

			Organic Compounds in Soil (mg/kg [ppm])																				Inorganics in Soil			Metals in Soil (mg/kg [ppm])													
Allowable Concentration -->				500	TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	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
Location	Sample Date:	Sample Matrix	Matrix Notes					Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenz(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 (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc
PE25	11/09/11	Cuttings		102.3	2.3	100	0.036	0.046	0.0038	0.016	BDL	BDL	BDL	BDL	BDL	0.011	BDL	0.0072	0.036	BDL	0.2	BDL	2.3	33	9	5.4	4000	0.67	11	BDL	17	11	BDL	9.4	BDL	BDL	37		



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

Report Summary

Friday November 18, 2011

Report Number: L546091

Samples Received: 11/10/11

Client Project:

Description: PE25-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

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

November 18, 2011

Date Received : November 10, 2011
Description : PE25-Cuttings
Sample ID : PE25-CUT-11911
Collected By : Brennen Graff
Collection Date : 11/09/11 08:44

ESC Sample # : L546091-01

Site ID : PE25

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/14/11	1
Chromium, Trivalent	11.	0.50	mg/kg	Calc.	11/14/11	1
ORP	-120		mV	2580	11/11/11	1
pH	9.0		su	9045D	11/15/11	1
Sodium Adsorption Ratio	33.			Calc.	11/12/11	1
Specific Conductance	2300		umhos/cm	9050AMod	11/16/11	1
Mercury	BDL	0.020	mg/kg	7471	11/11/11	1
Arsenic	5.4	1.0	mg/kg	6010B	11/14/11	1
Barium	4000	0.25	mg/kg	6010B	11/14/11	1
Cadmium	0.67	0.25	mg/kg	6010B	11/14/11	1
Chromium	11.	0.50	mg/kg	6010B	11/14/11	1
Copper	17.	1.0	mg/kg	6010B	11/14/11	1
Lead	11.	0.25	mg/kg	6010B	11/14/11	1
Nickel	9.4	1.0	mg/kg	6010B	11/14/11	1
Selenium	BDL	1.0	mg/kg	6010B	11/14/11	1
Silver	BDL	0.50	mg/kg	6010B	11/14/11	1
Zinc	37.	1.5	mg/kg	6010B	11/14/11	1
Benzene	0.036	0.0025	mg/kg	8021/8015	11/15/11	5
Toluene	0.046	0.025	mg/kg	8021/8015	11/15/11	5
Ethylbenzene	0.0038	0.0025	mg/kg	8021/8015	11/15/11	5
Total Xylene	0.016	0.0075	mg/kg	8021/8015	11/15/11	5
TPH (GC/FID) Low Fraction	2.3	0.50	mg/kg	GRO	11/15/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.7		% Rec.	8021/8015	11/15/11	5
a,a,a-Trifluorotoluene(PID)	98.2		% Rec.	8021/8015	11/15/11	5
TPH (GC/FID) High Fraction	100	4.0	mg/kg	3546/DRO	11/11/11	1
Surrogate recovery(%)						
o-Terphenyl	69.1		% Rec.	3546/DRO	11/11/11	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L546091-01 (PH) - 8.96@20.1c



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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

