

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number: _____	API Number: _____
2. Name of Operator: _____	OGCC Facility ID # _____
3. Well/Facility Name: _____	Well/Facility Number: _____
4. Location (QtrQtr, Sec, Twp, Rng, Meridian): _____	

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

5. DESCRIBE PROPOSED OR COMPLETED OPERATIONS

Introduction

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 Sundry Notice to request final closure status for the earthen pit associated with the Cathedral Federal #O-31-3S-101W (COGCC facility #315296, COGCC remediation #5567). The site investigation was completed by a third party contractor as authorized by Encana personnel and a qualified Encana employee. It should be noted that all samples were collected in accordance with Encana's Environmental Compliance Group's Sampling Procedures. The analytical results for the respective soil samples were within the COGCC Table 910-1 standards and are provided in Table 1 and Attachment A of this submittal. The text below provides the details of the site investigation. For a visual description of the site investigation please refer to Figures 1 and 2 – Site Maps.

Site Investigation

September 27, 2011 – The soil was characterized utilizing a photoionization detector (PID) field unit by a third party consultant. A trackhoe was utilized for excavation purposes. There were minor indicators of hydrocarbon impacts in accordance with field screen readings and visual observations. Grab samples were collected from the pit bottom, pit side walls and spoils. The samples were submitted to an accredited analytical laboratory for analysis. Five (5) background samples were also collected from approximately six (6) inches beneath the grounds surface for analysis with regards to arsenic. The analytical report indicated that the spoils sample was in exceedance of the COGCC Table 910-1 standard with respect to total petroleum hydrocarbons (TPH). The spoils were stockpiled onsite.

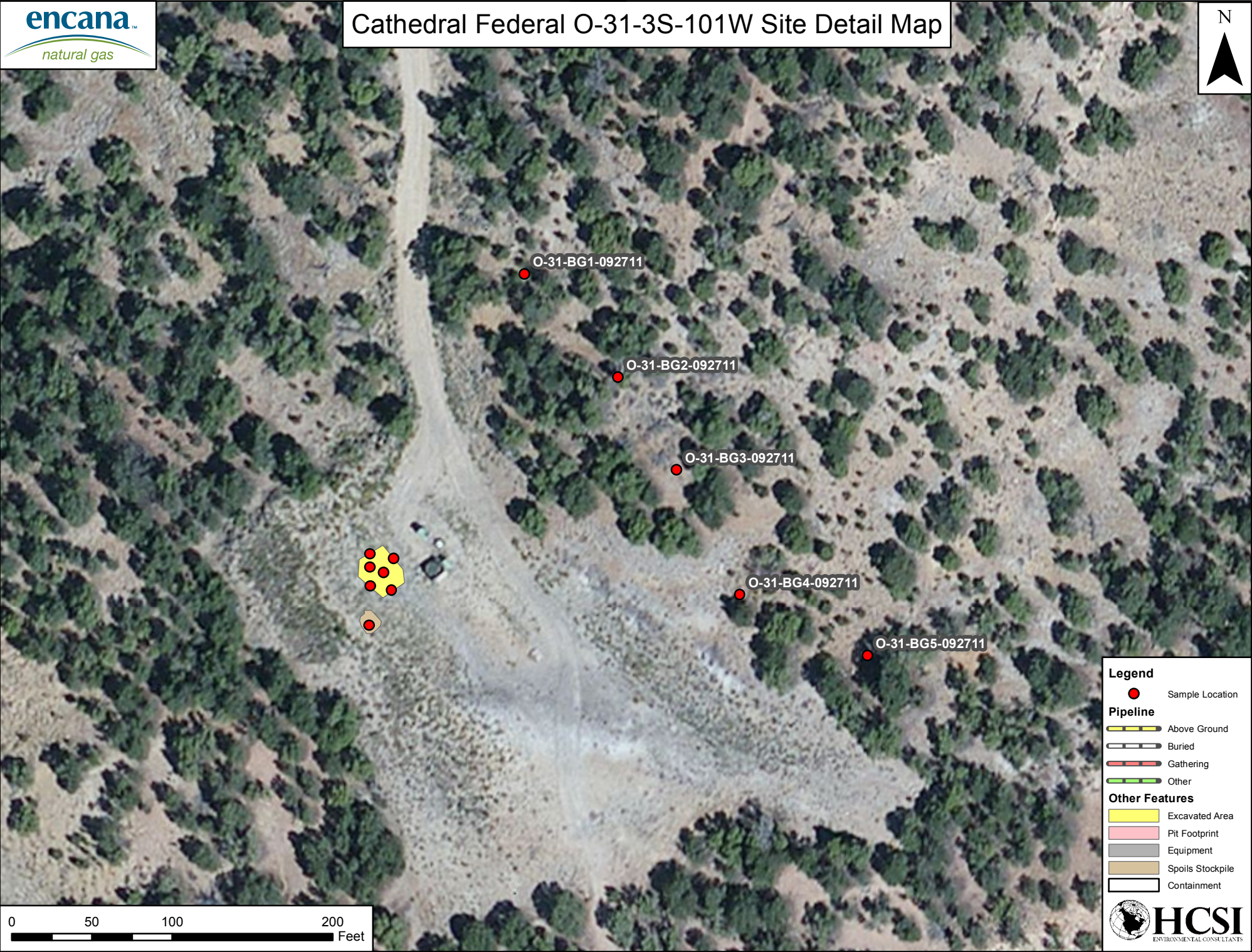
June 22, 2012 – The spoils stockpile was characterized using a PID field unit by an Encana employee. A composite sample was collected from the stockpile and submitted to the analytical laboratory. The analytical report indicated that the spoils stockpile is in compliance with COGCC Table 910-1 standards.

