

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

Allowable Concentration -->				Organic Compounds in Soil (mg/kg [ppm])																		Inorganics in Soil			Metals in Soil (mg/kg [ppm])													
Location	Sample Date:	Sample Matrix	Matrix Notes	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	Napthalene	Pyrene	EC (<4 mmhos/cm or 2x background)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (II)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nicke(soluble salts)	Selenium	Silver	Zinc
RD11	12/19/11	Cuttings		55	BDL	55	0.0033	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5	27	8.8	2.7	7400	BDL	11	BDL	13	7.8	BDL	9	BDL	BDL	46



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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 December 28, 2011

Report Number: L552531

Samples Received: 12/20/11

Client Project:

Description: RD11 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 - 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

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

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REPORT OF ANALYSIS

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

December 28, 2011

Date Received : December 20, 2011
Description : RD11 Cuttings
Sample ID : RD11-CUT-121911 10-12IN
Collected By : Brennen Graff
Collection Date : 12/19/11 10:41

ESC Sample # : L552531-01

Site ID : RD11

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	12/22/11	1
Chromium, Trivalent	11.	0.50	mg/kg	Calc.	12/23/11	1
ORP	-140		mV	2580	12/23/11	1
pH	8.8		su	9045D	12/28/11	1
Sodium Adsorption Ratio	27.			Calc.	12/23/11	1
Specific Conductance	1500		umhos/cm	9050AMod	12/28/11	1
Mercury	BDL	0.020	mg/kg	7471	12/23/11	1
Arsenic	2.7	1.0	mg/kg	6010B	12/23/11	1
Barium	7400	1.2	mg/kg	6010B	12/23/11	5
Cadmium	BDL	0.25	mg/kg	6010B	12/23/11	1
Chromium	11.	0.50	mg/kg	6010B	12/23/11	1
Copper	13.	1.0	mg/kg	6010B	12/23/11	1
Lead	7.8	0.25	mg/kg	6010B	12/23/11	1
Nickel	9.0	1.0	mg/kg	6010B	12/23/11	1
Selenium	BDL	1.0	mg/kg	6010B	12/23/11	1
Silver	BDL	0.50	mg/kg	6010B	12/23/11	1
Zinc	46.	1.5	mg/kg	6010B	12/23/11	1
Benzene	0.0033	0.0025	mg/kg	8021/8015	12/21/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	12/21/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	12/21/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	12/21/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	12/21/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	84.0		% Rec.	8021/8015	12/21/11	5
a,a,a-Trifluorotoluene(PID)	86.2		% Rec.	8021/8015	12/21/11	5
TPH (GC/FID) High Fraction	55.	4.0	mg/kg	3546/DRO	12/26/11	1
Surrogate recovery(%)						
o-Terphenyl	65.1		% Rec.	3546/DRO	12/26/11	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L552531-01 (PH) - 8.75@17.6c
L552531-01 (SV8270PAHSIM) - Dilution due to matrix



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Sample ID : RD11-CUT-121911 10-12IN
Collected By : Brennen Graff
Collection Date : 12/19/11 10:41

ESC Sample # : L552531-01

Site ID : RD11

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Chrysene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Fluorene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Naphthalene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Phenanthrene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
1-Methylnaphthalene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
2-Methylnaphthalene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	12/23/11	20
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	12/23/11	20
2-Fluorobiphenyl	0.00		% Rec.	8270C-SIM	12/23/11	20
p-Terphenyl-d14	0.00		% Rec.	8270C-SIM	12/23/11	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 12/28/11 13:58 Printed: 12/28/11 13:59