November 18, 2011

Date Received : November 10, 2011
Description : PE25-Cuttings

Sample ID : PE25-CUT-11911

Collected By : Brennen Graff
Collection Date : 11/09/11 08:44

ESC Sample # : L546091-01

Site ID : PE25

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Chrysene	0.011	0.0060	mg/kg	8270C-SIM	11/18/11	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Fluoranthene	0.0072	0.0060	mg/kg	8270C-SIM	11/18/11	1
Fluorene	0.036	0.0060	mg/kg	8270C-SIM	11/18/11	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Naphthalene	0.20	0.0060	mg/kg	8270C-SIM	11/18/11	1
Phenanthrene	0.084	0.0060	mg/kg	8270C-SIM	11/18/11	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
1-Methylnaphthalene	0.19	0.0060	mg/kg	8270C-SIM	11/18/11	1
2-Methylnaphthalene	0.34	0.0060	mg/kg	8270C-SIM	11/18/11	1
2-Chloronaphthalene	BDL	0.0060	mg/kg	8270C-SIM	11/18/11	1
Surrogate Recovery						
Nitrobenzene-d5	99.5		% Rec.	8270C-SIM	11/18/11	1
2-Fluorobiphenyl	57.3		% Rec.	8270C-SIM	11/18/11	1
p-Terphenyl-d14	86.1		% Rec.	8270C-SIM	11/18/11	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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Reported: 11/18/11 17:12 Printed: 11/18/11 17:12
L546091-01 (PH) - 8.96@20.1c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L546091-01	WG566186	SAMP	2-Methylnaphthalene	R1936812	E
	WG565675	SAMP	pH	R1932493	T8
	WG565090	SAMP	ORP	R1928893	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
E	GTL (EPA) - Greater than upper calibration limit: Actual value is known to be greater than the upper calibration range.
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
11/18/11 at 17:12:50

TSR Signing Reports: 358
R5 - Desired TAT

Sample: L546091-01 Account: ENCANACO Received: 11/10/11 09:00 Due Date: 11/17/11 00:00 RPT Date: 11/18/11 17:12



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Est. 1970

November 18, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) High Fraction	< 4	ppm			WG565102	11/11/11 16:37
o-Terphenyl		% Rec.	57.97	50-150	WG565102	11/11/11 16:37
Chromium, Hexavalent	< 2	mg/kg			WG565057	11/14/11 10:15
Mercury	< .02	mg/kg			WG565114	11/11/11 17:33
Arsenic	< 1	mg/kg			WG565012	11/14/11 08:55
Barium	< .25	mg/kg			WG565012	11/14/11 08:55
Cadmium	< .25	mg/kg			WG565012	11/14/11 08:55
Chromium	< .5	mg/kg			WG565012	11/14/11 08:55
Copper	< 1	mg/kg			WG565012	11/14/11 08:55
Nickel	< 1	mg/kg			WG565012	11/14/11 08:55
Selenium	< 1	mg/kg			WG565012	11/14/11 08:55
Silver	< .5	mg/kg			WG565012	11/14/11 08:55
Zinc	< 1.5	mg/kg			WG565012	11/14/11 08:55
Lead	< .25	mg/kg			WG565012	11/14/11 16:03
pH	5.10	su			WG565675	11/15/11 15:31
Benzene	< .0005	mg/kg			WG565706	11/15/11 17:41
Ethylbenzene	< .0005	mg/kg			WG565706	11/15/11 17:41
Toluene	< .005	mg/kg			WG565706	11/15/11 17:41
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG565706	11/15/11 17:41
Total Xylene	< .0015	mg/kg			WG565706	11/15/11 17:41
a,a,a-Trifluorotoluene (FID)		% Rec.	97.13	59-128	WG565706	11/15/11 17:41
a,a,a-Trifluorotoluene (PID)		% Rec.	96.69	54-144	WG565706	11/15/11 17:41
Specific Conductance	1.40	umhos/cm			WG565806	11/16/11 16:28
1-Methylnaphthalene	< .006	mg/kg			WG566186	11/18/11 15:48
2-Chloronaphthalene	< .006	mg/kg			WG566186	11/18/11 15:48
2-Methylnaphthalene	< .006	mg/kg			WG566186	11/18/11 15:48
Acenaphthene	< .006	mg/kg			WG566186	11/18/11 15:48
Acenaphthylene	< .006	mg/kg			WG566186	11/18/11 15:48
Anthracene	< .006	mg/kg			WG566186	11/18/11 15:48
Benzo(a)anthracene	< .006	mg/kg			WG566186	11/18/11 15:48
Benzo(a)pyrene	< .006	mg/kg			WG566186	11/18/11 15:48
Benzo(b)fluoranthene	< .006	mg/kg			WG566186	11/18/11 15:48
Benzo(g,h,i)perylene	< .006	mg/kg			WG566186	11/18/11 15:48
Benzo(k)fluoranthene	< .006	mg/kg			WG566186	11/18/11 15:48
Chrysene	< .006	mg/kg			WG566186	11/18/11 15:48
Dibenz(a,h)anthracene	< .006	mg/kg			WG566186	11/18/11 15:48
Fluoranthene	< .006	mg/kg			WG566186	11/18/11 15:48
Fluorene	< .006	mg/kg			WG566186	11/18/11 15:48
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG566186	11/18/11 15:48
Naphthalene	< .006	mg/kg			WG566186	11/18/11 15:48
Phenanthrene	< .006	mg/kg			WG566186	11/18/11 15:48
Pyrene	< .006	mg/kg			WG566186	11/18/11 15:48
2-Fluorobiphenyl		% Rec.	93.35	34-129	WG566186	11/18/11 15:48
Nitrobenzene-d5		% Rec.	82.70	14-141	WG566186	11/18/11 15:48
p-Terphenyl-d14		% Rec.	98.99	25-139	WG566186	11/18/11 15:48