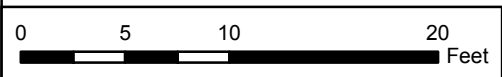
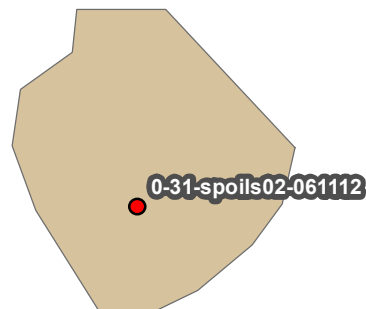
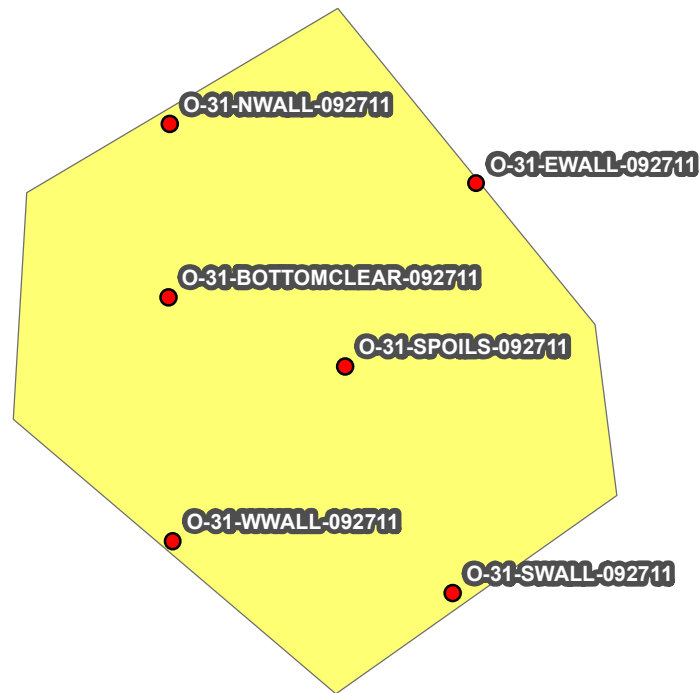
Conclusion

Based on the site investigation and analytical results, the pit associated with the Federal #33-14 is in compliance with the standards specified within COGCC Table 910-1. Encana respectfully requests that final closure be granted for the respective pit.

Analytical Review

Sample results indicate that the soil within the earthen pit footprint on Encana's Cathedral Federal #O-31-3S-101W well pad have exceedances of COGCC Table 910-1 allowable concentrations for arsenic (3.3 ppm). Though the arsenic concentration in the soil is above the allowable concentration identified in Table 910-1, it is within the range of arsenic background values (3.3-14.0 ppm) of this area. Based on these results and footnote 1 to COGCC Table 910-1, Encana requests that the COGCC consider the higher range of background arsenic value(s) as the allowable concentration for this constituent. Please see Attachment A for the respective laboratory analytical results.





Legend


● Sample Location

Pipeline

- ▬ Above Ground
- ▬ Buried
- ▬ Gathering
- ▬ Other

Other Features

- Excavated Area
- Pit Footprint
- Equipment
- Spoils Stockpile
- ▭ Containment

 **HCSI**
ENVIRONMENTAL CONSULTANTS

[illegible]



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Kate Ramsay
HRL Compliance Solutions- CO
744 Horizon Ct., Suite 140
Grand Junction, CO 81506

Report Summary

Tuesday October 04, 2011

Report Number: L538567

Samples Received: 09/28/11

Client Project: CATN FED 0-31

Description: Pit Closure Project

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

Entire Report Reviewed By:

Jayred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915, PA - 68-02979

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

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

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REPORT OF ANALYSIS

Kate Ramsay
HRL Compliance Solutions- CO
744 Horizon Ct., Suite 140
Grand Junction, CO 81506

October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31SPOILS-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 10:20

ESC Sample # : L538567-01

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	09/29/11	1
Chromium, Trivalent	21.	0.50	mg/kg	Calc.	09/29/11	1
ORP	160		mV	2580	09/29/11	1
pH	8.1		su	9045D	09/30/11	1
Sodium Adsorption Ratio	5.1			Calc.	10/01/11	1
Specific Conductance	680		umhos/cm	9050AMod	09/30/11	1
Mercury	0.039	0.020	mg/kg	7471	09/29/11	1
Arsenic	3.3	1.0	mg/kg	6010B	09/29/11	1
Barium	170	0.25	mg/kg	6010B	09/29/11	1
Cadmium	0.77	0.25	mg/kg	6010B	09/29/11	1
Chromium	21.	0.50	mg/kg	6010B	09/29/11	1
Copper	24.	1.0	mg/kg	6010B	09/29/11	1
Lead	120	0.25	mg/kg	6010B	09/29/11	1
Nickel	16.	1.0	mg/kg	6010B	09/29/11	1
Selenium	BDL	5.0	mg/kg	6010B	09/29/11	5
Silver	BDL	0.50	mg/kg	6010B	09/29/11	1
Zinc	66.	1.5	mg/kg	6010B	09/29/11	1
Benzene	BDL	0.50	mg/kg	8021/8015	09/30/11	1000
Toluene	7.9	5.0	mg/kg	8021/8015	09/30/11	1000
Ethylbenzene	11.	0.50	mg/kg	8021/8015	09/30/11	1000
Total Xylene	53.	1.5	mg/kg	8021/8015	09/30/11	1000
TPH (GC/FID) Low Fraction	5900	100	mg/kg	GRO	10/02/11	1000
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	89.5		% Rec.	8021/8015	10/02/11	1000
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	09/30/11	1000
TPH (GC/FID) High Fraction	4700	80.	mg/kg	3546/DRO	09/29/11	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	09/29/11	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Acenaphthene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Acenaphthylene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Benzo(a)anthracene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Benzo(a)pyrene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L538567-01 (PH) - 8.12@20.4c
L538567-01 (SV8270PAHSIM) - Dilution due to matrix



