

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 culvert pit associated with the Dragon Trail Unit #1093 (COGCC facility #315906, COGCC remediation #6585). The site investigation was conducted by Encana personnel. 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 please refer to Figure 1 – Site Map.

Site Investigation

September 28, 2011 - The pit was characterized utilizing a photoionization detector (PID) field unit by a qualified Encana employee. The culvert was carefully removed using the trackhoe and placed onsite for later recycling or disposal. It should be noted that there was not any liquid associated with the culvert during the time of movement. A grab sample was collected directly from the lowest point of the pit. There were no indicators of hydrocarbon impacts in accordance with field screen readings and visual observations. The grab sample was sent 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.

Conclusion

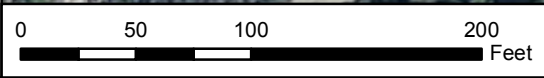
Based on the site investigation and analytical results, the pit associated with the Dragon Trail Unit #1093 is in compliance with the standards specified within COGCC Table 910-1. Encana respectfully requests that final closure be granted for the respective pit, COGCC remediation #6585. The spoils stockpile was backfilled in the pit excavation. The location is currently a working well pad, when the location is no longer in service; it will be reclaimed in accordance with the COGCC 1000 Series Rules.

Analytical Review

Sample results indicate that the soil within the earthen pit footprint on Encana's Dragon Trail Unit #1093 well pad have exceedances of COGCC Table 910-1 allowable concentrations for arsenic (5.3 ppm). Though the arsenic concentration in the soil is above the allowable concentration identified in Table 910-1, the concentration is within the range of arsenic background values (3.2-7.6 ppm) in 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.

[illegible]

Dragon Trail Unit 1093 Aerial Site Map





12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

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

Report Summary

Monday October 10, 2011

Report Number: L539204

Samples Received: 09/30/11

Client Project:

Description: Culvert Pit Project-1093

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 - 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

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

October 10, 2011

Date Received : September 30, 2011
Description : Culvert Pit Project-1093

Sample ID : 1093-BG01-092811

Collected By : Blake Fod
Collection Date : 09/28/11 11:04

ESC Sample # : L539204-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.6	1.0	mg/kg	6010B	10/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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

October 10, 2011

Date Received : September 30, 2011
Description : Culvert Pit Project-1093

Sample ID : 1093-BG02-092811

Collected By : Blake Fod
Collection Date : 09/28/11 11:09

ESC Sample # : L539204-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	3.4	1.0	mg/kg	6010B	10/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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

October 10, 2011

Date Received : September 30, 2011
Description : Culvert Pit Project-1093

Sample ID : 1093-BG03-092811

Collected By : Blake Fod
Collection Date : 09/28/11 11:12

ESC Sample # : L539204-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	3.8	1.0	mg/kg	6010B	10/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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

October 10, 2011

Date Received : September 30, 2011
Description : Culvert Pit Project-1093

Sample ID : 1093-BG04-092811

Collected By : Blake Fod
Collection Date : 09/28/11 11:15

ESC Sample # : L539204-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	3.2	1.0	mg/kg	6010B	10/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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

October 10, 2011

Date Received : September 30, 2011
Description : Culvert Pit Project-1093

Sample ID : 1093-BG05-092811

Collected By : Blake Fod
Collection Date : 09/28/11 11:20

ESC Sample # : L539204-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	4.4	1.0	mg/kg	6010B	10/06/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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

