



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

Christopher Hines
EnCana Oil & Gas Inc. - CO
143 Diamond Avenue
Parachute, CO 81635

Report Summary

Friday June 21, 2013

Report Number: L640562

Samples Received: 06/11/13

Client Project: I30

Description: I30 Pit

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:

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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

Christopher Hines
EnCana Oil & Gas Inc. - CO
143 Diamond Avenue
Parachute, CO 81635

June 21, 2013

Date Received : June 11, 2013
Description : I30 Pit
Sample ID : 061013-130 (PITSWWALL)
Collected By : Matt Kasten
Collection Date : 06/10/13 12:00

ESC Sample # : L640562-01
Site ID : I30
Project # : I30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	06/12/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	06/12/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	06/12/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	06/12/13	5
TPH (GC/FID) Low Fraction	0.52	0.50	mg/kg	GRO	06/12/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.9		% Rec.	8021/8015	06/12/13	5
a,a,a-Trifluorotoluene(PID)	99.7		% Rec.	8021/8015	06/12/13	5
TPH (GC/FID) High Fraction	160	80.	mg/kg	8015D/DRO	06/17/13	20
Surrogate recovery(%)						
o-Terphenyl	64.5		% Rec.	8015D/DRO	06/17/13	20

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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Reported: 06/21/13 09:35 Revised: 06/21/13 15:07



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REPORT OF ANALYSIS

Christopher Hines
 EnCana Oil & Gas Inc. - CO
 143 Diamond Avenue
 Parachute, CO 81635

June 21, 2013

Date Received : June 11, 2013
 Description : I30 Pit
 Sample ID : 061013-130 (PITWBOT)
 Collected By : Matt Kasten
 Collection Date : 06/10/13 12:05

ESC Sample # : L640562-02
 Site ID : I30
 Project # : I30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.37	0.10	mg/kg	8021/8015	06/13/13	200
Toluene	BDL	1.0	mg/kg	8021/8015	06/13/13	200
Ethylbenzene	2.2	0.10	mg/kg	8021/8015	06/13/13	200
Total Xylene	52.	0.30	mg/kg	8021/8015	06/13/13	200
TPH (GC/FID) Low Fraction	760	20.	mg/kg	GRO	06/13/13	200
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.6		% Rec.	8021/8015	06/13/13	200
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	06/13/13	200
TPH (GC/FID) High Fraction	7900	80.	mg/kg	8015D/DRO	06/17/13	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	8015D/DRO	06/17/13	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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143 Diamond Avenue
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June 21, 2013

Date Received : June 11, 2013
Description : I30 Pit
Sample ID : 061013-130 (PITNWALL)
Collected By : Matt Kasten
Collection Date : 06/10/13 12:10

ESC Sample # : L640562-03
Site ID : I30
Project # : I30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	1.4	0.025	mg/kg	8021/8015	06/12/13	50
Toluene	0.43	0.25	mg/kg	8021/8015	06/12/13	50
Ethylbenzene	0.56	0.025	mg/kg	8021/8015	06/12/13	50
Total Xylene	10.	0.075	mg/kg	8021/8015	06/12/13	50
TPH (GC/FID) Low Fraction	140	5.0	mg/kg	GRO	06/12/13	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.2		% Rec.	8021/8015	06/12/13	50
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	06/12/13	50
TPH (GC/FID) High Fraction	1000	80.	mg/kg	8015D/DRO	06/17/13	20
Surrogate recovery(%)						
o-Terphenyl	56.8		% Rec.	8015D/DRO	06/17/13	20

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June 21, 2013

Date Received : June 11, 2013
Description : I30 Pit
Sample ID : 061013-130 (PITCENTER)
Collected By : Matt Kasten
Collection Date : 06/10/13 12:15