L552531-01 (PH) - 8.75@17.6c

L552531-01 (SV8270PAHSIM) - Dilution due to matrix

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L552531-01	WG571035	SAMP	Anthracene	R1978074	O
	WG571035	SAMP	Acenaphthene	R1978074	O
	WG571035	SAMP	Acenaphthylene	R1978074	O
	WG571035	SAMP	Benzo(a)anthracene	R1978074	O
	WG571035	SAMP	Benzo(a)pyrene	R1978074	O
	WG571035	SAMP	Benzo(b)fluoranthene	R1978074	O
	WG571035	SAMP	Benzo(g,h,i)perylene	R1978074	O
	WG571035	SAMP	Benzo(k)fluoranthene	R1978074	O
	WG571035	SAMP	Chrysene	R1978074	O
	WG571035	SAMP	Dibenz(a,h)anthracene	R1978074	O
	WG571035	SAMP	Fluoranthene	R1978074	O
	WG571035	SAMP	Fluorene	R1978074	O
	WG571035	SAMP	Indeno(1,2,3-cd)pyrene	R1978074	O
	WG571035	SAMP	Naphthalene	R1978074	O
	WG571035	SAMP	Phenanthrene	R1978074	O
	WG571035	SAMP	Pyrene	R1978074	O
	WG571035	SAMP	1-Methylnaphthalene	R1978074	O
	WG571035	SAMP	2-Methylnaphthalene	R1978074	O
	WG571035	SAMP	2-Chloronaphthalene	R1978074	O
	WG571035	SAMP	Nitrobenzene-d5	R1978074	J7
	WG571035	SAMP	2-Fluorobiphenyl	R1978074	J7
	WG571035	SAMP	p-Terphenyl-d14	R1978074	J7
	WG571391	SAMP	ORP	R1978412	T8
	WG571575	SAMP	TPH (GC/FID) High Fraction	R1979914	J5J3

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
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
12/28/11 at 13:59:18

TSR Signing Reports: 358
R5 - Desired TAT

Try not to report benzene as BDL above a 250x dilution.

Sample: L552531-01 Account: ENCANACO Received: 12/20/11 09:00 Due Date: 12/28/11 00:00 RPT Date: 12/28/11 13:58



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December 28, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG570949	12/20/11 19:56
Ethylbenzene	< .0005	mg/kg			WG570949	12/20/11 19:56
Toluene	< .005	mg/kg			WG570949	12/20/11 19:56
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG570949	12/20/11 19:56
Total Xylene	< .0015	mg/kg			WG570949	12/20/11 19:56
a,a,a-Trifluorotoluene(FID)		% Rec.	97.75	59-128	WG570949	12/20/11 19:56
a,a,a-Trifluorotoluene(PID)		% Rec.	98.15	54-144	WG570949	12/20/11 19:56
Chromium,Hexavalent	< 2	mg/kg			WG570985	12/22/11 16:09
1-Methylnaphthalene	< .006	mg/kg			WG571035	12/22/11 10:00
2-Chloronaphthalene	< .006	mg/kg			WG571035	12/22/11 10:00
2-Methylnaphthalene	< .006	mg/kg			WG571035	12/22/11 10:00
Acenaphthene	< .006	mg/kg			WG571035	12/22/11 10:00
Acenaphthylene	< .006	mg/kg			WG571035	12/22/11 10:00
Anthracene	< .006	mg/kg			WG571035	12/22/11 10:00
Benzo(a)anthracene	< .006	mg/kg			WG571035	12/22/11 10:00
Benzo(a)pyrene	< .006	mg/kg			WG571035	12/22/11 10:00
Benzo(b)fluoranthene	< .006	mg/kg			WG571035	12/22/11 10:00
Benzo(g,h,i)perylene	< .006	mg/kg			WG571035	12/22/11 10:00
Benzo(k)fluoranthene	< .006	mg/kg			WG571035	12/22/11 10:00
Chrysene	< .006	mg/kg			WG571035	12/22/11 10:00
Dibenz(a,h)anthracene	< .006	mg/kg			WG571035	12/22/11 10:00
Fluoranthene	< .006	mg/kg			WG571035	12/22/11 10:00
Fluorene	< .006	mg/kg			WG571035	12/22/11 10:00
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG571035	12/22/11 10:00
Naphthalene	< .006	mg/kg			WG571035	12/22/11 10:00
Phenanthrene	< .006	mg/kg			WG571035	12/22/11 10:00
Pyrene	< .006	mg/kg			WG571035	12/22/11 10:00
2-Fluorobiphenyl		% Rec.	70.90	34-129	WG571035	12/22/11 10:00
Nitrobenzene-d5		% Rec.	67.50	14-141	WG571035	12/22/11 10:00
p-Terphenyl-d14		% Rec.	78.10	25-139	WG571035	12/22/11 10:00
Arsenic	< 1	mg/kg			WG571182	12/23/11 08:34
Barium	< .25	mg/kg			WG571182	12/23/11 08:34
Cadmium	< .25	mg/kg			WG571182	12/23/11 08:34
Chromium	< .5	mg/kg			WG571182	12/23/11 08:34
Copper	< 1	mg/kg			WG571182	12/23/11 08:34
Lead	< .25	mg/kg			WG571182	12/23/11 08:34
Nickel	< 1	mg/kg			WG571182	12/23/11 08:34
Selenium	< 1	mg/kg			WG571182	12/23/11 08:34
Silver	< .5	mg/kg			WG571182	12/23/11 08:34
Zinc	< 1.5	mg/kg			WG571182	12/23/11 08:34
Mercury	< .02	mg/kg			WG571108	12/23/11 12:14
TPH (GC/FID) High Fraction	< 4	ppm			WG571575	12/26/11 13:39
o-Terphenyl		% Rec.	74.79	50-150	WG571575	12/26/11 13:39
Specific Conductance	1.98	umhos/cm			WG571665	12/28/11 10:24
pH	6.10	su			WG571672	12/28/11 10:58