* 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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November 18, 2011

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
ORP	mV	180.	180.	1.10	20	L545601-02	WG565090
ORP	mV	0	0	0	20	L546195-01	WG565090
Chromium, Hexavalent	mg/kg	0	0	0	20	L546009-01	WG565057
Mercury	mg/kg	0.0200	0.0530	90.4*	20	L546095-05	WG565114
Arsenic	mg/kg	5.00	4.90	2.02	20	L546095-11	WG565012
Barium	mg/kg	17.0	18.0	7.49	20	L546095-11	WG565012
Cadmium	mg/kg	0.730	0.630	14.4	20	L546095-11	WG565012
Chromium	mg/kg	5.60	8.20	37.0*	20	L546095-11	WG565012
Copper	mg/kg	5.90	6.10	3.50	20	L546095-11	WG565012
Lead	mg/kg	5.90	6.40	7.96	20	L546095-11	WG565012
Nickel	mg/kg	16.0	18.1	13.6	20	L546095-11	WG565012
Selenium	mg/kg	0	0	0	20	L546095-11	WG565012
Silver	mg/kg	0	0	0	20	L546095-11	WG565012
Zinc	mg/kg	29.0	27.7	3.55	20	L546095-11	WG565012
pH	su	9.00	9.00	0.445	1	L546091-01	WG565675
pH	su	12.0	12.0	0.0833	1	L546702-02	WG565675
Specific Conductance	umhos/cm	2300	2300	1.08	20	L546091-01	WG565806
Specific Conductance	umhos/cm	12000	11000	4.44	20	L546620-01	WG565806

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
ORP	mV	229	230.	100.	95.6-104.37	WG565090
TPH (GC/FID) High Fraction	ppm	60	44.4	74.0	50-150	WG565102
o-Terphenyl				74.15	50-150	WG565102
Chromium,Hexavalent	mg/kg	203	169.	83.3	50-150	WG565057
Mercury	mg/kg	3.77	4.19	111.	71.6-128	WG565114
Arsenic	mg/kg	92.6	90.5	97.7	82.9-117	WG565012
Barium	mg/kg	169	167.	98.8	82.8-117	WG565012
Cadmium	mg/kg	61.8	61.2	99.0	83.3-117	WG565012
Chromium	mg/kg	71.3	72.4	102.	81.8-118	WG565012
Copper	mg/kg	81.2	83.2	102.	83.9-116	WG565012
Lead	mg/kg	92.4	93.5	101.	83.3-117	WG565012
Nickel	mg/kg	59.1	60.7	103.	83.8-116	WG565012
Selenium	mg/kg	89.5	87.7	98.0	79-121	WG565012
Silver	mg/kg	34.4	33.0	95.9	66.3-134	WG565012
Zinc	mg/kg	141	141.	100.	80.9-119	WG565012
pH	su	7.98	7.90	99.0	98-101	WG565675