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October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31SPOILS-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 10:20

ESC Sample # : L538567-01

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Benzo(g,h,i)perylene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Benzo(k)fluoranthene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Chrysene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Dibenz(a,h)anthracene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Fluoranthene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Fluorene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Indeno(1,2,3-cd)pyrene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Naphthalene	6.3	0.60	mg/kg	8270C-SIM	10/01/11	100
Phenanthrene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Pyrene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
1-Methylnaphthalene	6.4	0.60	mg/kg	8270C-SIM	10/01/11	100
2-Methylnaphthalene	10.	0.60	mg/kg	8270C-SIM	10/01/11	100
2-Chloronaphthalene	BDL	0.60	mg/kg	8270C-SIM	10/01/11	100
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	10/01/11	100
2-Fluorobiphenyl	0.00		% Rec.	8270C-SIM	10/01/11	100
p-Terphenyl-d14	0.00		% Rec.	8270C-SIM	10/01/11	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L538567-01 (PH) - 8.12@20.4c

L538567-01 (SV8270PAHSIM) - Dilution due to matrix

REPORT OF ANALYSIS

Kate Ramsay
HRL Compliance Solutions- CO
744 Horizon Ct., Suite 140
Grand Junction, CO 81506

October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31-EWALL-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 10:55

ESC Sample # : L538567-02

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	09/30/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	09/30/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	09/30/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	09/30/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	09/30/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.3		% Rec.	8021/8015	09/30/11	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	09/30/11	5
TPH (GC/FID) High Fraction	9.0	4.0	mg/kg	3546/DRO	09/30/11	1
Surrogate recovery(%)						
o-Terphenyl	94.5		% Rec.	3546/DRO	09/30/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Kate Ramsay
HRL Compliance Solutions- CO
744 Horizon Ct., Suite 140
Grand Junction, CO 81506

October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31-SWALL-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 10:50

ESC Sample # : L538567-03

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	09/30/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	09/30/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	09/30/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	09/30/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	09/30/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.0		% Rec.	8021/8015	09/30/11	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	09/30/11	5
TPH (GC/FID) High Fraction	15.	4.0	mg/kg	3546/DRO	09/30/11	1
Surrogate recovery(%)						
o-Terphenyl	88.3		% Rec.	3546/DRO	09/30/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31-WWALL-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 10:40

ESC Sample # : L538567-04

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	09/30/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	09/30/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	09/30/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	09/30/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	09/30/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.7		% Rec.	8021/8015	09/30/11	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	09/30/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	09/30/11	1
Surrogate recovery(%)						
o-Terphenyl	62.9		% Rec.	3546/DRO	09/30/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project
Sample ID : 0-31-BOTTOMCLEAR-092711
Collected By : Kate Ramsay
Collection Date : 09/27/11 10:35

ESC Sample # : L538567-05

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	09/30/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	09/30/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	09/30/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	09/30/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	09/30/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.6		% Rec.	8021/8015	09/30/11	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	09/30/11	5
TPH (GC/FID) High Fraction	8.7	4.0	mg/kg	3546/DRO	09/30/11	1
Surrogate recovery(%)						
o-Terphenyl	79.9		% Rec.	3546/DRO	09/30/11	1

BDL - Below Detection Limit

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REPORT OF ANALYSIS

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October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31-BG1-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 09:25

ESC Sample # : L538567-06

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.5	1.0	mg/kg	6010B	10/01/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31-BG2-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 09:30

ESC Sample # : L538567-07

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.7	1.0	mg/kg	6010B	10/01/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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744 Horizon Ct., Suite 140
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October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31-BG3-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 09:35

ESC Sample # : L538567-08

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.0	1.0	mg/kg	6010B	10/01/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31-BG4-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 09:40

ESC Sample # : L538567-09

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	3.3	1.0	mg/kg	6010B	10/01/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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October 04, 2011

Date Received : September 28, 2011
Description : Pit Closure Project

Sample ID : 0-31-BG5-092711

Collected By : Kate Ramsay
Collection Date : 09/27/11 09:45

ESC Sample # : L538567-10

Site ID : CATN FED 0-31

Project # : CATN FED 0-31

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	14.	1.0	mg/kg	6010B	09/30/11	1

BDL - Below Detection Limit

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L538567-01	WG557738	SAMP	Selenium	R1877875	O
	WG557923	SAMP	Nitrobenzene-d5	R1879613	J7
	WG557923	SAMP	2-Fluorobiphenyl	R1879613	J7
	WG557923	SAMP	p-Terphenyl-d14	R1879613	J7
	WG557815	SAMP	o-Terphenyl	R1877353	J7
L538567-10	WG558179	SAMP	Arsenic	R1878912	J3J6

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
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
0	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.