October 10, 2011

Date Received : September 30, 2011
Description : Culvert Pit Project-1093

Sample ID : 1093-UNDERTANK-092811

Collected By : Blake Fod
Collection Date : 09/28/11 13:25

ESC Sample # : L539204-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	10/07/11	1
Chromium, Trivalent	9.7	2.0	mg/kg	Calc.	10/04/11	1
ORP	180		mV	2580	10/03/11	1
pH	7.3		su	9045D	10/05/11	1
Sodium Adsorption Ratio	4.0			Calc.	10/06/11	1
Specific Conductance	2700		umhos/cm	9050AMod	10/01/11	1
Mercury	0.050	0.020	mg/kg	7471	10/02/11	1
Arsenic	6.4	1.0	mg/kg	6010B	10/04/11	1
Barium	52.	0.25	mg/kg	6010B	10/04/11	1
Cadmium	BDL	0.25	mg/kg	6010B	10/04/11	1
Chromium	9.7	0.50	mg/kg	6010B	10/04/11	1
Copper	25.	1.0	mg/kg	6010B	10/04/11	1
Lead	22.	0.25	mg/kg	6010B	10/04/11	1
Nickel	17.	1.0	mg/kg	6010B	10/04/11	1
Selenium	BDL	1.0	mg/kg	6010B	10/04/11	1
Silver	BDL	0.50	mg/kg	6010B	10/04/11	1
Zinc	140	1.5	mg/kg	6010B	10/04/11	1
Benzene	BDL	0.0025	mg/kg	8021/8015	10/04/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/04/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/04/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/04/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/04/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.4		% Rec.	8021/8015	10/04/11	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	10/04/11	5
TPH (GC/FID) High Fraction	5.3	4.0	mg/kg	3546/DRO	10/06/11	1
Surrogate recovery(%)						
o-Terphenyl	60.3		% Rec.	3546/DRO	10/06/11	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Benzo(a)anthracene	0.016	0.0060	mg/kg	8270C-SIM	10/07/11	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L539204-06 (PH) - 7.34@17.8c



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REPORT OF ANALYSIS

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1125 Escalante Drive
Rangely, CO 81648-3600

October 10, 2011

Date Received : September 30, 2011
Description : Culvert Pit Project-1093

Sample ID : 1093-UNDERTANK-092811

Collected By : Blake Fod
Collection Date : 09/28/11 13:25

ESC Sample # : L539204-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	0.016	0.0060	mg/kg	8270C-SIM	10/07/11	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Chrysene	0.020	0.0060	mg/kg	8270C-SIM	10/07/11	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Fluoranthene	0.016	0.0060	mg/kg	8270C-SIM	10/07/11	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Naphthalene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Phenanthrene	0.023	0.0060	mg/kg	8270C-SIM	10/07/11	1
Pyrene	0.0064	0.0060	mg/kg	8270C-SIM	10/07/11	1
1-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
2-Methylnaphthalene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	10/07/11	1
Surrogate Recovery						
Nitrobenzene-d5	74.6		% Rec.	8270C-SIM	10/07/11	1
2-Fluorobiphenyl	81.3		% Rec.	8270C-SIM	10/07/11	1
p-Terphenyl-d14	79.1		% Rec.	8270C-SIM	10/07/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 10/10/11 10:50 Printed: 10/10/11 10:50
L539204-06 (PH) - 7.34@17.8c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L539204-06	WG558330	SAMP	ORP	R1881872	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
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
10/10/11 at 10:50:46

TSR Signing Reports: 358
R5 - Desired TAT

Sample: L539204-01 Account: ENCANRCO Received: 09/30/11 09:00 Due Date: 10/07/11 00:00 RPT Date: 10/10/11 10:50
Sample: L539204-02 Account: ENCANRCO Received: 09/30/11 09:00 Due Date: 10/07/11 00:00 RPT Date: 10/10/11 10:50
Sample: L539204-03 Account: ENCANRCO Received: 09/30/11 09:00 Due Date: 10/07/11 00:00 RPT Date: 10/10/11 10:50
Sample: L539204-04 Account: ENCANRCO Received: 09/30/11 09:00 Due Date: 10/07/11 00:00 RPT Date: 10/10/11 10:50
Sample: L539204-05 Account: ENCANRCO Received: 09/30/11 09:00 Due Date: 10/07/11 00:00 RPT Date: 10/10/11 10:50
Sample: L539204-06 Account: ENCANRCO Received: 09/30/11 09:00 Due Date: 10/07/11 00:00 RPT Date: 10/10/11 10:50