ESC Sample # : L640562-04
Site ID : I30
Project # : I30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	06/17/13	1
Chromium,Trivalent	21.	2.0	mg/kg	Calc.	06/18/13	1
ORP	180		mV	2580 B-2011	06/14/13	1
pH	8.2		su	9045D	06/18/13	1
Sodium Adsorption Ratio	45.			Calc.	06/20/13	1
Specific Conductance	2800		umhos/cm	9050AMod	06/14/13	1
Mercury	0.060	0.020	mg/kg	7471	06/12/13	1
Arsenic	16.	1.0	mg/kg	6010B	06/18/13	1
Barium	5300	0.25	mg/kg	6010B	06/18/13	1
Cadmium	0.38	0.25	mg/kg	6010B	06/18/13	1
Chromium	21.	0.50	mg/kg	6010B	06/18/13	1
Copper	22.	1.0	mg/kg	6010B	06/18/13	1
Lead	13.	0.25	mg/kg	6010B	06/18/13	1
Nickel	14.	1.0	mg/kg	6010B	06/18/13	1
Selenium	BDL	1.0	mg/kg	6010B	06/18/13	1
Silver	BDL	0.50	mg/kg	6010B	06/18/13	1
Zinc	61.	1.5	mg/kg	6010B	06/18/13	1
Benzene	1.8	0.12	mg/kg	8021/8015	06/13/13	250
Toluene	BDL	1.2	mg/kg	8021/8015	06/13/13	250
Ethylbenzene	2.5	0.12	mg/kg	8021/8015	06/13/13	250
Total Xylene	55.	0.38	mg/kg	8021/8015	06/13/13	250
TPH (GC/FID) Low Fraction	850	25.	mg/kg	GRO	06/13/13	250
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	93.4		% Rec.	8021/8015	06/13/13	250
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	06/13/13	250
TPH (GC/FID) High Fraction	8800	400	mg/kg	8015D/DRO	06/18/13	100
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	8015D/DRO	06/18/13	100
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.13	0.0060	mg/kg	8270C-SIM	06/15/13	1
Acenaphthene	0.21	0.12	mg/kg	8270C-SIM	06/17/13	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	06/17/13	20
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	06/15/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	06/15/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L640562-04 (PH) - 8.2@22.6c



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June 21, 2013

Date Received : June 11, 2013
 Description : I30 Pit
 Sample ID : 061013-130 (PITCENTER)
 Collected By : Matt Kasten
 Collection Date : 06/10/13 12:15

ESC Sample # : L640562-04
 Site ID : I30
 Project # : I30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	06/15/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	06/15/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	06/15/13	1
Chrysene	0.014	0.0060	mg/kg	8270C-SIM	06/15/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	06/15/13	1
Fluoranthene	0.020	0.0060	mg/kg	8270C-SIM	06/15/13	1
Fluorene	0.66	0.12	mg/kg	8270C-SIM	06/17/13	20
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	06/15/13	1
Naphthalene	1.2	0.40	mg/kg	8270C-SIM	06/17/13	20
Phenanthrene	0.54	0.0060	mg/kg	8270C-SIM	06/15/13	1
Pyrene	0.026	0.0060	mg/kg	8270C-SIM	06/15/13	1
1-Methylnaphthalene	1.3	0.40	mg/kg	8270C-SIM	06/17/13	20
2-Methylnaphthalene	4.0	0.40	mg/kg	8270C-SIM	06/17/13	20
2-Chloronaphthalene	BDL	0.40	mg/kg	8270C-SIM	06/17/13	20
Surrogate Recovery						
Nitrobenzene-d5	79.0		% Rec.	8270C-SIM	06/17/13	20
2-Fluorobiphenyl	86.5		% Rec.	8270C-SIM	06/17/13	20
p-Terphenyl-d14	77.9		% Rec.	8270C-SIM	06/15/13	1

BDL - Below Detection Limit

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 L640562-04 (PH) - 8.2@22.6c



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EnCana Oil & Gas Inc. - CO
143 Diamond Avenue
Parachute, CO 81635

June 21, 2013

Date Received : June 11, 2013
Description : I30 Pit
Sample ID : 061013-130 (PITSEWALL)
Collected By : Matt Kasten
Collection Date : 06/10/13 12:20

ESC Sample # : L640562-05
Site ID : I30
Project # : I30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.20	0.025	mg/kg	8021/8015	06/12/13	50
Toluene	1.1	0.25	mg/kg	8021/8015	06/12/13	50
Ethylbenzene	0.23	0.025	mg/kg	8021/8015	06/12/13	50
Total Xylene	9.1	0.075	mg/kg	8021/8015	06/12/13	50
TPH (GC/FID) Low Fraction	100	5.0	mg/kg	GRO	06/12/13	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.4		% Rec.	8021/8015	06/12/13	50
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	06/12/13	50
TPH (GC/FID) High Fraction	700	80.	mg/kg	8015D/DRO	06/17/13	20
Surrogate recovery(%)						
o-Terphenyl	66.6		% Rec.	8015D/DRO	06/17/13	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

