG595885
Toluene	mg/kg	0.185	0	.05	73.8	20-142	L578242-01	WG595885
Total Xylene	mg/kg	0.516	0	.15	68.8	16-141	L578242-01	WG595885
a,a,a-Trifluorotoluene(PID)					106.2	54-144		WG595885
TPH (GC/FID) Low Fraction	mg/kg	19.5	0	5.5	71.0	55-109	L578242-01	WG595885
a,a,a-Trifluorotoluene(FID)					101.8	59-128		WG595885
Benzene	mg/l	0.0424	0	.05	84.8	35-147	L578217-01	WG595880
Ethylbenzene	mg/l	0.0444	0	.05	88.7	39-141	L578217-01	WG595880
Toluene	mg/l	0.0436	0	.05	87.2	35-148	L578217-01	WG595880
Total Xylene	mg/l	0.131	0	.15	87.4	33-151	L578217-01	WG595880
a,a,a-Trifluorotoluene(PID)					104.2	55-122		WG595880
TPH (GC/FID) Low Fraction	mg/l	4.75	0	5.5	86.3	55-109	L578217-01	WG595880
a,a,a-Trifluorotoluene(FID)					102.3	62-128		WG595880
TPH (GC/FID) High Fraction	ppm	66.0	0	60	110.	50-150	L578188-10	WG595902
o-Terphenyl					69.82	50-150		WG595902

* 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
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report
Level II

L578242

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

June 12, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Benzene	mg/kg	0.203	0.189	81.3	32-137	7.27	39	L578242-01	WG595885	
Ethylbenzene	mg/kg	0.147	0.166	59.0	10-150	11.9	44	L578242-01	WG595885	
Toluene	mg/kg	0.177	0.185	70.7	20-142	4.33	42	L578242-01	WG595885	
Total Xylene	mg/kg	0.458	0.516	61.1	16-141	11.9	46	L578242-01	WG595885	
a,a,a-Trifluorotoluene(PID)				105.4	54-144				WG595885	
TPH (GC/FID) Low Fraction	mg/kg	26.0	19.5	94.5	55-109	28.4*	20	L578242-01	WG595885	
a,a,a-Trifluorotoluene(FID)				103.3	59-128				WG595885	
Benzene	mg/l	0.0451	0.0424	90.2	35-147	6.21	20	L578217-01	WG595880	
Ethylbenzene	mg/l	0.0451	0.0444	90.1	39-141	1.57	20	L578217-01	WG595880	
Toluene	mg/l	0.0447	0.0436	89.3	35-148	2.34	20	L578217-01	WG595880	
Total Xylene	mg/l	0.131	0.131	87.4	33-151	0	20	L578217-01	WG595880	
a,a,a-Trifluorotoluene(PID)				103.8	55-122				WG595880	
TPH (GC/FID) Low Fraction	mg/l	5.48	4.75	99.6	55-109	14.4	20	L578217-01	WG595880	
a,a,a-Trifluorotoluene(FID)				103.4	62-128				WG595880	
TPH (GC/FID) High Fraction	ppm	72.3	66.0	120.	50-150	9.07	40	L578188-10	WG595902	
o-Terphenyl				77.71	50-150				WG595902	

Batch number /Run number / Sample number cross reference

WG595885: R2195873: L578242-01 04
WG595880: R2197294: L578242-02 03
WG596272: R2200655: L578242-02
WG596278: R2202713: L578242-03
WG595902: R2205554: L578242-01 04

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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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

Tuesday May 22, 2012

Report Number: L575225


Samples Received: 05/15/12

Client Project: D31M01051412

Description: D31 MOI

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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REPORT OF ANALYSIS

May 22, 2012

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

ESC Sample # : L575225-01

Date Received : May 15, 2012
Description : D31 MOI

Site ID : D31 MOI

Sample ID : D31-MOI-051412 3-8IN

Project # : D31MO1051412

Collected By : Bob Stockton
Collection Date : 05/14/12 11:21

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/21/12	1
Chromium,Trivalent	22.	2.0	mg/kg	Calc.	05/18/12	1
ORP	120		mV	2580	05/17/12	1
pH	7.7		su	9045D	05/17/12	1
Sodium Adsorption Ratio	1.5			Calc.	05/18/12	1
Specific Conductance	560		umhos/cm	9050AMod	05/17/12	1
Mercury	0.038	0.020	mg/kg	7471	05/16/12	1
Arsenic	15.	1.0	mg/kg	6010B	05/18/12	1
Barium	5700	0.50	mg/kg	6010B	05/18/12	2
Cadmium	BDL	0.25	mg/kg	6010B	05/18/12	1
Chromium	22.	0.50	mg/kg	6010B	05/18/12	1
Copper	25.	1.0	mg/kg	6010B	05/18/12	1
Lead	13.	0.50	mg/kg	6010B	05/18/12	2
Nickel	15.	1.0	mg/kg	6010B	05/18/12	1
Selenium	BDL	1.0	mg/kg	6010B	05/18/12	1
Silver	BDL	1.0	mg/kg	6010B	05/18/12	2
Zinc	60.	1.5	mg/kg	6010B	05/18/12	1
Benzene	0.028	0.025	mg/kg	8021/8015	05/16/12	50
Toluene	BDL	0.25	mg/kg	8021/8015	05/16/12	50
Ethylbenzene	0.15	0.025	mg/kg	8021/8015	05/16/12	50
Total Xylene	0.54	0.075	mg/kg	8021/8015	05/16/12	50
TPH (GC/FID) Low Fraction	100	5.0	mg/kg	GRO	05/16/12	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	100.		% Rec.	8021/8015	05/16/12	50
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021/8015	05/16/12	50
TPH (GC/FID) High Fraction	4000	80.	mg/kg	3546/DRO	05/21/12	20
Surrogate recovery(%)						
o-Terphenyl	125.		% Rec.	3546/DRO	05/21/12	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Acenaphthene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Acenaphthylene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Benzo(a)anthracene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Benzo(a)pyrene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L575225-01 (PH) - 7.7@20.6c



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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

May 22, 2012

Date Received : May 15, 2012
 Description : D31 MOI
 Sample ID : D31-MOI-051412 3-8IN
 Collected By : Bob Stockton
 Collection Date : 05/14/12 11:21

ESC Sample # : L575225-01
 Site ID : D31 MOI
 Project # : D31MO1051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Benzo(g,h,i)perylene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Benzo(k)fluoranthene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Chrysene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Dibenz(a,h)anthracene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Fluoranthene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Fluorene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Indeno(1,2,3-cd)pyrene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Naphthalene	0.68	0.30	mg/kg	8270C-SIM	05/22/12	50
Phenanthrene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Pyrene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
1-Methylnaphthalene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
2-Methylnaphthalene	0.44	0.30	mg/kg	8270C-SIM	05/22/12	50
2-Chloronaphthalene	BDL	0.30	mg/kg	8270C-SIM	05/22/12	50
Surrogate Recovery						
Nitrobenzene-d5	1640		% Rec.	8270C-SIM	05/22/12	50
2-Fluorobiphenyl	362.		% Rec.	8270C-SIM	05/22/12	50
p-Terphenyl-d14	175.		% Rec.	8270C-SIM	05/22/12	50

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: 05/22/12 11:21 Printed: 05/22/12 11:21
 L575225-01 (PH) - 7.7@20.6c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L575225-01	WG592981	SAMP	Silver	R2175834	O
	WG592880	SAMP	Nitrobenzene-d5	R2177674	J7
	WG592880	SAMP	2-Fluorobiphenyl	R2177674	J7
	WG592880	SAMP	p-Terphenyl-d14	R2177674	J7
	WG592923	SAMP	pH	R2173755	T8
	WG593097	SAMP	o-Terphenyl	R2178161	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
0	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
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
05/22/12 at 11:21:32

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: L575225-01 Account: ENCANACO Received: 05/15/12 09:00 Due Date: 05/22/12 00:00 RPT Date: 05/22/12 11:21



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG592960	05/15/12 23:47
Ethylbenzene	< .0005	mg/kg			WG592960	05/15/12 23:47
Toluene	< .005	mg/kg			WG592960	05/15/12 23:47
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG592960	05/15/12 23:47
Total Xylene	< .0015	mg/kg			WG592960	05/15/12 23:47
a,a,a-Trifluorotoluene(FID)		% Rec.	99.46	59-128	WG592960	05/15/12 23:47
a,a,a-Trifluorotoluene(PID)		% Rec.	108.2	54-144	WG592960	05/15/12 23:47
Mercury	< .02	mg/kg			WG592932	05/16/12 19:37
pH	7.10	su			WG592923	05/17/12 09:56
Specific Conductance	1.96	umhos/cm			WG593318	05/17/12 18:47
Arsenic	< 1	mg/kg			WG592981	05/17/12 18:58
Barium	< .25	mg/kg			WG592981	05/17/12 18:58
Cadmium	< .25	mg/kg			WG592981	05/17/12 18:58
Chromium	< .5	mg/kg			WG592981	05/17/12 18:58
Copper	< 1	mg/kg			WG592981	05/17/12 18:58
Lead	< .25	mg/kg			WG592981	05/17/12 18:58
Nickel	< 1	mg/kg			WG592981	05/17/12 18:58
Selenium	< 1	mg/kg			WG592981	05/17/12 18:58
Silver	< .5	mg/kg			WG592981	05/17/12 18:58
Zinc	< 1.5	mg/kg			WG592981	05/17/12 18:58
1-Methylnaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Chloronaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Methylnaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
Acenaphthene	< .006	mg/kg			WG592880	05/19/12 04:26
Acenaphthylene	< .006	mg/kg			WG592880	05/19/12 04:26
Anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(a)anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(a)pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(b)fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(g,h,i)perylene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(k)fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Chrysene	< .006	mg/kg			WG592880	05/19/12 04:26
Dibenz(a,h)anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Fluorene	< .006	mg/kg			WG592880	05/19/12 04:26
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
Naphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
Phenanthrene	< .006	mg/kg			WG592880	05/19/12 04:26
Pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Fluorobiphenyl		% Rec.	87.90	34-129	WG592880	05/19/12 04:26
Nitrobenzene-d5		% Rec.	87.10	14-141	WG592880	05/19/12 04:26
p-Terphenyl-d14		% Rec.	116.7	25-139	WG592880	05/19/12 04:26
TPH (GC/FID) High Fraction	< 4	ppm			WG593097	05/19/12 05:31
o-Terphenyl		% Rec.	78.54	50-150	WG593097	05/19/12 05:31
Chromium,Hexavalent	< 2	mg/kg			WG593559	05/21/12 13:01

* 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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May 22, 2012

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0.0270	0.0260	4.14	20	L575228-01	WG592932
pH	su	8.70	8.70	0.230	1	L574996-01	WG592923
pH	su	8.50	8.60	1.29*	1	L575232-01	WG592923
ORP	mV	110.	110.	0.905	20	L575232-01	WG593118
Specific Conductance	umhos/cm	2200	2000	7.23	20	L575223-01	WG593318
Arsenic	mg/kg	8.70	9.10	4.61	20	L575232-01	WG592981
Barium	mg/kg	5000	4300	14.5	20	L575232-01	WG592981
Cadmium	mg/kg	0.390	0.340	13.2	20	L575232-01	WG592981
Chromium	mg/kg	20.0	21.0	7.41	20	L575232-01	WG592981
Copper	mg/kg	16.0	17.0	9.23	20	L575232-01	WG592981
Nickel	mg/kg	13.0	15.0	15.8	20	L575232-01	WG592981
Selenium	mg/kg	0	0	0	20	L575232-01	WG592981
Zinc	mg/kg	50.0	61.0	20.8*	20	L575232-01	WG592981
Lead	mg/kg	13.0	13.0	1.55	20	L575232-01	WG592981
Silver	mg/kg	0	0	0	20	L575232-01	WG592981
Chromium,Hexavalent	mg/kg	0	0	0	20	L575228-01	WG593559
Chromium,Hexavalent	mg/kg	0	0	0	20	L575773-06	WG593559

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0524	105.	76-113	WG592960
Ethylbenzene	mg/kg	.05	0.0530	106.	78-115	WG592960
Toluene	mg/kg	.05	0.0525	105.	76-114	WG592960
Total Xylene	mg/kg	.15	0.159	106.	81-118	WG592960
a,a,a-Trifluorotoluene(FID)				98.92	59-128	WG592960
a,a,a-Trifluorotoluene(PID)				106.5	54-144	WG592960
TPH (GC/FID) Low Fraction	mg/kg	5.5	7.27	132.	67-135	WG592960
a,a,a-Trifluorotoluene(FID)				106.5	59-128	WG592960
a,a,a-Trifluorotoluene(PID)				114.0	54-144	WG592960
Mercury	mg/kg	3.77	3.93	104.	71.6-128	WG592932
pH	su	5.7	5.70	100.	98-101	WG592923
ORP	mV	228	228.	100.	95.6-104.	WG593118
Specific Conductance	umhos/cm	495	486.	98.2	85-115	WG593318
Arsenic	mg/kg	92.6	90.4	97.6	82.9-117	WG592981
Barium	mg/kg	169	168.	99.4	82.8-117	WG592981
Cadmium	mg/kg	61.8	60.1	97.2	83.3-117	WG592981
Chromium	mg/kg	71.3	70.7	99.2	81.8-118	WG592981
Copper	mg/kg	81.2	79.5	97.9	83.9-116	WG592981

* 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

May 22, 2012

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Lead	mg/kg	92.4	92.2	99.8	83.3-117	WG592981
Nickel	mg/kg	59.1	54.8	92.7	83.8-116	WG592981
Selenium	mg/kg	89.5	83.9	93.7	79-121	WG592981
Silver	mg/kg	34.4	31.6	91.9	66.3-134	WG592981
Zinc	mg/kg	141	141.	100.	80.9-119	WG592981
1-Methylnaphthalene	mg/kg	.033	0.0272	82.4	48-113	WG592880
2-Chloronaphthalene	mg/kg	.033	0.0263	79.6	51-114	WG592880
2-Methylnaphthalene	mg/kg	.033	0.0274	83.1	44-109	WG592880
Acenaphthene	mg/kg	.033	0.0251	75.9	52-108	WG592880
Acenaphthylene	mg/kg	.033	0.0260	78.8	51-110	WG592880
Anthracene	mg/kg	.033	0.0295	89.2	58-120	WG592880
Benzo(a)anthracene	mg/kg	.033	0.0279	84.6	54-110	WG592880
Benzo(a)pyrene	mg/kg	.033	0.0290	88.0	56-118	WG592880
Benzo(b)fluoranthene	mg/kg	.033	0.0296	89.8	55-114	WG592880
Benzo(g,h,i)perylene	mg/kg	.033	0.0297	90.0	48-130	WG592880
Benzo(k)fluoranthene	mg/kg	.033	0.0280	84.8	55-122	WG592880
Chrysene	mg/kg	.033	0.0296	89.8	57-118	WG592880
Dibenz(a,h)anthracene	mg/kg	.033	0.0290	87.8	53-122	WG592880
Fluoranthene	mg/kg	.033	0.0296	89.6	58-118	WG592880
Fluorene	mg/kg	.033	0.0260	78.7	54-109	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0294	89.1	51-125	WG592880
Naphthalene	mg/kg	.033	0.0259	78.5	45-105	WG592880
Phenanthrene	mg/kg	.033	0.0268	81.3	53-114	WG592880
Pyrene	mg/kg	.033	0.0294	89.1	53-121	WG592880
2-Fluorobiphenyl				79.80	34-129	WG592880
Nitrobenzene-d5				84.20	14-141	WG592880
p-Terphenyl-d14				107.2	25-139	WG592880
TPH (GC/FID) High Fraction	ppm	60	46.7	77.8	50-150	WG593097
o-Terphenyl				82.30	50-150	WG593097
Chromium,Hexavalent	mg/kg	150	140.	93.3	50-150	WG593559

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0548	0.0524	110.	76-113	4.31	20	WG592960
Ethylbenzene	mg/kg	0.0547	0.0530	109.	78-115	3.26	20	WG592960
Toluene	mg/kg	0.0540	0.0525	108.	76-114	2.86	20	WG592960
Total Xylene	mg/kg	0.164	0.159	109.	81-118	2.98	20	WG592960
a,a,a-Trifluorotoluene(FID)				99.96	59-128			WG592960
a,a,a-Trifluorotoluene(PID)				107.2	54-144			WG592960
TPH (GC/FID) Low Fraction	mg/kg	7.37	7.27	134.	67-135	1.49	20	WG592960
a,a,a-Trifluorotoluene(FID)				106.6	59-128			WG592960
a,a,a-Trifluorotoluene(PID)				114.9	54-144			WG592960
pH	su	5.70	5.70	100.	98-101	0	20	WG592923
ORP	mV	228.	228.	100.	95.6-104.	0	20	WG593118
Specific Conductance	umhos/	486.	486.	98.0	85-115	0	20	WG593318

* Performance of this Analyte is outside of established criteria.

