

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])																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Tax I.D. 62-0814289

Est. 1970

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

## Report Summary

Thursday November 17, 2011

Report Number: L546089

Samples Received: 11/10/11

Client Project:

Description: PA30-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.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

REPORT OF ANALYSIS

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

November 17, 2011

Date Received : November 10, 2011  
Description : PA30-Cuttings  
Sample ID : PA30-CUT-11911  
Collected By : Brennen Graff  
Collection Date : 11/09/11 09:59

ESC Sample # : L546089-01

Site ID : PA30

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/14/11	1
Chromium, Trivalent	9.8	0.50	mg/kg	Calc.	11/14/11	1
ORP	-150		mV	2580	11/11/11	1
pH	8.4		su	9045D	11/14/11	1
Sodium Adsorption Ratio	29.			Calc.	11/12/11	1
Specific Conductance	3200		umhos/cm	9050AMod	11/14/11	1
Mercury	0.020	0.020	mg/kg	7471	11/11/11	1
Arsenic	4.8	1.0	mg/kg	6010B	11/14/11	1
Barium	4700	0.25	mg/kg	6010B	11/14/11	1
Cadmium	0.75	0.25	mg/kg	6010B	11/14/11	1
Chromium	9.8	0.50	mg/kg	6010B	11/14/11	1
Copper	15.	1.0	mg/kg	6010B	11/14/11	1
Lead	10.	0.25	mg/kg	6010B	11/14/11	1
Nickel	8.8	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	36.	1.5	mg/kg	6010B	11/14/11	1
Benzene	0.0061	0.0025	mg/kg	8021/8015	11/13/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	11/13/11	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	11/13/11	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	11/13/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	11/13/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	93.6		% Rec.	8021/8015	11/13/11	5
a,a,a-Trifluorotoluene(PID)	94.4		% Rec.	8021/8015	11/13/11	5
TPH (GC/FID) High Fraction	95.	4.0	mg/kg	3546/DRO	11/11/11	1
Surrogate recovery(%)						
o-Terphenyl	70.4		% Rec.	3546/DRO	11/11/11	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L546089-01 (PH) - 8.42@19.3c



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November 17, 2011

Date Received : November 10, 2011  
Description : PA30-Cuttings

Sample ID : PA30-CUT-11911

Collected By : Brennen Graff  
Collection Date : 11/09/11 09:59

ESC Sample # : L546089-01

Site ID : PA30

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Chrysene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Fluorene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Naphthalene	0.25	0.12	mg/kg	8270C-SIM	11/16/11	20
Phenanthrene	0.12	0.12	mg/kg	8270C-SIM	11/16/11	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
1-Methylnaphthalene	0.18	0.12	mg/kg	8270C-SIM	11/16/11	20
2-Methylnaphthalene	0.72	0.12	mg/kg	8270C-SIM	11/16/11	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	11/16/11	20
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	11/16/11	20
2-Fluorobiphenyl	0.00		% Rec.	8270C-SIM	11/16/11	20
p-Terphenyl-d14	0.00		% Rec.	8270C-SIM	11/16/11	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: 11/17/11 09:32 Printed: 11/17/11 09:32  
L546089-01 (PH) - 8.42@19.3c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L546089-01	WG565004	SAMP	Nitrobenzene-d5	R1928432	J7
	WG565004	SAMP	2-Fluorobiphenyl	R1928432	J7
	WG565004	SAMP	p-Terphenyl-d14	R1928432	J7
	WG565090	SAMP	ORP	R1928893	T8

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
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  
11/17/11 at 09:32:43

TSR Signing Reports: 358  
R5 - Desired TAT

Sample: L546089-01 Account: ENCANACO Received: 11/10/11 09:00 Due Date: 11/17/11 00:00 RPT Date: 11/17/11 09:32



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Quality Assurance Report  
Level II

