

Allowable Concentration -->				Organic Compounds in Soil (mg/kg [ppm])																		Inorganics in Soil			Metals in Soil (mg/kg [ppm])													
				500			0.17	85	100	175	1000	1000	0.22	0.22	2.2	0.022	22	0.022	1000	1000	0.22	23	1000		(<12)	(6-9)	0.39	15000	70	120000	23	3100	400	23	1600	390	390	23000
				TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-C,D)pyrene	Naphthalene	Pyrene	EC (<4 mmhos/cm or 2x background)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc
PB20	05/17/12	Cuttings	composite 1	180.82	0.82	180	0.0057	BDL	BDL	BDL	BDL	0.011	BDL	BDL	BDL	BDL	BDL	BDL	0.013	0.038	BDL	0.13	0.018	1.4	28	8.4	1.3	6700	0.3	11	BDL	17	10	BDL	5.2	BDL	BDL	50
PB20	05/17/12	Cuttings	composite 2	191.1	1.1	190	0.0074	BDL	BDL	0.008	BDL	0.024	0.0064	0.011	BDL	BDL	0.032	BDL	0.012	0.069	BDL	0.21	0.14				2.2											
PB20	05/17/12	Cuttings	composite 3	200.52	0.52	200	0.007	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.22	BDL				BDL											



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

Report Summary

Wednesday May 30, 2012

Report Number: L576279

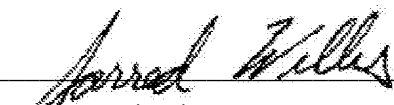
Samples Received: 05/19/12

Client Project: WA-000133-8893-10

Description: PB20 Cuttings

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

Entire Report Reviewed By:


Jayred Willis, ESC Representative

Laboratory Certification Numbers

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

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

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

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REPORT OF ANALYSIS

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

May 30, 2012

Date Received : May 19, 2012
Description : PB20 Cuttings
Sample ID : PB20-CUT1-051712 0-6 IN
Collected By : CJB
Collection Date : 05/17/12 14:31

ESC Sample # : L576279-01

Site ID :

Project # : WA-000133-8893-10

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/24/12	1
Chromium, Trivalent	11.	0.50	mg/kg	Calc.	05/29/12	1
ORP	170		mV	2580	05/23/12	1
pH	8.4		su	9045D	05/23/12	1
Sodium Adsorption Ratio	28.			Calc.	05/22/12	1
Specific Conductance	1400		umhos/cm	9050AMod	05/24/12	1
Mercury	BDL	0.020	mg/kg	7471	05/22/12	1
Arsenic	1.3	1.0	mg/kg	6010B	05/29/12	1
Barium	6700	1.2	mg/kg	6010B	05/30/12	5
Cadmium	0.30	0.25	mg/kg	6010B	05/29/12	1
Chromium	11.	0.50	mg/kg	6010B	05/29/12	1
Copper	17.	1.0	mg/kg	6010B	05/29/12	1
Lead	10.	0.25	mg/kg	6010B	05/29/12	1
Nickel	5.2	1.0	mg/kg	6010B	05/29/12	1
Selenium	BDL	1.0	mg/kg	6010B	05/29/12	1
Silver	BDL	0.50	mg/kg	6010B	05/29/12	1
Zinc	50.	1.5	mg/kg	6010B	05/29/12	1
Benzene	0.0057	0.0025	mg/kg	8021/8015	05/21/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/21/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/21/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/21/12	5
TPH (GC/FID) Low Fraction	0.82	0.50	mg/kg	GRO	05/21/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.5		% Rec.	8021/8015	05/21/12	5
a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021/8015	05/21/12	5
TPH (GC/FID) High Fraction	180	4.0	mg/kg	3546/DRO	05/23/12	1
Surrogate recovery(%)						
o-Terphenyl	61.8		% Rec.	3546/DRO	05/23/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.011	0.0060	mg/kg	8270C-SIM	05/26/12	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L576279-01 (PH) - 8.4@21.6c
L576279-01 (CR6) - sample reducer



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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 30, 2012

Date Received : May 19, 2012
Description : PB20 Cuttings
Sample ID : PB20-CUT1-051712 0-6 IN
Collected By : CJB
Collection Date : 05/17/12 14:31