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Quality Assurance Report
Level II

L575225

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Tax I.D. 62-0814289

Est. 1970

May 22, 2012

Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
1-Methylnaphthalene	mg/kg	0.0286	0.0272	87.0		48-113	5.27	24	WG592880
2-Chloronaphthalene	mg/kg	0.0280	0.0263	85.0		51-114	6.31	24	WG592880
2-Methylnaphthalene	mg/kg	0.0289	0.0274	87.0		44-109	5.17	24	WG592880
Acenaphthene	mg/kg	0.0271	0.0251	82.0		52-108	7.92	22	WG592880
Acenaphthylene	mg/kg	0.0274	0.0260	83.0		51-110	5.12	21	WG592880
Anthracene	mg/kg	0.0315	0.0295	95.0		58-120	6.73	20	WG592880
Benzo(a)anthracene	mg/kg	0.0287	0.0279	87.0		54-110	2.79	22	WG592880
Benzo(a)pyrene	mg/kg	0.0303	0.0290	92.0		56-118	4.25	21	WG592880
Benzo(b)fluoranthene	mg/kg	0.0315	0.0296	96.0		55-114	6.25	20	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0309	0.0297	94.0		48-130	3.93	20	WG592880
Benzo(k)fluoranthene	mg/kg	0.0289	0.0280	88.0		55-122	3.19	25	WG592880
Chrysene	mg/kg	0.0306	0.0296	92.0		57-118	3.03	20	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0302	0.0290	92.0		53-122	4.18	20	WG592880
Fluoranthene	mg/kg	0.0311	0.0296	94.0		58-118	5.13	20	WG592880
Fluorene	mg/kg	0.0276	0.0260	84.0		54-109	5.95	20	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0311	0.0294	94.0		51-125	5.72	21	WG592880
Naphthalene	mg/kg	0.0272	0.0259	82.0		45-105	5.02	24	WG592880
Phenanthrene	mg/kg	0.0302	0.0268	92.0		53-114	11.8	20	WG592880
Pyrene	mg/kg	0.0298	0.0294	90.0		53-121	1.17	20	WG592880
2-Fluorobiphenyl				82.32		34-129			WG592880
Nitrobenzene-d5				84.04		14-141			WG592880
p-Terphenyl-d14				113.2		25-139			WG592880
TPH (GC/FID) High Fraction	ppm	43.6	46.7	73.0		50-150	6.86	23	WG593097
o-Terphenyl				74.10		50-150			WG593097
Chromium,Hexavalent	mg/kg	129.	140.	86.0		50-150	8.18	20	WG593559

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.0849	0	.05	34.0	32-137	L575232-05	WG592960
Ethylbenzene	mg/kg	0.0479	0	.05	19.2	10-150	L575232-05	WG592960
Toluene	mg/kg	0.0675	0	.05	27.0	20-142	L575232-05	WG592960
Total Xylene	mg/kg	0.149	0	.15	19.8	16-141	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)					97.13	59-128		WG592960
a,a,a-Trifluorotoluene(PID)					105.2	54-144		WG592960
TPH (GC/FID) Low Fraction	mg/kg	16.5	0	5.5	60.2	55-109	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)					103.2	59-128		WG592960
a,a,a-Trifluorotoluene(PID)					110.9	54-144		WG592960
Mercury	mg/kg	0.290	0.0260	.25	106.	70-130	L575228-01	WG592932
Arsenic	mg/kg	55.9	9.10	50	93.6	75-125	L575232-01	WG592981
Barium	mg/kg	4040	4300	50	0*	75-125	L575232-01	WG592981
Cadmium	mg/kg	47.2	0.340	50	93.7	75-125	L575232-01	WG592981
Chromium	mg/kg	64.2	21.0	50	86.4	75-125	L575232-01	WG592981
Copper	mg/kg	60.4	17.0	50	86.8	75-125	L575232-01	WG592981
Nickel	mg/kg	56.4	15.0	50	82.8	75-125	L575232-01	WG592981
Selenium	mg/kg	43.5	0	50	87.0	75-125	L575232-01	WG592981
Zinc	mg/kg	99.5	61.0	50	77.0	75-125	L575232-01	WG592981
Lead	mg/kg	63.5	13.0	10	101.	75-125	L575232-01	WG592981
Silver	mg/kg	48.5	0	10	97.0	75-125	L575232-01	WG592981

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
TPH (GC/FID) High Fraction	ppm	35.9	0	60	59.9	50-150	L575343-03	WG593097
o-Terphenyl					63.54	50-150		WG593097
Chromium,Hexavalent	mg/kg	20.5	4.00	20	82.4	50-150	L575576-01	WG593559
Chromium,Hexavalent	mg/kg	4.48	0	20	22.4*	50-150	L574939-01	WG593559
1-Methylnaphthalene	mg/kg	0.0973	0.0270	.033	213.*	25-155	L575198-05	WG592880
2-Chloronaphthalene	mg/kg	0.0383	0	.033	116.	31-153	L575198-05	WG592880
2-Methylnaphthalene	mg/kg	0.101	0.0280	.033	221.*	22-172	L575198-05	WG592880
Acenaphthene	mg/kg	0.0517	0	.033	157.*	43-133	L575198-05	WG592880
Acenaphthylene	mg/kg	0.0427	0	.033	129.	42-146	L575198-05	WG592880
Anthracene	mg/kg	0.0735	0	.033	223.*	38-153	L575198-05	WG592880
Benzo(a)anthracene	mg/kg	0.0369	0.00100	.033	109.	31-142	L575198-05	WG592880
Benzo(a)pyrene	mg/kg	0.0387	0	.033	117.	26-152	L575198-05	WG592880
Benzo(b)fluoranthene	mg/kg	0.0399	0	.033	121.	10-188	L575198-05	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0388	0	.033	118.	10-176	L575198-05	WG592880
Benzo(k)fluoranthene	mg/kg	0.0369	0	.033	112.	22-163	L575198-05	WG592880
Chrysene	mg/kg	0.0385	0	.033	117.	26-146	L575198-05	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0407	0	.033	123.	10-160	L575198-05	WG592880
Fluoranthene	mg/kg	0.0435	0	.033	132.	23-160	L575198-05	WG592880
Fluorene	mg/kg	0.0574	0	.033	174.*	44-143	L575198-05	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0390	0	.033	118.	10-157	L575198-05	WG592880
Naphthalene	mg/kg	0.0583	0.00960	.033	147.	22-156	L575198-05	WG592880
Phenanthrene	mg/kg	0.0692	0	.033	210.*	23-164	L575198-05	WG592880
Pyrene	mg/kg	0.0550	0.00710	.033	145.	12-170	L575198-05	WG592880
2-Fluorobiphenyl					117.2	34-129		WG592880
Nitrobenzene-d5					123.5	14-141		WG592880
p-Terphenyl-d14					146.0*	25-139		WG592880

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.225	0.0849	89.9	32-137	90.3*	39	L575232-05	WG592960
Ethylbenzene	mg/kg	0.192	0.0479	76.7	10-150	120.*	44	L575232-05	WG592960
Toluene	mg/kg	0.212	0.0675	84.8	20-142	103.*	42	L575232-05	WG592960
Total Xylene	mg/kg	0.583	0.149	77.7	16-141	119.*	46	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)				97.73	59-128				WG592960
a,a,a-Trifluorotoluene(PID)				105.5	54-144				WG592960
TPH (GC/FID) Low Fraction	mg/kg	12.6	16.5	46.0*	55-109	26.7*	20	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)				102.3	59-128				WG592960
a,a,a-Trifluorotoluene(PID)				109.8	54-144				WG592960
Mercury	mg/kg	0.279	0.290	101.	70-130	3.87	20	L575228-01	WG592932
Arsenic	mg/kg	56.1	55.9	94.0	75-125	0.357	20	L575232-01	WG592981
Barium	mg/kg	4770	4040	940.*	75-125	16.6	20	L575232-01	WG592981
Cadmium	mg/kg	48.1	47.2	95.5	75-125	1.89	20	L575232-01	WG592981
Chromium	mg/kg	65.3	64.2	88.6	75-125	1.70	20	L575232-01	WG592981
Copper	mg/kg	62.6	60.4	91.2	75-125	3.58	20	L575232-01	WG592981
Nickel	mg/kg	55.6	56.4	81.2	75-125	1.43	20	L575232-01	WG592981
Selenium	mg/kg	44.9	43.5	89.8	75-125	3.17	20	L575232-01	WG592981
Zinc	mg/kg	96.4	99.5	70.8*	75-125	3.16	20	L575232-01	WG592981
Lead	mg/kg	65.4	63.5	105.	75-125	2.95	20	L575232-01	WG592981
Silver	mg/kg	49.1	48.5	98.2	75-125	1.23	20	L575232-01	WG592981

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit Ref	Samp	Batch
			Ref	%Rec					
TPH (GC/FID) High Fraction	ppm	38.0	35.9	63.3	50-150	5.52	40	L575343-03	WG593097
o-Terphenyl				64.35	50-150				WG593097
Chromium,Hexavalent	mg/kg	21.1	20.5	85.3	50-150	2.79	20	L575576-01	WG593559
Chromium,Hexavalent	mg/kg	3.80	4.48	19.0*	50-150	16.4	20	L574939-01	WG593559
1-Methylnaphthalene	mg/kg	0.0766	0.0973	150.	25-155	23.8	27	L575198-05	WG592880
2-Chloronaphthalene	mg/kg	0.0385	0.0383	117.	31-153	0.513	22	L575198-05	WG592880
2-Methylnaphthalene	mg/kg	0.0799	0.101	157.	22-172	23.3	29	L575198-05	WG592880
Acenaphthene	mg/kg	0.0470	0.0517	142.*	43-133	9.40	26	L575198-05	WG592880
Acenaphthylene	mg/kg	0.0406	0.0427	123.	42-146	5.18	22	L575198-05	WG592880
Anthracene	mg/kg	0.0583	0.0735	177.*	38-153	23.0	27	L575198-05	WG592880
Benzo(a)anthracene	mg/kg	0.0385	0.0369	114.	31-142	4.48	31	L575198-05	WG592880
Benzo(a)pyrene	mg/kg	0.0411	0.0387	125.	26-152	5.97	32	L575198-05	WG592880
Benzo(b)fluoranthene	mg/kg	0.0403	0.0399	122.	10-188	1.12	33	L575198-05	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0410	0.0388	124.	10-176	5.57	30	L575198-05	WG592880
Benzo(k)fluoranthene	mg/kg	0.0408	0.0369	124.	22-163	10.1	29	L575198-05	WG592880
Chrysene	mg/kg	0.0414	0.0385	125.	26-146	7.29	30	L575198-05	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0429	0.0407	130.	10-160	5.37	39	L575198-05	WG592880
Fluoranthene	mg/kg	0.0577	0.0435	175.*	23-160	28.1*	22	L575198-05	WG592880
Fluorene	mg/kg	0.0531	0.0574	161.*	44-143	7.71	23	L575198-05	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0411	0.0390	124.	10-157	5.25	40	L575198-05	WG592880
Naphthalene	mg/kg	0.0503	0.0583	123.	22-156	14.7	27	L575198-05	WG592880
Phenanthrene	mg/kg	0.0585	0.0692	177.*	23-164	16.8	25	L575198-05	WG592880
Pyrene	mg/kg	0.0502	0.0550	131.	12-170	9.01	24	L575198-05	WG592880
2-Fluorobiphenyl				119.6	34-129				WG592880
Nitrobenzene-d5				146.0*	14-141				WG592880
p-Terphenyl-d14				151.5*	25-139				WG592880

Batch number /Run number / Sample number cross reference

WG592960: R2172133: L575225-01
 WG592932: R2173636: L575225-01
 WG592923: R2173755: L575225-01
 WG593118: R2174594: L575225-01
 WG593318: R2175353: L575225-01
 WG593237: R2175633: L575225-01
 WG592981: R2175834: L575225-01
 WG592880: R2177674: L575225-01
 WG593097: R2178161: L575225-01
 WG593559: R2178473: L575225-01

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
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May 22, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Report Summary

Monday May 07, 2012

Report Number: L572580

Samples Received: 05/01/12

Client Project:

Description: D31 Pit Bottoms

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

May 07, 2012

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

ESC Sample # : L572580-01

Date Received : May 01, 2012
Description : D31 Pit Bottoms

Site ID :

Sample ID : D 31-NPIT-NWALL-043012 10 IN

Project # :

Collected By : MATT KASTEN
Collection Date : 04/30/12 13:15

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include Benzene, Toluene, Ethylbenzene, Total Xylene, TPH (GC/FID) Low Fraction, Surrogate Recovery-%, a,a,a-Trifluorotoluene(FID), a,a,a-Trifluorotoluene(PID), TPH (GC/FID) High Fraction, Surrogate recovery(%), o-Terphenyl.

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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-NPIT-NEBOT-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 13:20

ESC Sample # : L572580-02
 Site ID :
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0054	0.0025	mg/kg	8021/8015	05/01/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/01/12	5
Ethylbenzene	0.014	0.0025	mg/kg	8021/8015	05/01/12	5
Total Xylene	0.037	0.0075	mg/kg	8021/8015	05/01/12	5
TPH (GC/FID) Low Fraction	8.6	0.50	mg/kg	GRO	05/01/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.6		% Rec.	8021/8015	05/01/12	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	05/01/12	5
TPH (GC/FID) High Fraction	450	20.	mg/kg	3546/DRO	05/02/12	5
Surrogate recovery(%)						
o-Terphenyl	96.0		% Rec.	3546/DRO	05/02/12	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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-NPIT-CENTER-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 13:25

ESC Sample # : L572580-03
 Site ID :
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/04/12	1
Chromium,Trivalent	17.	2.0	mg/kg	Calc.	05/03/12	1
ORP	-72.		mV	2580	05/02/12	1
pH	11.		su	9045D	05/02/12	1
Sodium Adsorption Ratio	44.			Calc.	05/03/12	1
Specific Conductance	1600		umhos/cm	9050AMod	05/03/12	1
Mercury	BDL	0.020	mg/kg	7471	05/02/12	1
Arsenic	7.3	2.0	mg/kg	6010B	05/03/12	2
Barium	6300	0.50	mg/kg	6010B	05/03/12	2
Cadmium	BDL	0.50	mg/kg	6010B	05/03/12	2
Chromium	17.	0.50	mg/kg	6010B	05/03/12	1
Copper	13.	1.0	mg/kg	6010B	05/03/12	1
Lead	12.	0.50	mg/kg	6010B	05/03/12	2
Nickel	9.1	1.0	mg/kg	6010B	05/03/12	1
Selenium	4.2	1.0	mg/kg	6010B	05/03/12	1
Silver	BDL	1.0	mg/kg	6010B	05/03/12	2
Zinc	47.	1.5	mg/kg	6010B	05/03/12	1
Benzene	0.41	0.0025	mg/kg	8021/8015	05/01/12	5
Toluene	0.12	0.025	mg/kg	8021/8015	05/01/12	5
Ethylbenzene	0.19	0.0025	mg/kg	8021/8015	05/01/12	5
Total Xylene	1.6	0.0075	mg/kg	8021/8015	05/01/12	5
TPH (GC/FID) Low Fraction	24.	0.50	mg/kg	GRO	05/01/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.9		% Rec.	8021/8015	05/01/12	5
a,a,a-Trifluorotoluene(PID)	99.8		% Rec.	8021/8015	05/01/12	5
TPH (GC/FID) High Fraction	970	20.	mg/kg	3546/DRO	05/02/12	5
Surrogate recovery(%)						
o-Terphenyl	69.0		% Rec.	3546/DRO	05/02/12	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.059	0.0060	mg/kg	8270C-SIM	05/03/12	1
Acenaphthene	0.024	0.0060	mg/kg	8270C-SIM	05/03/12	1
Acenaphthylene	0.10	0.0060	mg/kg	8270C-SIM	05/03/12	1
Benzo(a)anthracene	0.082	0.0060	mg/kg	8270C-SIM	05/03/12	1
Benzo(a)pyrene	0.036	0.012	mg/kg	8270C-SIM	05/04/12	2

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L572580-03 (PH) - 11@21.2c



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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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-NPIT-CENTER-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 13:25

ESC Sample # : L572580-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	0.10	0.012	mg/kg	8270C-SIM	05/04/12	2
Benzo(g,h,i)perylene	0.043	0.012	mg/kg	8270C-SIM	05/04/12	2
Benzo(k)fluoranthene	0.018	0.012	mg/kg	8270C-SIM	05/04/12	2
Chrysene	0.094	0.0060	mg/kg	8270C-SIM	05/03/12	1
Dibenz(a,h)anthracene	0.017	0.012	mg/kg	8270C-SIM	05/04/12	2
Fluoranthene	0.15	0.0060	mg/kg	8270C-SIM	05/03/12	1
Fluorene	0.12	0.0060	mg/kg	8270C-SIM	05/03/12	1
Indeno(1,2,3-cd)pyrene	0.034	0.012	mg/kg	8270C-SIM	05/04/12	2
Naphthalene	0.40	0.12	mg/kg	8270C-SIM	05/04/12	20
Phenanthrene	0.31	0.0060	mg/kg	8270C-SIM	05/03/12	1
Pyrene	0.070	0.0060	mg/kg	8270C-SIM	05/03/12	1
1-Methylnaphthalene	0.42	0.12	mg/kg	8270C-SIM	05/04/12	20
2-Methylnaphthalene	1.1	0.12	mg/kg	8270C-SIM	05/04/12	20
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	05/03/12	1
Surrogate Recovery						
Nitrobenzene-d5	788.		% Rec.	8270C-SIM	05/04/12	20
2-Fluorobiphenyl	84.5		% Rec.	8270C-SIM	05/03/12	1
p-Terphenyl-d14	110.		% Rec.	8270C-SIM	05/03/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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 L572580-03 (PH) - 11@21.2c



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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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-NPIT-WWALL-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 13:40

ESC Sample # : L572580-04
 Site ID :
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	05/01/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/01/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/01/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/01/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/01/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.7		% Rec.	8021/8015	05/01/12	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	05/01/12	5
TPH (GC/FID) High Fraction	360	4.0	mg/kg	3546/DRO	05/02/12	1
Surrogate recovery(%)						
o-Terphenyl	70.3		% Rec.	3546/DRO	05/02/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-NPIT-SBOT-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 13:45

ESC Sample # : L572580-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.19	0.025	mg/kg	8021/8015	05/01/12	50
Toluene	BDL	0.25	mg/kg	8021/8015	05/01/12	50
Ethylbenzene	0.57	0.025	mg/kg	8021/8015	05/01/12	50
Total Xylene	5.2	0.075	mg/kg	8021/8015	05/01/12	50
TPH (GC/FID) Low Fraction	99.	5.0	mg/kg	GRO	05/01/12	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.4		% Rec.	8021/8015	05/01/12	50
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	05/01/12	50
TPH (GC/FID) High Fraction	1200	20.	mg/kg	3546/DRO	05/02/12	5
Surrogate recovery(%)						
o-Terphenyl	97.6		% Rec.	3546/DRO	05/02/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-SPIT-NBOT-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 14:00

ESC Sample # : L572580-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.22	0.0025	mg/kg	8021/8015	05/01/12	5
Toluene	0.18	0.025	mg/kg	8021/8015	05/01/12	5
Ethylbenzene	0.050	0.0025	mg/kg	8021/8015	05/01/12	5
Total Xylene	0.78	0.0075	mg/kg	8021/8015	05/01/12	5
TPH (GC/FID) Low Fraction	3.4	0.50	mg/kg	GRO	05/01/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.8		% Rec.	8021/8015	05/01/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	05/01/12	5
TPH (GC/FID) High Fraction	35.	4.0	mg/kg	3546/DRO	05/02/12	1
Surrogate recovery(%)						
o-Terphenyl	49.5		% Rec.	3546/DRO	05/02/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-SPIT-CENTER-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 14:10

ESC Sample # : L572580-07

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/04/12	1
Chromium,Trivalent	20.	2.0	mg/kg	Calc.	05/03/12	1
ORP	-57.		mV	2580	05/02/12	1
pH	9.9		su	9045D	05/02/12	1
Sodium Adsorption Ratio	40.			Calc.	05/03/12	1
Specific Conductance	1500		umhos/cm	9050AMod	05/03/12	1
Mercury	0.038	0.020	mg/kg	7471	05/02/12	1
Arsenic	10.	2.0	mg/kg	6010B	05/03/12	2
Barium	6900	0.50	mg/kg	6010B	05/03/12	2
Cadmium	BDL	0.50	mg/kg	6010B	05/03/12	2
Chromium	20.	0.50	mg/kg	6010B	05/03/12	1
Copper	16.	1.0	mg/kg	6010B	05/03/12	1
Lead	12.	0.50	mg/kg	6010B	05/03/12	2
Nickel	11.	1.0	mg/kg	6010B	05/03/12	1
Selenium	4.7	1.0	mg/kg	6010B	05/03/12	1
Silver	BDL	1.0	mg/kg	6010B	05/03/12	2
Zinc	53.	1.5	mg/kg	6010B	05/03/12	1
Benzene	0.19	0.0025	mg/kg	8021/8015	05/01/12	5
Toluene	0.056	0.025	mg/kg	8021/8015	05/01/12	5
Ethylbenzene	0.017	0.0025	mg/kg	8021/8015	05/01/12	5
Total Xylene	0.13	0.0075	mg/kg	8021/8015	05/01/12	5
TPH (GC/FID) Low Fraction	0.99	0.50	mg/kg	GRO	05/01/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.7		% Rec.	8021/8015	05/01/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	05/01/12	5
TPH (GC/FID) High Fraction	100	4.0	mg/kg	3546/DRO	05/02/12	1
Surrogate recovery(%)						
o-Terphenyl	53.0		% Rec.	3546/DRO	05/02/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.041	0.0060	mg/kg	8270C-SIM	05/03/12	1
Acenaphthene	0.011	0.0060	mg/kg	8270C-SIM	05/03/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/03/12	1
Benzo(a)anthracene	0.12	0.0060	mg/kg	8270C-SIM	05/03/12	1
Benzo(a)pyrene	0.054	0.0060	mg/kg	8270C-SIM	05/04/12	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L572580-07 (PH) - 9.9@22.3c



