



Laboratory Results Summary Table

04/30/2015

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	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	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
				TPH (total volatile and extractable petroleum hydrocarbons)			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															
HH9102-14 & HH9126	11/15/11	Cuttings		276.4	6.4	270	0.041	0.12	0.028	0.86	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.22	BDL	BDL	0.21	BDL	2.8	28	8	5	4500	0.51	13	BDL	15	6.8	0.03	8.8	1.6	BDL	31



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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 25, 2011

Report Number: L547449

Samples Received: 11/17/11

Client Project: 900133.8887

Description: HH 9012 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 25, 2011

Date Received : November 17, 2011
Description : HH 9012 Cuttings
Sample ID : HH9012-CUT-111511
Collected By : Matt Kasten
Collection Date : 11/15/11 11:00

ESC Sample # : L547449-01

Site ID :

Project # : 900133.8887

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	11/23/11	1
Chromium, Trivalent	13.	2.0	mg/kg	Calc.	11/19/11	1
ORP	-30.		mV	2580	11/21/11	1
pH	8.0		su	9045D	11/22/11	1
Sodium Adsorption Ratio	28.			Calc.	11/22/11	1
Specific Conductance	2800		umhos/cm	9050AMod	11/20/11	1
Mercury	0.030	0.020	mg/kg	7471	11/19/11	1
Arsenic	5.0	1.0	mg/kg	6010B	11/19/11	1
Barium	4500	0.25	mg/kg	6010B	11/19/11	1
Cadmium	0.51	0.25	mg/kg	6010B	11/19/11	1
Chromium	13.	0.50	mg/kg	6010B	11/19/11	1
Copper	15.	1.0	mg/kg	6010B	11/19/11	1
Lead	6.8	0.25	mg/kg	6010B	11/19/11	1
Nickel	8.8	1.0	mg/kg	6010B	11/19/11	1
Selenium	1.6	1.0	mg/kg	6010B	11/19/11	1
Silver	BDL	0.50	mg/kg	6010B	11/19/11	1
Zinc	31.	1.5	mg/kg	6010B	11/19/11	1
Benzene	0.041	0.0025	mg/kg	8021/8015	11/19/11	5
Toluene	0.12	0.025	mg/kg	8021/8015	11/19/11	5
Ethylbenzene	0.028	0.0025	mg/kg	8021/8015	11/19/11	5
Total Xylene	0.86	0.0075	mg/kg	8021/8015	11/19/11	5
TPH (GC/FID) Low Fraction	6.4	0.50	mg/kg	GRO	11/19/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.5		% Rec.	8021/8015	11/19/11	5
a,a,a-Trifluorotoluene(PID)	106.		% Rec.	8021/8015	11/19/11	5
TPH (GC/FID) High Fraction	270	200	mg/kg	3546/DRO	11/23/11	50
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	11/23/11	50
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.12	mg/kg	8270C-SIM	11/19/11	20
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	11/19/11	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	11/19/11	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	11/19/11	20
Benzo(a)pyrene	BDL	0.15	mg/kg	8270C-SIM	11/23/11	25

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L547449-01 (PH) - 8.01@21.2c
L547449-01 (SV8270PAHSIM) - Diluted due to matrix



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Description : HH 9012 Cuttings

Sample ID : HH9012-CUT-111511

Collected By : Matt Kasten
Collection Date : 11/15/11 11:00

ESC Sample # : L547449-01

Site ID :