ESC Sample # : L576279-01

Site ID :

Project # : WA-000133-8893-10

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Fluoranthene	0.013	0.0060	mg/kg	8270C-SIM	05/26/12	1
Fluorene	0.038	0.0060	mg/kg	8270C-SIM	05/26/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Naphthalene	0.13	0.0060	mg/kg	8270C-SIM	05/26/12	1
Phenanthrene	0.098	0.0060	mg/kg	8270C-SIM	05/26/12	1
Pyrene	0.018	0.0060	mg/kg	8270C-SIM	05/26/12	1
1-Methylnaphthalene	0.095	0.0060	mg/kg	8270C-SIM	05/26/12	1
2-Methylnaphthalene	0.29	0.0060	mg/kg	8270C-SIM	05/26/12	1
2-Chloronaphthalene	0.0065	0.0060	mg/kg	8270C-SIM	05/26/12	1
Surrogate Recovery						
Nitrobenzene-d5	82.5		% Rec.	8270C-SIM	05/26/12	1
2-Fluorobiphenyl	73.3		% Rec.	8270C-SIM	05/26/12	1
p-Terphenyl-d14	177.		% Rec.	8270C-SIM	05/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/30/12 13:38 Printed: 05/30/12 13:38

L576279-01 (PH) - 8.4@21.6c

L576279-01 (CR6) - sample reducer

REPORT OF ANALYSIS

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

May 30, 2012

Date Received : May 19, 2012
Description : PB20 Cuttings
Sample ID : PB20-CUT2-051712 0-6 IN
Collected By : CJB
Collection Date : 05/17/12 15:00

ESC Sample # : L576279-02

Site ID :

Project # : WA-000133-8893-10

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.2	1.0	mg/kg	6010B	05/29/12	1
Benzene	0.0074	0.0025	mg/kg	8021/8015	05/21/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/21/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/21/12	5
Total Xylene	0.0080	0.0075	mg/kg	8021/8015	05/21/12	5
TPH (GC/FID) Low Fraction	1.1	0.50	mg/kg	GRO	05/21/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.5		% Rec.	8021/8015	05/21/12	5
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	05/21/12	5
TPH (GC/FID) High Fraction	190	4.0	mg/kg	3546/DRO	05/23/12	1
Surrogate recovery(%)						
o-Terphenyl	65.6		% Rec.	3546/DRO	05/23/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.024	0.0060	mg/kg	8270C-SIM	05/26/12	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(a)anthracene	0.0064	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(b)fluoranthene	0.011	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Chrysene	0.032	0.0060	mg/kg	8270C-SIM	05/26/12	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Fluoranthene	0.012	0.0060	mg/kg	8270C-SIM	05/26/12	1
Fluorene	0.069	0.0060	mg/kg	8270C-SIM	05/26/12	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Naphthalene	0.21	0.0060	mg/kg	8270C-SIM	05/26/12	1
Phenanthrene	0.18	0.0060	mg/kg	8270C-SIM	05/26/12	1
Pyrene	0.018	0.0060	mg/kg	8270C-SIM	05/26/12	1
1-Methylnaphthalene	0.14	0.0060	mg/kg	8270C-SIM	05/26/12	1
2-Methylnaphthalene	BDL	2.4	mg/kg	8270C-SIM	05/29/12	20
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	05/26/12	1
Surrogate Recovery						
Nitrobenzene-d5	74.1		% Rec.	8270C-SIM	05/26/12	1
2-Fluorobiphenyl	64.1		% Rec.	8270C-SIM	05/26/12	1
p-Terphenyl-d14	138.		% Rec.	8270C-SIM	05/26/12	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/30/12 13:38 Printed: 05/30/12 13:39
L576279-02 (SV8270PAHSIM) - Dilution due to matrix

REPORT OF ANALYSIS

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

May 30, 2012

Date Received : May 19, 2012
Description : PB20 Cuttings
Sample ID : PB20-CUT3-051712 0-6 IN
Collected By : CJB
Collection Date : 05/17/12 15:24

ESC Sample # : L576279-03

Site ID :