YOUR LAB OF CHOICE

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

Rangely, CO 81648-3600

Quality Assurance Report
Level II

L539204

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October 10, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Mercury	< .02	mg/kg			WG558423	10/02/11 10:30
Specific Conductance	0.760	umhos/cm			WG558324	10/01/11 14:50
Benzene	< .0005	mg/kg			WG558577	10/04/11 05:01
Ethylbenzene	< .0005	mg/kg			WG558577	10/04/11 05:01
Toluene	< .005	mg/kg			WG558577	10/04/11 05:01
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG558577	10/04/11 05:01
Total Xylene	< .0015	mg/kg			WG558577	10/04/11 05:01
a,a,a-Trifluorotoluene(FID)		% Rec.	96.93	59-128	WG558577	10/04/11 05:01
a,a,a-Trifluorotoluene(PID)		% Rec.	101.1	54-144	WG558577	10/04/11 05:01
Arsenic	< 1	mg/kg			WG558517	10/04/11 16:28
Barium	< .25	mg/kg			WG558517	10/04/11 16:28
Cadmium	< .25	mg/kg			WG558517	10/04/11 16:28
Chromium	< .5	mg/kg			WG558517	10/04/11 16:28
Copper	< 1	mg/kg			WG558517	10/04/11 16:28
Lead	< .25	mg/kg			WG558517	10/04/11 16:28
Nickel	< 1	mg/kg			WG558517	10/04/11 16:28
Selenium	< 1	mg/kg			WG558517	10/04/11 16:28
Silver	< .5	mg/kg			WG558517	10/04/11 16:28
Zinc	< 1.5	mg/kg			WG558517	10/04/11 16:28
pH	5.80	su			WG558848	10/05/11 15:11
TPH (GC/FID) High Fraction	< 4	ppm			WG558668	10/06/11 09:39
o-Terphenyl		% Rec.	68.19	50-150	WG558668	10/06/11 09:39
Arsenic	< 1	mg/kg			WG558724	10/06/11 19:06
1-Methylnaphthalene	< .006	mg/kg			WG559055	10/06/11 15:52
2-Chloronaphthalene	< .006	mg/kg			WG559055	10/06/11 15:52
2-Methylnaphthalene	< .006	mg/kg			WG559055	10/06/11 15:52
Acenaphthene	< .006	mg/kg			WG559055	10/06/11 15:52
Acenaphthylene	< .006	mg/kg			WG559055	10/06/11 15:52
Anthracene	< .006	mg/kg			WG559055	10/06/11 15:52
Benzo(a)anthracene	< .006	mg/kg			WG559055	10/06/11 15:52
Benzo(a)pyrene	< .006	mg/kg			WG559055	10/06/11 15:52
Benzo(b)fluoranthene	< .006	mg/kg			WG559055	10/06/11 15:52
Benzo(g,h,i)perylene	< .006	mg/kg			WG559055	10/06/11 15:52
Benzo(k)fluoranthene	< .006	mg/kg			WG559055	10/06/11 15:52
Chrysene	< .006	mg/kg			WG559055	10/06/11 15:52
Dibenz(a,h)anthracene	< .006	mg/kg			WG559055	10/06/11 15:52
Fluoranthene	< .006	mg/kg			WG559055	10/06/11 15:52
Fluorene	< .006	mg/kg			WG559055	10/06/11 15:52
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG559055	10/06/11 15:52
Naphthalene	< .006	mg/kg			WG559055	10/06/11 15:52
Phenanthrene	< .006	mg/kg			WG559055	10/06/11 15:52
Pyrene	< .006	mg/kg			WG559055	10/06/11 15:52
2-Fluorobiphenyl		% Rec.	60.88	34-129	WG559055	10/06/11 15:52
Nitrobenzene-d5		% Rec.	59.51	14-141	WG559055	10/06/11 15:52
p-Terphenyl-d14		% Rec.	83.10	25-139	WG559055	10/06/11 15:52

* Performance of this Analyte is outside of established criteria.