Project # : 900133.8887

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.15	mg/kg	8270C-SIM	11/23/11	25
Benzo(g,h,i)perylene	BDL	0.15	mg/kg	8270C-SIM	11/23/11	25
Benzo(k)fluoranthene	BDL	0.15	mg/kg	8270C-SIM	11/23/11	25
Chrysene	BDL	0.12	mg/kg	8270C-SIM	11/19/11	20
Dibenz(a,h)anthracene	BDL	0.15	mg/kg	8270C-SIM	11/23/11	25
Fluoranthene	0.22	0.12	mg/kg	8270C-SIM	11/19/11	20
Fluorene	BDL	0.12	mg/kg	8270C-SIM	11/19/11	20
Indeno(1,2,3-cd)pyrene	BDL	0.15	mg/kg	8270C-SIM	11/23/11	25
Naphthalene	0.21	0.12	mg/kg	8270C-SIM	11/19/11	20
Phenanthrene	0.22	0.12	mg/kg	8270C-SIM	11/19/11	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	11/19/11	20
1-Methylnaphthalene	0.18	0.12	mg/kg	8270C-SIM	11/19/11	20
2-Methylnaphthalene	0.30	0.12	mg/kg	8270C-SIM	11/19/11	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	11/19/11	20
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	11/19/11	20
2-Fluorobiphenyl	0.00		% Rec.	8270C-SIM	11/19/11	20
p-Terphenyl-d14	0.00		% Rec.	8270C-SIM	11/19/11	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: 11/25/11 15:15 Printed: 11/25/11 15:15

L547449-01 (PH) - 8.01@21.2c

L547449-01 (SV8270PAHSIM) - Diluted due to matrix

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L547449-01	WG566430	SAMP	Benzo(a)pyrene	R1939636	O
	WG566430	SAMP	Benzo(b)fluoranthene	R1939636	O
	WG566430	SAMP	Benzo(g,h,i)perylene	R1939636	O
	WG566430	SAMP	Benzo(k)fluoranthene	R1939636	O
	WG566430	SAMP	Dibenz(a,h)anthracene	R1939636	O
	WG566430	SAMP	Indeno(1,2,3-cd)pyrene	R1939636	O
	WG566430	SAMP	Nitrobenzene-d5	R1939636	J7
	WG566430	SAMP	2-Fluorobiphenyl	R1939636	J7
	WG566430	SAMP	p-Terphenyl-d14	R1939636	J7
	WG566386	SAMP	ORP	R1939702	T8
	WG566587	SAMP	o-Terphenyl	R1943892	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out
0	(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
11/25/11 at 15:15:25

TSR Signing Reports: 358
R5 - Desired TAT

If COC says TPH, then please log for GRO and DRO.

Sample: L547449-01 Account: ENCANACO Received: 11/17/11 09:00 Due Date: 11/25/11 00:00 RPT Date: 11/25/11 15:15