Qualifier Report Information

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

Definitions

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



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Est. 1970

Quality Assurance Report
Level II

October 04, 2011

L538567

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Mercury	< .02	mg/kg			WG557740	09/29/11 10:31
Chromium,Hexavalent	< 2	mg/kg			WG557882	09/29/11 15:13
TPH (GC/FID) High Fraction o-Terphenyl	< 4	ppm % Rec.	79.44	50-150	WG557815 WG557815	09/29/11 13:24 09/29/11 13:24
Arsenic	< 1	mg/kg			WG557738	09/29/11 11:08
Barium	< .25	mg/kg			WG557738	09/29/11 11:08
Cadmium	< .25	mg/kg			WG557738	09/29/11 11:08
Chromium	< .5	mg/kg			WG557738	09/29/11 11:08
Copper	< 1	mg/kg			WG557738	09/29/11 11:08
Lead	< .25	mg/kg			WG557738	09/29/11 11:08
Nickel	< 1	mg/kg			WG557738	09/29/11 11:08
Selenium	< 1	mg/kg			WG557738	09/29/11 11:08
Silver	< .5	mg/kg			WG557738	09/29/11 11:08
Zinc	< 1.5	mg/kg			WG557738	09/29/11 11:08
pH	5.30	su			WG557900	09/30/11 11:26
Specific Conductance	1.30	umhos/cm			WG558112	09/30/11 11:49
Benzene	< .0005	mg/kg			WG557968	09/30/11 04:46
Ethylbenzene	< .0005	mg/kg			WG557968	09/30/11 04:46
Toluene	< .005	mg/kg			WG557968	09/30/11 04:46
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG557968	09/30/11 04:46
Total Xylene	< .0015	mg/kg			WG557968	09/30/11 04:46
a,a,a-Trifluorotoluene(FID)		% Rec.	95.22	59-128	WG557968	09/30/11 04:46
a,a,a-Trifluorotoluene(PID)		% Rec.	100.6	54-144	WG557968	09/30/11 04:46
TPH (GC/FID) High Fraction o-Terphenyl	< 4	ppm % Rec.	80.74	50-150	WG557816 WG557816	09/30/11 10:31 09/30/11 10:31
Arsenic	< 1	mg/kg			WG558179	09/30/11 13:17
1-Methylnaphthalene	< .006	mg/kg			WG557923	09/30/11 18:56
2-Chloronaphthalene	< .006	mg/kg			WG557923	09/30/11 18:56
2-Methylnaphthalene	< .006	mg/kg			WG557923	09/30/11 18:56
Acenaphthene	< .006	mg/kg			WG557923	09/30/11 18:56
Acenaphthylene	< .006	mg/kg			WG557923	09/30/11 18:56
Anthracene	< .006	mg/kg			WG557923	09/30/11 18:56
Benzo(a)anthracene	< .006	mg/kg			WG557923	09/30/11 18:56
Benzo(a)pyrene	< .006	mg/kg			WG557923	09/30/11 18:56
Benzo(b)fluoranthene	< .006	mg/kg			WG557923	09/30/11 18:56
Benzo(g,h,i)perylene	< .006	mg/kg			WG557923	09/30/11 18:56
Benzo(k)fluoranthene	< .006	mg/kg			WG557923	09/30/11 18:56
Chrysene	< .006	mg/kg			WG557923	09/30/11 18:56
Dibenz(a,h)anthracene	< .006	mg/kg			WG557923	09/30/11 18:56
Fluoranthene	< .006	mg/kg			WG557923	09/30/11 18:56
Fluorene	< .006	mg/kg			WG557923	09/30/11 18:56

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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG557923	09/30/11 18:56
Naphthalene	< .006	mg/kg			WG557923	09/30/11 18:56
Phenanthrene	< .006	mg/kg			WG557923	09/30/11 18:56
Pyrene	< .006	mg/kg			WG557923	09/30/11 18:56
2-Fluorobiphenyl		% Rec.	67.16	34-129	WG557923	09/30/11 18:56
Nitrobenzene-d5		% Rec.	66.19	14-141	WG557923	09/30/11 18:56
p-Terphenyl-d14		% Rec.	78.47	25-139	WG557923	09/30/11 18:56
Arsenic	< 1	mg/kg			WG558010	09/30/11 22:15
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG558520	10/02/11 21:23
a,a,a-Trifluorotoluene(FID)		% Rec.	91.07	59-128	WG558520	10/02/11 21:23