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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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-SPIT-CENTER-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 14:10

ESC Sample # : L572580-07
 Site ID :
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	0.20	0.0060	mg/kg	8270C-SIM	05/04/12	1
Benzo(g,h,i)perylene	0.032	0.0060	mg/kg	8270C-SIM	05/04/12	1
Benzo(k)fluoranthene	0.036	0.0060	mg/kg	8270C-SIM	05/04/12	1
Chrysene	0.14	0.0060	mg/kg	8270C-SIM	05/03/12	1
Dibenz(a,h)anthracene	0.021	0.0060	mg/kg	8270C-SIM	05/04/12	1
Fluoranthene	0.24	0.0060	mg/kg	8270C-SIM	05/03/12	1
Fluorene	0.049	0.0060	mg/kg	8270C-SIM	05/03/12	1
Indeno(1,2,3-cd)pyrene	0.030	0.0060	mg/kg	8270C-SIM	05/04/12	1
Naphthalene	0.17	0.0060	mg/kg	8270C-SIM	05/03/12	1
Phenanthrene	0.24	0.0060	mg/kg	8270C-SIM	05/03/12	1
Pyrene	0.15	0.0060	mg/kg	8270C-SIM	05/03/12	1
1-Methylnaphthalene	0.15	0.0060	mg/kg	8270C-SIM	05/03/12	1
2-Methylnaphthalene	0.32	0.0060	mg/kg	8270C-SIM	05/03/12	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	05/03/12	1
Surrogate Recovery						
Nitrobenzene-d5	90.9		% Rec.	8270C-SIM	05/03/12	1
2-Fluorobiphenyl	81.5		% Rec.	8270C-SIM	05/03/12	1
p-Terphenyl-d14	168.		% Rec.	8270C-SIM	05/03/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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 L572580-07 (PH) - 9.9@22.3c



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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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-SPIT-EWALL-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 14:05

ESC Sample # : L572580-08

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0039	0.0025	mg/kg	8021/8015	05/01/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/01/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/01/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/01/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/01/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	93.9		% Rec.	8021/8015	05/01/12	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	05/01/12	5
TPH (GC/FID) High Fraction	50.	4.0	mg/kg	3546/DRO	05/02/12	1
Surrogate recovery(%)						
o-Terphenyl	57.4		% Rec.	3546/DRO	05/02/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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 2717 County Road 215, Suite 100
 Parachute, CO 81635

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-SPIT-SWBOT-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 14:15

ESC Sample # : L572580-09
 Site ID :
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.029	0.0025	mg/kg	8021/8015	05/01/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/01/12	5
Ethylbenzene	0.0075	0.0025	mg/kg	8021/8015	05/01/12	5
Total Xylene	0.028	0.0075	mg/kg	8021/8015	05/01/12	5
TPH (GC/FID) Low Fraction	0.52	0.50	mg/kg	GRO	05/01/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.0		% Rec.	8021/8015	05/01/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	05/01/12	5
TPH (GC/FID) High Fraction	21.	4.0	mg/kg	3546/DRO	05/02/12	1
Surrogate recovery(%)						
o-Terphenyl	58.6		% Rec.	3546/DRO	05/02/12	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: 05/04/12 17:30 Revised: 05/07/12 09:41



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Est. 1970

REPORT OF ANALYSIS

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

May 07, 2012

Date Received : May 01, 2012
 Description : D31 Pit Bottoms
 Sample ID : D 31-SPIT-SWALL-043012 10 IN
 Collected By : MATT KASTEN
 Collection Date : 04/30/12 14:20

ESC Sample # : L572580-10
 Site ID :
 Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	05/01/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/01/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/01/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/01/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/01/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.2		% Rec.	8021/8015	05/01/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	05/01/12	5
TPH (GC/FID) High Fraction	2300	80.	mg/kg	3546/DRO	05/02/12	20
Surrogate recovery(%)						
o-Terphenyl	114.		% Rec.	3546/DRO	05/02/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/04/12 17:30 Revised: 05/07/12 09:41

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L572580-03	WG590468	SAMP	Cadmium	R2155053	O
	WG590468	SAMP	Silver	R2155053	O
	WG590532	SAMP	Nitrobenzene-d5	R2156555	J7
	WG590586	SAMP	ORP	R2154453	T8
L572580-07	WG590468	SAMP	Cadmium	R2155053	O
	WG590468	SAMP	Silver	R2155053	O
	WG590532	SAMP	p-Terphenyl-d14	R2156555	J1
	WG590586	SAMP	ORP	R2154453	T8
L572580-10	WG590519	SAMP	o-Terphenyl	R2154074	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG590518	05/01/12 17:05
Ethylbenzene	< .0005	mg/kg			WG590518	05/01/12 17:05
Toluene	< .005	mg/kg			WG590518	05/01/12 17:05
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG590518	05/01/12 17:05
Total Xylene	< .0015	mg/kg			WG590518	05/01/12 17:05
a,a,a-Trifluorotoluene(FID)		% Rec.	96.01	59-128	WG590518	05/01/12 17:05
a,a,a-Trifluorotoluene(PID)		% Rec.	104.5	54-144	WG590518	05/01/12 17:05
Mercury	< .02	mg/kg			WG590510	05/02/12 12:30
TPH (GC/FID) High Fraction	< 4	ppm			WG590519	05/02/12 11:44
o-Terphenyl		% Rec.	81.08	50-150	WG590519	05/02/12 11:44
pH	5.15	su			WG590371	05/02/12 16:13
Arsenic	< 1	mg/kg			WG590468	05/03/12 07:47
Barium	< .25	mg/kg			WG590468	05/03/12 07:47
Cadmium	< .25	mg/kg			WG590468	05/03/12 07:47
Chromium	< .5	mg/kg			WG590468	05/03/12 07:47
Copper	< 1	mg/kg			WG590468	05/03/12 07:47
Lead	< .25	mg/kg			WG590468	05/03/12 07:47
Nickel	< 1	mg/kg			WG590468	05/03/12 07:47
Selenium	< 1	mg/kg			WG590468	05/03/12 07:47
Silver	< .5	mg/kg			WG590468	05/03/12 07:47
Zinc	< 1.5	mg/kg			WG590468	05/03/12 07:47
Specific Conductance	1.85	umhos/cm			WG590758	05/03/12 16:01
Chromium,Hexavalent	< 2	mg/kg			WG590368	05/04/12 11:16
1-Methylnaphthalene	< .006	mg/kg			WG590532	05/03/12 04:27
2-Chloronaphthalene	< .006	mg/kg			WG590532	05/03/12 04:27
2-Methylnaphthalene	< .006	mg/kg			WG590532	05/03/12 04:27
Acenaphthene	< .006	mg/kg			WG590532	05/03/12 04:27
Acenaphthylene	< .006	mg/kg			WG590532	05/03/12 04:27
Anthracene	< .006	mg/kg			WG590532	05/03/12 04:27
Benzo(a)anthracene	< .006	mg/kg			WG590532	05/03/12 04:27
Benzo(a)pyrene	< .006	mg/kg			WG590532	05/03/12 04:27
Benzo(b)fluoranthene	< .006	mg/kg			WG590532	05/03/12 04:27
Benzo(g,h,i)perylene	< .006	mg/kg			WG590532	05/03/12 04:27
Benzo(k)fluoranthene	< .006	mg/kg			WG590532	05/03/12 04:27
Chrysene	< .006	mg/kg			WG590532	05/03/12 04:27
Dibenz(a,h)anthracene	< .006	mg/kg			WG590532	05/03/12 04:27
Fluoranthene	< .006	mg/kg			WG590532	05/03/12 04:27
Fluorene	< .006	mg/kg			WG590532	05/03/12 04:27
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG590532	05/03/12 04:27
Naphthalene	< .006	mg/kg			WG590532	05/03/12 04:27
Phenanthrene	< .006	mg/kg			WG590532	05/03/12 04:27
Pyrene	< .006	mg/kg			WG590532	05/03/12 04:27
2-Fluorobiphenyl		% Rec.	87.43	34-129	WG590532	05/03/12 04:27
Nitrobenzene-d5		% Rec.	83.25	14-141	WG590532	05/03/12 04:27
p-Terphenyl-d14		% Rec.	105.1	25-139	WG590532	05/03/12 04:27

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0.0400	0.0380	6.12	20	L572656-01	WG590510
pH	su	10.0	10.0	4.50*	1	L572093-01	WG590371
pH	su	7.80	7.90	0.890	1	L572630-10	WG590371
ORP	mV	110.	120.	6.90	20	L572093-01	WG590586
Arsenic	mg/kg	5.20	5.02	3.52	20	L572093-01	WG590468
Barium	mg/kg	73.0	70.9	2.51	20	L572093-01	WG590468
Cadmium	mg/kg	0	0	0	20	L572093-01	WG590468
Chromium	mg/kg	15.0	16.0	7.79	20	L572093-01	WG590468
Copper	mg/kg	27.0	27.0	0.743	20	L572093-01	WG590468
Lead	mg/kg	11.0	11.2	1.77	20	L572093-01	WG590468
Nickel	mg/kg	14.0	14.2	2.09	20	L572093-01	WG590468
Selenium	mg/kg	3.70	5.16	32.4*	20	L572093-01	WG590468
Silver	mg/kg	0	0	0	20	L572093-01	WG590468
Zinc	mg/kg	41.0	40.0	2.71	20	L572093-01	WG590468
Specific Conductance	umhos/cm	1600	1600	0	20	L572580-03	WG590758
Specific Conductance	umhos/cm	1200	1100	4.44	20	L572914-07	WG590758
Chromium,Hexavalent	mg/kg	0	0	0	20	L572352-02	WG590368
Chromium,Hexavalent	mg/kg	0	0	0	20	L572914-07	WG590368

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0546	109.	76-113	WG590518
Ethylbenzene	mg/kg	.05	0.0550	110.	78-115	WG590518
Toluene	mg/kg	.05	0.0544	109.	76-114	WG590518
Total Xylene	mg/kg	.15	0.166	110.	81-118	WG590518
a,a,a-Trifluorotoluene(PID)				103.1	54-144	WG590518
TPH (GC/FID) Low Fraction	mg/kg	5.5	7.07	129.	67-135	WG590518
a,a,a-Trifluorotoluene(FID)				102.5	59-128	WG590518
Mercury	mg/kg	3.77	3.61	95.8	71.6-128	WG590510
TPH (GC/FID) High Fraction	ppm	60	44.8	74.7	50-150	WG590519
o-Terphenyl				78.45	50-150	WG590519
pH	su	6.04	5.98	99.0	98-101	WG590371
ORP	mV	228	227.	99.6	95.6-104.	WG590586
Arsenic	mg/kg	92.6	86.4	93.3	82.9-117	WG590468
Barium	mg/kg	169	169.	100.	82.8-117	WG590468
Cadmium	mg/kg	61.8	57.4	92.9	83.3-117	WG590468
Chromium	mg/kg	71.3	72.3	101.	81.8-118	WG590468
Copper	mg/kg	81.2	78.1	96.2	83.9-116	WG590468

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Lead	mg/kg	92.4	90.6	98.1	83.3-117	WG590468
Nickel	mg/kg	59.1	53.0	89.7	83.8-116	WG590468
Selenium	mg/kg	89.5	90.4	101.	79-121	WG590468
Silver	mg/kg	34.4	31.5	91.6	66.3-134	WG590468
Zinc	mg/kg	141	134.	95.0	80.9-119	WG590468
Specific Conductance	umhos/cm	495	494.	99.8	85-115	WG590758
Chromium, Hexavalent	mg/kg	150	124.	82.7	50-150	WG590368
1-Methylnaphthalene	mg/kg	.033	0.0313	95.0	48-113	WG590532
2-Chloronaphthalene	mg/kg	.033	0.0310	94.0	51-114	WG590532
2-Methylnaphthalene	mg/kg	.033	0.0313	94.9	44-109	WG590532
Acenaphthene	mg/kg	.033	0.0315	95.5	52-108	WG590532
Acenaphthylene	mg/kg	.033	0.0323	97.9	51-110	WG590532
Anthracene	mg/kg	.033	0.0322	97.7	58-120	WG590532
Benzo(a)anthracene	mg/kg	.033	0.0346	105.	54-110	WG590532
Benzo(a)pyrene	mg/kg	.033	0.0347	105.	56-118	WG590532
Benzo(b)fluoranthene	mg/kg	.033	0.0333	101.	55-114	WG590532
Benzo(g,h,i)perylene	mg/kg	.033	0.0387	117.	48-130	WG590532
Benzo(k)fluoranthene	mg/kg	.033	0.0334	101.	55-122	WG590532
Chrysene	mg/kg	.033	0.0327	99.0	57-118	WG590532
Dibenz(a,h)anthracene	mg/kg	.033	0.0388	118.	53-122	WG590532
Fluoranthene	mg/kg	.033	0.0336	102.	58-118	WG590532
Fluorene	mg/kg	.033	0.0336	102.	54-109	WG590532
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0394	119.	51-125	WG590532
Naphthalene	mg/kg	.033	0.0305	92.6	45-105	WG590532
Phenanthrene	mg/kg	.033	0.0315	95.4	53-114	WG590532
Pyrene	mg/kg	.033	0.0322	97.6	53-121	WG590532
2-Fluorobiphenyl				92.50	34-129	WG590532
Nitrobenzene-d5				88.84	14-141	WG590532
p-Terphenyl-d14				105.7	25-139	WG590532

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	6.73	7.07	122.	67-135	5.00	20	WG590518
a,a,a-Trifluorotoluene(FID)				101.3	59-128			WG590518
Benzene	mg/kg	0.0520	0.0546	104.	76-113	5.05	20	WG590518
Ethylbenzene	mg/kg	0.0538	0.0550	108.	78-115	2.22	20	WG590518
Toluene	mg/kg	0.0533	0.0544	106.	76-114	2.16	20	WG590518
Total Xylene	mg/kg	0.164	0.166	109.	81-118	1.06	20	WG590518
a,a,a-Trifluorotoluene(PID)				102.7	54-144			WG590518
TPH (GC/FID) High Fraction	ppm	43.8	44.8	73.0	50-150	2.28	23	WG590519
o-Terphenyl				75.90	50-150			WG590519
pH	su	5.98	5.98	99.0	98-101	0	20	WG590371
ORP	mV	226.	227.	99.0	95.6-104.	0.442	20	WG590586
Specific Conductance	umhos/	494.	494.	100.	85-115	0	20	WG590758

* 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					
Chromium,Hexavalent	mg/kg	118.	124.	79.0		50-150	4.96	20	WG590368
1-Methylnaphthalene	mg/kg	0.0313	0.0313	95.0		48-113	0.107	24	WG590532
2-Chloronaphthalene	mg/kg	0.0310	0.0310	94.0		51-114	0.0279	24	WG590532
2-Methylnaphthalene	mg/kg	0.0311	0.0313	94.0		44-109	0.750	24	WG590532
Acenaphthene	mg/kg	0.0318	0.0315	96.0		52-108	0.983	22	WG590532
Acenaphthylene	mg/kg	0.0324	0.0323	98.0		51-110	0.304	21	WG590532
Anthracene	mg/kg	0.0328	0.0322	100.		58-120	1.86	20	WG590532
Benzo(a)anthracene	mg/kg	0.0347	0.0346	105.		54-110	0.283	22	WG590532
Benzo(a)pyrene	mg/kg	0.0341	0.0347	103.		56-118	1.88	21	WG590532
Benzo(b)fluoranthene	mg/kg	0.0330	0.0333	100.		55-114	0.656	20	WG590532
Benzo(g,h,i)perylene	mg/kg	0.0385	0.0387	117.		48-130	0.342	20	WG590532
Benzo(k)fluoranthene	mg/kg	0.0326	0.0334	99.0		55-122	2.56	25	WG590532
Chrysene	mg/kg	0.0320	0.0327	97.0		57-118	2.10	20	WG590532
Dibenz(a,h)anthracene	mg/kg	0.0388	0.0388	118.		53-122	0.0182	20	WG590532
Fluoranthene	mg/kg	0.0339	0.0336	103.		58-118	1.05	20	WG590532
Fluorene	mg/kg	0.0321	0.0336	97.0		54-109	4.60	20	WG590532
Indeno(1,2,3-cd)pyrene	mg/kg	0.0391	0.0394	118.		51-125	0.659	21	WG590532
Naphthalene	mg/kg	0.0301	0.0305	91.0		45-105	1.56	24	WG590532
Phenanthrene	mg/kg	0.0329	0.0315	100.		53-114	4.32	20	WG590532
Pyrene	mg/kg	0.0325	0.0322	98.0		53-121	1.02	20	WG590532
2-Fluorobiphenyl				90.26		34-129			WG590532
Nitrobenzene-d5				86.58		14-141			WG590532
p-Terphenyl-d14				104.9		25-139			WG590532

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.224	0.00390	.05	88.1	32-137	L572580-08	WG590518
Ethylbenzene	mg/kg	0.206	0	.05	82.3	10-150	L572580-08	WG590518
Toluene	mg/kg	0.218	0	.05	87.2	20-142	L572580-08	WG590518
Total Xylene	mg/kg	0.626	0	.15	83.5	16-141	L572580-08	WG590518
a,a,a-Trifluorotoluene(PID)					101.4	54-144		WG590518
TPH (GC/FID) Low Fraction	mg/kg	24.7	0	5.5	90.0	55-109	L572580-08	WG590518
a,a,a-Trifluorotoluene(FID)					100.4	59-128		WG590518
Mercury	mg/kg	0.284	0.0380	.25	98.4	70-130	L572656-01	WG590510
TPH (GC/FID) High Fraction	ppm	48.2	0	60	80.4	50-150	L571575-01	WG590519
o-Terphenyl					82.93	50-150		WG590519
Arsenic	mg/kg	49.0	5.02	50	88.0	75-125	L572093-01	WG590468
Barium	mg/kg	115.	70.9	50	88.2	75-125	L572093-01	WG590468
Cadmium	mg/kg	45.1	0	50	90.2	75-125	L572093-01	WG590468
Chromium	mg/kg	62.5	16.0	50	93.0	75-125	L572093-01	WG590468
Copper	mg/kg	72.6	27.0	50	91.2	75-125	L572093-01	WG590468
Lead	mg/kg	56.5	11.2	50	90.6	75-125	L572093-01	WG590468
Nickel	mg/kg	55.8	14.2	50	83.2	75-125	L572093-01	WG590468
Selenium	mg/kg	48.0	5.16	50	85.7	75-125	L572093-01	WG590468
Silver	mg/kg	46.0	0	50	92.0	75-125	L572093-01	WG590468
Zinc	mg/kg	82.6	40.0	50	85.2	75-125	L572093-01	WG590468
Chromium,Hexavalent	mg/kg	10.0	0	20	50.0	50-150	L572350-02	WG590368

* 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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Parachute, CO 81635