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



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Level II

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October 10, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Chromium,Hexavalent	< 2	mg/kg			WG558851	10/07/11 15:49

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	0.0330	0.0340	2.68	20	L539319-02	WG558423
Specific Conductance	umhos/cm	660.	730.	9.62	20	L538834-13	WG558324
Specific Conductance	umhos/cm	91.0	84.0	8.11	20	L539152-01	WG558324
ORP	mV	210.	250.	17.4	20	L538664-05	WG558330
ORP	mV	39.0	43.0	9.76	20	L539207-01	WG558330
Arsenic	mg/kg	5.80	5.60	3.68	20	L539319-06	WG558517
Barium	mg/kg	96.0	87.0	9.52	20	L539319-06	WG558517
Cadmium	mg/kg	0	0	0	20	L539319-06	WG558517
Chromium	mg/kg	12.0	14.0	12.1	20	L539319-06	WG558517
Copper	mg/kg	27.0	23.5	13.9	20	L539319-06	WG558517
Lead	mg/kg	77.0	60.0	24.4*	20	L539319-06	WG558517
Nickel	mg/kg	13.0	11.1	12.7	20	L539319-06	WG558517
Silver	mg/kg	0.520	0	NA	20	L539319-06	WG558517
Zinc	mg/kg	170.	152.	12.3	20	L539319-06	WG558517
Selenium	mg/kg	0	0	0	20	L539319-06	WG558517
pH	su	6.40	6.40	0.156	1	L538352-02	WG558848
pH	su	7.30	7.30	0.412	1	L539455-02	WG558848
Arsenic	mg/kg	5.50	5.80	5.67	20	L539207-05	WG558724
Chromium,Hexavalent	mg/kg	0	0	0	20	L539708-01	WG558851

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Mercury	mg/kg	3.77	3.43	91.0	71.6-128	WG558423
Specific Conductance	umhos/cm	427	430.	101.	85-115	WG558324
ORP	mV	229	230.	100.	95.6-104.37	WG558330
Benzene	mg/kg	.05	0.0518	104.	76-113	WG558577
Ethylbenzene	mg/kg	.05	0.0550	110.	78-115	WG558577
Toluene	mg/kg	.05	0.0563	113.	76-114	WG558577
Total Xylene	mg/kg	.15	0.162	108.	81-118	WG558577
a,a,a-Trifluorotoluene(PID)				99.32	54-144	WG558577
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.91	107.	67-135	WG558577
a,a,a-Trifluorotoluene(FID)				103.2	59-128	WG558577

Arsenic	mg/kg	92.6	81.7	88.2	82.9-117	WG558517
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* Performance of this Analyte is outside of established criteria.