L546089

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Est. 1970

November 17, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) High Fraction	< 4	ppm			WG565002	11/11/11 08:56
o-Terphenyl		% Rec.	78.89	50-150	WG565002	11/11/11 08:56
1-Methylnaphthalene	< .006	mg/kg			WG565004	11/11/11 02:54
2-Chloronaphthalene	< .006	mg/kg			WG565004	11/11/11 02:54
2-Methylnaphthalene	< .006	mg/kg			WG565004	11/11/11 02:54
Acenaphthene	< .006	mg/kg			WG565004	11/11/11 02:54
Acenaphthylene	< .006	mg/kg			WG565004	11/11/11 02:54
Anthracene	< .006	mg/kg			WG565004	11/11/11 02:54
Benzo(a)anthracene	< .006	mg/kg			WG565004	11/11/11 02:54
Benzo(a)pyrene	< .006	mg/kg			WG565004	11/11/11 02:54
Benzo(b)fluoranthene	< .006	mg/kg			WG565004	11/11/11 02:54
Benzo(g,h,i)perylene	< .006	mg/kg			WG565004	11/11/11 02:54
Benzo(k)fluoranthene	< .006	mg/kg			WG565004	11/11/11 02:54
Chrysene	< .006	mg/kg			WG565004	11/11/11 02:54
Dibenz(a,h)anthracene	< .006	mg/kg			WG565004	11/11/11 02:54
Fluoranthene	< .006	mg/kg			WG565004	11/11/11 02:54
Fluorene	< .006	mg/kg			WG565004	11/11/11 02:54
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG565004	11/11/11 02:54
Naphthalene	< .006	mg/kg			WG565004	11/11/11 02:54
Phenanthrene	< .006	mg/kg			WG565004	11/11/11 02:54
Pyrene	< .006	mg/kg			WG565004	11/11/11 02:54
2-Fluorobiphenyl		% Rec.	88.25	34-129	WG565004	11/11/11 02:54
Nitrobenzene-d5		% Rec.	89.51	14-141	WG565004	11/11/11 02:54
p-Terphenyl-d14		% Rec.	92.00	25-139	WG565004	11/11/11 02:54
Benzene	< .0005	mg/kg			WG565378	11/13/11 22:50
Ethylbenzene	< .0005	mg/kg			WG565378	11/13/11 22:50
Toluene	< .005	mg/kg			WG565378	11/13/11 22:50
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG565378	11/13/11 22:50
Total Xylene	< .0015	mg/kg			WG565378	11/13/11 22:50
a,a,a-Trifluorotoluene(FID)		% Rec.	94.40	59-128	WG565378	11/13/11 22:50
a,a,a-Trifluorotoluene(PID)		% Rec.	95.31	54-144	WG565378	11/13/11 22:50
Chromium, Hexavalent	< 2	mg/kg			WG565057	11/14/11 10:15
Mercury	< .02	mg/kg			WG565114	11/11/11 17:33
pH	5.00	su			WG565332	11/14/11 14:10
Specific Conductance	1.90	umhos/cm			WG565446	11/14/11 22:29
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

\* 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 17, 2011

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			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
pH	su	7.40	7.40		0.539	1	L545903-01	WG565332
pH	su	7.80	7.80		0.514	1	L546542-04	WG565332
Specific Conductance	umhos/cm	1500	1500		0	20	L545915-53	WG565446
Specific Conductance	umhos/cm	2700	2900		7.14	20	L546542-04	WG565446
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

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) High Fraction	ppm	60	49.0	81.7	50-150	WG565002
o-Terphenyl				77.58	50-150	WG565002
ORP	mV	229	230.	100.	95.6-104.37	WG565090
1-Methylnaphthalene	mg/kg	.033	0.0358	108.	48-113	WG565004
2-Chloronaphthalene	mg/kg	.033	0.0369	112.	51-114	WG565004
2-Methylnaphthalene	mg/kg	.033	0.0307	92.9	44-109	WG565004
Acenaphthene	mg/kg	.033	0.0316	95.8	52-108	WG565004
Acenaphthylene	mg/kg	.033	0.0322	97.5	51-110	WG565004
Anthracene	mg/kg	.033	0.0352	107.	58-120	WG565004
Benzo(a)anthracene	mg/kg	.033	0.0302	91.5	54-110	WG565004
Benzo(a)pyrene	mg/kg	.033	0.0336	102.	56-118	WG565004
Benzo(b)fluoranthene	mg/kg	.033	0.0312	94.5	55-114	WG565004
Benzo(g,h,i)perylene	mg/kg	.033	0.0320	96.9	48-130	WG565004
Benzo(k)fluoranthene	mg/kg	.033	0.0325	98.5	55-122	WG565004
Chrysene	mg/kg	.033	0.0305	92.3	57-118	WG565004
Dibenz(a,h)anthracene	mg/kg	.033	0.0326	98.8	53-122	WG565004
Fluoranthene	mg/kg	.033	0.0335	101.	58-118	WG565004
Fluorene	mg/kg	.033	0.0308	93.3	54-109	WG565004
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0322	97.4	51-125	WG565004
Naphthalene	mg/kg	.033	0.0289	87.5	45-105	WG565004
Phenanthrene	mg/kg	.033	0.0273	82.8	53-114	WG565004
Pyrene	mg/kg	.033	0.0305	92.3	53-121	WG565004
2-Fluorobiphenyl				92.31	34-129	WG565004