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May 07, 2012

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
1-Methylnaphthalene	mg/kg	0.0309	0	.033	93.6	25-155	L572438-02	WG590532
2-Chloronaphthalene	mg/kg	0.0304	0	.033	92.2	31-153	L572438-02	WG590532
2-Methylnaphthalene	mg/kg	0.0307	0	.033	93.1	22-172	L572438-02	WG590532
Acenaphthene	mg/kg	0.0299	0	.033	90.7	43-133	L572438-02	WG590532
Acenaphthylene	mg/kg	0.0312	0	.033	94.5	42-146	L572438-02	WG590532
Anthracene	mg/kg	0.0318	0	.033	96.5	38-153	L572438-02	WG590532
Benzo(a)anthracene	mg/kg	0.0325	0	.033	98.5	31-142	L572438-02	WG590532
Benzo(a)pyrene	mg/kg	0.0330	0	.033	100.	26-152	L572438-02	WG590532
Benzo(b)fluoranthene	mg/kg	0.0312	0	.033	94.6	10-188	L572438-02	WG590532
Benzo(g,h,i)perylene	mg/kg	0.0388	0	.033	117.	10-176	L572438-02	WG590532
Benzo(k)fluoranthene	mg/kg	0.0319	0	.033	96.6	22-163	L572438-02	WG590532
Chrysene	mg/kg	0.0306	0	.033	92.7	26-146	L572438-02	WG590532
Dibenz(a,h)anthracene	mg/kg	0.0377	0	.033	114.	10-160	L572438-02	WG590532
Fluoranthene	mg/kg	0.0327	0	.033	99.1	23-160	L572438-02	WG590532
Fluorene	mg/kg	0.0316	0	.033	95.7	44-143	L572438-02	WG590532
Indeno(1,2,3-cd)pyrene	mg/kg	0.0384	0	.033	116.	10-157	L572438-02	WG590532
Naphthalene	mg/kg	0.0294	0	.033	89.1	22-156	L572438-02	WG590532
Phenanthrene	mg/kg	0.0314	0	.033	95.2	23-164	L572438-02	WG590532
Pyrene	mg/kg	0.0313	0	.033	94.8	12-170	L572438-02	WG590532
2-Fluorobiphenyl					88.84	34-129		WG590532
Nitrobenzene-d5					83.99	14-141		WG590532
p-Terphenyl-d14					100.8	25-139		WG590532

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.258	0.224	102.	32-137	14.2	39	L572580-08	WG590518
Ethylbenzene	mg/kg	0.231	0.206	92.3	10-150	11.4	44	L572580-08	WG590518
Toluene	mg/kg	0.246	0.218	98.3	20-142	12.1	42	L572580-08	WG590518
Total Xylene	mg/kg	0.697	0.626	92.9	16-141	10.7	46	L572580-08	WG590518
a,a,a-Trifluorotoluene(PID)				101.1	54-144				WG590518
TPH (GC/FID) Low Fraction	mg/kg	24.8	24.7	90.0	55-109	0.0700	20	L572580-08	WG590518
a,a,a-Trifluorotoluene(FID)				99.94	59-128				WG590518
Mercury	mg/kg	0.280	0.284	96.8	70-130	1.42	20	L572656-01	WG590510
TPH (GC/FID) High Fraction	ppm	46.8	48.2	78.0	50-150	3.02	40	L571575-01	WG590519
o-Terphenyl				80.06	50-150				WG590519
Arsenic	mg/kg	49.3	49.0	88.6	75-125	0.610	20	L572093-01	WG590468
Barium	mg/kg	118.	115.	94.2	75-125	2.58	20	L572093-01	WG590468
Cadmium	mg/kg	44.9	45.1	89.8	75-125	0.444	20	L572093-01	WG590468
Chromium	mg/kg	60.5	62.5	89.0	75-125	3.25	20	L572093-01	WG590468
Copper	mg/kg	71.9	72.6	89.8	75-125	0.969	20	L572093-01	WG590468
Lead	mg/kg	56.7	56.5	91.0	75-125	0.353	20	L572093-01	WG590468
Nickel	mg/kg	55.7	55.8	83.0	75-125	0.179	20	L572093-01	WG590468
Selenium	mg/kg	46.6	48.0	82.9	75-125	2.96	20	L572093-01	WG590468
Silver	mg/kg	45.2	46.0	90.4	75-125	1.75	20	L572093-01	WG590468
Zinc	mg/kg	83.5	82.6	87.0	75-125	1.08	20	L572093-01	WG590468
Chromium,Hexavalent	mg/kg	10.1	10.0	50.5	50-150	0.995	20	L572350-02	WG590368
1-Methylnaphthalene	mg/kg	0.0298	0.0309	90.4	25-155	3.47	27	L572438-02	WG590532

* Performance of this Analyte is outside of established criteria.
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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
2-Chloronaphthalene	mg/kg	0.0309	0.0304	93.5	31-153	1.44	22	L572438-02		WG590532
2-Methylnaphthalene	mg/kg	0.0299	0.0307	90.4	22-172	2.93	29	L572438-02		WG590532
Acenaphthene	mg/kg	0.0301	0.0299	91.1	43-133	0.454	26	L572438-02		WG590532
Acenaphthylene	mg/kg	0.0317	0.0312	96.0	42-146	1.52	22	L572438-02		WG590532
Anthracene	mg/kg	0.0307	0.0318	93.0	38-153	3.64	27	L572438-02		WG590532
Benzo(a)anthracene	mg/kg	0.0334	0.0325	101.	31-142	2.79	31	L572438-02		WG590532
Benzo(a)pyrene	mg/kg	0.0335	0.0330	102.	26-152	1.49	32	L572438-02		WG590532
Benzo(b)fluoranthene	mg/kg	0.0322	0.0312	97.4	10-188	2.93	33	L572438-02		WG590532
Benzo(g,h,i)perylene	mg/kg	0.0394	0.0388	119.	10-176	1.69	30	L572438-02		WG590532
Benzo(k)fluoranthene	mg/kg	0.0324	0.0319	98.1	22-163	1.49	29	L572438-02		WG590532
Chrysene	mg/kg	0.0309	0.0306	93.7	26-146	1.07	30	L572438-02		WG590532
Dibenz(a,h)anthracene	mg/kg	0.0388	0.0377	118.	10-160	2.87	39	L572438-02		WG590532
Fluoranthene	mg/kg	0.0314	0.0327	95.2	23-160	4.04	22	L572438-02		WG590532
Fluorene	mg/kg	0.0308	0.0316	93.3	44-143	2.46	23	L572438-02		WG590532
Indeno(1,2,3-cd)pyrene	mg/kg	0.0393	0.0384	119.	10-157	2.48	40	L572438-02		WG590532
Naphthalene	mg/kg	0.0289	0.0294	87.6	22-156	1.72	27	L572438-02		WG590532
Phenanthrene	mg/kg	0.0298	0.0314	90.4	23-164	5.15	25	L572438-02		WG590532
Pyrene	mg/kg	0.0320	0.0313	97.0	12-170	2.25	24	L572438-02		WG590532
2-Fluorobiphenyl				88.89	34-129					WG590532
Nitrobenzene-d5				81.11	14-141					WG590532
p-Terphenyl-d14				100.1	25-139					WG590532

Batch number / Run number / Sample number cross reference

WG590518: R2153034: L572580-01 02 03 04 05 06 07 08 09 10
 WG590510: R2153634: L572580-03 07
 WG590519: R2154074: L572580-01 02 03 04 05 06 07 08 09 10
 WG590371: R2154394: L572580-03 07
 WG590586: R2154453: L572580-03 07
 WG590468: R2155053: L572580-03 07
 WG590758: R2155733: L572580-03 07
 WG590591: R2156354: L572580-03 07
 WG590368: R2156515: L572580-03 07
 WG590532: R2156555: L572580-03 07

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

Report Summary

Monday May 21, 2012

Report Number: L575232


Samples Received: 05/15/12

Client Project: D31-051412

Description: D31 Pit X

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

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

May 21, 2012

Date Received : May 15, 2012
 Description : D31 Pit X
 Sample ID : D31-N PITX-CENTER-051412 2-8IN
 Collected By : Bob Stockton
 Collection Date : 05/14/12 14:11

ESC Sample # : L575232-01
 Site ID : D31 PIT X
 Project # : D31-051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/21/12	1
Chromium,Trivalent	21.	0.50	mg/kg	Calc.	05/17/12	1
ORP	110		mV	2580	05/17/12	1
pH	8.6		su	9045D	05/17/12	1
Sodium Adsorption Ratio	27.			Calc.	05/18/12	1
Specific Conductance	1800		umhos/cm	9050AMod	05/17/12	1
Mercury	BDL	0.020	mg/kg	7471	05/16/12	1
Arsenic	9.1	1.0	mg/kg	6010B	05/17/12	1
Barium	4300	0.25	mg/kg	6010B	05/17/12	1
Cadmium	0.34	0.25	mg/kg	6010B	05/17/12	1
Chromium	21.	0.50	mg/kg	6010B	05/17/12	1
Copper	17.	1.0	mg/kg	6010B	05/17/12	1
Lead	13.	1.2	mg/kg	6010B	05/17/12	5
Nickel	15.	1.0	mg/kg	6010B	05/17/12	1
Selenium	BDL	1.0	mg/kg	6010B	05/17/12	1
Silver	BDL	2.5	mg/kg	6010B	05/17/12	5
Zinc	61.	1.5	mg/kg	6010B	05/17/12	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/16/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/16/12	5
TPH (GC/FID) Low Fraction	0.75	0.50	mg/kg	GRO	05/16/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	91.4		% Rec.	8021/8015	05/16/12	5
a,a,a-Trifluorotoluene(PID)	98.0		% Rec.	8021/8015	05/16/12	5
TPH (GC/FID) High Fraction	570	20.	mg/kg	3546/DRO	05/18/12	5
Surrogate recovery(%)						
o-Terphenyl	63.7		% Rec.	3546/DRO	05/18/12	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L575232-01 (PH) - 8.6@20.8c



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 Parachute, CO 81635

May 21, 2012

Date Received : May 15, 2012
 Description : D31 Pit X
 Sample ID : D31-N PITX-CENTER-051412 2-8IN
 Collected By : Bob Stockton
 Collection Date : 05/14/12 14:11

ESC Sample # : L575232-01
 Site ID : D31 PIT X
 Project # : D31-051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Fluoranthene	0.18	0.0060	mg/kg	8270C-SIM	05/17/12	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Naphthalene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Pyrene	0.052	0.0060	mg/kg	8270C-SIM	05/17/12	1
1-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
2-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	05/17/12	1
Surrogate Recovery						
Nitrobenzene-d5	45.2		% Rec.	8270C-SIM	05/17/12	1
2-Fluorobiphenyl	64.3		% Rec.	8270C-SIM	05/17/12	1
p-Terphenyl-d14	131.		% Rec.	8270C-SIM	05/17/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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 L575232-01 (PH) - 8.6@20.8c



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May 21, 2012

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 2717 County Road 215, Suite 100
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Date Received : May 15, 2012
 Description : D31 Pit X
 Sample ID : D31-N PITX-SBOT-051412 0-4IN
 Collected By : Bob Stockton
 Collection Date : 05/14/12 14:21

ESC Sample # : L575232-02
 Site ID : D31 PIT X
 Project # : D31-051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0067	0.0025	mg/kg	8021/8015	05/16/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/16/12	5
Ethylbenzene	0.0027	0.0025	mg/kg	8021/8015	05/16/12	5
Total Xylene	0.016	0.0075	mg/kg	8021/8015	05/16/12	5
TPH (GC/FID) Low Fraction	0.61	0.50	mg/kg	GRO	05/16/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.5		% Rec.	8021/8015	05/16/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	05/16/12	5
TPH (GC/FID) High Fraction	82.	4.0	mg/kg	3546/DRO	05/17/12	1
Surrogate recovery(%)						
o-Terphenyl	57.0		% Rec.	3546/DRO	05/17/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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 Parachute, CO 81635

May 21, 2012

Date Received : May 15, 2012
 Description : D31 Pit X
 Sample ID : D31-S PITX-STOE-051412 2-8IN
 Collected By : Bob Stockton
 Collection Date : 05/14/12 13:22

ESC Sample # : L575232-03
 Site ID : D31 PIT X
 Project # : D31-051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/16/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/16/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/16/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.7		% Rec.	8021/8015	05/16/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	05/16/12	5
TPH (GC/FID) High Fraction	51.	4.0	mg/kg	3546/DRO	05/17/12	1
Surrogate recovery(%)						
o-Terphenyl	74.9		% Rec.	3546/DRO	05/17/12	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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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

May 21, 2012

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

Date Received : May 15, 2012
 Description : D31 Pit X
 Sample ID : D31-S PITX-CENTER-051412 1-5IN
 Collected By : Bob Stockton
 Collection Date : 05/14/12 13:43

ESC Sample # : L575232-04
 Site ID : D31 PIT X
 Project # : D31-051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0028	0.0025	mg/kg	8021/8015	05/16/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/16/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/16/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/16/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.8		% Rec.	8021/8015	05/16/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	05/16/12	5
TPH (GC/FID) High Fraction	350	4.0	mg/kg	3546/DRO	05/17/12	1
Surrogate recovery(%)						
o-Terphenyl	116.		% Rec.	3546/DRO	05/17/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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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

May 21, 2012

Date Received : May 15, 2012
 Description : D31 Pit X
 Sample ID : D31-S PITX-NBOT-051412 0-4IN
 Collected By : Bob Stockton
 Collection Date : 05/14/12 13:55

ESC Sample # : L575232-05
 Site ID : D31 PIT X
 Project # : D31-051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/16/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/16/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/16/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.8		% Rec.	8021/8015	05/16/12	5
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021/8015	05/16/12	5
TPH (GC/FID) High Fraction	770	20.	mg/kg	3546/DRO	05/18/12	5
Surrogate recovery(%)						
o-Terphenyl	56.3		% Rec.	3546/DRO	05/18/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L575232-01	WG592981	SAMP	Barium	R2175834	V
	WG592981	SAMP	Silver	R2175834	O
	WG592981	SAMP	Zinc	R2175834	J3V
	WG592923	SAMP	pH	R2173755	T8J3
L575232-05	WG592960	SAMP	Benzene	R2172133	J3
	WG592960	SAMP	Toluene	R2172133	J3
	WG592960	SAMP	Ethylbenzene	R2172133	J3
	WG592960	SAMP	Total Xylene	R2172133	J3
	WG592960	SAMP	TPH (GC/FID) Low Fraction	R2172133	J6J3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
05/21/12 at 16:27:29

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: L575232-01 Account: ENCANACO Received: 05/15/12 09:00 Due Date: 05/18/12 00:00 RPT Date: 05/21/12 16:27

Sample: L575232-02 Account: ENCANACO Received: 05/15/12 09:00 Due Date: 05/18/12 00:00 RPT Date: 05/21/12 16:27

Sample: L575232-03 Account: ENCANACO Received: 05/15/12 09:00 Due Date: 05/18/12 00:00 RPT Date: 05/21/12 16:27

Sample: L575232-04 Account: ENCANACO Received: 05/15/12 09:00 Due Date: 05/18/12 00:00 RPT Date: 05/21/12 16:27

Sample: L575232-05 Account: ENCANACO Received: 05/15/12 09:00 Due Date: 05/18/12 00:00 RPT Date: 05/21/12 16:27



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May 21, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG592960	05/15/12 23:47
Ethylbenzene	< .0005	mg/kg			WG592960	05/15/12 23:47
Toluene	< .005	mg/kg			WG592960	05/15/12 23:47
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG592960	05/15/12 23:47
Total Xylene	< .0015	mg/kg			WG592960	05/15/12 23:47
a,a,a-Trifluorotoluene(FID)		% Rec.	99.46	59-128	WG592960	05/15/12 23:47
a,a,a-Trifluorotoluene(PID)		% Rec.	108.2	54-144	WG592960	05/15/12 23:47
Benzene	< .0005	mg/kg			WG593057	05/16/12 15:58
Ethylbenzene	< .0005	mg/kg			WG593057	05/16/12 15:58
Toluene	< .005	mg/kg			WG593057	05/16/12 15:58
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG593057	05/16/12 15:58
Total Xylene	< .0015	mg/kg			WG593057	05/16/12 15:58
a,a,a-Trifluorotoluene(FID)		% Rec.	91.57	59-128	WG593057	05/16/12 15:58
a,a,a-Trifluorotoluene(PID)		% Rec.	98.77	54-144	WG593057	05/16/12 15:58
1-Methylnaphthalene	< .006	mg/kg			WG592677	05/17/12 05:19
2-Chloronaphthalene	< .006	mg/kg			WG592677	05/17/12 05:19
2-Methylnaphthalene	< .006	mg/kg			WG592677	05/17/12 05:19
Acenaphthene	< .006	mg/kg			WG592677	05/17/12 05:19
Acenaphthylene	< .006	mg/kg			WG592677	05/17/12 05:19
Anthracene	< .006	mg/kg			WG592677	05/17/12 05:19
Benzo(a)anthracene	< .006	mg/kg			WG592677	05/17/12 05:19
Benzo(a)pyrene	< .006	mg/kg			WG592677	05/17/12 05:19
Benzo(b)fluoranthene	< .006	mg/kg			WG592677	05/17/12 05:19
Benzo(g,h,i)perylene	< .006	mg/kg			WG592677	05/17/12 05:19
Benzo(k)fluoranthene	< .006	mg/kg			WG592677	05/17/12 05:19
Chrysene	< .006	mg/kg			WG592677	05/17/12 05:19
Dibenz(a,h)anthracene	< .006	mg/kg			WG592677	05/17/12 05:19
Fluoranthene	< .006	mg/kg			WG592677	05/17/12 05:19
Fluorene	< .006	mg/kg			WG592677	05/17/12 05:19
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG592677	05/17/12 05:19
Naphthalene	< .006	mg/kg			WG592677	05/17/12 05:19
Phenanthrene	< .006	mg/kg			WG592677	05/17/12 05:19
Pyrene	< .006	mg/kg			WG592677	05/17/12 05:19
2-Fluorobiphenyl		% Rec.	77.33	34-129	WG592677	05/17/12 05:19
Nitrobenzene-d5		% Rec.	80.83	14-141	WG592677	05/17/12 05:19
p-Terphenyl-d14		% Rec.	114.0	25-139	WG592677	05/17/12 05:19
Mercury	< .02	mg/kg			WG592932	05/16/12 19:37
pH	7.10	su			WG592923	05/17/12 09:56
TPH (GC/FID) High Fraction	< 4	ppm			WG592967	05/17/12 13:48
o-Terphenyl		% Rec.	77.60	50-150	WG592967	05/17/12 13:48
Specific Conductance	1.96	umhos/cm			WG593318	05/17/12 18:47
Arsenic	< 1	mg/kg			WG592981	05/17/12 18:58
Barium	< .25	mg/kg			WG592981	05/17/12 18:58
Cadmium	< .25	mg/kg			WG592981	05/17/12 18:58
Chromium	< .5	mg/kg			WG592981	05/17/12 18:58

* Performance of this Analyte is outside of established criteria.
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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Copper	< 1	mg/kg			WG592981	05/17/12 18:58
Lead	< .25	mg/kg			WG592981	05/17/12 18:58
Nickel	< 1	mg/kg			WG592981	05/17/12 18:58
Selenium	< 1	mg/kg			WG592981	05/17/12 18:58
Silver	< .5	mg/kg			WG592981	05/17/12 18:58
Zinc	< 1.5	mg/kg			WG592981	05/17/12 18:58
Chromium,Hexavalent	< 2	mg/kg			WG593559	05/21/12 13:01