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0	0	0	20	L538551-06	WG557740
ORP	mV	140.	140.	3.51	20	L538641-01	WG557855
Chromium,Hexavalent	mg/kg	0	0	0	20	L538333-01	WG557882
Arsenic	mg/kg	6.90	5.00	32.4*	20	L538551-04	WG557738
Barium	mg/kg	40.0	37.0	7.29	20	L538551-04	WG557738
Cadmium	mg/kg	0.860	0.860	0.116	20	L538551-04	WG557738
Chromium	mg/kg	9.90	9.00	9.73	20	L538551-04	WG557738
Copper	mg/kg	30.0	26.2	13.2	20	L538551-04	WG557738
Lead	mg/kg	12.0	10.0	14.0	20	L538551-04	WG557738
Nickel	mg/kg	16.0	15.7	3.75	20	L538551-04	WG557738
Silver	mg/kg	0	0	0	20	L538551-04	WG557738
Zinc	mg/kg	67.0	59.8	10.8	20	L538551-04	WG557738
Selenium	mg/kg	0	0	0	20	L538551-04	WG557738
pH	su	7.90	7.90	0.127	1	L538187-01	WG557900
pH	su	8.10	8.10	0.247	1	L538567-01	WG557900
Specific Conductance	umhos/cm	220.	220.	0.822	20	L538171-01	WG558112
Specific Conductance	umhos/cm	2400	2100	11.9	20	L538906-02	WG558112
Arsenic	mg/kg	8.30	14.0	51.1*	20	L538567-10	WG558179
Arsenic	mg/kg	3.40	3.70	7.87	20	L538487-08	WG558010

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Mercury	mg/kg	3.77	3.92	104.	71.6-128	WG557740
ORP	mV	229	220.	96.1	95.6-104.37	WG557855

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Analyte	Units	Laboratory Control	Sample	% Rec	Limit	Batch
		Known Val	Result			
Chromium,Hexavalent	mg/kg	132	85.6	64.8	50-150	WG557882
TPH (GC/FID) High Fraction	ppm	60	54.1	90.2	50-150	WG557815
o-Terphenyl				88.27	50-150	WG557815
Arsenic	mg/kg	92.6	90.6	97.8	82.9-117	WG557738
Barium	mg/kg	169	168.	99.4	82.8-117	WG557738
Cadmium	mg/kg	61.8	60.1	97.2	83.3-117	WG557738
Chromium	mg/kg	71.3	70.9	99.4	81.8-118	WG557738
Copper	mg/kg	81.2	85.8	106.	83.9-116	WG557738
Lead	mg/kg	92.4	92.8	100.	83.3-117	WG557738
Nickel	mg/kg	59.1	59.3	100.	83.8-116	WG557738
Selenium	mg/kg	89.5	85.1	95.1	79-121	WG557738
Silver	mg/kg	34.4	33.7	98.0	66.3-134	WG557738
Zinc	mg/kg	141	137.	97.2	80.9-119	WG557738
pH	su	9.04	8.90	98.5	98-101	WG557900
Specific Conductance	umhos/cm	427	420.	98.4	85-115	WG558112
Benzene	mg/kg	.05	0.0466	93.3	76-113	WG557968
Ethylbenzene	mg/kg	.05	0.0461	92.2	78-115	WG557968
Toluene	mg/kg	.05	0.0487	97.5	76-114	WG557968
Total Xylene	mg/kg	.15	0.140	93.5	81-118	WG557968
a,a,a-Trifluorotoluene(PID)				99.26	54-144	WG557968
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.35	115.	67-135	WG557968
a,a,a-Trifluorotoluene(FID)				105.6	59-128	WG557968
TPH (GC/FID) High Fraction	ppm	60	51.2	85.3	50-150	WG557816
o-Terphenyl				85.80	50-150	WG557816
Arsenic	mg/kg	92.6	86.4	93.3	82.9-117	WG558179
1-Methylnaphthalene	mg/kg	.033	0.0220	66.6	48-113	WG557923
2-Chloronaphthalene	mg/kg	.033	0.0219	66.4	51-114	WG557923
2-Methylnaphthalene	mg/kg	.033	0.0224	67.9	44-109	WG557923
Acenaphthene	mg/kg	.033	0.0242	73.5	52-108	WG557923
Acenaphthylene	mg/kg	.033	0.0237	71.7	51-110	WG557923
Anthracene	mg/kg	.033	0.0267	80.9	58-120	WG557923
Benzo(a)anthracene	mg/kg	.033	0.0284	86.0	54-110	WG557923
Benzo(a)pyrene	mg/kg	.033	0.0278	84.4	56-118	WG557923
Benzo(b)fluoranthene	mg/kg	.033	0.0293	88.7	55-114	WG557923
Benzo(g,h,i)perylene	mg/kg	.033	0.0287	86.9	48-130	WG557923
Benzo(k)fluoranthene	mg/kg	.033	0.0286	86.6	55-122	WG557923
Chrysene	mg/kg	.033	0.0285	86.3	57-118	WG557923
Dibenz(a,h)anthracene	mg/kg	.033	0.0282	85.4	53-122	WG557923
Fluoranthene	mg/kg	.033	0.0270	81.9	58-118	WG557923
Fluorene	mg/kg	.033	0.0264	80.1	54-109	WG557923
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0283	85.6	51-125	WG557923
Naphthalene	mg/kg	.033	0.0206	62.3	45-105	WG557923
Phenanthrene	mg/kg	.033	0.0255	77.2	53-114	WG557923

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Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
Pyrene	mg/kg	.033	0.0285	86.4	53-121	WG557923
2-Fluorobiphenyl				70.17	34-129	WG557923
Nitrobenzene-d5				61.48	14-141	WG557923
p-Terphenyl-d14				78.95	25-139	WG557923
Arsenic	mg/kg	92.6	87.7	94.7	82.9-117	WG558010
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.83	106.	67-135	WG558520
a,a,a-Trifluorotoluene(FID)				93.51	59-128	WG558520