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Barium	mg/kg	169	154.	91.1	82.8-117	WG558517
Cadmium	mg/kg	61.8	54.4	88.0	83.3-117	WG558517
Chromium	mg/kg	71.3	63.3	88.8	81.8-118	WG558517
Copper	mg/kg	81.2	77.3	95.2	83.9-116	WG558517
Lead	mg/kg	92.4	84.1	91.0	83.3-117	WG558517
Nickel	mg/kg	59.1	53.8	91.0	83.8-116	WG558517
Selenium	mg/kg	89.5	77.9	87.0	79-121	WG558517
Silver	mg/kg	34.4	30.6	89.0	66.3-134	WG558517
Zinc	mg/kg	141	129.	91.5	80.9-119	WG558517
pH	su	9.04	9.00	99.6	98-101	WG558848
TPH (GC/FID) High Fraction	ppm	60	47.0	78.4	50-150	WG558668
o-Terphenyl				85.16	50-150	WG558668
Arsenic	mg/kg	92.6	87.8	94.8	82.9-117	WG558724
1-Methylnaphthalene	mg/kg	.033	0.0215	65.3	48-113	WG559055
2-Chloronaphthalene	mg/kg	.033	0.0224	67.9	51-114	WG559055
2-Methylnaphthalene	mg/kg	.033	0.0224	67.8	44-109	WG559055
Acenaphthene	mg/kg	.033	0.0243	73.6	52-108	WG559055
Acenaphthylene	mg/kg	.033	0.0236	71.5	51-110	WG559055
Anthracene	mg/kg	.033	0.0245	74.3	58-120	WG559055
Benzo(a)anthracene	mg/kg	.033	0.0264	80.1	54-110	WG559055
Benzo(a)pyrene	mg/kg	.033	0.0268	81.1	56-118	WG559055
Benzo(b)fluoranthene	mg/kg	.033	0.0286	86.6	55-114	WG559055
Benzo(g,h,i)perylene	mg/kg	.033	0.0336	102.	48-130	WG559055
Benzo(k)fluoranthene	mg/kg	.033	0.0257	78.0	55-122	WG559055
Chrysene	mg/kg	.033	0.0267	80.8	57-118	WG559055
Dibenz(a,h)anthracene	mg/kg	.033	0.0348	106.	53-122	WG559055
Fluoranthene	mg/kg	.033	0.0268	81.3	58-118	WG559055
Fluorene	mg/kg	.033	0.0248	75.0	54-109	WG559055
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0336	102.	51-125	WG559055
Naphthalene	mg/kg	.033	0.0209	63.3	45-105	WG559055
Phenanthrene	mg/kg	.033	0.0278	84.1	53-114	WG559055
Pyrene	mg/kg	.033	0.0285	86.5	53-121	WG559055
2-Fluorobiphenyl				66.64	34-129	WG559055
Nitrobenzene-d5				59.67	14-141	WG559055
p-Terphenyl-d14				85.26	25-139	WG559055
Chromium,Hexavalent	mg/kg	132	73.2	55.5	50-150	WG558851

Analyte	Units	Laboratory Control Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec			
Specific Conductance	umhos/	420.	430.	98.0	85-115	2.35	WG558324
ORP	mV	230.	230.	100.	95.6-104.37	0	WG558330
Benzene	mg/kg	0.0507	0.0518	101.	76-113	1.96	WG558577
Ethylbenzene	mg/kg	0.0535	0.0550	107.	78-115	2.86	WG558577
Toluene	mg/kg	0.0546	0.0563	109.	76-114	3.02	WG558577