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Mercury	mg/kg	0.0270	0.0260		4.14	20	L575228-01	WG592932
pH	su	8.70	8.70		0.230	1	L574996-01	WG592923
pH	su	8.50	8.60		1.29*	1	L575232-01	WG592923
ORP	mV	110.	110.		0.905	20	L575232-01	WG593118
Specific Conductance	umhos/cm	2200	2000		7.23	20	L575223-01	WG593318
Arsenic	mg/kg	8.70	9.10		4.61	20	L575232-01	WG592981
Barium	mg/kg	5000	4300		14.5	20	L575232-01	WG592981
Cadmium	mg/kg	0.390	0.340		13.2	20	L575232-01	WG592981
Chromium	mg/kg	20.0	21.0		7.41	20	L575232-01	WG592981
Copper	mg/kg	16.0	17.0		9.23	20	L575232-01	WG592981
Nickel	mg/kg	13.0	15.0		15.8	20	L575232-01	WG592981
Selenium	mg/kg	0	0		0	20	L575232-01	WG592981
Zinc	mg/kg	50.0	61.0		20.8*	20	L575232-01	WG592981
Lead	mg/kg	13.0	13.0		1.55	20	L575232-01	WG592981
Silver	mg/kg	0	0		0	20	L575232-01	WG592981
Chromium,Hexavalent	mg/kg	0	0		0	20	L575228-01	WG593559
Chromium,Hexavalent	mg/kg	0	0		0	20	L575773-06	WG593559

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0524	105.	76-113	WG592960
Ethylbenzene	mg/kg	.05	0.0530	106.	78-115	WG592960
Toluene	mg/kg	.05	0.0525	105.	76-114	WG592960
Total Xylene	mg/kg	.15	0.159	106.	81-118	WG592960
a,a,a-Trifluorotoluene(FID)				98.92	59-128	WG592960
a,a,a-Trifluorotoluene(PID)				106.5	54-144	WG592960
TPH (GC/FID) Low Fraction	mg/kg	5.5	7.27	132.	67-135	WG592960
a,a,a-Trifluorotoluene(FID)				106.5	59-128	WG592960
a,a,a-Trifluorotoluene(PID)				114.0	54-144	WG592960
Benzene	mg/kg	.05	0.0430	85.9	76-113	WG593057
Ethylbenzene	mg/kg	.05	0.0428	85.7	78-115	WG593057
Toluene	mg/kg	.05	0.0427	85.3	76-114	WG593057
Total Xylene	mg/kg	.15	0.134	89.5	81-118	WG593057

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
a,a,a-Trifluorotoluene(PID)				98.41	54-144	
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.31	115.	67-135	WG593057
a,a,a-Trifluorotoluene(FID)				97.98	59-128	WG593057
1-Methylnaphthalene	mg/kg	.033	0.0295	89.3	48-113	WG592677
2-Chloronaphthalene	mg/kg	.033	0.0300	90.8	51-114	WG592677
2-Methylnaphthalene	mg/kg	.033	0.0299	90.5	44-109	WG592677
Acenaphthene	mg/kg	.033	0.0292	88.5	52-108	WG592677
Acenaphthylene	mg/kg	.033	0.0293	88.8	51-110	WG592677
Anthracene	mg/kg	.033	0.0344	104.	58-120	WG592677
Benzo(a)anthracene	mg/kg	.033	0.0336	102.	54-110	WG592677
Benzo(a)pyrene	mg/kg	.033	0.0348	106.	56-118	WG592677
Benzo(b)fluoranthene	mg/kg	.033	0.0370	112.	55-114	WG592677
Benzo(g,h,i)perylene	mg/kg	.033	0.0353	107.	48-130	WG592677
Benzo(k)fluoranthene	mg/kg	.033	0.0347	105.	55-122	WG592677
Chrysene	mg/kg	.033	0.0367	111.	57-118	WG592677
Dibenz(a,h)anthracene	mg/kg	.033	0.0350	106.	53-122	WG592677
Fluoranthene	mg/kg	.033	0.0358	109.	58-118	WG592677
Fluorene	mg/kg	.033	0.0307	92.9	54-109	WG592677
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0354	107.	51-125	WG592677
Naphthalene	mg/kg	.033	0.0283	85.7	45-105	WG592677
Phenanthrene	mg/kg	.033	0.0339	103.	53-114	WG592677
Pyrene	mg/kg	.033	0.0358	109.	53-121	WG592677
2-Fluorobiphenyl				86.15	34-129	WG592677
Nitrobenzene-d5				81.18	14-141	WG592677
p-Terphenyl-d14				130.7	25-139	WG592677
Mercury	mg/kg	3.77	3.93	104.	71.6-128	WG592932
pH	su	5.7	5.70	100.	98-101	WG592923
ORP	mV	228	228.	100.	95.6-104.	WG593118
TPH (GC/FID) High Fraction	ppm	60	52.4	87.4	50-150	WG592967
o-Terphenyl				75.00	50-150	WG592967
Specific Conductance	umhos/cm	495	486.	98.2	85-115	WG593318
Arsenic	mg/kg	92.6	90.4	97.6	82.9-117	WG592981
Barium	mg/kg	169	168.	99.4	82.8-117	WG592981
Cadmium	mg/kg	61.8	60.1	97.2	83.3-117	WG592981
Chromium	mg/kg	71.3	70.7	99.2	81.8-118	WG592981
Copper	mg/kg	81.2	79.5	97.9	83.9-116	WG592981
Lead	mg/kg	92.4	92.2	99.8	83.3-117	WG592981
Nickel	mg/kg	59.1	54.8	92.7	83.8-116	WG592981
Selenium	mg/kg	89.5	83.9	93.7	79-121	WG592981
Silver	mg/kg	34.4	31.6	91.9	66.3-134	WG592981
Zinc	mg/kg	141	141.	100.	80.9-119	WG592981
Chromium,Hexavalent	mg/kg	150	140.	93.3	50-150	WG593559

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Analyte	Units	Laboratory Control		Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0548	0.0524	110.	76-113	4.31	20	WG592960
Ethylbenzene	mg/kg	0.0547	0.0530	109.	78-115	3.26	20	WG592960
Toluene	mg/kg	0.0540	0.0525	108.	76-114	2.86	20	WG592960
Total Xylene	mg/kg	0.164	0.159	109.	81-118	2.98	20	WG592960
a,a,a-Trifluorotoluene(FID)				99.96	59-128			WG592960
a,a,a-Trifluorotoluene(PID)				107.2	54-144			WG592960
TPH (GC/FID) Low Fraction	mg/kg	7.37	7.27	134.	67-135	1.49	20	WG592960
a,a,a-Trifluorotoluene(FID)				106.6	59-128			WG592960
a,a,a-Trifluorotoluene(PID)				114.9	54-144			WG592960
Benzene	mg/kg	0.0429	0.0430	86.0	76-113	0.230	20	WG593057
Ethylbenzene	mg/kg	0.0429	0.0428	86.0	78-115	0.170	20	WG593057
Toluene	mg/kg	0.0421	0.0427	84.0	76-114	1.26	20	WG593057
Total Xylene	mg/kg	0.133	0.134	88.0	81-118	1.10	20	WG593057
a,a,a-Trifluorotoluene(PID)				98.61	54-144			WG593057
TPH (GC/FID) Low Fraction	mg/kg	6.30	6.31	114.	67-135	0.230	20	WG593057
a,a,a-Trifluorotoluene(FID)				97.91	59-128			WG593057
1-Methylnaphthalene	mg/kg	0.0298	0.0295	90.0	48-113	1.19	24	WG592677
2-Chloronaphthalene	mg/kg	0.0302	0.0300	92.0	51-114	0.928	24	WG592677
2-Methylnaphthalene	mg/kg	0.0296	0.0299	90.0	44-109	0.893	24	WG592677
Acenaphthene	mg/kg	0.0296	0.0292	90.0	52-108	1.22	22	WG592677
Acenaphthylene	mg/kg	0.0298	0.0293	90.0	51-110	1.68	21	WG592677
Anthracene	mg/kg	0.0340	0.0344	103.	58-120	1.18	20	WG592677
Benzo(a)anthracene	mg/kg	0.0337	0.0336	102.	54-110	0.268	22	WG592677
Benzo(a)pyrene	mg/kg	0.0339	0.0348	103.	56-118	2.68	21	WG592677
Benzo(b)fluoranthene	mg/kg	0.0342	0.0370	104.	55-114	8.05	20	WG592677
Benzo(g,h,i)perylene	mg/kg	0.0360	0.0353	109.	48-130	1.99	20	WG592677
Benzo(k)fluoranthene	mg/kg	0.0359	0.0347	109.	55-122	3.45	25	WG592677
Chrysene	mg/kg	0.0354	0.0367	107.	57-118	3.55	20	WG592677
Dibenz(a,h)anthracene	mg/kg	0.0356	0.0350	108.	53-122	1.88	20	WG592677
Fluoranthene	mg/kg	0.0364	0.0358	110.	58-118	1.57	20	WG592677
Fluorene	mg/kg	0.0305	0.0307	92.0	54-109	0.698	20	WG592677
Indeno(1,2,3-cd)pyrene	mg/kg	0.0353	0.0354	107.	51-125	0.266	21	WG592677
Naphthalene	mg/kg	0.0289	0.0283	88.0	45-105	2.23	24	WG592677
Phenanthrene	mg/kg	0.0335	0.0339	102.	53-114	1.02	20	WG592677
Pyrene	mg/kg	0.0346	0.0358	105.	53-121	3.44	20	WG592677
2-Fluorobiphenyl				88.10	34-129			WG592677
Nitrobenzene-d5				90.08	14-141			WG592677
p-Terphenyl-d14				126.5	25-139			WG592677
pH	su	5.70	5.70	100.	98-101	0	20	WG592923
ORP	mV	228.	228.	100.	95.6-104.	0	20	WG593118
TPH (GC/FID) High Fraction	ppm	48.6	52.4	81.0	50-150	7.69	23	WG592967
o-Terphenyl				68.77	50-150			WG592967
Specific Conductance	umhos/	486.	486.	98.0	85-115	0	20	WG593318
Chromium,Hexavalent	mg/kg	129.	140.	86.0	50-150	8.18	20	WG593559

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Quality Assurance Report
Level II

L575232

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Tax I.D. 62-0814289

Est. 1970

May 21, 2012

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.0849	0	.05	34.0	32-137	L575232-05	WG592960
Ethylbenzene	mg/kg	0.0479	0	.05	19.2	10-150	L575232-05	WG592960
Toluene	mg/kg	0.0675	0	.05	27.0	20-142	L575232-05	WG592960
Total Xylene	mg/kg	0.149	0	.15	19.8	16-141	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)					97.13	59-128		WG592960
a,a,a-Trifluorotoluene(PID)					105.2	54-144		WG592960
TPH (GC/FID) Low Fraction	mg/kg	16.5	0	5.5	60.2	55-109	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)					103.2	59-128		WG592960
a,a,a-Trifluorotoluene(PID)					110.9	54-144		WG592960
TPH (GC/FID) Low Fraction	mg/kg	20.7	0	5.5	75.2	55-109	L575383-01	WG593057
a,a,a-Trifluorotoluene(FID)					93.00	59-128		WG593057
Benzene	mg/kg	0.200	0	.05	79.8	32-137	L575580-03	WG593057
Ethylbenzene	mg/kg	0.188	0	.05	75.1	10-150	L575580-03	WG593057
Toluene	mg/kg	0.194	0	.05	77.8	20-142	L575580-03	WG593057
Total Xylene	mg/kg	0.582	0	.15	77.6	16-141	L575580-03	WG593057
a,a,a-Trifluorotoluene(PID)					99.32	54-144		WG593057
Mercury	mg/kg	0.290	0.0260	.25	106.	70-130	L575228-01	WG592932
TPH (GC/FID) High Fraction	ppm	716.	490.	60	376.*	50-150	L575385-03	WG592967
o-Terphenyl					56.53	50-150		WG592967
Arsenic	mg/kg	55.9	9.10	50	93.6	75-125	L575232-01	WG592981
Barium	mg/kg	4040	4300	50	0*	75-125	L575232-01	WG592981
Cadmium	mg/kg	47.2	0.340	50	93.7	75-125	L575232-01	WG592981
Chromium	mg/kg	64.2	21.0	50	86.4	75-125	L575232-01	WG592981
Copper	mg/kg	60.4	17.0	50	86.8	75-125	L575232-01	WG592981
Nickel	mg/kg	56.4	15.0	50	82.8	75-125	L575232-01	WG592981
Selenium	mg/kg	43.5	0	50	87.0	75-125	L575232-01	WG592981
Zinc	mg/kg	99.5	61.0	50	77.0	75-125	L575232-01	WG592981
Lead	mg/kg	63.5	13.0	10	101.	75-125	L575232-01	WG592981
Silver	mg/kg	48.5	0	10	97.0	75-125	L575232-01	WG592981
1-Methylnaphthalene	mg/kg	0.0256	0	.033	77.4	25-155	L574858-06	WG592677
2-Chloronaphthalene	mg/kg	0.0231	0	.033	69.9	31-153	L574858-06	WG592677
2-Methylnaphthalene	mg/kg	0.0257	0	.033	77.8	22-172	L574858-06	WG592677
Acenaphthene	mg/kg	0.0232	0	.033	70.2	43-133	L574858-06	WG592677
Acenaphthylene	mg/kg	0.0237	0	.033	71.8	42-146	L574858-06	WG592677
Anthracene	mg/kg	0.0251	0	.033	76.0	38-153	L574858-06	WG592677
Benzo(a)anthracene	mg/kg	0.0247	0	.033	75.0	31-142	L574858-06	WG592677
Benzo(a)pyrene	mg/kg	0.0264	0	.033	80.0	26-152	L574858-06	WG592677
Benzo(b)fluoranthene	mg/kg	0.0267	0	.033	80.9	10-188	L574858-06	WG592677
Benzo(g,h,i)perylene	mg/kg	0.0201	0	.033	60.8	10-176	L574858-06	WG592677
Benzo(k)fluoranthene	mg/kg	0.0265	0	.033	80.3	22-163	L574858-06	WG592677
Chrysene	mg/kg	0.0267	0	.033	81.0	26-146	L574858-06	WG592677
Dibenz(a,h)anthracene	mg/kg	0.0233	0	.033	70.6	10-160	L574858-06	WG592677
Fluoranthene	mg/kg	0.0348	0	.033	105.	23-160	L574858-06	WG592677
Fluorene	mg/kg	0.0248	0	.033	75.1	44-143	L574858-06	WG592677
Indeno(1,2,3-cd)pyrene	mg/kg	0.0217	0	.033	65.8	10-157	L574858-06	WG592677
Naphthalene	mg/kg	0.0231	0	.033	69.9	22-156	L574858-06	WG592677
Phenanthrene	mg/kg	0.0241	0	.033	73.2	23-164	L574858-06	WG592677
Pyrene	mg/kg	0.0266	0	.033	80.6	12-170	L574858-06	WG592677
2-Fluorobiphenyl					71.58	34-129		WG592677
Nitrobenzene-d5					71.47	14-141		WG592677

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
p-Terphenyl-d14					98.93	25-139		
Chromium,Hexavalent	mg/kg	20.5	4.00	20	82.4	50-150	L575576-01	WG593559
Chromium,Hexavalent	mg/kg	4.48	0	20	22.4*	50-150	L574939-01	WG593559

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.225	0.0849	89.9	32-137	90.3*	39	L575232-05	WG592960
Ethylbenzene	mg/kg	0.192	0.0479	76.7	10-150	120.*	44	L575232-05	WG592960
Toluene	mg/kg	0.212	0.0675	84.8	20-142	103.*	42	L575232-05	WG592960
Total Xylene	mg/kg	0.583	0.149	77.7	16-141	119.*	46	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)				97.73	59-128				WG592960
a,a,a-Trifluorotoluene(PID)				105.5	54-144				WG592960
TPH (GC/FID) Low Fraction	mg/kg	12.6	16.5	46.0*	55-109	26.7*	20	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)				102.3	59-128				WG592960
a,a,a-Trifluorotoluene(PID)				109.8	54-144				WG592960
TPH (GC/FID) Low Fraction	mg/kg	19.3	20.7	70.1	55-109	7.12	20	L575383-01	WG593057
a,a,a-Trifluorotoluene(FID)				94.35	59-128				WG593057
Benzene	mg/kg	0.198	0.200	79.3	32-137	0.680	39	L575580-03	WG593057
Ethylbenzene	mg/kg	0.184	0.188	73.6	10-150	2.02	44	L575580-03	WG593057
Toluene	mg/kg	0.188	0.194	75.2	20-142	3.27	42	L575580-03	WG593057
Total Xylene	mg/kg	0.570	0.582	76.1	16-141	2.03	46	L575580-03	WG593057
a,a,a-Trifluorotoluene(FID)				91.34	59-128				WG593057
a,a,a-Trifluorotoluene(PID)				98.18	54-144				WG593057
Mercury	mg/kg	0.279	0.290	101.	70-130	3.87	20	L575228-01	WG592932
TPH (GC/FID) High Fraction	ppm	571.	716.	136.	50-150	22.4	25	L575385-03	WG592967
o-Terphenyl				53.34	50-150				WG592967
Arsenic	mg/kg	56.1	55.9	94.0	75-125	0.357	20	L575232-01	WG592981
Barium	mg/kg	4770	4040	940.*	75-125	16.6	20	L575232-01	WG592981
Cadmium	mg/kg	48.1	47.2	95.5	75-125	1.89	20	L575232-01	WG592981
Chromium	mg/kg	65.3	64.2	88.6	75-125	1.70	20	L575232-01	WG592981
Copper	mg/kg	62.6	60.4	91.2	75-125	3.58	20	L575232-01	WG592981
Nickel	mg/kg	55.6	56.4	81.2	75-125	1.43	20	L575232-01	WG592981
Selenium	mg/kg	44.9	43.5	89.8	75-125	3.17	20	L575232-01	WG592981
Zinc	mg/kg	96.4	99.5	70.8*	75-125	3.16	20	L575232-01	WG592981
Lead	mg/kg	65.4	63.5	105.	75-125	2.95	20	L575232-01	WG592981
Silver	mg/kg	49.1	48.5	98.2	75-125	1.23	20	L575232-01	WG592981
1-Methylnaphthalene	mg/kg	0.0309	0.0256	93.6	25-155	18.9	27	L574858-06	WG592677
2-Chloronaphthalene	mg/kg	0.0266	0.0231	80.7	31-153	14.4	22	L574858-06	WG592677
2-Methylnaphthalene	mg/kg	0.0309	0.0257	93.7	22-172	18.6	29	L574858-06	WG592677
Acenaphthene	mg/kg	0.0290	0.0232	88.0	43-133	22.5	26	L574858-06	WG592677
Acenaphthylene	mg/kg	0.0280	0.0237	84.8	42-146	16.7	22	L574858-06	WG592677
Anthracene	mg/kg	0.0319	0.0251	96.8	38-153	24.0	27	L574858-06	WG592677
Benzo(a)anthracene	mg/kg	0.0307	0.0247	93.0	31-142	21.5	31	L574858-06	WG592677
Benzo(a)pyrene	mg/kg	0.0326	0.0264	98.8	26-152	21.0	32	L574858-06	WG592677
Benzo(b)fluoranthene	mg/kg	0.0323	0.0267	97.7	10-188	18.8	33	L574858-06	WG592677
Benzo(g,h,i)perylene	mg/kg	0.0257	0.0201	77.9	10-176	24.6	30	L574858-06	WG592677
Benzo(k)fluoranthene	mg/kg	0.0331	0.0265	100.	22-163	22.2	29	L574858-06	WG592677
Chrysene	mg/kg	0.0332	0.0267	100.	26-146	21.5	30	L574858-06	WG592677