Project # : WA-000133-8893-10

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	1.0	mg/kg	6010B	05/29/12	1
Benzene	0.0070	0.0025	mg/kg	8021/8015	05/21/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	05/21/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	05/21/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	05/21/12	5
TPH (GC/FID) Low Fraction	0.52	0.50	mg/kg	GRO	05/21/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	95.8		% Rec.	8021/8015	05/21/12	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	05/21/12	5
TPH (GC/FID) High Fraction	200	4.0	mg/kg	3546/DRO	05/23/12	1
Surrogate recovery(%)						
o-Terphenyl	75.7		% Rec.	3546/DRO	05/23/12	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Acenaphthene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Acenaphthylene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Benzo(a)anthracene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Benzo(a)pyrene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Benzo(b)fluoranthene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Benzo(g,h,i)perylene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Benzo(k)fluoranthene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Chrysene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Dibenz(a,h)anthracene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Fluoranthene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Fluorene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Indeno(1,2,3-cd)pyrene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Naphthalene	0.22	0.15	mg/kg	8270C-SIM	05/29/12	5
Phenanthrene	0.17	0.15	mg/kg	8270C-SIM	05/29/12	5
Pyrene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
1-Methylnaphthalene	0.16	0.15	mg/kg	8270C-SIM	05/29/12	5
2-Methylnaphthalene	0.53	0.15	mg/kg	8270C-SIM	05/29/12	5
2-Chloronaphthalene	BDL	0.15	mg/kg	8270C-SIM	05/29/12	5
Surrogate Recovery						
Nitrobenzene-d5	75.0		% Rec.	8270C-SIM	05/29/12	5
2-Fluorobiphenyl	61.9		% Rec.	8270C-SIM	05/29/12	5
p-Terphenyl-d14	112.		% Rec.	8270C-SIM	05/29/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 05/30/12 13:38 Printed: 05/30/12 13:39

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L576279-01	WG594235	SAMP	p-Terphenyl-d14	R2183555	J1
	WG593915	SAMP	pH	R2182573	T8
	WG594130	SAMP	ORP	R2183017	T8
	WG593917	SAMP	Chromium, Hexavalent	R2183713	J6
L576279-02	WG594235	SAMP	2-Methylnaphthalene	R2183555	O

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
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.

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
05/30/12 at 13:39:02

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: L576279-01 Account: ENCANACO Received: 05/19/12 09:00 Due Date: 05/25/12 00:00 RPT Date: 05/30/12 13:38

Sample: L576279-02 Account: ENCANACO Received: 05/19/12 09:00 Due Date: 05/25/12 00:00 RPT Date: 05/30/12 13:38

Sample: L576279-03 Account: ENCANACO Received: 05/19/12 09:00 Due Date: 05/25/12 00:00 RPT Date: 05/30/12 13:38