* Performance of this Analyte is outside of established criteria.

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



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Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Chromium,Hexavalent	mg/kg	0	0	0	0	20	L552531-01	WG570985
Chromium,Hexavalent	mg/kg	0	0	0	0	20	L552045-03	WG570985
Barium	mg/kg	140.	150.	5.48		20	L552528-01	WG571182
Cadmium	mg/kg	0	0	0		20	L552528-01	WG571182
Chromium	mg/kg	17.0	16.0	3.68		20	L552528-01	WG571182
Copper	mg/kg	24.0	19.2	20.1*		20	L552528-01	WG571182
Lead	mg/kg	16.0	13.0	20.1*		20	L552528-01	WG571182
Nickel	mg/kg	10.0	9.97	5.18		20	L552528-01	WG571182
Selenium	mg/kg	4.10	4.30	4.52		20	L552528-01	WG571182
Silver	mg/kg	0.950	0.990	4.23		20	L552528-01	WG571182
Zinc	mg/kg	88.0	66.9	26.9*		20	L552528-01	WG571182
Arsenic	mg/kg	0	0	0		20	L552528-01	WG571182
Mercury	mg/kg	0	0.0160	NA		20	L552528-04	WG571108
ORP	mV	0	0	0		20	L552683-05	WG571391
Specific Conductance	umhos/cm	2200	2000	11.3		20	L553313-01	WG571665
pH	su	11.0	11.0	0.725		1	L552438-01	WG571672
pH	su	3.80	3.80	0.786		1	L552921-06	WG571672

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0445	89.0	76-113	WG570949
Ethylbenzene	mg/kg	.05	0.0477	95.3	78-115	WG570949
Toluene	mg/kg	.05	0.0479	95.9	76-114	WG570949
Total Xylene	mg/kg	.15	0.142	94.4	81-118	WG570949
a,a,a-Trifluorotoluene(PID)				101.9	54-144	WG570949
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.13	111.	67-135	WG570949
a,a,a-Trifluorotoluene(FID)				101.9	59-128	WG570949
Chromium,Hexavalent	mg/kg	203	108.	53.2	50-150	WG570985
1-Methylnaphthalene	mg/kg	.033	0.0254	76.9	48-113	WG571035
2-Chloronaphthalene	mg/kg	.033	0.0272	82.5	51-114	WG571035
2-Methylnaphthalene	mg/kg	.033	0.0249	75.4	44-109	WG571035
Acenaphthene	mg/kg	.033	0.0273	82.8	52-108	WG571035
Acenaphthylene	mg/kg	.033	0.0267	80.9	51-110	WG571035
Anthracene	mg/kg	.033	0.0290	87.9	58-120	WG571035
Benzo(a)anthracene	mg/kg	.033	0.0303	91.9	54-110	WG571035
Benzo(a)pyrene	mg/kg	.033	0.0288	87.3	56-118	WG571035
Benzo(b)fluoranthene	mg/kg	.033	0.0286	86.7	55-114	WG571035
Benzo(g,h,i)perylene	mg/kg	.033	0.0263	79.7	48-130	WG571035
Benzo(k)fluoranthene	mg/kg	.033	0.0306	92.7	55-122	WG571035
Chrysene	mg/kg	.033	0.0296	89.6	57-118	WG571035
Dibenz(a,h)anthracene	mg/kg	.033	0.0276	83.8	53-122	WG571035
Fluoranthene	mg/kg	.033	0.0329	99.7	58-118	WG571035
Fluorene	mg/kg	.033	0.0292	88.6	54-109	WG571035
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0271	82.1	51-125	WG571035