* 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			
Benzene	mg/kg	.05	0.0463	92.7	76-113	WG565706
Ethylbenzene	mg/kg	.05	0.0487	97.4	78-115	WG565706
Toluene	mg/kg	.05	0.0514	103.	76-114	WG565706
Total Xylene	mg/kg	.15	0.140	93.5	81-118	WG565706
a,a,a-Trifluorotoluene(PID)	mg/kg	5.5	6.58	96.94	54-144	WG565706
TPH (GC/FID) Low Fraction				120.	67-135	WG565706
a,a,a-Trifluorotoluene(FID)				104.6	59-128	WG565706
Specific Conductance	umhos/cm	427	420.	98.4	85-115	WG565806
1-Methylnaphthalene	mg/kg	.033	0.0274	83.1	48-113	WG566186
2-Chloronaphthalene	mg/kg	.033	0.0284	86.0	51-114	WG566186
2-Methylnaphthalene	mg/kg	.033	0.0233	70.5	44-109	WG566186
Acenaphthene	mg/kg	.033	0.0280	84.9	52-108	WG566186
Acenaphthylene	mg/kg	.033	0.0273	82.7	51-110	WG566186
Anthracene	mg/kg	.033	0.0290	87.8	58-120	WG566186
Benzo(a)anthracene	mg/kg	.033	0.0278	84.3	54-110	WG566186
Benzo(a)pyrene	mg/kg	.033	0.0290	87.9	56-118	WG566186
Benzo(b)fluoranthene	mg/kg	.033	0.0282	85.5	55-114	WG566186
Benzo(g,h,i)perylene	mg/kg	.033	0.0285	86.5	48-130	WG566186
Benzo(k)fluoranthene	mg/kg	.033	0.0306	92.8	55-122	WG566186
Chrysene	mg/kg	.033	0.0276	83.6	57-118	WG566186
Dibenz(a,h)anthracene	mg/kg	.033	0.0279	84.5	53-122	WG566186
Fluoranthene	mg/kg	.033	0.0299	90.6	58-118	WG566186
Fluorene	mg/kg	.033	0.0283	85.9	54-109	WG566186
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0281	85.2	51-125	WG566186
Naphthalene	mg/kg	.033	0.0237	71.9	45-105	WG566186
Phenanthrene	mg/kg	.033	0.0259	78.5	53-114	WG566186
Pyrene	mg/kg	.033	0.0296	89.6	53-121	WG566186
2-Fluorobiphenyl				85.63	34-129	WG566186
Nitrobenzene-d5				77.03	14-141	WG566186
p-Terphenyl-d14				98.89	25-139	WG566186

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
ORP	mV	230.	230.	100.	95.6-104.37	0	20	WG565090
TPH (GC/FID) High Fraction	ppm	44.2	44.4	74.0	50-150	0.344	20	WG565102
o-Terphenyl				70.58	50-150			WG565102
Chromium,Hexavalent	mg/kg	165.	169.	81.0	50-150	2.40	20	WG565057
pH	su	7.90	7.90	99.0	98-101	0	20	WG565675
Benzene	mg/kg	0.0493	0.0463	98.0	76-113	6.17	20	WG565706
Ethylbenzene	mg/kg	0.0514	0.0487	103.	78-115	5.49	20	WG565706
Toluene	mg/kg	0.0546	0.0514	109.	76-114	5.91	20	WG565706
Total Xylene	mg/kg	0.147	0.140	98.0	81-118	5.01	20	WG565706
a,a,a-Trifluorotoluene(PID)	mg/kg	6.64	6.58	99.67	54-144	0.820	20	WG565706
TPH (GC/FID) Low Fraction				121.	67-135			WG565706
a,a,a-Trifluorotoluene(FID)				105.6	59-128			WG565706

* Performance of this Analyte is outside of established criteria.