YOUR LAB OF CHOICE

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

Parachute, CO 81635

Quality Assurance Report
Level II

L576279

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Tax I.D. 62-0814289

Est. 1970

May 30, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG593781	05/21/12 05:26
Ethylbenzene	< .0005	mg/kg			WG593781	05/21/12 05:26
Toluene	< .005	mg/kg			WG593781	05/21/12 05:26
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG593781	05/21/12 05:26
Total Xylene	< .0015	mg/kg			WG593781	05/21/12 05:26
a,a,a-Trifluorotoluene(FID)		% Rec.	96.00	59-128	WG593781	05/21/12 05:26
a,a,a-Trifluorotoluene(PID)		% Rec.	104.8	54-144	WG593781	05/21/12 05:26
Mercury	< .02	mg/kg			WG593873	05/22/12 11:39
TPH (GC/FID) High Fraction	< 4	ppm			WG594019	05/22/12 17:19
o-Terphenyl		% Rec.	83.08	50-150	WG594019	05/22/12 17:19
pH	8.13	su			WG593915	05/23/12 14:30
1-Methylnaphthalene	< .006	mg/kg			WG594235	05/24/12 11:21
2-Chloronaphthalene	< .006	mg/kg			WG594235	05/24/12 11:21
2-Methylnaphthalene	< .006	mg/kg			WG594235	05/24/12 11:21
Acenaphthene	< .006	mg/kg			WG594235	05/24/12 11:21
Acenaphthylene	< .006	mg/kg			WG594235	05/24/12 11:21
Anthracene	< .006	mg/kg			WG594235	05/24/12 11:21
Benzo(a)anthracene	< .006	mg/kg			WG594235	05/24/12 11:21
Benzo(a)pyrene	< .006	mg/kg			WG594235	05/24/12 11:21
Benzo(b)fluoranthene	< .006	mg/kg			WG594235	05/24/12 11:21
Benzo(g,h,i)perylene	< .006	mg/kg			WG594235	05/24/12 11:21
Benzo(k)fluoranthene	< .006	mg/kg			WG594235	05/24/12 11:21
Chrysene	< .006	mg/kg			WG594235	05/24/12 11:21
Dibenz(a,h)anthracene	< .006	mg/kg			WG594235	05/24/12 11:21
Fluoranthene	< .006	mg/kg			WG594235	05/24/12 11:21
Fluorene	< .006	mg/kg			WG594235	05/24/12 11:21
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG594235	05/24/12 11:21
Naphthalene	< .006	mg/kg			WG594235	05/24/12 11:21
Phenanthrene	< .006	mg/kg			WG594235	05/24/12 11:21
Pyrene	< .006	mg/kg			WG594235	05/24/12 11:21
2-Fluorobiphenyl		% Rec.	88.17	34-129	WG594235	05/24/12 11:21
Nitrobenzene-d5		% Rec.	85.49	14-141	WG594235	05/24/12 11:21
p-Terphenyl-d14		% Rec.	116.0	25-139	WG594235	05/24/12 11:21
Chromium,Hexavalent	< 2	mg/kg			WG593917	05/24/12 12:33
Specific Conductance	1.12	umhos/cm			WG594353	05/24/12 16:31
Arsenic	< 1	mg/kg			WG594140	05/29/12 14:30
Barium	< .25	mg/kg			WG594140	05/29/12 14:30
Cadmium	< .25	mg/kg			WG594140	05/29/12 14:30
Chromium	< .5	mg/kg			WG594140	05/29/12 14:30
Copper	< 1	mg/kg			WG594140	05/29/12 14:30
Lead	< .25	mg/kg			WG594140	05/29/12 14:30
Nickel	< 1	mg/kg			WG594140	05/29/12 14:30
Selenium	< 1	mg/kg			WG594140	05/29/12 14:30
Silver	< .5	mg/kg			WG594140	05/29/12 14:30
Zinc	< 1.5	mg/kg			WG594140	05/29/12 14:30

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Quality Assurance Report
Level II

L576279

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Tax I.D. 62-0814289

Est. 1970

May 30, 2012

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Mercury	mg/kg	0	0		0	20	L574644-02	WG593873
pH	su	7.90	7.90		0	1	L576009-35	WG593915
pH	su	8.30	8.40		1.20*	1	L576279-01	WG593915
ORP	mV	240.	240.		0	20	L576373-07	WG594130
ORP	mV	360.	340.		4.32	20	L576493-04	WG594130
Chromium,Hexavalent	mg/kg	0	0		0	20	L576182-01	WG593917
Chromium,Hexavalent	mg/kg	0	0		0	20	L576373-07	WG593917
Specific Conductance	umhos/cm	1400	1400		3.51	20	L576279-01	WG594353
Arsenic	mg/kg	0.620	0.780		23.0*	20	L576262-02	WG594140
Barium	mg/kg	4.80	4.23		13.0	20	L576262-02	WG594140
Cadmium	mg/kg	0	0		0	20	L576262-02	WG594140
Chromium	mg/kg	5.20	3.80		31.3*	20	L576262-02	WG594140
Copper	mg/kg	0	0.344		NA	20	L576262-02	WG594140
Lead	mg/kg	6.20	0.640		163.*	20	L576262-02	WG594140
Nickel	mg/kg	1.10	0.857		21.2*	20	L576262-02	WG594140
Selenium	mg/kg	0	0		0	20	L576262-02	WG594140
Silver	mg/kg	0	0		0	20	L576262-02	WG594140
Zinc	mg/kg	17.0	13.0		25.5*	20	L576262-02	WG594140