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 EnCana Oil & Gas Inc. - CO
 143 Diamond Avenue
 Parachute, CO 81635

June 21, 2013

Date Received : June 11, 2013
 Description : I30 Pit
 Sample ID : 061013-130 (PITETOE)
 Collected By : Matt Kasten
 Collection Date : 06/10/13 12:25

ESC Sample # : L640562-06
 Site ID : I30
 Project # : I30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.23	0.025	mg/kg	8021/8015	06/12/13	50
Toluene	0.80	0.25	mg/kg	8021/8015	06/12/13	50
Ethylbenzene	0.18	0.025	mg/kg	8021/8015	06/12/13	50
Total Xylene	8.3	0.075	mg/kg	8021/8015	06/12/13	50
TPH (GC/FID) Low Fraction	130	5.0	mg/kg	GRO	06/12/13	50
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.8		% Rec.	8021/8015	06/12/13	50
a,a,a-Trifluorotoluene(PID)	99.2		% Rec.	8021/8015	06/12/13	50
TPH (GC/FID) High Fraction	870	80.	mg/kg	8015D/DRO	06/17/13	20
Surrogate recovery(%)						
o-Terphenyl	63.5		% Rec.	8015D/DRO	06/17/13	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L640562-01	WG666781	SAMP	o-Terphenyl	R2711605	J7
L640562-02	WG666781	SAMP	o-Terphenyl	R2711605	J7
L640562-03	WG666781	SAMP	o-Terphenyl	R2711605	J7
L640562-04	WG666086	SAMP	Nitrobenzene-d5	R2711383	J7
	WG666086	SAMP	2-Fluorobiphenyl	R2711383	J7
	WG666781	SAMP	o-Terphenyl	R2711605	J7
	WG666454	SAMP	Specific Conductance	R2708520	T8
L640562-05	WG666781	SAMP	o-Terphenyl	R2711605	J7
L640562-06	WG666781	SAMP	o-Terphenyl	R2711605	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to 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
06/21/13 at 15:07:19

TSR Signing Reports: 358
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. DRO and DRO-SGT needed if TPH is listed twice on COC, one being TPH-GEL EXTRACT.

Sample: L640562-01 Account: ENCANACO Received: 06/11/13 09:30 Due Date: 06/18/13 00:00 RPT Date: 06/21/13 09:35

Sample: L640562-02 Account: ENCANACO Received: 06/11/13 09:30 Due Date: 06/18/13 00:00 RPT Date: 06/21/13 09:35

Sample: L640562-03 Account: ENCANACO Received: 06/11/13 09:30 Due Date: 06/18/13 00:00 RPT Date: 06/21/13 09:35

Sample: L640562-04 Account: ENCANACO Received: 06/11/13 09:30 Due Date: 06/18/13 00:00 RPT Date: 06/21/13 09:35

Sample: L640562-05 Account: ENCANACO Received: 06/11/13 09:30 Due Date: 06/18/13 00:00 RPT Date: 06/21/13 09:35

Sample: L640562-06 Account: ENCANACO Received: 06/11/13 09:30 Due Date: 06/18/13 00:00 RPT Date: 06/21/13 09:35



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Quality Assurance Report
Level II