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Quality Assurance Report
 Level II

Parachute, CO 81635

May 21, 2012

L575232

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit Ref	Samp	Batch
			Ref	%Rec					
Dibenz(a,h)anthracene	mg/kg	0.0297	0.0233	89.9	10-160	24.1	39	L574858-06	WG592677
Fluoranthene	mg/kg	0.0325	0.0348	98.4	23-160	6.90	22	L574858-06	WG592677
Fluorene	mg/kg	0.0301	0.0248	91.1	44-143	19.3	23	L574858-06	WG592677
Indeno(1,2,3-cd)pyrene	mg/kg	0.0278	0.0217	84.2	10-157	24.6	40	L574858-06	WG592677
Naphthalene	mg/kg	0.0278	0.0231	84.2	22-156	18.6	27	L574858-06	WG592677
Phenanthrene	mg/kg	0.0315	0.0241	95.3	23-164	26.3*	25	L574858-06	WG592677
Pyrene	mg/kg	0.0303	0.0266	91.7	12-170	12.9	24	L574858-06	WG592677
2-Fluorobiphenyl				84.88	34-129				WG592677
Nitrobenzene-d5				89.54	14-141				WG592677
p-Terphenyl-d14				115.1	25-139				WG592677
Chromium,Hexavalent	mg/kg	21.1	20.5	85.3	50-150	2.79	20	L575576-01	WG593559
Chromium,Hexavalent	mg/kg	3.80	4.48	19.0*	50-150	16.4	20	L574939-01	WG593559

Batch number /Run number / Sample number cross reference

WG592960: R2172133: L575232-02 03 04 05
 WG593057: R2173094: L575232-01
 WG592677: R2173334: L575232-01
 WG592932: R2173636: L575232-01
 WG592923: R2173755: L575232-01
 WG593118: R2174594: L575232-01
 WG592967: R2175173: L575232-01 02 03 04 05
 WG593318: R2175353: L575232-01
 WG593237: R2175633: L575232-01
 WG592981: R2175834: L575232-01
 WG593559: R2178473: L575232-01

* * 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

Tuesday May 22, 2012

Report Number: L575223


Samples Received: 05/15/12

Client Project: D31-051412

Description: D31 PitX Spoil

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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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

May 22, 2012

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

ESC Sample # : L575223-01

Date Received : May 15, 2012
 Description : D31 PitX Spoil

Site ID : D31-PITXSPOIL

Sample ID : D31-PITX-SPOIL-051412

Project # : D31-051412

Collected By : Bob Stockton
 Collection Date : 05/14/12 15:14

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/21/12	1
Chromium,Trivalent	21.	2.0	mg/kg	Calc.	05/18/12	1
ORP	73.		mV	2580	05/17/12	1
pH	9.1		su	9045D	05/17/12	1
Sodium Adsorption Ratio	27.			Calc.	05/18/12	1
Specific Conductance	2000		umhos/cm	9050AMod	05/17/12	1
Mercury	0.022	0.020	mg/kg	7471	05/16/12	1
Arsenic	8.7	1.0	mg/kg	6010B	05/18/12	1
Barium	5700	0.25	mg/kg	6010B	05/18/12	1
Cadmium	0.44	0.25	mg/kg	6010B	05/18/12	1
Chromium	21.	0.50	mg/kg	6010B	05/18/12	1
Copper	19.	1.0	mg/kg	6010B	05/18/12	1
Lead	9.9	0.50	mg/kg	6010B	05/18/12	2
Nickel	14.	1.0	mg/kg	6010B	05/18/12	1
Selenium	BDL	1.0	mg/kg	6010B	05/18/12	1
Silver	BDL	1.0	mg/kg	6010B	05/18/12	2
Zinc	54.	1.5	mg/kg	6010B	05/18/12	1
Benzene	0.053	0.025	mg/kg	8021/8015	05/16/12	50
Toluene	BDL	0.25	mg/kg	8021/8015	05/16/12	50
Ethylbenzene	0.10	0.025	mg/kg	8021/8015	05/16/12	50
Total Xylene	0.48	0.075	mg/kg	8021/8015	05/16/12	50
TPH (GC/FID) Low Fraction	29.	5.0	mg/kg	GRO	05/16/12	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	102.		% Rec.	8021/8015	05/16/12	50
a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021/8015	05/16/12	50
TPH (GC/FID) High Fraction	520	20.	mg/kg	3546/DRO	05/21/12	5
Surrogate recovery(%)						
o-Terphenyl	73.4		% Rec.	3546/DRO	05/21/12	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L575223-01 (PH) - 9.1@20.7c



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Est. 1970

REPORT OF ANALYSIS

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

May 22, 2012

Date Received : May 15, 2012
 Description : D31 PitX Spoil
 Sample ID : D31-PITX-SPOIL-051412
 Collected By : Bob Stockton
 Collection Date : 05/14/12 15:14

ESC Sample # : L575223-01
 Site ID : D31-PITXSPOIL
 Project # : D31-051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Chrysene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Fluorene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Naphthalene	0.29	0.12	mg/kg	8270C-SIM	05/22/12	20
Phenanthrene	0.16	0.12	mg/kg	8270C-SIM	05/22/12	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
1-Methylnaphthalene	0.43	0.12	mg/kg	8270C-SIM	05/22/12	20
2-Methylnaphthalene	1.1	0.12	mg/kg	8270C-SIM	05/22/12	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	05/22/12	20
Surrogate Recovery						
Nitrobenzene-d5	569.		% Rec.	8270C-SIM	05/22/12	20
2-Fluorobiphenyl	136.		% Rec.	8270C-SIM	05/22/12	20
p-Terphenyl-d14	152.		% Rec.	8270C-SIM	05/22/12	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: 05/22/12 11:20 Printed: 05/22/12 11:21
 L575223-01 (PH) - 9.1@20.7c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L575223-01	WG592981	SAMP	Silver	R2175834	O
	WG592880	SAMP	Nitrobenzene-d5	R2177674	J7
	WG592880	SAMP	2-Fluorobiphenyl	R2177674	J7
	WG592880	SAMP	p-Terphenyl-d14	R2177674	J7
	WG592923	SAMP	pH	R2173755	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy** - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision** - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
05/22/12 at 11:21:11

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: L575223-01 Account: ENCANACO Received: 05/15/12 09:00 Due Date: 05/22/12 00:00 RPT Date: 05/22/12 11:20



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG592960	05/15/12 23:47
Ethylbenzene	< .0005	mg/kg			WG592960	05/15/12 23:47
Toluene	< .005	mg/kg			WG592960	05/15/12 23:47
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG592960	05/15/12 23:47
Total Xylene	< .0015	mg/kg			WG592960	05/15/12 23:47
a,a,a-Trifluorotoluene(FID)		% Rec.	99.46	59-128	WG592960	05/15/12 23:47
a,a,a-Trifluorotoluene(PID)		% Rec.	108.2	54-144	WG592960	05/15/12 23:47
Mercury	< .02	mg/kg			WG592932	05/16/12 19:37
pH	7.10	su			WG592923	05/17/12 09:56
Specific Conductance	1.96	umhos/cm			WG593318	05/17/12 18:47
Arsenic	< 1	mg/kg			WG592981	05/17/12 18:58
Barium	< .25	mg/kg			WG592981	05/17/12 18:58
Cadmium	< .25	mg/kg			WG592981	05/17/12 18:58
Chromium	< .5	mg/kg			WG592981	05/17/12 18:58
Copper	< 1	mg/kg			WG592981	05/17/12 18:58
Lead	< .25	mg/kg			WG592981	05/17/12 18:58
Nickel	< 1	mg/kg			WG592981	05/17/12 18:58
Selenium	< 1	mg/kg			WG592981	05/17/12 18:58
Silver	< .5	mg/kg			WG592981	05/17/12 18:58
Zinc	< 1.5	mg/kg			WG592981	05/17/12 18:58
1-Methylnaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Chloronaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Methylnaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
Acenaphthene	< .006	mg/kg			WG592880	05/19/12 04:26
Acenaphthylene	< .006	mg/kg			WG592880	05/19/12 04:26
Anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(a)anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(a)pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(b)fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(g,h,i)perylene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(k)fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Chrysene	< .006	mg/kg			WG592880	05/19/12 04:26
Dibenz(a,h)anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Fluorene	< .006	mg/kg			WG592880	05/19/12 04:26
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
Naphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
Phenanthrene	< .006	mg/kg			WG592880	05/19/12 04:26
Pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Fluorobiphenyl		% Rec.	87.90	34-129	WG592880	05/19/12 04:26
Nitrobenzene-d5		% Rec.	87.10	14-141	WG592880	05/19/12 04:26
p-Terphenyl-d14		% Rec.	116.7	25-139	WG592880	05/19/12 04:26
TPH (GC/FID) High Fraction	< 4	ppm			WG593097	05/19/12 05:31
o-Terphenyl		% Rec.	78.54	50-150	WG593097	05/19/12 05:31
Chromium,Hexavalent	< 2	mg/kg			WG593559	05/21/12 13:01

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



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Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0.0270	0.0260	4.14	20	L575228-01	WG592932
pH	su	8.70	8.70	0.230	1	L574996-01	WG592923
pH	su	8.50	8.60	1.29*	1	L575232-01	WG592923
ORP	mV	110.	110.	0.905	20	L575232-01	WG593118
Specific Conductance	umhos/cm	2200	2000	7.23	20	L575223-01	WG593318
Arsenic	mg/kg	8.70	9.10	4.61	20	L575232-01	WG592981
Barium	mg/kg	5000	4300	14.5	20	L575232-01	WG592981
Cadmium	mg/kg	0.390	0.340	13.2	20	L575232-01	WG592981
Chromium	mg/kg	20.0	21.0	7.41	20	L575232-01	WG592981
Copper	mg/kg	16.0	17.0	9.23	20	L575232-01	WG592981
Nickel	mg/kg	13.0	15.0	15.8	20	L575232-01	WG592981
Selenium	mg/kg	0	0	0	20	L575232-01	WG592981
Zinc	mg/kg	50.0	61.0	20.8*	20	L575232-01	WG592981
Lead	mg/kg	13.0	13.0	1.55	20	L575232-01	WG592981
Silver	mg/kg	0	0	0	20	L575232-01	WG592981
Chromium,Hexavalent	mg/kg	0	0	0	20	L575228-01	WG593559
Chromium,Hexavalent	mg/kg	0	0	0	20	L575773-06	WG593559

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0524	105.	76-113	WG592960
Ethylbenzene	mg/kg	.05	0.0530	106.	78-115	WG592960
Toluene	mg/kg	.05	0.0525	105.	76-114	WG592960
Total Xylene	mg/kg	.15	0.159	106.	81-118	WG592960
a,a,a-Trifluorotoluene(FID)				98.92	59-128	WG592960
a,a,a-Trifluorotoluene(PID)				106.5	54-144	WG592960
TPH (GC/FID) Low Fraction	mg/kg	5.5	7.27	132.	67-135	WG592960
a,a,a-Trifluorotoluene(FID)				106.5	59-128	WG592960
a,a,a-Trifluorotoluene(PID)				114.0	54-144	WG592960
Mercury	mg/kg	3.77	3.93	104.	71.6-128	WG592932
pH	su	5.7	5.70	100.	98-101	WG592923
ORP	mV	228	228.	100.	95.6-104.	WG593118
Specific Conductance	umhos/cm	495	486.	98.2	85-115	WG593318
Arsenic	mg/kg	92.6	90.4	97.6	82.9-117	WG592981
Barium	mg/kg	169	168.	99.4	82.8-117	WG592981
Cadmium	mg/kg	61.8	60.1	97.2	83.3-117	WG592981
Chromium	mg/kg	71.3	70.7	99.2	81.8-118	WG592981
Copper	mg/kg	81.2	79.5	97.9	83.9-116	WG592981

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Lead	mg/kg	92.4	92.2	99.8	83.3-117	WG592981
Nickel	mg/kg	59.1	54.8	92.7	83.8-116	WG592981
Selenium	mg/kg	89.5	83.9	93.7	79-121	WG592981
Silver	mg/kg	34.4	31.6	91.9	66.3-134	WG592981
Zinc	mg/kg	141	141.	100.	80.9-119	WG592981
1-Methylnaphthalene	mg/kg	.033	0.0272	82.4	48-113	WG592880
2-Chloronaphthalene	mg/kg	.033	0.0263	79.6	51-114	WG592880
2-Methylnaphthalene	mg/kg	.033	0.0274	83.1	44-109	WG592880
Acenaphthene	mg/kg	.033	0.0251	75.9	52-108	WG592880
Acenaphthylene	mg/kg	.033	0.0260	78.8	51-110	WG592880
Anthracene	mg/kg	.033	0.0295	89.2	58-120	WG592880
Benzo(a)anthracene	mg/kg	.033	0.0279	84.6	54-110	WG592880
Benzo(a)pyrene	mg/kg	.033	0.0290	88.0	56-118	WG592880
Benzo(b)fluoranthene	mg/kg	.033	0.0296	89.8	55-114	WG592880
Benzo(g,h,i)perylene	mg/kg	.033	0.0297	90.0	48-130	WG592880
Benzo(k)fluoranthene	mg/kg	.033	0.0280	84.8	55-122	WG592880
Chrysene	mg/kg	.033	0.0296	89.8	57-118	WG592880
Dibenz(a,h)anthracene	mg/kg	.033	0.0290	87.8	53-122	WG592880
Fluoranthene	mg/kg	.033	0.0296	89.6	58-118	WG592880
Fluorene	mg/kg	.033	0.0260	78.7	54-109	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0294	89.1	51-125	WG592880
Naphthalene	mg/kg	.033	0.0259	78.5	45-105	WG592880
Phenanthrene	mg/kg	.033	0.0268	81.3	53-114	WG592880
Pyrene	mg/kg	.033	0.0294	89.1	53-121	WG592880
2-Fluorobiphenyl				79.80	34-129	WG592880
Nitrobenzene-d5				84.20	14-141	WG592880
p-Terphenyl-d14				107.2	25-139	WG592880
TPH (GC/FID) High Fraction	ppm	60	46.7	77.8	50-150	WG593097
o-Terphenyl				82.30	50-150	WG593097
Chromium,Hexavalent	mg/kg	150	140.	93.3	50-150	WG593559

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0548	0.0524	110.	76-113	4.31	20	WG592960
Ethylbenzene	mg/kg	0.0547	0.0530	109.	78-115	3.26	20	WG592960
Toluene	mg/kg	0.0540	0.0525	108.	76-114	2.86	20	WG592960
Total Xylene	mg/kg	0.164	0.159	109.	81-118	2.98	20	WG592960
a,a,a-Trifluorotoluene(FID)				99.96	59-128			WG592960
a,a,a-Trifluorotoluene(PID)				107.2	54-144			WG592960
TPH (GC/FID) Low Fraction	mg/kg	7.37	7.27	134.	67-135	1.49	20	WG592960
a,a,a-Trifluorotoluene(FID)				106.6	59-128			WG592960
a,a,a-Trifluorotoluene(PID)				114.9	54-144			WG592960
pH	su	5.70	5.70	100.	98-101	0	20	WG592923
ORP	mV	228.	228.	100.	95.6-104.	0	20	WG593118
Specific Conductance	umhos/	486.	486.	98.0	85-115	0	20	WG593318

* 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					
1-Methylnaphthalene	mg/kg	0.0286	0.0272	87.0		48-113	5.27	24	WG592880
2-Chloronaphthalene	mg/kg	0.0280	0.0263	85.0		51-114	6.31	24	WG592880
2-Methylnaphthalene	mg/kg	0.0289	0.0274	87.0		44-109	5.17	24	WG592880
Acenaphthene	mg/kg	0.0271	0.0251	82.0		52-108	7.92	22	WG592880
Acenaphthylene	mg/kg	0.0274	0.0260	83.0		51-110	5.12	21	WG592880
Anthracene	mg/kg	0.0315	0.0295	95.0		58-120	6.73	20	WG592880
Benzo(a)anthracene	mg/kg	0.0287	0.0279	87.0		54-110	2.79	22	WG592880
Benzo(a)pyrene	mg/kg	0.0303	0.0290	92.0		56-118	4.25	21	WG592880
Benzo(b)fluoranthene	mg/kg	0.0315	0.0296	96.0		55-114	6.25	20	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0309	0.0297	94.0		48-130	3.93	20	WG592880
Benzo(k)fluoranthene	mg/kg	0.0289	0.0280	88.0		55-122	3.19	25	WG592880
Chrysene	mg/kg	0.0306	0.0296	92.0		57-118	3.03	20	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0302	0.0290	92.0		53-122	4.18	20	WG592880
Fluoranthene	mg/kg	0.0311	0.0296	94.0		58-118	5.13	20	WG592880
Fluorene	mg/kg	0.0276	0.0260	84.0		54-109	5.95	20	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0311	0.0294	94.0		51-125	5.72	21	WG592880
Naphthalene	mg/kg	0.0272	0.0259	82.0		45-105	5.02	24	WG592880
Phenanthrene	mg/kg	0.0302	0.0268	92.0		53-114	11.8	20	WG592880
Pyrene	mg/kg	0.0298	0.0294	90.0		53-121	1.17	20	WG592880
2-Fluorobiphenyl				82.32		34-129			WG592880
Nitrobenzene-d5				84.04		14-141			WG592880
p-Terphenyl-d14				113.2		25-139			WG592880
TPH (GC/FID) High Fraction	ppm	43.6	46.7	73.0		50-150	6.86	23	WG593097
o-Terphenyl				74.10		50-150			WG593097
Chromium,Hexavalent	mg/kg	129.	140.	86.0		50-150	8.18	20	WG593559

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.0849	0	.05	34.0	32-137	L575232-05	WG592960
Ethylbenzene	mg/kg	0.0479	0	.05	19.2	10-150	L575232-05	WG592960
Toluene	mg/kg	0.0675	0	.05	27.0	20-142	L575232-05	WG592960
Total Xylene	mg/kg	0.149	0	.15	19.8	16-141	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)					97.13	59-128		WG592960
a,a,a-Trifluorotoluene(PID)					105.2	54-144		WG592960
TPH (GC/FID) Low Fraction	mg/kg	16.5	0	5.5	60.2	55-109	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)					103.2	59-128		WG592960
a,a,a-Trifluorotoluene(PID)					110.9	54-144		WG592960
Mercury	mg/kg	0.290	0.0260	.25	106.	70-130	L575228-01	WG592932
Arsenic	mg/kg	55.9	9.10	50	93.6	75-125	L575232-01	WG592981
Barium	mg/kg	4040	4300	50	0*	75-125	L575232-01	WG592981
Cadmium	mg/kg	47.2	0.340	50	93.7	75-125	L575232-01	WG592981
Chromium	mg/kg	64.2	21.0	50	86.4	75-125	L575232-01	WG592981
Copper	mg/kg	60.4	17.0	50	86.8	75-125	L575232-01	WG592981
Nickel	mg/kg	56.4	15.0	50	82.8	75-125	L575232-01	WG592981
Selenium	mg/kg	43.5	0	50	87.0	75-125	L575232-01	WG592981
Zinc	mg/kg	99.5	61.0	50	77.0	75-125	L575232-01	WG592981
Lead	mg/kg	63.5	13.0	10	101.	75-125	L575232-01	WG592981
Silver	mg/kg	48.5	0	10	97.0	75-125	L575232-01	WG592981