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0454	90.8	76-113	WG593781
Ethylbenzene	mg/kg	.05	0.0456	91.3	78-115	WG593781
Toluene	mg/kg	.05	0.0452	90.4	76-114	WG593781
Total Xylene	mg/kg	.15	0.137	91.5	81-118	WG593781
a,a,a-Trifluorotoluene(PID)				98.31	54-144	WG593781
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.32	115.	67-135	WG593781
a,a,a-Trifluorotoluene(FID)				100.8	59-128	WG593781
Mercury	mg/kg	3.77	4.24	112.	71.6-128	WG593873
TPH (GC/FID) High Fraction	ppm	60	48.0	79.9	50-150	WG594019
o-Terphenyl				75.95	50-150	WG594019
pH	su	5.7	5.74	101.	98-101	WG593915
ORP	mV	228	224.	98.2	95.6-104.	WG594130
1-Methylnaphthalene	mg/kg	.033	0.0299	90.5	48-113	WG594235
2-Chloronaphthalene	mg/kg	.033	0.0313	95.0	51-114	WG594235
2-Methylnaphthalene	mg/kg	.033	0.0307	93.1	44-109	WG594235
Acenaphthene	mg/kg	.033	0.0284	86.0	52-108	WG594235
Acenaphthylene	mg/kg	.033	0.0286	86.7	51-110	WG594235

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Anthracene	mg/kg	.033	0.0312	94.5	58-120	WG594235
Benzo(a)anthracene	mg/kg	.033	0.0294	89.1	54-110	WG594235
Benzo(a)pyrene	mg/kg	.033	0.0296	89.7	56-118	WG594235
Benzo(b)fluoranthene	mg/kg	.033	0.0299	90.5	55-114	WG594235
Benzo(g,h,i)perylene	mg/kg	.033	0.0302	91.5	48-130	WG594235
Benzo(k)fluoranthene	mg/kg	.033	0.0316	95.8	55-122	WG594235
Chrysene	mg/kg	.033	0.0321	97.2	57-118	WG594235
Dibenz(a,h)anthracene	mg/kg	.033	0.0291	88.2	53-122	WG594235
Fluoranthene	mg/kg	.033	0.0306	92.7	58-118	WG594235
Fluorene	mg/kg	.033	0.0291	88.1	54-109	WG594235
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0301	91.1	51-125	WG594235
Naphthalene	mg/kg	.033	0.0286	86.7	45-105	WG594235
Phenanthrene	mg/kg	.033	0.0308	93.4	53-114	WG594235
Pyrene	mg/kg	.033	0.0311	94.2	53-121	WG594235
2-Fluorobiphenyl				84.45	34-129	WG594235
Nitrobenzene-d5				82.03	14-141	WG594235
p-Terphenyl-d14				113.5	25-139	WG594235
Chromium,Hexavalent	mg/kg	150	139.	92.7	50-150	WG593917
Specific Conductance	umhos/cm	495	491.	99.2	85-115	WG594353
Arsenic	mg/kg	92.6	87.4	94.4	82.9-117	WG594140
Barium	mg/kg	169	165.	97.6	82.8-117	WG594140
Cadmium	mg/kg	61.8	61.2	99.0	83.3-117	WG594140
Chromium	mg/kg	71.3	67.5	94.7	81.8-118	WG594140
Copper	mg/kg	81.2	80.3	98.9	83.9-116	WG594140
Lead	mg/kg	92.4	91.8	99.4	83.3-117	WG594140
Nickel	mg/kg	59.1	55.2	93.4	83.8-116	WG594140
Selenium	mg/kg	89.5	86.0	96.1	79-121	WG594140
Silver	mg/kg	34.4	32.5	94.5	66.3-134	WG594140
Zinc	mg/kg	141	136.	96.5	80.9-119	WG594140

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
Benzene	mg/kg	0.0477	0.0454	95.0	76-113	4.90	20	WG593781
Ethylbenzene	mg/kg	0.0475	0.0456	95.0	78-115	3.90	20	WG593781
Toluene	mg/kg	0.0468	0.0452	94.0	76-114	3.53	20	WG593781
Total Xylene	mg/kg	0.143	0.137	95.0	81-118	3.90	20	WG593781
a,a,a-Trifluorotoluene(PID)				99.92	54-144			WG593781
TPH (GC/FID) Low Fraction	mg/kg	6.49	6.32	118.	67-135	2.74	20	WG593781
a,a,a-Trifluorotoluene(FID)				101.1	59-128			WG593781
TPH (GC/FID) High Fraction	ppm	48.6	48.0	81.0	50-150	1.38	25	WG594019
o-Terphenyl				78.54	50-150			WG594019
pH	su	5.76	5.74	101.	98-101	0.348	20	WG593915
ORP	mV	224.	224.	98.0	95.6-104.	0	20	WG594130
1-Methylnaphthalene	mg/kg	0.0289	0.0299	88.0	48-113	3.17	24	WG594235