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG566303	11/18/11 16:08
Ethylbenzene	< .0005	mg/kg			WG566303	11/18/11 16:08
Toluene	< .005	mg/kg			WG566303	11/18/11 16:08
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG566303	11/18/11 16:08
Total Xylene	< .0015	mg/kg			WG566303	11/18/11 16:08
a,a,a-Trifluorotoluene(FID)		% Rec.	100.8	59-128	WG566303	11/18/11 16:08
a,a,a-Trifluorotoluene(PID)		% Rec.	107.1	54-144	WG566303	11/18/11 16:08
Arsenic	< 1	mg/kg			WG566345	11/19/11 22:49
Barium	< .25	mg/kg			WG566345	11/19/11 22:49
Cadmium	< .25	mg/kg			WG566345	11/19/11 22:49
Chromium	< .5	mg/kg			WG566345	11/19/11 22:49
Copper	< 1	mg/kg			WG566345	11/19/11 22:49
Lead	< .25	mg/kg			WG566345	11/19/11 22:49
Nickel	< 1	mg/kg			WG566345	11/19/11 22:49
Selenium	< 1	mg/kg			WG566345	11/19/11 22:49
Silver	< .5	mg/kg			WG566345	11/19/11 22:49
Zinc	< 1.5	mg/kg			WG566345	11/19/11 22:49
Mercury	< .02	mg/kg			WG566390	11/19/11 12:49
1-Methylnaphthalene	< .006	mg/kg			WG566430	11/19/11 14:38
2-Chloronaphthalene	< .006	mg/kg			WG566430	11/19/11 14:38
2-Methylnaphthalene	< .006	mg/kg			WG566430	11/19/11 14:38
Acenaphthene	< .006	mg/kg			WG566430	11/19/11 14:38
Acenaphthylene	< .006	mg/kg			WG566430	11/19/11 14:38
Anthracene	< .006	mg/kg			WG566430	11/19/11 14:38
Benzo(a)anthracene	< .006	mg/kg			WG566430	11/19/11 14:38
Benzo(a)pyrene	< .006	mg/kg			WG566430	11/19/11 14:38
Benzo(b)fluoranthene	< .006	mg/kg			WG566430	11/19/11 14:38
Benzo(g,h,i)perylene	< .006	mg/kg			WG566430	11/19/11 14:38
Benzo(k)fluoranthene	< .006	mg/kg			WG566430	11/19/11 14:38
Chrysene	< .006	mg/kg			WG566430	11/19/11 14:38
Dibenz(a,h)anthracene	< .006	mg/kg			WG566430	11/19/11 14:38
Fluoranthene	< .006	mg/kg			WG566430	11/19/11 14:38
Fluorene	< .006	mg/kg			WG566430	11/19/11 14:38
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG566430	11/19/11 14:38
Naphthalene	< .006	mg/kg			WG566430	11/19/11 14:38
Phenanthrene	< .006	mg/kg			WG566430	11/19/11 14:38
Pyrene	< .006	mg/kg			WG566430	11/19/11 14:38
2-Fluorobiphenyl		% Rec.	65.02	34-129	WG566430	11/19/11 14:38
Nitrobenzene-d5		% Rec.	67.27	14-141	WG566430	11/19/11 14:38
p-Terphenyl-d14		% Rec.	65.90	25-139	WG566430	11/19/11 14:38
Specific Conductance	1.60	umhos/cm			WG566504	11/20/11 12:58
pH	5.60	su			WG566693	11/22/11 16:15
Chromium,Hexavalent	< 2	mg/kg			WG566679	11/23/11 12:44
TPH (GC/FID) High Fraction	< 4	ppm			WG566587	11/23/11 15:39
o-Terphenyl		% Rec.	79.04	50-150	WG566587	11/23/11 15:39

* 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					
Arsenic	mg/kg	2.30	3.10	28.8*	20		L547327-12	WG566345
Barium	mg/kg	13.0	13.8	8.30	20		L547327-12	WG566345
Cadmium	mg/kg	0	0.227	NA	20		L547327-12	WG566345
Chromium	mg/kg	7.10	7.70	7.55	20		L547327-12	WG566345
Copper	mg/kg	2.70	3.00	11.6	20		L547327-12	WG566345
Lead	mg/kg	10.0	10.8	3.77	20		L547327-12	WG566345
Nickel	mg/kg	1.60	1.80	9.91	20		L547327-12	WG566345
Selenium	mg/kg	0	0	0	20		L547327-12	WG566345
Silver	mg/kg	0	0	0	20		L547327-12	WG566345
Zinc	mg/kg	6.40	6.76	5.78	20		L547327-12	WG566345
Mercury	mg/kg	0.0300	0.0350	14.1	20		L547390-10	WG566390
ORP	mV	180.	180.	2.82	20		L546760-02	WG566386
ORP	mV	0	0	0	20		L547449-01	WG566386
Specific Conductance	umhos/cm	3400	3500	2.90	20		L547326-90	WG566504
Specific Conductance	umhos/cm	1900	2100	10.0	20		L547375-01	WG566504
pH	su	7.90	7.90	0.508	1		L547348-01	WG566693
pH	su	9.10	9.10	0.220	1		L547894-03	WG566693
Chromium, Hexavalent	mg/kg	0	1.60	NA	20		L547797-10	WG566679
Chromium, Hexavalent	mg/kg	0	0	0	20		L545376-01	WG566679