\* 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			
Nitrobenzene-d5				84.58	14-141	
p-Terphenyl-d14				93.10	25-139	
Benzene	mg/kg	.05	0.0443	88.7	76-113	WG565378
Ethylbenzene	mg/kg	.05	0.0491	98.2	78-115	WG565378
Toluene	mg/kg	.05	0.0485	97.1	76-114	WG565378
Total Xylene	mg/kg	.15	0.146	97.6	81-118	WG565378
a,a,a-Trifluorotoluene(PID)				94.56	54-144	WG565378
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.03	110.	67-135	WG565378
a,a,a-Trifluorotoluene(FID)				100.5	59-128	WG565378
Chromium, Hexavalent	mg/kg	203	169.	83.3	50-150	WG565057
Mercury	mg/kg	3.77	4.19	111.	71.6-128	WG565114
pH	su	7.98	8.07	101.*	98-101	WG565332
Specific Conductance	umhos/cm	427	430.	101.	85-115	WG565446
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

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
TPH (GC/FID) High Fraction	ppm	47.3	49.0	79.0	50-150	3.64	25	WG565002
o-Terphenyl				74.67	50-150			WG565002
ORP	mV	230.	230.	100.	95.6-104.37	0	20	WG565090
1-Methylnaphthalene	mg/kg	0.0312	0.0358	94.0	48-113	13.7	24	WG565004
2-Chloronaphthalene	mg/kg	0.0328	0.0369	99.0	51-114	11.8	24	WG565004
2-Methylnaphthalene	mg/kg	0.0271	0.0307	82.0	44-109	12.5	24	WG565004
Acenaphthene	mg/kg	0.0311	0.0316	94.0	52-108	1.67	22	WG565004
Acenaphthylene	mg/kg	0.0314	0.0322	95.0	51-110	2.52	21	WG565004
Anthracene	mg/kg	0.0366	0.0352	111.	58-120	3.88	20	WG565004
Benzo(a)anthracene	mg/kg	0.0300	0.0302	91.0	54-110	0.453	22	WG565004
Benzo(a)pyrene	mg/kg	0.0342	0.0336	104.	56-118	1.85	21	WG565004
Benzo(b)fluoranthene	mg/kg	0.0307	0.0312	93.0	55-114	1.67	20	WG565004
Benzo(g,h,i)perylene	mg/kg	0.0324	0.0320	98.0	48-130	1.37	20	WG565004
Benzo(k)fluoranthene	mg/kg	0.0339	0.0325	103.	55-122	4.27	25	WG565004
Chrysene	mg/kg	0.0313	0.0305	95.0	57-118	2.85	20	WG565004
Dibenz(a,h)anthracene	mg/kg	0.0325	0.0326	98.0	53-122	0.465	20	WG565004
Fluoranthene	mg/kg	0.0340	0.0335	103.	58-118	1.68	20	WG565004
Fluorene	mg/kg	0.0307	0.0308	93.0	54-109	0.170	20	WG565004

\* Performance of this Analyte is outside of established criteria.