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
2-Chloronaphthalene	mg/kg	0.0282	0.0313	85.0		51-114	10.7	24	WG594235
2-Methylnaphthalene	mg/kg	0.0281	0.0307	85.0		44-109	8.81	24	WG594235
Acenaphthene	mg/kg	0.0279	0.0284	84.0		52-108	1.70	22	WG594235
Acenaphthylene	mg/kg	0.0278	0.0286	84.0		51-110	2.73	21	WG594235
Anthracene	mg/kg	0.0319	0.0312	96.0		58-120	2.14	20	WG594235
Benzo(a)anthracene	mg/kg	0.0301	0.0294	91.0		54-110	2.46	22	WG594235
Benzo(a)pyrene	mg/kg	0.0309	0.0296	94.0		56-118	4.34	21	WG594235
Benzo(b)fluoranthene	mg/kg	0.0328	0.0299	100.		55-114	9.46	20	WG594235
Benzo(g,h,i)perylene	mg/kg	0.0312	0.0302	94.0		48-130	3.12	20	WG594235
Benzo(k)fluoranthene	mg/kg	0.0317	0.0316	96.0		55-122	0.334	25	WG594235
Chrysene	mg/kg	0.0330	0.0321	100.		57-118	2.67	20	WG594235
Dibenz(a,h)anthracene	mg/kg	0.0311	0.0291	94.0		53-122	6.49	20	WG594235
Fluoranthene	mg/kg	0.0323	0.0306	98.0		58-118	5.48	20	WG594235
Fluorene	mg/kg	0.0296	0.0291	90.0		54-109	1.70	20	WG594235
Indeno(1,2,3-cd)pyrene	mg/kg	0.0311	0.0301	94.0		51-125	3.24	21	WG594235
Naphthalene	mg/kg	0.0264	0.0286	80.0		45-105	8.14	24	WG594235
Phenanthrene	mg/kg	0.0314	0.0308	95.0		53-114	1.95	20	WG594235
Pyrene	mg/kg	0.0322	0.0311	98.0		53-121	3.73	20	WG594235
2-Fluorobiphenyl				85.26		34-129			WG594235
Nitrobenzene-d5				72.47		14-141			WG594235
p-Terphenyl-d14				114.0		25-139			WG594235
Chromium,Hexavalent	mg/kg	130.	139.	87.0		50-150	6.69	20	WG593917
Specific Conductance	umhos/	491.	491.	99.0		85-115	0	20	WG594353

Analyte	Units	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res					
Benzene	mg/kg	0.216	0.00570	.05	84.0	32-137	L576279-01	WG593781
Ethylbenzene	mg/kg	0.190	0	.05	76.2	10-150	L576279-01	WG593781
Toluene	mg/kg	0.209	0	.05	83.5	20-142	L576279-01	WG593781
Total Xylene	mg/kg	0.579	0	.15	77.2	16-141	L576279-01	WG593781
a,a,a-Trifluorotoluene(PID)					101.2	54-144		WG593781
TPH (GC/FID) Low Fraction	mg/kg	26.0	0.820	5.5	91.4	55-109	L576279-01	WG593781
a,a,a-Trifluorotoluene(FID)					100.5	59-128		WG593781
Mercury	mg/kg	0.253	0	.25	101.	70-130	L574644-02	WG593873
TPH (GC/FID) High Fraction	ppm	98.8	86.0	60	21.2*	50-150	L576282-01	WG594019
o-Terphenyl					87.66	50-150		WG594019
Chromium,Hexavalent	mg/kg	5.20	0	20	26.0*	50-150	L576279-01	WG593917
1-Methylnaphthalene	mg/kg	0.0529	0.0310	.033	66.3	25-155	L576282-01	WG594235
2-Chloronaphthalene	mg/kg	0.0306	0	.033	92.7	31-153	L576282-01	WG594235
2-Methylnaphthalene	mg/kg	0.0732	0.0470	.033	79.5	22-172	L576282-01	WG594235
Acenaphthene	mg/kg	0.0328	0	.033	99.4	43-133	L576282-01	WG594235
Acenaphthylene	mg/kg	0.0294	0	.033	89.2	42-146	L576282-01	WG594235
Anthracene	mg/kg	0.0317	0	.033	96.0	38-153	L576282-01	WG594235
Benzo(a)anthracene	mg/kg	0.0351	0	.033	106.	31-142	L576282-01	WG594235
Benzo(a)pyrene	mg/kg	0.0309	0	.033	93.6	26-152	L576282-01	WG594235
Benzo(b)fluoranthene	mg/kg	0.0391	0	.033	118.	10-188	L576282-01	WG594235