L640562

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June 21, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG665835	06/11/13 17:44
Ethylbenzene	< .0005	mg/kg			WG665835	06/11/13 17:44
Toluene	< .005	mg/kg			WG665835	06/11/13 17:44
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG665835	06/11/13 17:44
Total Xylene	< .0015	mg/kg			WG665835	06/11/13 17:44
a,a,a-Trifluorotoluene(FID)		% Rec.	100.8	59-128	WG665835	06/11/13 17:44
a,a,a-Trifluorotoluene(PID)		% Rec.	99.40	54-144	WG665835	06/11/13 17:44
Mercury	< .02	mg/kg			WG666013	06/12/13 20:12
Benzene	< .0005	mg/kg			WG666250	06/13/13 03:53
Ethylbenzene	< .0005	mg/kg			WG666250	06/13/13 03:53
Toluene	< .005	mg/kg			WG666250	06/13/13 03:53
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG666250	06/13/13 03:53
Total Xylene	< .0015	mg/kg			WG666250	06/13/13 03:53
a,a,a-Trifluorotoluene(FID)		% Rec.	97.65	59-128	WG666250	06/13/13 03:53
a,a,a-Trifluorotoluene(PID)		% Rec.	103.3	54-144	WG666250	06/13/13 03:53
Specific Conductance	1.20	umhos/cm			WG666454	06/14/13 15:16
Anthracene	< .006	mg/kg			WG666086	06/15/13 07:50
Benzo(a)anthracene	< .006	mg/kg			WG666086	06/15/13 07:50
Benzo(a)pyrene	< .006	mg/kg			WG666086	06/15/13 07:50
Benzo(b)fluoranthene	< .006	mg/kg			WG666086	06/15/13 07:50
Benzo(g,h,i)perylene	< .006	mg/kg			WG666086	06/15/13 07:50
Benzo(k)fluoranthene	< .006	mg/kg			WG666086	06/15/13 07:50
Chrysene	< .006	mg/kg			WG666086	06/15/13 07:50
Dibenz(a,h)anthracene	< .006	mg/kg			WG666086	06/15/13 07:50
Fluoranthene	< .006	mg/kg			WG666086	06/15/13 07:50
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG666086	06/15/13 07:50
Phenanthrene	< .006	mg/kg			WG666086	06/15/13 07:50
Pyrene	< .006	mg/kg			WG666086	06/15/13 07:50
2-Fluorobiphenyl		% Rec.	90.00	70-130	WG666086	06/15/13 07:50
Nitrobenzene-d5		% Rec.	86.30	70-130	WG666086	06/15/13 07:50
p-Terphenyl-d14		% Rec.	90.60	70-130	WG666086	06/15/13 07:50
Chromium,Hexavalent	< 2	mg/kg			WG666486	06/17/13 12:24
Arsenic	< 1	mg/kg			WG666989	06/18/13 21:53
Barium	< .25	mg/kg			WG666989	06/18/13 21:53
Cadmium	< .25	mg/kg			WG666989	06/18/13 21:53
Chromium	< .5	mg/kg			WG666989	06/18/13 21:53
Copper	< 1	mg/kg			WG666989	06/18/13 21:53
Lead	< .25	mg/kg			WG666989	06/18/13 21:53
Nickel	< 1	mg/kg			WG666989	06/18/13 21:53
Selenium	< 1	mg/kg			WG666989	06/18/13 21:53
Silver	< .5	mg/kg			WG666989	06/18/13 21:53
Zinc	< 1.5	mg/kg			WG666989	06/18/13 21:53

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Mercury	mg/kg	2.40	2.38	0.919	20	L640637-01	WG666013

* Performance of this Analyte is outside of established criteria.

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Quality Assurance Report
Level II

L640562

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Tax I.D. 62-0814289

Est. 1970

June 21, 2013

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
ORP	mV	200.	190.	3.11	20	L640772-01	WG666624
ORP	mV	140.	130.	5.24	20	L640992-01	WG666624
Specific Conductance	umhos/cm	900.	920.	1.98	20	L640772-01	WG666454
Specific Conductance	umhos/cm	5600	5700	0.881	20	L640992-01	WG666454
Chromium,Hexavalent	mg/kg	0	0	0	20	L640797-01	WG666486
Chromium,Hexavalent	mg/kg	0	0	0	20	L640992-01	WG666486
pH	su	7.00	7.00	0.429	1	L640454-01	WG666803
pH	su	7.70	7.70	0	1	L640644-06	WG666803
Arsenic	mg/kg	17.0	14.0	19.4	20	L640638-06	WG666989
Barium	mg/kg	58.0	46.0	23.1*	20	L640638-06	WG666989
Cadmium	mg/kg	0	0	0	20	L640638-06	WG666989
Chromium	mg/kg	17.0	14.0	19.4	20	L640638-06	WG666989
Copper	mg/kg	24.0	21.0	13.3	20	L640638-06	WG666989
Lead	mg/kg	8.80	8.50	3.47	20	L640638-06	WG666989
Nickel	mg/kg	13.0	10.0	26.1*	20	L640638-06	WG666989
Selenium	mg/kg	0	0	0	20	L640638-06	WG666989
Silver	mg/kg	0	0	0	20	L640638-06	WG666989
Zinc	mg/kg	78.0	75.0	3.92	20	L640638-06	WG666989