Analyte	Units	Laboratory Control Result	Ref	Sample Duplicate %Rec	Limit	RPD	Limit	Batch
ORP	mV	220.	220.	96.0	95.6-104.37	0	20	WG557855
Chromium,Hexavalent	mg/kg	74.0	85.6	56.0	50-150	14.5	20	WG557882
TPH (GC/FID) High Fraction	ppm	53.8	54.1	90.0	50-150	0.636	25	WG557815
o-Terphenyl				90.33	50-150			WG557815
pH	su	8.90	8.90	98.0	98-101	0	20	WG557900
Specific Conductance	umhos/	420.	420.	98.0	85-115	0	20	WG558112
Benzene	mg/kg	0.0499	0.0466	100.	76-113	6.83	20	WG557968
Ethylbenzene	mg/kg	0.0490	0.0461	98.0	78-115	6.20	20	WG557968
Toluene	mg/kg	0.0514	0.0487	103.	76-114	5.27	20	WG557968
Total Xylene	mg/kg	0.149	0.140	99.0	81-118	5.83	20	WG557968
a,a,a-Trifluorotoluene(PID)				100.1	54-144			WG557968
TPH (GC/FID) Low Fraction	mg/kg	6.39	6.35	116.	67-135	0.720	20	WG557968
a,a,a-Trifluorotoluene(FID)				105.8	59-128			WG557968
TPH (GC/FID) High Fraction	ppm	51.4	51.2	86.0	50-150	0.442	20	WG557816
o-Terphenyl				84.67	50-150			WG557816
1-Methylnaphthalene	mg/kg	0.0226	0.0220	68.0	48-113	2.56	24	WG557923
2-Chloronaphthalene	mg/kg	0.0223	0.0219	68.0	51-114	1.91	24	WG557923
2-Methylnaphthalene	mg/kg	0.0229	0.0224	69.0	44-109	2.10	24	WG557923
Acenaphthene	mg/kg	0.0239	0.0242	72.0	52-108	1.23	22	WG557923
Acenaphthylene	mg/kg	0.0236	0.0237	72.0	51-110	0.190	21	WG557923
Anthracene	mg/kg	0.0250	0.0267	76.0	58-120	6.41	20	WG557923
Benzo(a)anthracene	mg/kg	0.0265	0.0284	80.0	54-110	6.83	22	WG557923
Benzo(a)pyrene	mg/kg	0.0261	0.0278	79.0	56-118	6.53	21	WG557923
Benzo(b)fluoranthene	mg/kg	0.0264	0.0293	80.0	55-114	10.3	20	WG557923
Benzo(g,h,i)perylene	mg/kg	0.0259	0.0287	78.0	48-130	10.2	20	WG557923
Benzo(k)fluoranthene	mg/kg	0.0277	0.0286	84.0	55-122	3.23	25	WG557923
Chrysene	mg/kg	0.0263	0.0285	80.0	57-118	8.07	20	WG557923
Dibenz(a,h)anthracene	mg/kg	0.0257	0.0282	78.0	53-122	9.12	20	WG557923
Fluoranthene	mg/kg	0.0254	0.0270	77.0	58-118	6.34	20	WG557923
Fluorene	mg/kg	0.0244	0.0264	74.0	54-109	7.86	20	WG557923

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Indeno(1,2,3-cd)pyrene	mg/kg	0.0259	0.0283	78.0	51-125	8.60	21	WG557923
Naphthalene	mg/kg	0.0212	0.0206	64.0	45-105	3.20	24	WG557923
Phenanthrene	mg/kg	0.0246	0.0255	75.0	53-114	3.39	20	WG557923
Pyrene	mg/kg	0.0275	0.0285	83.0	53-121	3.61	20	WG557923
2-Fluorobiphenyl				72.29	34-129			WG557923
Nitrobenzene-d5				63.16	14-141			WG557923
p-Terphenyl-d14				75.99	25-139			WG557923
TPH (GC/FID) Low Fraction	mg/kg	5.73	5.83	104.	67-135	1.63	20	WG558520
a,a,a-Trifluorotoluene(FID)				93.57	59-128			WG558520