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzo(g,h,i)perylene	mg/kg	0.0163	0	.033	49.5	10-176	L576282-01	WG594235
Benzo(k)fluoranthene	mg/kg	0.0338	0	.033	102.	22-163	L576282-01	WG594235
Chrysene	mg/kg	0.0621	0	.033	188.*	26-146	L576282-01	WG594235
Dibenz(a,h)anthracene	mg/kg	0.0171	0	.033	51.7	10-160	L576282-01	WG594235
Fluoranthene	mg/kg	0.0356	0	.033	108.	23-160	L576282-01	WG594235
Fluorene	mg/kg	0.0387	0	.033	117.	44-143	L576282-01	WG594235
Indeno(1,2,3-cd)pyrene	mg/kg	0.0173	0	.033	52.5	10-157	L576282-01	WG594235
Naphthalene	mg/kg	0.0465	0.0220	.033	74.2	22-156	L576282-01	WG594235
Phenanthrene	mg/kg	0.0462	0.0150	.033	94.6	23-164	L576282-01	WG594235
Pyrene	mg/kg	0.0591	0.00920	.033	151.	12-170	L576282-01	WG594235
2-Fluorobiphenyl					84.10	34-129		WG594235
Nitrobenzene-d5					89.27	14-141		WG594235
p-Terphenyl-d14					110.9	25-139		WG594235
Arsenic	mg/kg	45.6	0.780	50	89.6	75-125	L576262-02	WG594140
Barium	mg/kg	47.8	4.23	50	87.1	75-125	L576262-02	WG594140
Cadmium	mg/kg	44.2	0	50	88.4	75-125	L576262-02	WG594140
Chromium	mg/kg	46.8	3.80	50	86.0	75-125	L576262-02	WG594140
Copper	mg/kg	45.3	0.344	50	89.9	75-125	L576262-02	WG594140
Lead	mg/kg	45.5	0.640	50	89.7	75-125	L576262-02	WG594140
Nickel	mg/kg	40.8	0.857	50	79.9	75-125	L576262-02	WG594140
Selenium	mg/kg	42.8	0	50	85.6	75-125	L576262-02	WG594140
Silver	mg/kg	44.0	0	50	88.0	75-125	L576262-02	WG594140
Zinc	mg/kg	56.9	13.0	50	87.8	75-125	L576262-02	WG594140