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0434	86.8	76-113	WG665835
Ethylbenzene	mg/kg	.05	0.0433	86.7	78-115	WG665835
Toluene	mg/kg	.05	0.0436	87.1	76-114	WG665835
Total Xylene	mg/kg	.15	0.134	89.6	81-118	WG665835
a,a,a-Trifluorotoluene(PID)				96.21	54-144	WG665835
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.84	106.	67-135	WG665835
a,a,a-Trifluorotoluene(FID)				102.0	59-128	WG665835
Mercury	mg/kg	12.4	12.8	103.	71.6-128	WG666013
Benzene	mg/kg	.05	0.0461	92.2	76-113	WG666250
Ethylbenzene	mg/kg	.05	0.0485	97.1	78-115	WG666250
Toluene	mg/kg	.05	0.0486	97.1	76-114	WG666250
Total Xylene	mg/kg	.15	0.152	101.	81-118	WG666250
a,a,a-Trifluorotoluene(PID)				102.3	54-144	WG666250
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.23	95.0	67-135	WG666250
a,a,a-Trifluorotoluene(FID)				100.9	59-128	WG666250
ORP	mV	228	230.	101.	95.6-104.	WG666624
Specific Conductance	umhos/cm	878	870.	99.1	85-115	WG666454
Anthracene	mg/kg	.08	0.0828	103.	70-130	WG666086
Benzo(a)anthracene	mg/kg	.08	0.0769	96.1	70-130	WG666086

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzo(a)pyrene	mg/kg	.08	0.0888	111.	70-130	WG666086
Benzo(b)fluoranthene	mg/kg	.08	0.0873	109.	70-130	WG666086
Benzo(g,h,i)perylene	mg/kg	.08	0.0909	114.	70-130	WG666086
Benzo(k)fluoranthene	mg/kg	.08	0.0870	109.	70-130	WG666086
Chrysene	mg/kg	.08	0.0862	108.	70-130	WG666086
Dibenz(a,h)anthracene	mg/kg	.08	0.0938	117.	70-130	WG666086
Fluoranthene	mg/kg	.08	0.0730	91.2	70-130	WG666086
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0945	118.	70-130	WG666086
Phenanthrene	mg/kg	.08	0.0753	94.2	70-130	WG666086
Pyrene	mg/kg	.08	0.0837	105.	70-130	WG666086
2-Fluorobiphenyl				93.00	70-130	WG666086
Nitrobenzene-d5				93.50	70-130	WG666086
p-Terphenyl-d14				91.40	70-130	WG666086
Chromium,Hexavalent	mg/kg	146	150.	103.	80-120	WG666486
pH	su	5.79	5.80	100.	98.3-101.7	WG666803
Arsenic	mg/kg	237	243.	103.	83.1-117	WG666989
Barium	mg/kg	252	266.	106.	84.1-116	WG666989
Cadmium	mg/kg	191	205.	107.	83.2-117	WG666989
Chromium	mg/kg	128	135.	105.	81.3-118	WG666989
Copper	mg/kg	123	137.	111.	83.7-116	WG666989
Lead	mg/kg	103	106.	103.	83.1-117	WG666989
Nickel	mg/kg	118	116.	98.3	82-118	WG666989
Selenium	mg/kg	110	109.	99.1	78.7-122	WG666989
Silver	mg/kg	47.3	45.7	96.6	66.2-134	WG666989
Zinc	mg/kg	183	191.	104.	82-118	WG666989