* Performance of this Analyte is outside of established criteria.

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



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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Naphthalene	mg/kg	.033	0.0243	73.5	45-105	WG571035
Phenanthrene	mg/kg	.033	0.0289	87.5	53-114	WG571035
Pyrene	mg/kg	.033	0.0311	94.3	53-121	WG571035
2-Fluorobiphenyl				74.25	34-129	WG571035
Nitrobenzene-d5				69.05	14-141	WG571035
p-Terphenyl-d14				93.20	25-139	WG571035
Arsenic	mg/kg	92.6	87.8	94.8	82.9-117	WG571182
Barium	mg/kg	169	167.	98.8	82.8-117	WG571182
Cadmium	mg/kg	61.8	59.8	96.8	83.3-117	WG571182
Chromium	mg/kg	71.3	69.9	98.0	81.8-118	WG571182
Copper	mg/kg	81.2	85.1	105.	83.9-116	WG571182
Lead	mg/kg	92.4	90.0	97.4	83.3-117	WG571182
Nickel	mg/kg	59.1	59.3	100.	83.8-116	WG571182
Selenium	mg/kg	89.5	88.6	99.0	79-121	WG571182
Silver	mg/kg	34.4	33.8	98.3	66.3-134	WG571182
Zinc	mg/kg	141	137.	97.2	80.9-119	WG571182
Mercury	mg/kg	3.77	3.89	103.	71.6-128	WG571108
ORP	mV	229	223.	97.4	95.6-104.37	WG571391
TPH (GC/FID) High Fraction	ppm	60	48.3	80.4	50-150	WG571575
o-Terphenyl				89.80	50-150	WG571575
Specific Conductance	umhos/cm	427	424.	99.3	85-115	WG571665
pH	su	7.98	8.00	100.	98-101	WG571672

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0443	0.0445	88.0	76-113	0.480	20	WG570949
Ethylbenzene	mg/kg	0.0477	0.0477	95.0	78-115	0.100	20	WG570949
Toluene	mg/kg	0.0476	0.0479	95.0	76-114	0.710	20	WG570949
Total Xylene	mg/kg	0.141	0.142	94.0	81-118	0.350	20	WG570949
a,a,a-Trifluorotoluene(PID)				103.6	54-144			WG570949
TPH (GC/FID) Low Fraction	mg/kg	6.30	6.13	115.	67-135	2.82	20	WG570949
a,a,a-Trifluorotoluene(FID)				101.2	59-128			WG570949
Chromium,Hexavalent	mg/kg	125.	108.	62.0	50-150	14.6	20	WG570985
1-Methylnaphthalene	mg/kg	0.0226	0.0254	68.0	48-113	11.7	24	WG571035
2-Chloronaphthalene	mg/kg	0.0240	0.0272	73.0	51-114	12.6	24	WG571035
2-Methylnaphthalene	mg/kg	0.0236	0.0249	72.0	44-109	5.31	24	WG571035
Acenaphthene	mg/kg	0.0247	0.0273	75.0	52-108	9.99	22	WG571035
Acenaphthylene	mg/kg	0.0245	0.0267	74.0	51-110	8.33	21	WG571035
Anthracene	mg/kg	0.0284	0.0290	86.0	58-120	1.99	20	WG571035
Benzo(a)anthracene	mg/kg	0.0297	0.0303	90.0	54-110	2.20	22	WG571035
Benzo(a)pyrene	mg/kg	0.0291	0.0288	88.0	56-118	1.12	21	WG571035
Benzo(b)fluoranthene	mg/kg	0.0288	0.0286	87.0	55-114	0.582	20	WG571035