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0490	98.0	76-113	WG566303
Ethylbenzene	mg/kg	.05	0.0547	109.	78-115	WG566303
Toluene	mg/kg	.05	0.0555	111.	76-114	WG566303
Total Xylene	mg/kg	.15	0.160	107.	81-118	WG566303
a,a,a-Trifluorotoluene(PID)				105.8	54-144	WG566303
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.79	124.	67-135	WG566303
a,a,a-Trifluorotoluene(FID)				106.7	59-128	WG566303
Arsenic	mg/kg	92.6	87.6	94.6	82.9-117	WG566345
Barium	mg/kg	169	167.	98.8	82.8-117	WG566345
Cadmium	mg/kg	61.8	59.8	96.8	83.3-117	WG566345
Chromium	mg/kg	71.3	72.9	102.	81.8-118	WG566345
Copper	mg/kg	81.2	79.0	97.3	83.9-116	WG566345
Lead	mg/kg	92.4	89.6	97.0	83.3-117	WG566345
Nickel	mg/kg	59.1	57.8	97.8	83.8-116	WG566345
Selenium	mg/kg	89.5	81.9	91.5	79-121	WG566345
Silver	mg/kg	34.4	32.8	95.3	66.3-134	WG566345
Zinc	mg/kg	141	136.	96.5	80.9-119	WG566345
Mercury	mg/kg	3.77	4.58	121.	71.6-128	WG566390
1-Methylnaphthalene	mg/kg	.033	0.0211	64.0	48-113	WG566430
2-Chloronaphthalene	mg/kg	.033	0.0216	65.3	51-114	WG566430

* 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			
2-Methylnaphthalene	mg/kg	.033		0.0210	63.6	44-109	WG566430
Acenaphthene	mg/kg	.033		0.0206	62.4	52-108	WG566430
Acenaphthylene	mg/kg	.033		0.0211	63.9	51-110	WG566430
Anthracene	mg/kg	.033		0.0219	66.2	58-120	WG566430
Benzo(a)anthracene	mg/kg	.033		0.0225	68.3	54-110	WG566430
Benzo(a)pyrene	mg/kg	.033		0.0220	66.7	56-118	WG566430
Benzo(b)fluoranthene	mg/kg	.033		0.0224	67.7	55-114	WG566430
Benzo(g,h,i)perylene	mg/kg	.033		0.0223	67.5	48-130	WG566430
Benzo(k)fluoranthene	mg/kg	.033		0.0224	67.8	55-122	WG566430
Chrysene	mg/kg	.033		0.0220	66.6	57-118	WG566430
Dibenz(a,h)anthracene	mg/kg	.033		0.0225	68.1	53-122	WG566430
Fluoranthene	mg/kg	.033		0.0220	66.7	58-118	WG566430
Fluorene	mg/kg	.033		0.0222	67.3	54-109	WG566430
Indeno(1,2,3-cd)pyrene	mg/kg	.033		0.0220	66.7	51-125	WG566430
Naphthalene	mg/kg	.033		0.0195	59.2	45-105	WG566430
Phenanthrene	mg/kg	.033		0.0212	64.1	53-114	WG566430
Pyrene	mg/kg	.033		0.0239	72.4	53-121	WG566430
2-Fluorobiphenyl					62.42	34-129	WG566430
Nitrobenzene-d5					70.22	14-141	WG566430
p-Terphenyl-d14					68.00	25-139	WG566430
ORP	mV	229		230.	100.	95.6-104.37	WG566386
Specific Conductance	umhos/cm	427		420.	98.4	85-115	WG566504
pH	su	7.98		8.00	100.	98-101	WG566693
Chromium,Hexavalent	mg/kg	203		162.	79.8	50-150	WG566679
TPH (GC/FID) High Fraction	ppm	60		45.1	75.2	50-150	WG566587
o-Terphenyl					83.90	50-150	WG566587