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Quality Assurance Report  
Level II

L546089

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Tax I.D. 62-0814289

Est. 1970

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Analyte	Units	Laboratory Control			Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec						
Indeno(1,2,3-cd)pyrene	mg/kg	0.0330	0.0322	100.			51-125	2.49	21	WG565004
Naphthalene	mg/kg	0.0270	0.0289	82.0			45-105	6.62	24	WG565004
Phenanthrene	mg/kg	0.0274	0.0273	83.0			53-114	0.126	20	WG565004
Pyrene	mg/kg	0.0314	0.0305	95.0			53-121	3.17	20	WG565004
2-Fluorobiphenyl				90.66			34-129			WG565004
Nitrobenzene-d5				75.73			14-141			WG565004
p-Terphenyl-d14				92.87			25-139			WG565004
Benzene	mg/kg	0.0422	0.0443	84.0			76-113	5.00	20	WG565378
Ethylbenzene	mg/kg	0.0477	0.0491	95.0			78-115	2.88	20	WG565378
Toluene	mg/kg	0.0474	0.0485	95.0			76-114	2.43	20	WG565378
Total Xylene	mg/kg	0.141	0.146	94.0			81-118	3.40	20	WG565378
a,a,a-Trifluorotoluene(PID)				97.85			54-144			WG565378
TPH (GC/FID) Low Fraction	mg/kg	6.08	6.03	110.			67-135	0.900	20	WG565378
a,a,a-Trifluorotoluene(FID)				101.6			59-128			WG565378
Chromium, Hexavalent	mg/kg	165.	169.	81.0			50-150	2.40	20	WG565057
pH	su	8.06	8.07	101.			98-101	0.124	20	WG565332
Specific Conductance	umhos/	430.	430.	101.			85-115	0	20	WG565446

  

Analyte	Units	MS Res	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
			Ref Res						
1-Methylnaphthalene	mg/kg	0.0551	0	.33	16.7*	25-155	L546103-01		WG565004
2-Chloronaphthalene	mg/kg	0.0373	0	.33	11.3*	31-153	L546103-01		WG565004
2-Methylnaphthalene	mg/kg	0.0556	0	.33	16.8*	22-172	L546103-01		WG565004
Acenaphthene	mg/kg	0.0536	0	.33	16.2*	43-133	L546103-01		WG565004
Acenaphthylene	mg/kg	0.0567	0	.33	17.2*	42-146	L546103-01		WG565004
Fluorene	mg/kg	0.0588	0	.33	17.8*	44-143	L546103-01		WG565004
Naphthalene	mg/kg	0.0619	0	.33	18.7*	22-156	L546103-01		WG565004
2-Fluorobiphenyl					88.61	34-129			WG565004
Nitrobenzene-d5					86.31	14-141			WG565004
Anthracene	mg/kg	0.105	0	.33	31.7*	38-153	L546103-01		WG565004
Benzo(a)anthracene	mg/kg	0.134	0	.33	40.6	31-142	L546103-01		WG565004
Benzo(a)pyrene	mg/kg	0.145	0	.33	43.8	26-152	L546103-01		WG565004
Benzo(b)fluoranthene	mg/kg	0.142	0	.33	42.9	10-188	L546103-01		WG565004
Benzo(g,h,i)perylene	mg/kg	0.115	0	.33	34.8	10-176	L546103-01		WG565004
Benzo(k)fluoranthene	mg/kg	0.0711	0	.33	21.6*	22-163	L546103-01		WG565004
Chrysene	mg/kg	0.140	0	.33	42.5	26-146	L546103-01		WG565004
Dibenz(a,h)anthracene	mg/kg	0.0416	0	.33	12.6	10-160	L546103-01		WG565004
Fluoranthene	mg/kg	0.242	0	.33	73.4	23-160	L546103-01		WG565004
Indeno(1,2,3-cd)pyrene	mg/kg	0.0875	0	.33	26.5	10-157	L546103-01		WG565004
Phenanthrene	mg/kg	0.242	0	.33	73.3	23-164	L546103-01		WG565004
Pyrene	mg/kg	0.327	0	.33	99.0	12-170	L546103-01		WG565004
p-Terphenyl-d14					99.25	25-139			WG565004
TPH (GC/FID) High Fraction	ppm	48.0	5.00	60	71.7	50-150	L545903-06		WG565002
o-Terphenyl					70.23	50-150			WG565002
Benzene	mg/kg	0.206	0.00610	.05	80.0	32-137	L546089-01		WG565378
Ethylbenzene	mg/kg	0.213	0	.05	85.1	10-150	L546089-01		WG565378

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Toluene	mg/kg	0.223	0	.05	89.3	20-142	L546089-01	WG565378
Total Xylene	mg/kg	0.640	0	.15	85.4	16-141	L546089-01	WG565378
a,a,a-Trifluorotoluene(PID)					81.00	54-144		WG565378
TPH (GC/FID) Low Fraction	mg/kg	22.3	0	5.5	80.9	55-109	L546089-01	WG565378
a,a,a-Trifluorotoluene(FID)					104.5	59-128		WG565378
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