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Mercury	mg/kg	0.242	0	.25	96.8	70-130	L538551-06	WG557740
Chromium, Hexavalent	mg/kg	11.7	0	20	5.85*	50-150	L538641-01	WG557882
TPH (GC/FID) High Fraction	ppm	45.9	0	60	76.6	50-150	L538613-11	WG557815
o-Terphenyl					69.28	50-150		WG557815
Arsenic	mg/kg	53.8	5.00	50	97.6	75-125	L538551-04	WG557738
Barium	mg/kg	82.8	37.0	50	91.6	75-125	L538551-04	WG557738
Cadmium	mg/kg	46.6	0.860	50	91.5	75-125	L538551-04	WG557738
Chromium	mg/kg	57.4	9.00	50	96.8	75-125	L538551-04	WG557738
Copper	mg/kg	79.8	26.2	50	107.	75-125	L538551-04	WG557738
Lead	mg/kg	59.1	10.0	50	98.2	75-125	L538551-04	WG557738
Nickel	mg/kg	63.0	15.7	50	94.6	75-125	L538551-04	WG557738
Silver	mg/kg	48.1	0	50	96.2	75-125	L538551-04	WG557738
Zinc	mg/kg	110.	59.8	50	100.	75-125	L538551-04	WG557738
Selenium	mg/kg	48.0	0	50	19.2*	75-125	L538551-04	WG557738
Benzene	mg/kg	0.220	0	.05	87.8	32-137	L538027-03	WG557968
Ethylbenzene	mg/kg	0.222	0	.05	88.8	10-150	L538027-03	WG557968
Toluene	mg/kg	0.239	0	.05	95.4	20-142	L538027-03	WG557968
Total Xylene	mg/kg	0.666	0	.15	88.8	16-141	L538027-03	WG557968
a,a,a-Trifluorotoluene(PID)					98.17	54-144		WG557968
TPH (GC/FID) Low Fraction	mg/kg	29.3	0	5.5	107.	55-109	L538027-03	WG557968
a,a,a-Trifluorotoluene(FID)					99.90	59-128		WG557968
TPH (GC/FID) High Fraction	ppm	51.1	11.9	60	65.3	50-150	L538632-02	WG557816
o-Terphenyl					78.23	50-150		WG557816
Arsenic	mg/kg	54.2	14.0	50	80.4	75-125	L538567-10	WG558179
Arsenic	mg/kg	47.5	3.70	50	87.6	75-125	L538487-08	WG558010
TPH (GC/FID) Low Fraction	mg/kg	28.3	0	5.5	103.	55-109	L538613-02	WG558520
a,a,a-Trifluorotoluene(FID)					91.71	59-128		WG558520

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Mercury	mg/kg	0.265	0.242	106.	70-130	9.07	20	L538551-06	WG557740
Chromium, Hexavalent	mg/kg	14.5	11.7	7.25*	50-150	21.4*	20	L538641-01	WG557882
TPH (GC/FID) High Fraction o-Terphenyl	ppm	46.6	45.9	77.7 71.16	50-150 50-150	1.52	25	L538613-11	WG557815 WG557815
Arsenic	mg/kg	54.0	53.8	98.0	75-125	0.371	20	L538551-04	WG557738
Barium	mg/kg	87.3	82.8	101.	75-125	5.29	20	L538551-04	WG557738
Cadmium	mg/kg	46.7	46.6	91.7	75-125	0.214	20	L538551-04	WG557738
Chromium	mg/kg	57.5	57.4	97.0	75-125	0.174	20	L538551-04	WG557738
Copper	mg/kg	81.9	79.8	111.	75-125	2.60	20	L538551-04	WG557738
Lead	mg/kg	58.9	59.1	97.8	75-125	0.339	20	L538551-04	WG557738
Nickel	mg/kg	62.7	63.0	94.0	75-125	0.477	20	L538551-04	WG557738
Silver	mg/kg	48.6	48.1	97.2	75-125	1.03	20	L538551-04	WG557738
Zinc	mg/kg	115.	110.	110.	75-125	4.44	20	L538551-04	WG557738
Selenium	mg/kg	45.6	48.0	18.2*	75-125	5.13	20	L538551-04	WG557738
Benzene	mg/kg	0.211	0.220	84.6	32-137	3.72	39	L538027-03	WG557968
Ethylbenzene	mg/kg	0.195	0.222	78.1	10-150	12.8	44	L538027-03	WG557968
Toluene	mg/kg	0.215	0.239	86.1	20-142	10.3	42	L538027-03	WG557968
Total Xylene	mg/kg	0.593	0.666	79.1	16-141	11.5	46	L538027-03	WG557968
a,a,a-Trifluorotoluene (PID)				99.23	54-144				WG557968
TPH (GC/FID) Low Fraction	mg/kg	25.3	29.3	92.1	55-109	14.7	20	L538027-03	WG557968
a,a,a-Trifluorotoluene (FID)				99.20	59-128				WG557968
TPH (GC/FID) High Fraction o-Terphenyl	ppm	52.6	51.1	67.8 76.99	50-150 50-150	2.88	20	L538632-02	WG557816 WG557816
Arsenic	mg/kg	49.0	54.2	70.0*	75-125	10.1	20	L538567-10	WG558179
Arsenic	mg/kg	47.6	47.5	87.8	75-125	0.210	20	L538487-08	WG558010
TPH (GC/FID) Low Fraction a,a,a-Trifluorotoluene (FID)	mg/kg	27.8	28.3	101. 91.14	55-109 59-128	1.91	20	L538613-02	WG558520 WG558520

Batch number /Run number / Sample number cross reference

WG557740: R1876675: L538567-01
WG557855: R1876873: L538567-01
WG557882: R1876973: L538567-01
WG557815: R1877353: L538567-01
WG558010: R1877552: L538567-06 07 08 09
WG557738: R1877875: L538567-01
WG557900: R1878446: L538567-01
WG558112: R1878514: L538567-01
WG557968: R1878653: L538567-01 02 03 04 05
WG557816: R1878812: L538567-02 03 04 05
WG558179: R1878912: L538567-10
WG557923: R1879613: L538567-01
WG558520: R1880699: L538567-01

* 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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Kate Ramsay
744 Horizon Ct., Suite 140

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WG558099: R1880952: L538567-01

Quality Assurance Report
Level II

L538567

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Tax I.D. 62-0814289

Est. 1970

October 04, 2011

* * 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.