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



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Chris Hines / Matt Kasten
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report
Level II

L546091

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

November 18, 2011

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Specific Conductance	umhos/	420.	420.	98.0	85-115	0	20	WG565806
1-Methylnaphthalene	mg/kg	0.0312	0.0274	94.0	48-113	12.7	24	WG566186
2-Chloronaphthalene	mg/kg	0.0319	0.0284	97.0	51-114	11.7	24	WG566186
2-Methylnaphthalene	mg/kg	0.0261	0.0233	79.0	44-109	11.5	24	WG566186
Acenaphthene	mg/kg	0.0315	0.0280	95.0	52-108	11.7	22	WG566186
Acenaphthylene	mg/kg	0.0300	0.0273	91.0	51-110	9.58	21	WG566186
Anthracene	mg/kg	0.0326	0.0290	99.0	58-120	11.7	20	WG566186
Benzo(a)anthracene	mg/kg	0.0288	0.0278	87.0	54-110	3.40	22	WG566186
Benzo(a)pyrene	mg/kg	0.0309	0.0290	94.0	56-118	6.27	21	WG566186
Benzo(b)fluoranthene	mg/kg	0.0318	0.0282	96.0	55-114	11.9	20	WG566186
Benzo(g,h,i)perylene	mg/kg	0.0304	0.0285	92.0	48-130	6.28	20	WG566186
Benzo(k)fluoranthene	mg/kg	0.0318	0.0306	96.0	55-122	3.75	25	WG566186
Chrysene	mg/kg	0.0303	0.0276	92.0	57-118	9.43	20	WG566186
Dibenz(a,h)anthracene	mg/kg	0.0297	0.0279	90.0	53-122	6.31	20	WG566186
Fluoranthene	mg/kg	0.0328	0.0299	99.0	58-118	9.14	20	WG566186
Fluorene	mg/kg	0.0305	0.0283	92.0	54-109	7.35	20	WG566186
Indeno(1,2,3-cd)pyrene	mg/kg	0.0300	0.0281	91.0	51-125	6.34	21	WG566186
Naphthalene	mg/kg	0.0269	0.0237	82.0	45-105	12.6	24	WG566186
Phenanthrene	mg/kg	0.0278	0.0259	84.0	53-114	7.07	20	WG566186
Pyrene	mg/kg	0.0317	0.0296	96.0	53-121	6.84	20	WG566186
2-Fluorobiphenyl				91.48	34-129			WG566186
Nitrobenzene-d5				78.88	14-141			WG566186
p-Terphenyl-d14				101.2	25-139			WG566186

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
TPH (GC/FID) High Fraction	ppm	63.3	27.0	60	60.5	50-150	L546195-02	WG565102
o-Terphenyl					60.90	50-150		WG565102
Chromium, Hexavalent	mg/kg	19.6	0	20	98.2	50-150	L546089-01	WG565057
Mercury	mg/kg	0.269	0.0530	.25	86.4	70-130	L546095-05	WG565114
Arsenic	mg/kg	51.9	4.90	50	94.0	75-125	L546095-11	WG565012
Barium	mg/kg	64.5	18.0	50	93.0	75-125	L546095-11	WG565012
Cadmium	mg/kg	48.3	0.630	50	95.3	75-125	L546095-11	WG565012
Chromium	mg/kg	55.8	8.20	50	95.2	75-125	L546095-11	WG565012
Copper	mg/kg	54.7	6.10	50	97.2	75-125	L546095-11	WG565012
Lead	mg/kg	53.6	6.40	50	94.4	75-125	L546095-11	WG565012
Nickel	mg/kg	64.4	18.1	50	92.6	75-125	L546095-11	WG565012
Selenium	mg/kg	43.7	0	50	87.4	75-125	L546095-11	WG565012
Silver	mg/kg	47.4	0	50	94.8	75-125	L546095-11	WG565012
Zinc	mg/kg	78.8	27.7	50	102.	75-125	L546095-11	WG565012
Benzene	mg/kg	0.209	0	.05	83.7	32-137	L546475-05	WG565706
Ethylbenzene	mg/kg	0.214	0	.05	85.6	10-150	L546475-05	WG565706
Toluene	mg/kg	0.230	0	.05	91.9	20-142	L546475-05	WG565706
Total Xylene	mg/kg	0.616	0	.15	82.1	16-141	L546475-05	WG565706
a,a,a-Trifluorotoluene(PID)					96.78	54-144		WG565706
TPH (GC/FID) Low Fraction	mg/kg	29.5	0	5.5	107.	55-109	L546475-05	WG565706
a,a,a-Trifluorotoluene(FID)					103.0	59-128		WG565706