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Total Xylene	mg/kg	0.156	0.162	104.		81-118	3.30	20	WG558577
a,a,a-Trifluorotoluene(PID)				99.76		54-144			WG558577
TPH (GC/FID) Low Fraction	mg/kg	5.65	5.91	103.		67-135	4.38	20	WG558577
a,a,a-Trifluorotoluene(FID)				101.9		59-128			WG558577
pH	su	9.00	9.00	100.		98-101	0	20	WG558848
TPH (GC/FID) High Fraction	ppm	40.7	47.0	68.0		50-150	14.3	20	WG558668
o-Terphenyl				72.58		50-150			WG558668
1-Methylnaphthalene	mg/kg	0.0255	0.0215	77.0		48-113	17.0	24	WG559055
2-Chloronaphthalene	mg/kg	0.0265	0.0224	80.0		51-114	16.7	24	WG559055
2-Methylnaphthalene	mg/kg	0.0264	0.0224	80.0		44-109	16.5	24	WG559055
Acenaphthene	mg/kg	0.0268	0.0243	81.0		52-108	9.70	22	WG559055
Acenaphthylene	mg/kg	0.0270	0.0236	82.0		51-110	13.5	21	WG559055
Anthracene	mg/kg	0.0279	0.0245	84.0		58-120	12.9	20	WG559055
Benzo(a)anthracene	mg/kg	0.0285	0.0264	86.0		54-110	7.67	22	WG559055
Benzo(a)pyrene	mg/kg	0.0289	0.0268	88.0		56-118	7.70	21	WG559055
Benzo(b)fluoranthene	mg/kg	0.0294	0.0286	89.0		55-114	2.98	20	WG559055
Benzo(g,h,i)perylene	mg/kg	0.0354	0.0336	107.		48-130	5.09	20	WG559055
Benzo(k)fluoranthene	mg/kg	0.0290	0.0257	88.0		55-122	11.9	25	WG559055
Chrysene	mg/kg	0.0285	0.0267	86.0		57-118	6.73	20	WG559055
Dibenz(a,h)anthracene	mg/kg	0.0364	0.0348	110.		53-122	4.25	20	WG559055
Fluoranthene	mg/kg	0.0298	0.0268	90.0		58-118	10.4	20	WG559055
Fluorene	mg/kg	0.0275	0.0248	83.0		54-109	10.7	20	WG559055
Indeno(1,2,3-cd)pyrene	mg/kg	0.0357	0.0336	108.		51-125	6.14	21	WG559055
Naphthalene	mg/kg	0.0252	0.0209	76.0		45-105	18.8	24	WG559055
Phenanthrene	mg/kg	0.0298	0.0278	90.0		53-114	7.08	20	WG559055
Pyrene	mg/kg	0.0315	0.0285	96.0		53-121	10.0	20	WG559055
2-Fluorobiphenyl				76.55		34-129			WG559055
Nitrobenzene-d5				71.60		14-141			WG559055
p-Terphenyl-d14				95.65		25-139			WG559055
Chromium,Hexavalent	mg/kg	76.6	73.2	58.0		50-150	4.54	20	WG558851

Analyte	Units	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res					
Mercury	mg/kg	0.301	0.0340	.25	107.	70-130	L539319-02	WG558423
Benzene	mg/kg	0.238	0	.05	95.4	32-137	L539181-01	WG558577
Ethylbenzene	mg/kg	0.248	0	.05	99.3	10-150	L539181-01	WG558577
Toluene	mg/kg	0.257	0	.05	103.	20-142	L539181-01	WG558577
Total Xylene	mg/kg	0.736	0	.15	98.1	16-141	L539181-01	WG558577
a,a,a-Trifluorotoluene(PID)					99.83	54-144		WG558577
TPH (GC/FID) Low Fraction	mg/kg	27.4	0	5.5	99.6	55-109	L539181-01	WG558577
a,a,a-Trifluorotoluene(FID)					96.36	59-128		WG558577
Arsenic	mg/kg	51.1	5.60	50	91.0	75-125	L539319-06	WG558517
Barium	mg/kg	150.	87.0	50	126.*	75-125	L539319-06	WG558517
Cadmium	mg/kg	41.2	0	50	82.4	75-125	L539319-06	WG558517
Chromium	mg/kg	55.4	14.0	50	82.8	75-125	L539319-06	WG558517
Copper	mg/kg	73.4	23.5	50	99.8	75-125	L539319-06	WG558517