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzo(g,h,i)perylene	mg/kg	0.0269	0.0263	82.0	48-130	2.33	20	WG571035
Benzo(k)fluoranthene	mg/kg	0.0305	0.0306	92.0	55-122	0.192	25	WG571035
Chrysene	mg/kg	0.0286	0.0296	87.0	57-118	3.17	20	WG571035
Dibenz(a,h)anthracene	mg/kg	0.0274	0.0276	83.0	53-122	0.805	20	WG571035
Fluoranthene	mg/kg	0.0306	0.0329	93.0	58-118	7.14	20	WG571035
Fluorene	mg/kg	0.0262	0.0292	79.0	54-109	11.0	20	WG571035
Indeno(1,2,3-cd)pyrene	mg/kg	0.0275	0.0271	83.0	51-125	1.44	21	WG571035
Naphthalene	mg/kg	0.0215	0.0243	65.0	45-105	12.2	24	WG571035
Phenanthrene	mg/kg	0.0285	0.0289	86.0	53-114	1.39	20	WG571035
Pyrene	mg/kg	0.0305	0.0311	92.0	53-121	2.07	20	WG571035
2-Fluorobiphenyl				66.35	34-129			WG571035
Nitrobenzene-d5				59.20	14-141			WG571035
p-Terphenyl-d14				81.50	25-139			WG571035
ORP	mV	226.	223.	99.0	95.6-104.37	1.34	20	WG571391
TPH (GC/FID) High Fraction	ppm	47.6	48.3	79.0	50-150	1.30	20	WG571575
o-Terphenyl				86.77	50-150			WG571575
Specific Conductance	umhos/	423.	424.	99.0	85-115	0.236	20	WG571665
pH	su	8.00	8.00	100.	98-101	0	20	WG571672

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.197	0	.05	78.9	32-137	L552501-02	WG570949
Ethylbenzene	mg/kg	0.211	0	.05	84.5	10-150	L552501-02	WG570949
Toluene	mg/kg	0.215	0	.05	85.8	20-142	L552501-02	WG570949
Total Xylene	mg/kg	0.629	0	.15	83.9	16-141	L552501-02	WG570949
a,a,a-Trifluorotoluene(PID)					99.71	54-144		WG570949
TPH (GC/FID) Low Fraction	mg/kg	28.5	0	5.5	103.	55-109	L552501-02	WG570949
a,a,a-Trifluorotoluene(FID)					102.5	59-128		WG570949
Chromium,Hexavalent	mg/kg	3.88	1.00	20	14.4*	50-150	L552306-02	WG570985
1-Methylnaphthalene	mg/kg	0.0275	0	.033	83.2	25-155	L552507-01	WG571035
2-Chloronaphthalene	mg/kg	0.0287	0	.033	86.8	31-153	L552507-01	WG571035
2-Methylnaphthalene	mg/kg	0.0276	0	.033	83.5	22-172	L552507-01	WG571035
Acenaphthene	mg/kg	0.0281	0	.033	85.2	43-133	L552507-01	WG571035
Acenaphthylene	mg/kg	0.0289	0	.033	87.7	42-146	L552507-01	WG571035
Anthracene	mg/kg	0.0301	0	.033	91.2	38-153	L552507-01	WG571035
Benzo(a)anthracene	mg/kg	0.0286	0	.033	86.8	31-142	L552507-01	WG571035
Benzo(a)pyrene	mg/kg	0.0296	0	.033	89.6	26-152	L552507-01	WG571035
Benzo(b)fluoranthene	mg/kg	0.0287	0	.033	86.8	10-188	L552507-01	WG571035
Benzo(g,h,i)perylene	mg/kg	0.0266	0	.033	80.5	10-176	L552507-01	WG571035
Benzo(k)fluoranthene	mg/kg	0.0288	0	.033	87.4	22-163	L552507-01	WG571035
Chrysene	mg/kg	0.0287	0	.033	87.1	26-146	L552507-01	WG571035
Dibenz(a,h)anthracene	mg/kg	0.0274	0	.033	83.2	10-160	L552507-01	WG571035
Fluoranthene	mg/kg	0.0327	0	.033	99.2	23-160	L552507-01	WG571035
Fluorene	mg/kg	0.0308	0	.033	93.3	44-143	L552507-01	WG571035
Indeno(1,2,3-cd)pyrene	mg/kg	0.0282	0	.033	85.4	10-157	L552507-01	WG571035
Naphthalene	mg/kg	0.0259	0	.033	78.6	22-156	L552507-01	WG571035