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
1-Methylnaphthalene	mg/kg	0.0370	0.0510	11.2*	25-155	31.8*	27	L546103-01	WG565004
2-Chloronaphthalene	mg/kg	0.0373	0.0427	11.3*	31-153	13.6	22	L546103-01	WG565004
2-Methylnaphthalene	mg/kg	0.0334	0.0406	10.1*	22-172	19.5	29	L546103-01	WG565004
Acenaphthene	mg/kg	0.0334	0.0529	10.1*	43-133	45.1*	26	L546103-01	WG565004
Acenaphthylene	mg/kg	0.0377	0.0548	11.4*	42-146	36.9*	22	L546103-01	WG565004
Fluorene	mg/kg	0.0355	0.0571	10.8*	44-143	46.7*	23	L546103-01	WG565004
Naphthalene	mg/kg	0.0330	0.0528	9.99*	22-156	46.3*	27	L546103-01	WG565004
2-Fluorobiphenyl				91.63	34-129				WG565004
Nitrobenzene-d5				95.31	14-141				WG565004
Anthracene	mg/kg	0.0398	0.105	12.0*	38-153	89.9*	27	L546103-01	WG565004
Benzo(a)anthracene	mg/kg	0.0457	0.134	13.8*	31-142	98.3*	31	L546103-01	WG565004
Benzo(a)pyrene	mg/kg	0.0532	0.145	16.1*	26-152	92.4*	32	L546103-01	WG565004
Benzo(b)fluoranthene	mg/kg	0.0472	0.142	14.3	10-188	100.*	33	L546103-01	WG565004
Benzo(g,h,i)perylene	mg/kg	0.0467	0.115	14.2	10-176	84.2*	30	L546103-01	WG565004
Benzo(k)fluoranthene	mg/kg	0.0443	0.0711	13.4*	22-163	46.4*	29	L546103-01	WG565004
Chrysene	mg/kg	0.0454	0.140	13.8*	26-146	102.*	30	L546103-01	WG565004
Dibenz(a,h)anthracene	mg/kg	0.0360	0.0416	10.9	10-160	14.4	39	L546103-01	WG565004
Fluoranthene	mg/kg	0.0559	0.242	16.9*	23-160	125.*	22	L546103-01	WG565004
Indeno(1,2,3-cd)pyrene	mg/kg	0.0421	0.0875	12.8	10-157	70.0*	40	L546103-01	WG565004
Phenanthrene	mg/kg	0.0428	0.242	13.0*	23-164	140.*	25	L546103-01	WG565004
Pyrene	mg/kg	0.0562	0.327	17.0	12-170	141.*	24	L546103-01	WG565004
p-Terphenyl-d14				95.08	25-139				WG565004
TPH (GC/FID) High Fraction	ppm	45.8	48.0	68.1	50-150	4.68	25	L545903-06	WG565002
o-Terphenyl				70.63	50-150				WG565002
Benzene	mg/kg	0.186	0.206	71.9	32-137	10.3	39	L546089-01	WG565378
Ethylbenzene	mg/kg	0.188	0.213	75.1	10-150	12.5	44	L546089-01	WG565378
Toluene	mg/kg	0.196	0.223	78.4	20-142	13.0	42	L546089-01	WG565378
Total Xylene	mg/kg	0.562	0.640	74.9	16-141	13.1	46	L546089-01	WG565378

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
a,a,a-Trifluorotoluene(PID)				86.40	54-144					
TPH (GC/FID) Low Fraction	mg/kg	21.4	22.3	77.7	55-109	4.10	20	L546089-01		WG565378
a,a,a-Trifluorotoluene(FID)				100.1	59-128					WG565378
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

Batch number /Run number / Sample number cross reference

WG565002: R1928412: L546089-01  
WG565004: R1928432: L546089-01  
WG565090: R1928893: L546089-01  
WG565378: R1929860: L546089-01  
WG565079: R1930032: L546089-01  
WG565057: R1930154: L546089-01  
WG565114: R1930176: L546089-01  
WG565332: R1930773: L546089-01  
WG565446: R1931532: L546089-01  
WG565012: R1931712: L546089-01

\* \* 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.