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Lead	mg/kg	102.	60.0	50	84.0	75-125	L539319-06	WG558517
Nickel	mg/kg	55.6	11.1	50	89.0	75-125	L539319-06	WG558517
Silver	mg/kg	47.3	0	50	94.6	75-125	L539319-06	WG558517
Zinc	mg/kg	201.	152.	50	98.0	75-125	L539319-06	WG558517
Selenium	mg/kg	48.4	0	10	96.8	75-125	L539319-06	WG558517
TPH (GC/FID) High Fraction	ppm	53.9	15.4	60	64.1	50-150	L539006-02	WG558668
o-Terphenyl					67.76	50-150		WG558668
Arsenic	mg/kg	51.7	5.80	50	91.8	75-125	L539207-05	WG558724
Chromium, Hexavalent	mg/kg	15.5	0	20	77.5	50-150	L539398-04	WG558851
1-Methylnaphthalene	mg/kg	0.0230	0	.033	69.6	25-155	L539848-01	WG559055
2-Chloronaphthalene	mg/kg	0.0234	0	.033	71.0	31-153	L539848-01	WG559055
2-Methylnaphthalene	mg/kg	0.0243	0	.033	73.7	22-172	L539848-01	WG559055
Acenaphthene	mg/kg	0.0253	0	.033	76.7	43-133	L539848-01	WG559055
Acenaphthylene	mg/kg	0.0252	0	.033	76.4	42-146	L539848-01	WG559055
Anthracene	mg/kg	0.0261	0	.033	79.2	38-153	L539848-01	WG559055
Benzo(a)anthracene	mg/kg	0.0258	0	.033	78.2	31-142	L539848-01	WG559055
Benzo(a)pyrene	mg/kg	0.0262	0	.033	79.4	26-152	L539848-01	WG559055
Benzo(b)fluoranthene	mg/kg	0.0282	0	.033	85.4	10-188	L539848-01	WG559055
Benzo(g,h,i)perylene	mg/kg	0.0205	0	.033	62.1	10-176	L539848-01	WG559055
Benzo(k)fluoranthene	mg/kg	0.0260	0	.033	78.9	22-163	L539848-01	WG559055
Chrysene	mg/kg	0.0249	0	.033	75.6	26-146	L539848-01	WG559055
Dibenz(a,h)anthracene	mg/kg	0.0244	0	.033	74.0	10-160	L539848-01	WG559055
Fluoranthene	mg/kg	0.0281	0	.033	85.0	23-160	L539848-01	WG559055
Fluorene	mg/kg	0.0264	0	.033	80.0	44-143	L539848-01	WG559055
Indeno(1,2,3-cd)pyrene	mg/kg	0.0231	0	.033	69.8	10-157	L539848-01	WG559055
Naphthalene	mg/kg	0.0219	0	.033	66.2	22-156	L539848-01	WG559055
Phenanthrene	mg/kg	0.0288	0	.033	87.3	23-164	L539848-01	WG559055
Pyrene	mg/kg	0.0254	0	.033	77.1	12-170	L539848-01	WG559055
2-Fluorobiphenyl					73.87	34-129		WG559055
Nitrobenzene-d5					64.57	14-141		WG559055
p-Terphenyl-d14					80.13	25-139		WG559055

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Mercury	mg/kg	0.322	0.301	115.	70-130	6.74	20	L539319-02	WG558423
Benzene	mg/kg	0.243	0.238	97.1	32-137	1.84	39	L539181-01	WG558577
Ethylbenzene	mg/kg	0.236	0.248	94.4	10-150	5.02	44	L539181-01	WG558577
Toluene	mg/kg	0.250	0.257	99.8	20-142	3.07	42	L539181-01	WG558577
Total Xylene	mg/kg	0.684	0.736	91.2	16-141	7.27	46	L539181-01	WG558577
a,a,a-Trifluorotoluene(PID)				98.96	54-144				WG558577
TPH (GC/FID) Low Fraction	mg/kg	28.4	27.4	103.	55-109	3.59	20	L539181-01	WG558577
a,a,a-Trifluorotoluene(FID)				103.6	59-128				WG558577
Arsenic	mg/kg	51.8	51.1	92.4	75-125	1.36	20	L539319-06	WG558517
Barium	mg/kg	146.	150.	118.	75-125	2.70	20	L539319-06	WG558517
Cadmium	mg/kg	43.9	41.2	87.8	75-125	6.35	20	L539319-06	WG558517
Chromium	mg/kg	56.8	55.4	85.6	75-125	2.50	20	L539319-06	WG558517