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0488	0.0434	98.0	76-113	11.7	20	WG665835
Ethylbenzene	mg/kg	0.0490	0.0433	98.0	78-115	12.2	20	WG665835
Toluene	mg/kg	0.0489	0.0436	98.0	76-114	11.6	20	WG665835
Total Xylene	mg/kg	0.151	0.134	100.	81-118	11.5	20	WG665835
a,a,a-Trifluorotoluene(PID)				99.51	54-144			WG665835
TPH (GC/FID) Low Fraction	mg/kg	5.80	5.84	105.	67-135	0.800	20	WG665835
a,a,a-Trifluorotoluene(FID)				101.6	59-128			WG665835
Benzene	mg/kg	0.0504	0.0461	101.	76-113	8.88	20	WG666250
Ethylbenzene	mg/kg	0.0526	0.0485	105.	78-115	7.97	20	WG666250
Toluene	mg/kg	0.0524	0.0486	105.	76-114	7.64	20	WG666250
Total Xylene	mg/kg	0.162	0.152	108.	81-118	6.91	20	WG666250
a,a,a-Trifluorotoluene(PID)				102.4	54-144			WG666250
TPH (GC/FID) Low Fraction	mg/kg	5.21	5.23	95.0	67-135	0.290	20	WG666250
a,a,a-Trifluorotoluene(FID)				99.47	59-128			WG666250
ORP	mV	230.	230.	101.	95.6-104.	0	20	WG666624
Specific Conductance	umhos/	870.	870.	99.0	85-115	0	20	WG666454

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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Anthracene	mg/kg	0.0785	0.0828	98.0	70-130	5.28	25	WG666086
Benzo(a)anthracene	mg/kg	0.0748	0.0769	93.0	70-130	2.73	25	WG666086
Benzo(a)pyrene	mg/kg	0.0869	0.0888	108.	70-130	2.23	25	WG666086
Benzo(b)fluoranthene	mg/kg	0.0862	0.0873	108.	70-130	1.22	25	WG666086
Benzo(g,h,i)perylene	mg/kg	0.0887	0.0909	111.	70-130	2.45	25	WG666086
Benzo(k)fluoranthene	mg/kg	0.0811	0.0870	101.	70-130	6.99	25	WG666086
Chrysene	mg/kg	0.0808	0.0862	101.	70-130	6.50	25	WG666086
Dibenz(a,h)anthracene	mg/kg	0.0927	0.0938	116.	70-130	1.22	25	WG666086
Fluoranthene	mg/kg	0.0700	0.0730	88.0	70-130	4.15	25	WG666086
Indeno(1,2,3-cd)pyrene	mg/kg	0.0920	0.0945	115.	70-130	2.70	25	WG666086
Phenanthrene	mg/kg	0.0717	0.0753	90.0	70-130	4.96	25	WG666086
Pyrene	mg/kg	0.0799	0.0837	100.	70-130	4.65	25	WG666086
2-Fluorobiphenyl				91.90	70-130			WG666086
Nitrobenzene-d5				87.50	70-130			WG666086
p-Terphenyl-d14				90.80	70-130			WG666086
Chromium, Hexavalent	mg/kg	151.	150.	103.	80-120	0.664	20	WG666486
pH	su	5.80	5.80	100.	98.3-101.7	0	20	WG666803

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.225	0	.05	90.2	32-137	L640361-01	WG665835
Ethylbenzene	mg/kg	0.218	0	.05	87.2	10-150	L640361-01	WG665835
Toluene	mg/kg	0.226	0	.05	90.3	20-142	L640361-01	WG665835
Total Xylene	mg/kg	0.669	0	.15	89.2	16-141	L640361-01	WG665835
a,a,a-Trifluorotoluene(PID)					99.76	54-144		WG665835
TPH (GC/FID) Low Fraction	mg/kg	23.7	0.0559	5.5	86.1	55-109	L640361-01	WG665835
a,a,a-Trifluorotoluene(FID)					100.1	59-128		WG665835
Mercury	mg/kg	3.34	2.38	.25	385.*	80-120	L640637-01	WG666013
Benzene	mg/kg	0.199	0.000407	.05	79.3	32-137	L640889-01	WG666250
Ethylbenzene	mg/kg	0.184	0.000371	.05	73.6	10-150	L640889-01	WG666250
Toluene	mg/kg	0.202	0.00136	.05	80.2	20-142	L640889-01	WG666250
Total Xylene	mg/kg	0.576	0.00194	.15	76.5	16-141	L640889-01	WG666250
a,a,a-Trifluorotoluene(PID)					101.2	54-144		WG666250
TPH (GC/FID) Low Fraction	mg/kg	18.4	0.0972	5.5	66.5	55-109	L640889-01	WG666250
a,a,a-Trifluorotoluene(FID)					98.94	59-128		WG666250
Anthracene	mg/kg	0.0735	0	.08	91.9	70-130	L640644-05	WG666086
Benzo(a)anthracene	mg/kg	0.0622	0.00113	.08	76.3	70-130	L640644-05	WG666086
Benzo(a)pyrene	mg/kg	0.0760	0.000877	.08	93.9	70-130	L640644-05	WG666086
Benzo(b)fluoranthene	mg/kg	0.0615	0.00288	.08	73.2	70-130	L640644-05	WG666086
Benzo(g,h,i)perylene	mg/kg	0.0727	0.00228	.08	88.1	70-130	L640644-05	WG666086
Benzo(k)fluoranthene	mg/kg	0.0816	0.00168	.08	99.9	70-130	L640644-05	WG666086
Chrysene	mg/kg	0.0772	0.00219	.08	93.7	70-130	L640644-05	WG666086
Dibenz(a,h)anthracene	mg/kg	0.0782	0.00149	.08	95.8	70-130	L640644-05	WG666086
Fluoranthene	mg/kg	0.0638	0.00106	.08	78.4	70-130	L640644-05	WG666086
Indeno(1,2,3-cd)pyrene	mg/kg	0.0750	0.00200	.08	91.3	70-130	L640644-05	WG666086
Phenanthrene	mg/kg	0.0661	0.000646	.08	81.9	70-130	L640644-05	WG666086
Pyrene	mg/kg	0.0715	0.00112	.08	87.9	70-130	L640644-05	WG666086
2-Fluorobiphenyl					87.10	70-130		WG666086