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
1-Methylnaphthalene	mg/kg	0.0193	0	.033	58.6	25-155	L547242-01	WG566186
2-Chloronaphthalene	mg/kg	0.0203	0	.033	61.6	31-153	L547242-01	WG566186
2-Methylnaphthalene	mg/kg	0.0170	0	.033	51.6	22-172	L547242-01	WG566186
Acenaphthene	mg/kg	0.0191	0	.033	57.9	43-133	L547242-01	WG566186
Acenaphthylene	mg/kg	0.0196	0	.033	59.5	42-146	L547242-01	WG566186
Anthracene	mg/kg	0.0196	0	.033	59.3	38-153	L547242-01	WG566186
Benzo(a)anthracene	mg/kg	0.0183	0	.033	55.4	31-142	L547242-01	WG566186
Benzo(a)pyrene	mg/kg	0.0197	0	.033	59.6	26-152	L547242-01	WG566186
Benzo(b)fluoranthene	mg/kg	0.0217	0	.033	65.6	10-188	L547242-01	WG566186
Benzo(g,h,i)perylene	mg/kg	0.0105	0	.033	31.7	10-176	L547242-01	WG566186
Benzo(k)fluoranthene	mg/kg	0.0181	0	.033	54.7	22-163	L547242-01	WG566186
Chrysene	mg/kg	0.0184	0	.033	55.7	26-146	L547242-01	WG566186
Dibenz(a,h)anthracene	mg/kg	0.0124	0	.033	37.6	10-160	L547242-01	WG566186
Fluoranthene	mg/kg	0.0196	0	.033	59.4	23-160	L547242-01	WG566186
Fluorene	mg/kg	0.0195	0	.033	59.0	44-143	L547242-01	WG566186
Indeno(1,2,3-cd)pyrene	mg/kg	0.0122	0	.033	36.8	10-157	L547242-01	WG566186
Naphthalene	mg/kg	0.0160	0	.033	48.6	22-156	L547242-01	WG566186
Phenanthrene	mg/kg	0.0176	0	.033	53.2	23-164	L547242-01	WG566186
Pyrene	mg/kg	0.0193	0	.033	58.6	12-170	L547242-01	WG566186
2-Fluorobiphenyl					57.57	34-129		WG566186
Nitrobenzene-d5					50.86	14-141		WG566186
p-Terphenyl-d14					57.79	25-139		WG566186

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
TPH (GC/FID) High Fraction	ppm	63.2	63.3	60.2	50-150	0.239	20	L546195-02	WG565102
o-Terphenyl				60.66	50-150				WG565102
Chromium,Hexavalent	mg/kg	18.6	19.6	93.2	50-150	5.22	20	L546089-01	WG565057
Mercury	mg/kg	0.307	0.269	102.	70-130	13.2	20	L546095-05	WG565114
Arsenic	mg/kg	51.3	51.9	92.8	75-125	1.16	20	L546095-11	WG565012
Barium	mg/kg	65.1	64.5	94.2	75-125	0.926	20	L546095-11	WG565012
Cadmium	mg/kg	47.9	48.3	94.5	75-125	0.832	20	L546095-11	WG565012
Chromium	mg/kg	55.7	55.8	95.0	75-125	0.179	20	L546095-11	WG565012
Copper	mg/kg	54.2	54.7	96.2	75-125	0.918	20	L546095-11	WG565012
Lead	mg/kg	53.4	53.6	94.0	75-125	0.374	20	L546095-11	WG565012
Nickel	mg/kg	64.0	64.4	91.8	75-125	0.623	20	L546095-11	WG565012
Selenium	mg/kg	42.9	43.7	85.8	75-125	1.85	20	L546095-11	WG565012
Silver	mg/kg	47.1	47.4	94.2	75-125	0.635	20	L546095-11	WG565012
Zinc	mg/kg	76.2	78.8	97.0	75-125	3.35	20	L546095-11	WG565012
Benzene	mg/kg	0.229	0.209	91.5	32-137	8.85	39	L546475-05	WG565706
Ethylbenzene	mg/kg	0.236	0.214	94.3	10-150	9.71	44	L546475-05	WG565706
Toluene	mg/kg	0.253	0.230	101.	20-142	9.73	42	L546475-05	WG565706
Total Xylene	mg/kg	0.675	0.616	90.0	16-141	9.24	46	L546475-05	WG565706
a,a,a-Trifluorotoluene(PID)				99.02	54-144				WG565706
TPH (GC/FID) Low Fraction	mg/kg	27.7	29.5	101.	55-109	6.02	20	L546475-05	WG565706
a,a,a-Trifluorotoluene(FID)				102.0	59-128				WG565706