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Phenanthrene	mg/kg	0.0289	0	.033	87.7	23-164	L552507-01	WG571035
Pyrene	mg/kg	0.0311	0	.033	94.4	12-170	L552507-01	WG571035
2-Fluorobiphenyl					79.40	34-129		WG571035
Nitrobenzene-d5					75.75	14-141		WG571035
p-Terphenyl-d14					89.55	25-139		WG571035
Barium	mg/kg	227.	150.	50	154.*	75-125	L552528-01	WG571182
Cadmium	mg/kg	46.3	0	50	92.6	75-125	L552528-01	WG571182
Chromium	mg/kg	63.1	16.0	50	94.2	75-125	L552528-01	WG571182
Copper	mg/kg	75.7	19.2	50	113.	75-125	L552528-01	WG571182
Lead	mg/kg	64.3	13.0	50	103.	75-125	L552528-01	WG571182
Nickel	mg/kg	56.3	9.97	50	92.7	75-125	L552528-01	WG571182
Selenium	mg/kg	48.9	4.30	50	89.2	75-125	L552528-01	WG571182
Silver	mg/kg	48.0	0.990	50	94.0	75-125	L552528-01	WG571182
Zinc	mg/kg	136.	66.9	50	138.*	75-125	L552528-01	WG571182
Arsenic	mg/kg	38.9	0	5	77.8	75-125	L552528-01	WG571182
Mercury	mg/kg	0.236	0.0160	.25	88.0	70-130	L552528-04	WG571108
TPH (GC/FID) High Fraction	ppm	251.	55.0	60	326.*	50-150	L552531-01	WG571575
o-Terphenyl					97.18	50-150		WG571575