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

Report Summary

Friday June 15, 2012

Report Number: L579748

Samples Received: 06/12/12

Client Project:

Description: Earthen Pit Closure Project

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

Entire Report Reviewed By:

Jayred Willis , ESC Representative

Laboratory Certification Numbers

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

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

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

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REPORT OF ANALYSIS

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

June 15, 2012

Date Received : June 12, 2012
Description : Earthen Pit Closure Project
Sample ID : O-31-SPOILS02-061112
Collected By : Blake Ford
Collection Date : 06/11/12 12:22

ESC Sample # : L579748-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	06/12/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	06/12/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	06/12/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	06/12/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	06/12/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	91.4		% Rec.	8021/8015	06/12/12	5
a,a,a-Trifluorotoluene(PID)	96.5		% Rec.	8021/8015	06/12/12	5
TPH (GC/FID) High Fraction	7.9	4.0	mg/kg	3546/DRO	06/14/12	1
Surrogate recovery(%)						
o-Terphenyl	71.1		% Rec.	3546/DRO	06/14/12	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: 06/15/12 12:01 Printed: 06/15/12 12:01

Summary of Remarks For Samples Printed
06/15/12 at 12:01:39

TSR Signing Reports: 358
R5 - Desired TAT

Log all projects under the project codes with the project managers last name unless multiple project managers are listed.

Sample: L579748-01 Account: ENCANRCO Received: 06/12/12 09:00 Due Date: 06/19/12 00:00 RPT Date: 06/15/12 12:01



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG597430	06/12/12 21:29
Ethylbenzene	< .0005	mg/kg			WG597430	06/12/12 21:29
Toluene	< .005	mg/kg			WG597430	06/12/12 21:29
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG597430	06/12/12 21:29
Total Xylene	< .0015	mg/kg			WG597430	06/12/12 21:29
a,a,a-Trifluorotoluene(FID)		% Rec.	92.87	59-128	WG597430	06/12/12 21:29
a,a,a-Trifluorotoluene(PID)		% Rec.	98.25	54-144	WG597430	06/12/12 21:29
TPH (GC/FID) High Fraction	< 4	ppm			WG597453	06/14/12 15:59
o-Terphenyl		% Rec.	64.04	50-150	WG597453	06/14/12 15:59

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0419	83.9	76-113	WG597430
Ethylbenzene	mg/kg	.05	0.0429	85.8	78-115	WG597430
Toluene	mg/kg	.05	0.0421	84.1	76-114	WG597430
Total Xylene	mg/kg	.15	0.126	84.2	81-118	WG597430
a,a,a-Trifluorotoluene(FID)				91.83	59-128	WG597430
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.54	119.	67-135	WG597430
a,a,a-Trifluorotoluene(FID)				97.50	59-128	WG597430
TPH (GC/FID) High Fraction	ppm	60	42.7	71.2	50-150	WG597453
o-Terphenyl				65.15	50-150	WG597453

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0419	0.0419	84.0	76-113	0.110	20	WG597430
Ethylbenzene	mg/kg	0.0426	0.0429	85.0	78-115	0.680	20	WG597430
Toluene	mg/kg	0.0418	0.0421	84.0	76-114	0.600	20	WG597430
Total Xylene	mg/kg	0.125	0.126	83.0	81-118	0.940	20	WG597430
a,a,a-Trifluorotoluene(FID)				91.78	59-128			WG597430
TPH (GC/FID) Low Fraction	mg/kg	6.60	6.54	120.	67-135	0.850	20	WG597430
a,a,a-Trifluorotoluene(FID)				97.65	59-128			WG597430
TPH (GC/FID) High Fraction	ppm	46.2	42.7	77.0	50-150	7.78	25	WG597453
o-Terphenyl				69.02	50-150			WG597453

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.113	0	.05	45.2	32-137	L579745-01	WG597430
Ethylbenzene	mg/kg	0.0900	0	.05	36.0	10-150	L579745-01	WG597430
Toluene	mg/kg	0.103	0	.05	41.4	20-142	L579745-01	WG597430
Total Xylene	mg/kg	0.262	0	.15	34.9	16-141	L579745-01	WG597430
a,a,a-Trifluorotoluene(PID)					96.21	54-144		WG597430
TPH (GC/FID) Low Fraction	mg/kg	17.9	0	5.5	65.2	55-109	L579745-01	WG597430
a,a,a-Trifluorotoluene(FID)					94.45	59-128		WG597430
TPH (GC/FID) High Fraction	ppm	131.	67.0	60	106.	50-150	L579770-01	WG597453
o-Terphenyl					69.17	50-150		WG597453

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.158	0.113	63.2	32-137	33.3	39	L579745-01	WG597430
Ethylbenzene	mg/kg	0.125	0.0900	50.2	10-150	32.8	44	L579745-01	WG597430
Toluene	mg/kg	0.144	0.103	57.8	20-142	33.1	42	L579745-01	WG597430
Total Xylene	mg/kg	0.364	0.262	48.6	16-141	32.7	46	L579745-01	WG597430
a,a,a-Trifluorotoluene(PID)				96.38	54-144				WG597430
TPH (GC/FID) Low Fraction	mg/kg	19.2	17.9	69.7	55-109	6.68	20	L579745-01	WG597430
a,a,a-Trifluorotoluene(FID)				95.32	59-128				WG597430
TPH (GC/FID) High Fraction	ppm	115.	131.	80.7	50-150	12.6	25	L579770-01	WG597453
o-Terphenyl				65.30	50-150				WG597453

Batch number /Run number / Sample number cross reference

WG597430: R2210534: L579748-01
WG597453: R2211615: L579748-01

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