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.229	0.216	89.3	32-137	6.00	39	L576279-01	WG593781
Ethylbenzene	mg/kg	0.198	0.190	79.4	10-150	4.13	44	L576279-01	WG593781
Toluene	mg/kg	0.219	0.209	87.4	20-142	4.61	42	L576279-01	WG593781
Total Xylene	mg/kg	0.600	0.579	80.0	16-141	3.57	46	L576279-01	WG593781
a,a,a-Trifluorotoluene(PID)				102.8	54-144				WG593781
TPH (GC/FID) Low Fraction	mg/kg	22.3	26.0	78.0	55-109	15.3	20	L576279-01	WG593781
a,a,a-Trifluorotoluene(FID)				101.1	59-128				WG593781
Mercury	mg/kg	0.248	0.253	99.2	70-130	2.00	20	L574644-02	WG593873
TPH (GC/FID) High Fraction	ppm	84.1	98.8	0*	50-150	16.0	40	L576282-01	WG594019
o-Terphenyl				89.44	50-150				WG594019
Chromium,Hexavalent	mg/kg	4.76	5.20	23.8*	50-150	8.84	20	L576279-01	WG593917
1-Methylnaphthalene	mg/kg	0.0738	0.0529	130.	25-155	33.0*	27	L576282-01	WG594235
2-Chloronaphthalene	mg/kg	0.0320	0.0306	97.1	31-153	4.64	22	L576282-01	WG594235
2-Methylnaphthalene	mg/kg	0.104	0.0732	172.	22-172	34.7*	29	L576282-01	WG594235
Acenaphthylene	mg/kg	0.0301	0.0328	91.3	43-133	8.57	26	L576282-01	WG594235
Acenaphthylene	mg/kg	0.0308	0.0294	93.3	42-146	4.48	22	L576282-01	WG594235
Anthracene	mg/kg	0.0331	0.0317	100.	38-153	4.45	27	L576282-01	WG594235
Benzo(a)anthracene	mg/kg	0.0298	0.0351	90.3	31-142	16.3	31	L576282-01	WG594235
Benzo(a)pyrene	mg/kg	0.0283	0.0309	85.7	26-152	8.80	32	L576282-01	WG594235
Benzo(b)fluoranthene	mg/kg	0.0324	0.0391	98.3	10-188	18.5	33	L576282-01	WG594235
Benzo(g,h,i)perylene	mg/kg	0.0179	0.0163	54.2	10-176	9.12	30	L576282-01	WG594235
Benzo(k)fluoranthene	mg/kg	0.0293	0.0338	88.9	22-163	14.0	29	L576282-01	WG594235

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Chrysene	mg/kg	0.0328	0.0621	99.5	26-146	61.6*	30	L576282-01	WG594235
Dibenz(a,h)anthracene	mg/kg	0.0157	0.0171	47.5	10-160	8.48	39	L576282-01	WG594235
Fluoranthene	mg/kg	0.0322	0.0356	97.5	23-160	10.2	22	L576282-01	WG594235
Fluorene	mg/kg	0.0385	0.0387	117.	44-143	0.436	23	L576282-01	WG594235
Indeno(1,2,3-cd)pyrene	mg/kg	0.0165	0.0173	49.9	10-157	5.13	40	L576282-01	WG594235
Naphthalene	mg/kg	0.0579	0.0465	109.	22-156	21.9	27	L576282-01	WG594235
Phenanthrene	mg/kg	0.0528	0.0462	114.	23-164	13.2	25	L576282-01	WG594235
Pyrene	mg/kg	0.0388	0.0591	89.8	12-170	41.4*	24	L576282-01	WG594235
2-Fluorobiphenyl				84.20	34-129				WG594235
Nitrobenzene-d5				97.72	14-141				WG594235
p-Terphenyl-d14				119.0	25-139				WG594235
Arsenic	mg/kg	45.1	45.6	88.6	75-125	1.10	20	L576262-02	WG594140
Barium	mg/kg	47.7	47.8	86.9	75-125	0.209	20	L576262-02	WG594140
Cadmium	mg/kg	43.9	44.2	87.8	75-125	0.681	20	L576262-02	WG594140
Chromium	mg/kg	46.6	46.8	85.6	75-125	0.428	20	L576262-02	WG594140
Copper	mg/kg	45.3	45.3	89.9	75-125	0	20	L576262-02	WG594140
Lead	mg/kg	45.2	45.5	89.1	75-125	0.662	20	L576262-02	WG594140
Nickel	mg/kg	40.8	40.8	79.9	75-125	0	20	L576262-02	WG594140
Selenium	mg/kg	42.2	42.8	84.4	75-125	1.41	20	L576262-02	WG594140
Silver	mg/kg	44.0	44.0	88.0	75-125	0	20	L576262-02	WG594140
Zinc	mg/kg	57.0	56.9	88.0	75-125	0.176	20	L576262-02	WG594140

Batch number /Run number / Sample number cross reference

WG593781: R2179173: L576279-01 02 03
WG593873: R2180194: L576279-01
WG594019: R2180853: L576279-01 02 03
WG593838: R2181373: L576279-01
WG593915: R2182573: L576279-01
WG594130: R2183017: L576279-01
WG594235: R2183555: L576279-01 02 03
WG593917: R2183713: L576279-01
WG594353: R2184376: L576279-01
WG594140: R2188633: L576279-01 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.'



YOUR LAB OF CHOICE

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Est. 1970

May 30, 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.