* Performance of this Analyte is outside of established criteria.
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Level II

L575223

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Tax I.D. 62-0814289

Est. 1970

May 22, 2012

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
TPH (GC/FID) High Fraction	ppm	35.9	0	60	59.9	50-150	L575343-03	WG593097
o-Terphenyl					63.54	50-150		WG593097
Chromium,Hexavalent	mg/kg	20.5	4.00	20	82.4	50-150	L575576-01	WG593559
Chromium,Hexavalent	mg/kg	4.48	0	20	22.4*	50-150	L574939-01	WG593559
1-Methylnaphthalene	mg/kg	0.0973	0.0270	.033	213.*	25-155	L575198-05	WG592880
2-Chloronaphthalene	mg/kg	0.0383	0	.033	116.	31-153	L575198-05	WG592880
2-Methylnaphthalene	mg/kg	0.101	0.0280	.033	221.*	22-172	L575198-05	WG592880
Acenaphthene	mg/kg	0.0517	0	.033	157.*	43-133	L575198-05	WG592880
Acenaphthylene	mg/kg	0.0427	0	.033	129.	42-146	L575198-05	WG592880
Anthracene	mg/kg	0.0735	0	.033	223.*	38-153	L575198-05	WG592880
Benzo(a)anthracene	mg/kg	0.0369	0.00100	.033	109.	31-142	L575198-05	WG592880
Benzo(a)pyrene	mg/kg	0.0387	0	.033	117.	26-152	L575198-05	WG592880
Benzo(b)fluoranthene	mg/kg	0.0399	0	.033	121.	10-188	L575198-05	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0388	0	.033	118.	10-176	L575198-05	WG592880
Benzo(k)fluoranthene	mg/kg	0.0369	0	.033	112.	22-163	L575198-05	WG592880
Chrysene	mg/kg	0.0385	0	.033	117.	26-146	L575198-05	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0407	0	.033	123.	10-160	L575198-05	WG592880
Fluoranthene	mg/kg	0.0435	0	.033	132.	23-160	L575198-05	WG592880
Fluorene	mg/kg	0.0574	0	.033	174.*	44-143	L575198-05	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0390	0	.033	118.	10-157	L575198-05	WG592880
Naphthalene	mg/kg	0.0583	0.00960	.033	147.	22-156	L575198-05	WG592880
Phenanthrene	mg/kg	0.0692	0	.033	210.*	23-164	L575198-05	WG592880
Pyrene	mg/kg	0.0550	0.00710	.033	145.	12-170	L575198-05	WG592880
2-Fluorobiphenyl					117.2	34-129		WG592880
Nitrobenzene-d5					123.5	14-141		WG592880
p-Terphenyl-d14					146.0*	25-139		WG592880

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.225	0.0849	89.9	32-137	90.3*	39	L575232-05	WG592960
Ethylbenzene	mg/kg	0.192	0.0479	76.7	10-150	120.*	44	L575232-05	WG592960
Toluene	mg/kg	0.212	0.0675	84.8	20-142	103.*	42	L575232-05	WG592960
Total Xylene	mg/kg	0.583	0.149	77.7	16-141	119.*	46	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)				97.73	59-128				WG592960
a,a,a-Trifluorotoluene(PID)				105.5	54-144				WG592960
TPH (GC/FID) Low Fraction	mg/kg	12.6	16.5	46.0*	55-109	26.7*	20	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)				102.3	59-128				WG592960
a,a,a-Trifluorotoluene(PID)				109.8	54-144				WG592960
Mercury	mg/kg	0.279	0.290	101.	70-130	3.87	20	L575228-01	WG592932
Arsenic	mg/kg	56.1	55.9	94.0	75-125	0.357	20	L575232-01	WG592981
Barium	mg/kg	4770	4040	940.*	75-125	16.6	20	L575232-01	WG592981
Cadmium	mg/kg	48.1	47.2	95.5	75-125	1.89	20	L575232-01	WG592981
Chromium	mg/kg	65.3	64.2	88.6	75-125	1.70	20	L575232-01	WG592981
Copper	mg/kg	62.6	60.4	91.2	75-125	3.58	20	L575232-01	WG592981
Nickel	mg/kg	55.6	56.4	81.2	75-125	1.43	20	L575232-01	WG592981
Selenium	mg/kg	44.9	43.5	89.8	75-125	3.17	20	L575232-01	WG592981
Zinc	mg/kg	96.4	99.5	70.8*	75-125	3.16	20	L575232-01	WG592981
Lead	mg/kg	65.4	63.5	105.	75-125	2.95	20	L575232-01	WG592981
Silver	mg/kg	49.1	48.5	98.2	75-125	1.23	20	L575232-01	WG592981

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

May 22, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit Ref	Samp	Batch
			Ref	%Rec					
TPH (GC/FID) High Fraction	ppm	38.0	35.9	63.3	50-150	5.52	40	L575343-03	WG593097
o-Terphenyl				64.35	50-150				WG593097
Chromium,Hexavalent	mg/kg	21.1	20.5	85.3	50-150	2.79	20	L575576-01	WG593559
Chromium,Hexavalent	mg/kg	3.80	4.48	19.0*	50-150	16.4	20	L574939-01	WG593559
1-Methylnaphthalene	mg/kg	0.0766	0.0973	150.	25-155	23.8	27	L575198-05	WG592880
2-Chloronaphthalene	mg/kg	0.0385	0.0383	117.	31-153	0.513	22	L575198-05	WG592880
2-Methylnaphthalene	mg/kg	0.0799	0.101	157.	22-172	23.3	29	L575198-05	WG592880
Acenaphthene	mg/kg	0.0470	0.0517	142.*	43-133	9.40	26	L575198-05	WG592880
Acenaphthylene	mg/kg	0.0406	0.0427	123.	42-146	5.18	22	L575198-05	WG592880
Anthracene	mg/kg	0.0583	0.0735	177.*	38-153	23.0	27	L575198-05	WG592880
Benzo(a)anthracene	mg/kg	0.0385	0.0369	114.	31-142	4.48	31	L575198-05	WG592880
Benzo(a)pyrene	mg/kg	0.0411	0.0387	125.	26-152	5.97	32	L575198-05	WG592880
Benzo(b)fluoranthene	mg/kg	0.0403	0.0399	122.	10-188	1.12	33	L575198-05	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0410	0.0388	124.	10-176	5.57	30	L575198-05	WG592880
Benzo(k)fluoranthene	mg/kg	0.0408	0.0369	124.	22-163	10.1	29	L575198-05	WG592880
Chrysene	mg/kg	0.0414	0.0385	125.	26-146	7.29	30	L575198-05	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0429	0.0407	130.	10-160	5.37	39	L575198-05	WG592880
Fluoranthene	mg/kg	0.0577	0.0435	175.*	23-160	28.1*	22	L575198-05	WG592880
Fluorene	mg/kg	0.0531	0.0574	161.*	44-143	7.71	23	L575198-05	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0411	0.0390	124.	10-157	5.25	40	L575198-05	WG592880
Naphthalene	mg/kg	0.0503	0.0583	123.	22-156	14.7	27	L575198-05	WG592880
Phenanthrene	mg/kg	0.0585	0.0692	177.*	23-164	16.8	25	L575198-05	WG592880
Pyrene	mg/kg	0.0502	0.0550	131.	12-170	9.01	24	L575198-05	WG592880
2-Fluorobiphenyl				119.6	34-129				WG592880
Nitrobenzene-d5				146.0*	14-141				WG592880
p-Terphenyl-d14				151.5*	25-139				WG592880

Batch number /Run number / Sample number cross reference

WG592960: R2172133: L575223-01
 WG592932: R2173636: L575223-01
 WG592923: R2173755: L575223-01
 WG593118: R2174594: L575223-01
 WG593318: R2175353: L575223-01
 WG593237: R2175633: L575223-01
 WG592981: R2175834: L575223-01
 WG592880: R2177674: L575223-01
 WG593097: R2178161: L575223-01
 WG593559: R2178473: L575223-01

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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May 22, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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

Report Summary

Friday June 22, 2012

Report Number: L580391

Samples Received: 06/14/12

Client Project:

Description: D31 MOI

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

June 22, 2012

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

Date Received : June 14, 2012
Description : D31 MOI
Sample ID : D31-MOI-COMP1-061312 0-6IN
Collected By : Chris Bak
Collection Date : 06/13/12 11:28

ESC Sample # : L580391-01
Site ID : D31
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	06/15/12	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	92.2		% Rec.	602/8015	06/15/12	5
TPH (GC/FID) High Fraction	430	80.	mg/kg	3546/DRO	06/22/12	20
Surrogate recovery(%) o-Terphenyl	37.4		% Rec.	3546/DRO	06/22/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 06/22/12 15:07 Printed: 06/22/12 15:08



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REPORT OF ANALYSIS

June 22, 2012

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

ESC Sample # : L580391-02

Date Received : June 14, 2012
Description : D31 MOI

Site ID : D31

Sample ID : D31-MOI-COMP2-061312 0-6IN

Project # :

Collected By : Chris Bak
Collection Date : 06/13/12 11:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	06/15/12	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	92.2		% Rec.	602/8015	06/15/12	5
TPH (GC/FID) High Fraction	360	80.	mg/kg	3546/DRO	06/22/12	20
Surrogate recovery(%) o-Terphenyl	33.8		% Rec.	3546/DRO	06/22/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 06/22/12 15:07 Printed: 06/22/12 15:08



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REPORT OF ANALYSIS

June 22, 2012

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

Date Received : June 14, 2012
Description : D31 MOI
Sample ID : D31-MOI-COMP3-061312 0-6IN
Collected By : Chris Bak
Collection Date : 06/13/12 11:59

ESC Sample # : L580391-03
Site ID : D31
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	06/15/12	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	92.1		% Rec.	602/8015	06/15/12	5
TPH (GC/FID) High Fraction	610	80.	mg/kg	3546/DRO	06/22/12	20
Surrogate recovery(%) o-Terphenyl	38.0		% Rec.	3546/DRO	06/22/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 06/22/12 15:07 Printed: 06/22/12 15:08

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L580391-01	WG598015	SAMP	o-Terphenyl	R2221954	J7
L580391-02	WG598015	SAMP	o-Terphenyl	R2221954	J7
L580391-03	WG598015	SAMP	o-Terphenyl	R2221954	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
06/22/12 at 15:08:09

TSR Signing Reports: 358
R5 - Desired TAT

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

Sample: L580391-01 Account: ENCANACO Received: 06/14/12 16:10 Due Date: 06/21/12 00:00 RPT Date: 06/22/12 15:07

Sample: L580391-02 Account: ENCANACO Received: 06/14/12 16:10 Due Date: 06/21/12 00:00 RPT Date: 06/22/12 15:07

Sample: L580391-03 Account: ENCANACO Received: 06/14/12 16:10 Due Date: 06/21/12 00:00 RPT Date: 06/22/12 15:07



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June 22, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG598026	06/15/12 13:49
a,a,a-Trifluorotoluene(FID)		% Rec.	92.83	59-128	WG598026	06/15/12 13:49
TPH (GC/FID) High Fraction	< 4	ppm			WG598015	06/21/12 18:33
o-Terphenyl		% Rec.	76.06	50-150	WG598015	06/21/12 18:33

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.37	116.	67-135	WG598026
a,a,a-Trifluorotoluene(FID)				98.39	59-128	WG598026
TPH (GC/FID) High Fraction	ppm	60	60.5	101.	50-150	WG598015
o-Terphenyl				77.89	50-150	WG598015

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	6.40	6.37	116.	67-135	0.460	20	WG598026
a,a,a-Trifluorotoluene(FID)				98.57	59-128			WG598026
TPH (GC/FID) High Fraction	ppm	55.1	60.5	92.0	50-150	9.34	23	WG598015
o-Terphenyl				77.18	50-150			WG598015

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
TPH (GC/FID) Low Fraction	mg/kg	24.2	0	5.5	88.0	55-109	L579770-01	WG598026
a,a,a-Trifluorotoluene(FID)					96.53	59-128		WG598026

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	22.9	24.2	83.3	55-109	5.56	20	L579770-01	WG598026
a,a,a-Trifluorotoluene(FID)				96.47	59-128				WG598026

Batch number /Run number / Sample number cross reference

WG598026: R2213734: L580391-01 02 03
WG598015: R2221954: L580391-01 02 03

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Quality Assurance Report
Level II

L580391

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Fax (615) 758-5859

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Est. 1970

June 22, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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

Report Summary

Tuesday May 22, 2012

Report Number: L575228


Samples Received: 05/15/12

Client Project: D31-051412

Description: D31 W. MOI

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:


Jarred Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979

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

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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REPORT OF ANALYSIS

May 22, 2012

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

ESC Sample # : L575228-01

Date Received : May 15, 2012
 Description : D31 W. MOI

Site ID : D31 W MOI

Sample ID : D31-W-MOI-051412 1-3FT

Project # : D31-051412

Collected By : Bob Stockton
 Collection Date : 05/14/12 09:52

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/21/12	1
Chromium,Trivalent	21.	2.0	mg/kg	Calc.	05/18/12	1
ORP	140		mV	2580	05/17/12	1
pH	8.1		su	9045D	05/17/12	1
Sodium Adsorption Ratio	5.0			Calc.	05/18/12	1
Specific Conductance	2100		umhos/cm	9050AMod	05/17/12	1
Mercury	0.026	0.020	mg/kg	7471	05/16/12	1
Arsenic	12.	1.0	mg/kg	6010B	05/18/12	1
Barium	2900	0.25	mg/kg	6010B	05/18/12	1
Cadmium	BDL	0.25	mg/kg	6010B	05/18/12	1
Chromium	21.	0.50	mg/kg	6010B	05/18/12	1
Copper	19.	1.0	mg/kg	6010B	05/18/12	1
Lead	10.	0.50	mg/kg	6010B	05/18/12	2
Nickel	16.	1.0	mg/kg	6010B	05/18/12	1
Selenium	BDL	1.0	mg/kg	6010B	05/18/12	1
Silver	BDL	1.0	mg/kg	6010B	05/18/12	2
Zinc	62.	1.5	mg/kg	6010B	05/18/12	1
Benzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/16/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/16/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/16/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	05/16/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.9		% Rec.	8021/8015	05/16/12	5
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021/8015	05/16/12	5
TPH (GC/FID) High Fraction	30.	4.0	mg/kg	3546/DRO	05/19/12	1
Surrogate recovery(%)						
o-Terphenyl	61.4		% Rec.	3546/DRO	05/19/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/19/12	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	05/19/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/19/12	1
Benzo(a)anthracene	0.010	0.0060	mg/kg	8270C-SIM	05/19/12	1
Benzo(a)pyrene	0.0071	0.0060	mg/kg	8270C-SIM	05/19/12	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L575228-01 (PH) - 8.1@20.6c



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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

May 22, 2012

Date Received : May 15, 2012
 Description : D31 W. MOI
 Sample ID : D31-W-MOI-051412 1-3FT
 Collected By : Bob Stockton
 Collection Date : 05/14/12 09:52

ESC Sample # : L575228-01
 Site ID : D31 W MOI
 Project # : D31-051412

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	0.024	0.0060	mg/kg	8270C-SIM	05/19/12	1
Benzo(g,h,i)perylene	0.010	0.0060	mg/kg	8270C-SIM	05/19/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/19/12	1
Chrysene	0.019	0.0060	mg/kg	8270C-SIM	05/19/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/19/12	1
Fluoranthene	0.013	0.0060	mg/kg	8270C-SIM	05/19/12	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	05/19/12	1
Indeno(1,2,3-cd)pyrene	0.0068	0.0060	mg/kg	8270C-SIM	05/19/12	1
Naphthalene	0.028	0.0060	mg/kg	8270C-SIM	05/19/12	1
Phenanthrene	0.027	0.0060	mg/kg	8270C-SIM	05/19/12	1
Pyrene	0.012	0.0060	mg/kg	8270C-SIM	05/19/12	1
1-Methylnaphthalene	0.024	0.0060	mg/kg	8270C-SIM	05/19/12	1
2-Methylnaphthalene	0.048	0.0060	mg/kg	8270C-SIM	05/19/12	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	05/19/12	1
Surrogate Recovery						
Nitrobenzene-d5	118.		% Rec.	8270C-SIM	05/19/12	1
2-Fluorobiphenyl	114.		% Rec.	8270C-SIM	05/19/12	1
p-Terphenyl-d14	149.		% Rec.	8270C-SIM	05/19/12	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: 05/22/12 10:05 Printed: 05/22/12 10:05
 L575228-01 (PH) - 8.1@20.6c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L575228-01	WG592981	SAMP	Silver	R2175834	O
	WG592880	SAMP	p-Terphenyl-d14	R2177674	J1
	WG592923	SAMP	pH	R2173755	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
05/22/12 at 10:05:44

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: L575228-01 Account: ENCANACO Received: 05/15/12 09:00 Due Date: 05/22/12 00:00 RPT Date: 05/22/12 10:05



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May 22, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG592960	05/15/12 23:47
Ethylbenzene	< .0005	mg/kg			WG592960	05/15/12 23:47
Toluene	< .005	mg/kg			WG592960	05/15/12 23:47
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG592960	05/15/12 23:47
Total Xylene	< .0015	mg/kg			WG592960	05/15/12 23:47
a,a,a-Trifluorotoluene(FID)		% Rec.	99.46	59-128	WG592960	05/15/12 23:47
a,a,a-Trifluorotoluene(PID)		% Rec.	108.2	54-144	WG592960	05/15/12 23:47
Mercury	< .02	mg/kg			WG592932	05/16/12 19:37
pH	7.10	su			WG592923	05/17/12 09:56
Specific Conductance	1.96	umhos/cm			WG593318	05/17/12 18:47
Arsenic	< 1	mg/kg			WG592981	05/17/12 18:58
Barium	< .25	mg/kg			WG592981	05/17/12 18:58
Cadmium	< .25	mg/kg			WG592981	05/17/12 18:58
Chromium	< .5	mg/kg			WG592981	05/17/12 18:58
Copper	< 1	mg/kg			WG592981	05/17/12 18:58
Lead	< .25	mg/kg			WG592981	05/17/12 18:58
Nickel	< 1	mg/kg			WG592981	05/17/12 18:58
Selenium	< 1	mg/kg			WG592981	05/17/12 18:58
Silver	< .5	mg/kg			WG592981	05/17/12 18:58
Zinc	< 1.5	mg/kg			WG592981	05/17/12 18:58
1-Methylnaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Chloronaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Methylnaphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
Acenaphthene	< .006	mg/kg			WG592880	05/19/12 04:26
Acenaphthylene	< .006	mg/kg			WG592880	05/19/12 04:26
Anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(a)anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(a)pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(b)fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(g,h,i)perylene	< .006	mg/kg			WG592880	05/19/12 04:26
Benzo(k)fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Chrysene	< .006	mg/kg			WG592880	05/19/12 04:26
Dibenz(a,h)anthracene	< .006	mg/kg			WG592880	05/19/12 04:26
Fluoranthene	< .006	mg/kg			WG592880	05/19/12 04:26
Fluorene	< .006	mg/kg			WG592880	05/19/12 04:26
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
Naphthalene	< .006	mg/kg			WG592880	05/19/12 04:26
Phenanthrene	< .006	mg/kg			WG592880	05/19/12 04:26
Pyrene	< .006	mg/kg			WG592880	05/19/12 04:26
2-Fluorobiphenyl		% Rec.	87.90	34-129	WG592880	05/19/12 04:26
Nitrobenzene-d5		% Rec.	87.10	14-141	WG592880	05/19/12 04:26
p-Terphenyl-d14		% Rec.	116.7	25-139	WG592880	05/19/12 04:26
TPH (GC/FID) High Fraction	< 4	ppm			WG593097	05/19/12 05:31
o-Terphenyl		% Rec.	78.54	50-150	WG593097	05/19/12 05:31
Chromium,Hexavalent	< 2	mg/kg			WG593559	05/21/12 13:01