Analyte	Units	MSD	Matrix Spike	Duplicate	Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Benzene	mg/kg	0.182	0.197	72.8	32-137	7.96	39	L552501-02		WG570949
Ethylbenzene	mg/kg	0.192	0.211	77.0	10-150	9.30	44	L552501-02		WG570949
Toluene	mg/kg	0.195	0.215	78.0	20-142	9.51	42	L552501-02		WG570949
Total Xylene	mg/kg	0.572	0.629	76.3	16-141	9.45	46	L552501-02		WG570949
a,a,a-Trifluorotoluene(PID)				95.20	54-144					WG570949
TPH (GC/FID) Low Fraction	mg/kg	28.1	28.5	102.	55-109	1.29	20	L552501-02		WG570949
a,a,a-Trifluorotoluene(FID)				100.8	59-128					WG570949
Chromium, Hexavalent	mg/kg	-0.640	3.88	0*	50-150	279.*	20	L552306-02		WG570985
1-Methylnaphthalene	mg/kg	0.0250	0.0275	75.9	25-155	9.17	27	L552507-01		WG571035
2-Chloronaphthalene	mg/kg	0.0272	0.0287	82.4	31-153	5.25	22	L552507-01		WG571035
2-Methylnaphthalene	mg/kg	0.0258	0.0276	78.3	22-172	6.46	29	L552507-01		WG571035
Acenaphthene	mg/kg	0.0273	0.0281	82.7	43-133	3.00	26	L552507-01		WG571035
Acenaphthylene	mg/kg	0.0263	0.0289	79.7	42-146	9.53	22	L552507-01		WG571035
Anthracene	mg/kg	0.0272	0.0301	82.6	38-153	9.98	27	L552507-01		WG571035
Benzo(a)anthracene	mg/kg	0.0272	0.0286	82.4	31-142	5.25	31	L552507-01		WG571035
Benzo(a)pyrene	mg/kg	0.0263	0.0296	79.7	26-152	11.7	32	L552507-01		WG571035
Benzo(b)fluoranthene	mg/kg	0.0258	0.0287	78.1	10-188	10.6	33	L552507-01		WG571035
Benzo(g,h,i)perylene	mg/kg	0.0236	0.0266	71.6	10-176	11.7	30	L552507-01		WG571035
Benzo(k)fluoranthene	mg/kg	0.0280	0.0288	84.8	22-163	2.98	29	L552507-01		WG571035
Chrysene	mg/kg	0.0266	0.0287	80.5	26-146	7.80	30	L552507-01		WG571035
Dibenz(a,h)anthracene	mg/kg	0.0251	0.0274	76.1	10-160	8.81	39	L552507-01		WG571035
Fluoranthene	mg/kg	0.0280	0.0327	84.7	23-160	15.7	22	L552507-01		WG571035
Fluorene	mg/kg	0.0276	0.0308	83.7	44-143	10.9	23	L552507-01		WG571035
Indeno(1,2,3-cd)pyrene	mg/kg	0.0247	0.0282	74.8	10-157	13.1	40	L552507-01		WG571035
Naphthalene	mg/kg	0.0231	0.0259	70.0	22-156	11.5	27	L552507-01		WG571035
Phenanthrene	mg/kg	0.0268	0.0289	81.2	23-164	7.75	25	L552507-01		WG571035
Pyrene	mg/kg	0.0270	0.0311	81.8	12-170	14.2	24	L552507-01		WG571035

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
2-Fluorobiphenyl				77.35	34-129					
Nitrobenzene-d5				68.60	14-141					
p-Terphenyl-d14				70.10	25-139					
Barium	mg/kg	266.	227.	232.*	75-125	15.8	20	L552528-01		WG571182
Cadmium	mg/kg	49.0	46.3	98.0	75-125	5.67	20	L552528-01		WG571182
Chromium	mg/kg	66.3	63.1	101.	75-125	4.95	20	L552528-01		WG571182
Copper	mg/kg	80.2	75.7	122.	75-125	5.77	20	L552528-01		WG571182
Lead	mg/kg	68.0	64.3	110.	75-125	5.59	20	L552528-01		WG571182
Nickel	mg/kg	59.9	56.3	99.9	75-125	6.20	20	L552528-01		WG571182
Selenium	mg/kg	51.1	48.9	93.6	75-125	4.40	20	L552528-01		WG571182
Silver	mg/kg	50.9	48.0	99.8	75-125	5.86	20	L552528-01		WG571182
Zinc	mg/kg	140.	136.	146.*	75-125	2.90	20	L552528-01		WG571182
Arsenic	mg/kg	42.9	38.9	85.8	75-125	9.78	20	L552528-01		WG571182
Mercury	mg/kg	0.243	0.236	90.8	70-130	2.92	20	L552528-04		WG571108
TPH (GC/FID) High Fraction	ppm	186.	251.	218.*	50-150	29.9*	20	L552531-01		WG571575
o-Terphenyl				108.0	50-150					WG571575

Batch number /Run number / Sample number cross reference

WG570949: R1975472: L552531-01
WG570985: R1977133: L552531-01
WG571035: R1978074: L552531-01
WG571182: R1978192: L552531-01
WG571108: R1978333: L552531-01
WG571391: R1978412: L552531-01
WG571275: R1978493: L552531-01
WG571575: R1979914: L552531-01
WG571665: R1981553: L552531-01
WG571672: R1981972: L552531-01

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

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

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

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

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