Analyte	Units	Laboratory Control		Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0498	0.0490	100.	76-113	1.76	20	WG566303
Ethylbenzene	mg/kg	0.0558	0.0547	112.	78-115	2.12	20	WG566303
Toluene	mg/kg	0.0556	0.0555	111.	76-114	0.130	20	WG566303
Total Xylene	mg/kg	0.163	0.160	108.	81-118	1.76	20	WG566303
a,a,a-Trifluorotoluene(PID)				105.9	54-144			WG566303
TPH (GC/FID) Low Fraction	mg/kg	6.99	6.79	127.	67-135	2.82	20	WG566303
a,a,a-Trifluorotoluene(FID)				107.4	59-128			WG566303
1-Methylnaphthalene	mg/kg	0.0220	0.0211	67.0	48-113	4.18	24	WG566430
2-Chloronaphthalene	mg/kg	0.0214	0.0216	65.0	51-114	0.862	24	WG566430
2-Methylnaphthalene	mg/kg	0.0211	0.0210	64.0	44-109	0.453	24	WG566430
Acenaphthene	mg/kg	0.0218	0.0206	66.0	52-108	5.80	22	WG566430
Acenaphthylene	mg/kg	0.0218	0.0211	66.0	51-110	3.23	21	WG566430
Anthracene	mg/kg	0.0228	0.0219	69.0	58-120	4.30	20	WG566430
Benzo(a)anthracene	mg/kg	0.0226	0.0225	68.0	54-110	0.410	22	WG566430
Benzo(a)pyrene	mg/kg	0.0223	0.0220	68.0	56-118	1.28	21	WG566430
Benzo(b)fluoranthene	mg/kg	0.0237	0.0224	72.0	55-114	5.65	20	WG566430
Benzo(g,h,i)perylene	mg/kg	0.0228	0.0223	69.0	48-130	2.41	20	WG566430

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Benzo(k)fluoranthene	mg/kg	0.0229	0.0224	69.0		55-122	2.22	25	WG566430
Chrysene	mg/kg	0.0220	0.0220	67.0		57-118	0.326	20	WG566430
Dibenz(a,h)anthracene	mg/kg	0.0241	0.0225	73.0		53-122	6.90	20	WG566430
Fluoranthene	mg/kg	0.0228	0.0220	69.0		58-118	3.29	20	WG566430
Fluorene	mg/kg	0.0221	0.0222	67.0		54-109	0.473	20	WG566430
Indeno(1,2,3-cd)pyrene	mg/kg	0.0243	0.0220	74.0		51-125	10.1	21	WG566430
Naphthalene	mg/kg	0.0198	0.0195	60.0		45-105	1.26	24	WG566430
Phenanthrene	mg/kg	0.0221	0.0212	67.0		53-114	4.42	20	WG566430
Pyrene	mg/kg	0.0234	0.0239	71.0		53-121	2.09	20	WG566430
2-Fluorobiphenyl				67.18		34-129			WG566430
Nitrobenzene-d5				68.76		14-141			WG566430
p-Terphenyl-d14				68.76		25-139			WG566430
ORP	mV	230.	230.	100.		95.6-104.37	0	20	WG566386
Specific Conductance	umhos/	420.	420.	98.0		85-115	0	20	WG566504
pH	su	8.00	8.00	100.		98-101	0	20	WG566693
Chromium, Hexavalent	mg/kg	162.	162.	80.0		50-150	0	20	WG566679
TPH (GC/FID) High Fraction	ppm	46.2	45.1	77.0		50-150	2.37	20	WG566587
o-Terphenyl				101.6		50-150			WG566587