* 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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May 22, 2012

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0.0270	0.0260	4.14	20	L575228-01	WG592932
pH	su	8.70	8.70	0.230	1	L574996-01	WG592923
pH	su	8.50	8.60	1.29*	1	L575232-01	WG592923
ORP	mV	110.	110.	0.905	20	L575232-01	WG593118
Specific Conductance	umhos/cm	2200	2000	7.23	20	L575223-01	WG593318
Arsenic	mg/kg	8.70	9.10	4.61	20	L575232-01	WG592981
Barium	mg/kg	5000	4300	14.5	20	L575232-01	WG592981
Cadmium	mg/kg	0.390	0.340	13.2	20	L575232-01	WG592981
Chromium	mg/kg	20.0	21.0	7.41	20	L575232-01	WG592981
Copper	mg/kg	16.0	17.0	9.23	20	L575232-01	WG592981
Nickel	mg/kg	13.0	15.0	15.8	20	L575232-01	WG592981
Selenium	mg/kg	0	0	0	20	L575232-01	WG592981
Zinc	mg/kg	50.0	61.0	20.8*	20	L575232-01	WG592981
Lead	mg/kg	13.0	13.0	1.55	20	L575232-01	WG592981
Silver	mg/kg	0	0	0	20	L575232-01	WG592981
Chromium,Hexavalent	mg/kg	0	0	0	20	L575228-01	WG593559
Chromium,Hexavalent	mg/kg	0	0	0	20	L575773-06	WG593559

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0524	105.	76-113	WG592960
Ethylbenzene	mg/kg	.05	0.0530	106.	78-115	WG592960
Toluene	mg/kg	.05	0.0525	105.	76-114	WG592960
Total Xylene	mg/kg	.15	0.159	106.	81-118	WG592960
a,a,a-Trifluorotoluene(FID)				98.92	59-128	WG592960
a,a,a-Trifluorotoluene(PID)				106.5	54-144	WG592960
TPH (GC/FID) Low Fraction	mg/kg	5.5	7.27	132.	67-135	WG592960
a,a,a-Trifluorotoluene(FID)				106.5	59-128	WG592960
a,a,a-Trifluorotoluene(PID)				114.0	54-144	WG592960
Mercury	mg/kg	3.77	3.93	104.	71.6-128	WG592932
pH	su	5.7	5.70	100.	98-101	WG592923
ORP	mV	228	228.	100.	95.6-104.	WG593118
Specific Conductance	umhos/cm	495	486.	98.2	85-115	WG593318
Arsenic	mg/kg	92.6	90.4	97.6	82.9-117	WG592981
Barium	mg/kg	169	168.	99.4	82.8-117	WG592981
Cadmium	mg/kg	61.8	60.1	97.2	83.3-117	WG592981
Chromium	mg/kg	71.3	70.7	99.2	81.8-118	WG592981
Copper	mg/kg	81.2	79.5	97.9	83.9-116	WG592981

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



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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Lead	mg/kg	92.4	92.2	99.8	83.3-117	WG592981
Nickel	mg/kg	59.1	54.8	92.7	83.8-116	WG592981
Selenium	mg/kg	89.5	83.9	93.7	79-121	WG592981
Silver	mg/kg	34.4	31.6	91.9	66.3-134	WG592981
Zinc	mg/kg	141	141.	100.	80.9-119	WG592981
1-Methylnaphthalene	mg/kg	.033	0.0272	82.4	48-113	WG592880
2-Chloronaphthalene	mg/kg	.033	0.0263	79.6	51-114	WG592880
2-Methylnaphthalene	mg/kg	.033	0.0274	83.1	44-109	WG592880
Acenaphthene	mg/kg	.033	0.0251	75.9	52-108	WG592880
Acenaphthylene	mg/kg	.033	0.0260	78.8	51-110	WG592880
Anthracene	mg/kg	.033	0.0295	89.2	58-120	WG592880
Benzo(a)anthracene	mg/kg	.033	0.0279	84.6	54-110	WG592880
Benzo(a)pyrene	mg/kg	.033	0.0290	88.0	56-118	WG592880
Benzo(b)fluoranthene	mg/kg	.033	0.0296	89.8	55-114	WG592880
Benzo(g,h,i)perylene	mg/kg	.033	0.0297	90.0	48-130	WG592880
Benzo(k)fluoranthene	mg/kg	.033	0.0280	84.8	55-122	WG592880
Chrysene	mg/kg	.033	0.0296	89.8	57-118	WG592880
Dibenz(a,h)anthracene	mg/kg	.033	0.0290	87.8	53-122	WG592880
Fluoranthene	mg/kg	.033	0.0296	89.6	58-118	WG592880
Fluorene	mg/kg	.033	0.0260	78.7	54-109	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0294	89.1	51-125	WG592880
Naphthalene	mg/kg	.033	0.0259	78.5	45-105	WG592880
Phenanthrene	mg/kg	.033	0.0268	81.3	53-114	WG592880
Pyrene	mg/kg	.033	0.0294	89.1	53-121	WG592880
2-Fluorobiphenyl				79.80	34-129	WG592880
Nitrobenzene-d5				84.20	14-141	WG592880
p-Terphenyl-d14				107.2	25-139	WG592880
TPH (GC/FID) High Fraction	ppm	60	46.7	77.8	50-150	WG593097
o-Terphenyl				82.30	50-150	WG593097
Chromium,Hexavalent	mg/kg	150	140.	93.3	50-150	WG593559

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0548	0.0524	110.	76-113	4.31	20	WG592960
Ethylbenzene	mg/kg	0.0547	0.0530	109.	78-115	3.26	20	WG592960
Toluene	mg/kg	0.0540	0.0525	108.	76-114	2.86	20	WG592960
Total Xylene	mg/kg	0.164	0.159	109.	81-118	2.98	20	WG592960
a,a,a-Trifluorotoluene(FID)				99.96	59-128			WG592960
a,a,a-Trifluorotoluene(PID)				107.2	54-144			WG592960
TPH (GC/FID) Low Fraction	mg/kg	7.37	7.27	134.	67-135	1.49	20	WG592960
a,a,a-Trifluorotoluene(FID)				106.6	59-128			WG592960
a,a,a-Trifluorotoluene(PID)				114.9	54-144			WG592960
pH	su	5.70	5.70	100.	98-101	0	20	WG592923
ORP	mV	228.	228.	100.	95.6-104.	0	20	WG593118
Specific Conductance	umhos/	486.	486.	98.0	85-115	0	20	WG593318

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
1-Methylnaphthalene	mg/kg	0.0286	0.0272	87.0		48-113	5.27	24	WG592880
2-Chloronaphthalene	mg/kg	0.0280	0.0263	85.0		51-114	6.31	24	WG592880
2-Methylnaphthalene	mg/kg	0.0289	0.0274	87.0		44-109	5.17	24	WG592880
Acenaphthene	mg/kg	0.0271	0.0251	82.0		52-108	7.92	22	WG592880
Acenaphthylene	mg/kg	0.0274	0.0260	83.0		51-110	5.12	21	WG592880
Anthracene	mg/kg	0.0315	0.0295	95.0		58-120	6.73	20	WG592880
Benzo(a)anthracene	mg/kg	0.0287	0.0279	87.0		54-110	2.79	22	WG592880
Benzo(a)pyrene	mg/kg	0.0303	0.0290	92.0		56-118	4.25	21	WG592880
Benzo(b)fluoranthene	mg/kg	0.0315	0.0296	96.0		55-114	6.25	20	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0309	0.0297	94.0		48-130	3.93	20	WG592880
Benzo(k)fluoranthene	mg/kg	0.0289	0.0280	88.0		55-122	3.19	25	WG592880
Chrysene	mg/kg	0.0306	0.0296	92.0		57-118	3.03	20	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0302	0.0290	92.0		53-122	4.18	20	WG592880
Fluoranthene	mg/kg	0.0311	0.0296	94.0		58-118	5.13	20	WG592880
Fluorene	mg/kg	0.0276	0.0260	84.0		54-109	5.95	20	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0311	0.0294	94.0		51-125	5.72	21	WG592880
Naphthalene	mg/kg	0.0272	0.0259	82.0		45-105	5.02	24	WG592880
Phenanthrene	mg/kg	0.0302	0.0268	92.0		53-114	11.8	20	WG592880
Pyrene	mg/kg	0.0298	0.0294	90.0		53-121	1.17	20	WG592880
2-Fluorobiphenyl				82.32		34-129			WG592880
Nitrobenzene-d5				84.04		14-141			WG592880
p-Terphenyl-d14				113.2		25-139			WG592880
TPH (GC/FID) High Fraction	ppm	43.6	46.7	73.0		50-150	6.86	23	WG593097
o-Terphenyl				74.10		50-150			WG593097
Chromium,Hexavalent	mg/kg	129.	140.	86.0		50-150	8.18	20	WG593559

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.0849	0	.05	34.0	32-137	L575232-05	WG592960
Ethylbenzene	mg/kg	0.0479	0	.05	19.2	10-150	L575232-05	WG592960
Toluene	mg/kg	0.0675	0	.05	27.0	20-142	L575232-05	WG592960
Total Xylene	mg/kg	0.149	0	.15	19.8	16-141	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)					97.13	59-128		WG592960
a,a,a-Trifluorotoluene(PID)					105.2	54-144		WG592960
TPH (GC/FID) Low Fraction	mg/kg	16.5	0	5.5	60.2	55-109	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)					103.2	59-128		WG592960
a,a,a-Trifluorotoluene(PID)					110.9	54-144		WG592960
Mercury	mg/kg	0.290	0.0260	.25	106.	70-130	L575228-01	WG592932
Arsenic	mg/kg	55.9	9.10	50	93.6	75-125	L575232-01	WG592981
Barium	mg/kg	4040	4300	50	0*	75-125	L575232-01	WG592981
Cadmium	mg/kg	47.2	0.340	50	93.7	75-125	L575232-01	WG592981
Chromium	mg/kg	64.2	21.0	50	86.4	75-125	L575232-01	WG592981
Copper	mg/kg	60.4	17.0	50	86.8	75-125	L575232-01	WG592981
Nickel	mg/kg	56.4	15.0	50	82.8	75-125	L575232-01	WG592981
Selenium	mg/kg	43.5	0	50	87.0	75-125	L575232-01	WG592981
Zinc	mg/kg	99.5	61.0	50	77.0	75-125	L575232-01	WG592981
Lead	mg/kg	63.5	13.0	10	101.	75-125	L575232-01	WG592981
Silver	mg/kg	48.5	0	10	97.0	75-125	L575232-01	WG592981

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
TPH (GC/FID) High Fraction	ppm	35.9	0	60	59.9	50-150	L575343-03	WG593097
o-Terphenyl					63.54	50-150		WG593097
Chromium,Hexavalent	mg/kg	20.5	4.00	20	82.4	50-150	L575576-01	WG593559
Chromium,Hexavalent	mg/kg	4.48	0	20	22.4*	50-150	L574939-01	WG593559
1-Methylnaphthalene	mg/kg	0.0973	0.0270	.033	213.*	25-155	L575198-05	WG592880
2-Chloronaphthalene	mg/kg	0.0383	0	.033	116.	31-153	L575198-05	WG592880
2-Methylnaphthalene	mg/kg	0.101	0.0280	.033	221.*	22-172	L575198-05	WG592880
Acenaphthene	mg/kg	0.0517	0	.033	157.*	43-133	L575198-05	WG592880
Acenaphthylene	mg/kg	0.0427	0	.033	129.	42-146	L575198-05	WG592880
Anthracene	mg/kg	0.0735	0	.033	223.*	38-153	L575198-05	WG592880
Benzo(a)anthracene	mg/kg	0.0369	0.00100	.033	109.	31-142	L575198-05	WG592880
Benzo(a)pyrene	mg/kg	0.0387	0	.033	117.	26-152	L575198-05	WG592880
Benzo(b)fluoranthene	mg/kg	0.0399	0	.033	121.	10-188	L575198-05	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0388	0	.033	118.	10-176	L575198-05	WG592880
Benzo(k)fluoranthene	mg/kg	0.0369	0	.033	112.	22-163	L575198-05	WG592880
Chrysene	mg/kg	0.0385	0	.033	117.	26-146	L575198-05	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0407	0	.033	123.	10-160	L575198-05	WG592880
Fluoranthene	mg/kg	0.0435	0	.033	132.	23-160	L575198-05	WG592880
Fluorene	mg/kg	0.0574	0	.033	174.*	44-143	L575198-05	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0390	0	.033	118.	10-157	L575198-05	WG592880
Naphthalene	mg/kg	0.0583	0.00960	.033	147.	22-156	L575198-05	WG592880
Phenanthrene	mg/kg	0.0692	0	.033	210.*	23-164	L575198-05	WG592880
Pyrene	mg/kg	0.0550	0.00710	.033	145.	12-170	L575198-05	WG592880
2-Fluorobiphenyl					117.2	34-129		WG592880
Nitrobenzene-d5					123.5	14-141		WG592880
p-Terphenyl-d14					146.0*	25-139		WG592880

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.225	0.0849	89.9	32-137	90.3*	39	L575232-05	WG592960
Ethylbenzene	mg/kg	0.192	0.0479	76.7	10-150	120.*	44	L575232-05	WG592960
Toluene	mg/kg	0.212	0.0675	84.8	20-142	103.*	42	L575232-05	WG592960
Total Xylene	mg/kg	0.583	0.149	77.7	16-141	119.*	46	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)				97.73	59-128				WG592960
a,a,a-Trifluorotoluene(PID)				105.5	54-144				WG592960
TPH (GC/FID) Low Fraction	mg/kg	12.6	16.5	46.0*	55-109	26.7*	20	L575232-05	WG592960
a,a,a-Trifluorotoluene(FID)				102.3	59-128				WG592960
a,a,a-Trifluorotoluene(PID)				109.8	54-144				WG592960
Mercury	mg/kg	0.279	0.290	101.	70-130	3.87	20	L575228-01	WG592932
Arsenic	mg/kg	56.1	55.9	94.0	75-125	0.357	20	L575232-01	WG592981
Barium	mg/kg	4770	4040	940.*	75-125	16.6	20	L575232-01	WG592981
Cadmium	mg/kg	48.1	47.2	95.5	75-125	1.89	20	L575232-01	WG592981
Chromium	mg/kg	65.3	64.2	88.6	75-125	1.70	20	L575232-01	WG592981
Copper	mg/kg	62.6	60.4	91.2	75-125	3.58	20	L575232-01	WG592981
Nickel	mg/kg	55.6	56.4	81.2	75-125	1.43	20	L575232-01	WG592981
Selenium	mg/kg	44.9	43.5	89.8	75-125	3.17	20	L575232-01	WG592981
Zinc	mg/kg	96.4	99.5	70.8*	75-125	3.16	20	L575232-01	WG592981
Lead	mg/kg	65.4	63.5	105.	75-125	2.95	20	L575232-01	WG592981
Silver	mg/kg	49.1	48.5	98.2	75-125	1.23	20	L575232-01	WG592981

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit Ref	Samp	Batch
			Ref	%Rec					
TPH (GC/FID) High Fraction	ppm	38.0	35.9	63.3	50-150	5.52	40	L575343-03	WG593097
o-Terphenyl				64.35	50-150				WG593097
Chromium,Hexavalent	mg/kg	21.1	20.5	85.3	50-150	2.79	20	L575576-01	WG593559
Chromium,Hexavalent	mg/kg	3.80	4.48	19.0*	50-150	16.4	20	L574939-01	WG593559
1-Methylnaphthalene	mg/kg	0.0766	0.0973	150.	25-155	23.8	27	L575198-05	WG592880
2-Chloronaphthalene	mg/kg	0.0385	0.0383	117.	31-153	0.513	22	L575198-05	WG592880
2-Methylnaphthalene	mg/kg	0.0799	0.101	157.	22-172	23.3	29	L575198-05	WG592880
Acenaphthene	mg/kg	0.0470	0.0517	142.*	43-133	9.40	26	L575198-05	WG592880
Acenaphthylene	mg/kg	0.0406	0.0427	123.	42-146	5.18	22	L575198-05	WG592880
Anthracene	mg/kg	0.0583	0.0735	177.*	38-153	23.0	27	L575198-05	WG592880
Benzo(a)anthracene	mg/kg	0.0385	0.0369	114.	31-142	4.48	31	L575198-05	WG592880
Benzo(a)pyrene	mg/kg	0.0411	0.0387	125.	26-152	5.97	32	L575198-05	WG592880
Benzo(b)fluoranthene	mg/kg	0.0403	0.0399	122.	10-188	1.12	33	L575198-05	WG592880
Benzo(g,h,i)perylene	mg/kg	0.0410	0.0388	124.	10-176	5.57	30	L575198-05	WG592880
Benzo(k)fluoranthene	mg/kg	0.0408	0.0369	124.	22-163	10.1	29	L575198-05	WG592880
Chrysene	mg/kg	0.0414	0.0385	125.	26-146	7.29	30	L575198-05	WG592880
Dibenz(a,h)anthracene	mg/kg	0.0429	0.0407	130.	10-160	5.37	39	L575198-05	WG592880
Fluoranthene	mg/kg	0.0577	0.0435	175.*	23-160	28.1*	22	L575198-05	WG592880
Fluorene	mg/kg	0.0531	0.0574	161.*	44-143	7.71	23	L575198-05	WG592880
Indeno(1,2,3-cd)pyrene	mg/kg	0.0411	0.0390	124.	10-157	5.25	40	L575198-05	WG592880
Naphthalene	mg/kg	0.0503	0.0583	123.	22-156	14.7	27	L575198-05	WG592880
Phenanthrene	mg/kg	0.0585	0.0692	177.*	23-164	16.8	25	L575198-05	WG592880
Pyrene	mg/kg	0.0502	0.0550	131.	12-170	9.01	24	L575198-05	WG592880
2-Fluorobiphenyl				119.6	34-129				WG592880
Nitrobenzene-d5				146.0*	14-141				WG592880
p-Terphenyl-d14				151.5*	25-139				WG592880

Batch number /Run number / Sample number cross reference

WG592960: R2172133: L575228-01
 WG592932: R2173636: L575228-01
 WG592923: R2173755: L575228-01
 WG593118: R2174594: L575228-01
 WG593318: R2175353: L575228-01
 WG593237: R2175633: L575228-01
 WG592981: R2175834: L575228-01
 WG592880: R2177674: L575228-01
 WG593097: R2178161: L575228-01
 WG593559: R2178473: L575228-01

* * 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.