1-Methylnaphthalene	mg/kg	0.0220	0.0193	66.7	25-155	12.9	27	L547242-01	WG566186
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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
2-Chloronaphthalene	mg/kg	0.0245	0.0203	74.2	31-153	18.5	22	L547242-01		WG566186
2-Methylnaphthalene	mg/kg	0.0215	0.0170	65.0	22-172	22.9	29	L547242-01		WG566186
Acenaphthene	mg/kg	0.0203	0.0191	61.5	43-133	6.09	26	L547242-01		WG566186
Acenaphthylene	mg/kg	0.0212	0.0196	64.2	42-146	7.67	22	L547242-01		WG566186
Anthracene	mg/kg	0.0220	0.0196	66.6	38-153	11.5	27	L547242-01		WG566186
Benzo(a)anthracene	mg/kg	0.0205	0.0183	62.3	31-142	11.6	31	L547242-01		WG566186
Benzo(a)pyrene	mg/kg	0.0214	0.0197	64.8	26-152	8.46	32	L547242-01		WG566186
Benzo(b)fluoranthene	mg/kg	0.0233	0.0217	70.6	10-188	7.36	33	L547242-01		WG566186
Benzo(g,h,i)perylene	mg/kg	0.0110	0.0105	33.4	10-176	5.29	30	L547242-01		WG566186
Benzo(k)fluoranthene	mg/kg	0.0225	0.0181	68.0	22-163	21.6	29	L547242-01		WG566186
Chrysene	mg/kg	0.0199	0.0184	60.3	26-146	8.04	30	L547242-01		WG566186
Dibenz(a,h)anthracene	mg/kg	0.0136	0.0124	41.2	10-160	9.15	39	L547242-01		WG566186
Fluoranthene	mg/kg	0.0230	0.0196	69.7	23-160	16.0	22	L547242-01		WG566186
Fluorene	mg/kg	0.0219	0.0195	66.4	44-143	11.7	23	L547242-01		WG566186
Indeno(1,2,3-cd)pyrene	mg/kg	0.0134	0.0122	40.5	10-157	9.41	40	L547242-01		WG566186
Naphthalene	mg/kg	0.0205	0.0160	62.2	22-156	24.4	27	L547242-01		WG566186
Phenanthrene	mg/kg	0.0205	0.0176	62.1	23-164	15.5	25	L547242-01		WG566186
Pyrene	mg/kg	0.0213	0.0193	64.6	12-170	9.83	24	L547242-01		WG566186
2-Fluorobiphenyl				62.08	34-129					WG566186
Nitrobenzene-d5				73.88	14-141					WG566186
p-Terphenyl-d14				86.21	25-139					WG566186

Batch number /Run number / Sample number cross reference

WG565090: R1928893: L546091-01
WG565079: R1930032: L546091-01
WG565102: R1930052: L546091-01
WG565057: R1930154: L546091-01
WG565114: R1930176: L546091-01
WG565012: R1931712: L546091-01
WG565675: R1932493: L546091-01
WG565706: R1932772: L546091-01
WG565806: R1934172: L546091-01
WG566186: R1936812: L546091-01

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

* Performance of this Analyte is outside of established criteria.

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

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

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

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