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Copper	mg/kg	82.2	73.4	117.	75-125	11.3	20	L539319-06	WG558517
Lead	mg/kg	118.	102.	116.	75-125	14.5	20	L539319-06	WG558517
Nickel	mg/kg	56.6	55.6	91.0	75-125	1.78	20	L539319-06	WG558517
Silver	mg/kg	48.1	47.3	96.2	75-125	1.68	20	L539319-06	WG558517
Zinc	mg/kg	236.	201.	168.*	75-125	16.0	20	L539319-06	WG558517
Selenium	mg/kg	49.3	48.4	98.6	75-125	1.84	20	L539319-06	WG558517
TPH (GC/FID) High Fraction	ppm	54.5	53.9	65.0	50-150	1.01	20	L539006-02	WG558668
o-Terphenyl				64.62	50-150				WG558668
Arsenic	mg/kg	50.7	51.7	89.8	75-125	1.95	20	L539207-05	WG558724
Chromium, Hexavalent	mg/kg	16.9	15.5	84.5	50-150	8.64	20	L539398-04	WG558851
1-Methylnaphthalene	mg/kg	0.0251	0.0230	76.0	25-155	8.73	27	L539848-01	WG559055
2-Chloronaphthalene	mg/kg	0.0255	0.0234	77.2	31-153	8.35	22	L539848-01	WG559055
2-Methylnaphthalene	mg/kg	0.0272	0.0243	82.5	22-172	11.3	29	L539848-01	WG559055
Acenaphthene	mg/kg	0.0270	0.0253	81.7	43-133	6.37	26	L539848-01	WG559055
Acenaphthylene	mg/kg	0.0264	0.0252	80.1	42-146	4.77	22	L539848-01	WG559055
Anthracene	mg/kg	0.0250	0.0261	75.6	38-153	4.56	27	L539848-01	WG559055
Benzo(a)anthracene	mg/kg	0.0230	0.0258	69.6	31-142	11.5	31	L539848-01	WG559055
Benzo(a)pyrene	mg/kg	0.0227	0.0262	68.8	26-152	14.4	32	L539848-01	WG559055
Benzo(b)fluoranthene	mg/kg	0.0252	0.0282	76.3	10-188	11.3	33	L539848-01	WG559055
Benzo(g,h,i)perylene	mg/kg	0.0141	0.0205	42.7	10-176	37.1*	30	L539848-01	WG559055
Benzo(k)fluoranthene	mg/kg	0.0231	0.0260	69.9	22-163	12.1	29	L539848-01	WG559055
Chrysene	mg/kg	0.0221	0.0249	67.0	26-146	12.0	30	L539848-01	WG559055
Dibenz(a,h)anthracene	mg/kg	0.0174	0.0244	52.7	10-160	33.6	39	L539848-01	WG559055
Fluoranthene	mg/kg	0.0258	0.0281	78.1	23-160	8.53	22	L539848-01	WG559055
Fluorene	mg/kg	0.0265	0.0264	80.4	44-143	0.503	23	L539848-01	WG559055
Indeno(1,2,3-cd)pyrene	mg/kg	0.0166	0.0231	50.4	10-157	32.4	40	L539848-01	WG559055
Naphthalene	mg/kg	0.0247	0.0219	74.9	22-156	12.2	27	L539848-01	WG559055
Phenanthrene	mg/kg	0.0272	0.0288	82.4	23-164	5.73	25	L539848-01	WG559055
Pyrene	mg/kg	0.0233	0.0254	70.7	12-170	8.65	24	L539848-01	WG559055
2-Fluorobiphenyl				80.28	34-129				WG559055
Nitrobenzene-d5				71.66	14-141				WG559055
p-Terphenyl-d14				72.97	25-139				WG559055

Batch number / Run number / Sample number cross reference

WG558423: R1880796: L539204-06
WG558324: R1880812: L539204-06
WG558330: R1881872: L539204-06
WG558577: R1883352: L539204-06
WG558517: R1883792: L539204-06
WG558848: R1885532: L539204-06
WG558726: R1886893: L539204-06
WG558668: R1887154: L539204-06
WG558724: R1888254: L539204-01 02 03 04 05
WG559055: R1888493: L539204-06
WG558851: R1888632: L539204-06

* * Calculations are performed prior to rounding of reported values.
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October 10, 2011

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.