Analyte	Units	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res					
Benzene	mg/kg	0.232	0	.05	92.8	32-137	L547405-01	WG566303
Ethylbenzene	mg/kg	0.255	0	.05	102.	10-150	L547405-01	WG566303
Toluene	mg/kg	0.264	0	.05	106.	20-142	L547405-01	WG566303
Total Xylene	mg/kg	0.750	0	.15	100.	16-141	L547405-01	WG566303
a,a,a-Trifluorotoluene(PID)					105.1	54-144		WG566303
TPH (GC/FID) Low Fraction	mg/kg	31.0	0	5.5	113.*	55-109	L547405-01	WG566303
a,a,a-Trifluorotoluene(FID)					105.9	59-128		WG566303
Arsenic	mg/kg	48.0	3.10	50	89.8	75-125	L547327-12	WG566345
Barium	mg/kg	65.9	13.8	50	104.	75-125	L547327-12	WG566345
Cadmium	mg/kg	50.7	0.227	50	101.	75-125	L547327-12	WG566345
Chromium	mg/kg	58.0	7.70	50	101.	75-125	L547327-12	WG566345
Copper	mg/kg	53.7	3.00	50	101.	75-125	L547327-12	WG566345
Lead	mg/kg	62.1	10.8	50	103.	75-125	L547327-12	WG566345
Nickel	mg/kg	52.4	1.80	50	101.	75-125	L547327-12	WG566345
Selenium	mg/kg	44.1	0	50	88.2	75-125	L547327-12	WG566345
Silver	mg/kg	49.6	0	50	99.2	75-125	L547327-12	WG566345
Zinc	mg/kg	58.3	6.76	50	103.	75-125	L547327-12	WG566345
Mercury	mg/kg	0.261	0.0350	.25	90.4	70-130	L547390-10	WG566390
Chromium, Hexavalent	mg/kg	5.04	0	20	25.2*	50-150	L547797-06	WG566679

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
TPH (GC/FID) High Fraction	ppm	46.5	0	60	77.5	50-150	L547828-03	WG566587
o-Terphenyl					102.6	50-150		WG566587

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.243	0.232	97.2	32-137	4.57	39	L547405-01	WG566303
Ethylbenzene	mg/kg	0.264	0.255	106.	10-150	3.44	44	L547405-01	WG566303
Toluene	mg/kg	0.263	0.264	105.	20-142	0.300	42	L547405-01	WG566303
Total Xylene	mg/kg	0.772	0.750	103.	16-141	2.87	46	L547405-01	WG566303
a,a,a-Trifluorotoluene(PID)				105.5	54-144				WG566303
TPH (GC/FID) Low Fraction	mg/kg	29.3	31.0	107.	55-109	5.41	20	L547405-01	WG566303
a,a,a-Trifluorotoluene(FID)				106.1	59-128				WG566303
Arsenic	mg/kg	47.7	48.0	89.2	75-125	0.627	20	L547327-12	WG566345
Barium	mg/kg	66.0	65.9	104.	75-125	0.152	20	L547327-12	WG566345
Cadmium	mg/kg	51.1	50.7	102.	75-125	0.786	20	L547327-12	WG566345
Chromium	mg/kg	58.4	58.0	101.	75-125	0.687	20	L547327-12	WG566345
Copper	mg/kg	53.8	53.7	102.	75-125	0.186	20	L547327-12	WG566345
Lead	mg/kg	61.1	62.1	101.	75-125	1.62	20	L547327-12	WG566345
Nickel	mg/kg	52.0	52.4	100.	75-125	0.766	20	L547327-12	WG566345
Selenium	mg/kg	43.7	44.1	87.4	75-125	0.911	20	L547327-12	WG566345
Silver	mg/kg	49.8	49.6	99.6	75-125	0.402	20	L547327-12	WG566345
Zinc	mg/kg	58.4	58.3	103.	75-125	0.171	20	L547327-12	WG566345
Mercury	mg/kg	0.322	0.261	115.	70-130	20.9*	20	L547390-10	WG566390
Chromium,Hexavalent	mg/kg	4.72	5.04	23.6*	50-150	6.56	20	L547797-06	WG566679
TPH (GC/FID) High Fraction	ppm	43.6	46.5	72.7	50-150	6.51	20	L547828-03	WG566587
o-Terphenyl				96.59	50-150				WG566587

Batch number /Run number / Sample number cross reference

WG566303: R1938412: L547449-01
WG566345: R1939013: L547449-01
WG566390: R1939033: L547449-01
WG566430: R1939636: L547449-01
WG566386: R1939702: L547449-01
WG566504: R1940578: L547449-01
WG566693: R1941673: L547449-01
WG566622: R1942396: L547449-01
WG566679: R1942994: L547449-01
WG566587: R1943892: L547449-01

* * 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.