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Level II

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L640562

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Nitrobenzene-d5					82.90	70-130		
p-Terphenyl-d14					84.10	70-130		
Chromium,Hexavalent	mg/kg	1.24	0	20	6.20*	75-125	L640992-01	WG666486
Arsenic	mg/kg	66.0	14.0	50	104.	75-125	L640638-06	WG666989
Barium	mg/kg	96.9	46.0	50	102.	75-125	L640638-06	WG666989
Cadmium	mg/kg	47.2	0	50	94.4	75-125	L640638-06	WG666989
Chromium	mg/kg	62.7	14.0	50	97.4	75-125	L640638-06	WG666989
Copper	mg/kg	77.9	21.0	50	114.	75-125	L640638-06	WG666989
Lead	mg/kg	56.4	8.50	50	95.8	75-125	L640638-06	WG666989
Nickel	mg/kg	56.7	10.0	50	93.4	75-125	L640638-06	WG666989
Selenium	mg/kg	46.9	0	50	93.8	75-125	L640638-06	WG666989
Silver	mg/kg	45.5	0	50	91.0	75-125	L640638-06	WG666989
Zinc	mg/kg	133.	75.0	50	116.	75-125	L640638-06	WG666989

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.189	0.225	75.6	32-137	17.5	39	L640361-01	WG665835
Ethylbenzene	mg/kg	0.163	0.218	65.2	10-150	28.9	44	L640361-01	WG665835
Toluene	mg/kg	0.175	0.226	70.0	20-142	25.4	42	L640361-01	WG665835
Total Xylene	mg/kg	0.498	0.669	66.4	16-141	29.3	46	L640361-01	WG665835
a,a,a-Trifluorotoluene(PID)				99.18	54-144				WG665835
TPH (GC/FID) Low Fraction	mg/kg	22.9	23.7	83.2	55-109	3.36	20	L640361-01	WG665835
a,a,a-Trifluorotoluene(FID)				99.80	59-128				WG665835
Mercury	mg/kg	2.80	3.34	16.7*	80-120	17.7	20	L640637-01	WG666013
Benzene	mg/kg	0.220	0.199	87.7	32-137	10.1	39	L640889-01	WG666250
Ethylbenzene	mg/kg	0.205	0.184	81.8	10-150	10.5	44	L640889-01	WG666250
Toluene	mg/kg	0.221	0.202	87.7	20-142	8.82	42	L640889-01	WG666250
Total Xylene	mg/kg	0.632	0.576	84.0	16-141	9.27	46	L640889-01	WG666250
a,a,a-Trifluorotoluene(PID)				101.1	54-144				WG666250
TPH (GC/FID) Low Fraction	mg/kg	17.4	18.4	63.0	55-109	5.34	20	L640889-01	WG666250
a,a,a-Trifluorotoluene(FID)				97.24	59-128				WG666250
Anthracene	mg/kg	0.0749	0.0735	93.6	70-130	1.84	25	L640644-05	WG666086
Benzo(a)anthracene	mg/kg	0.0655	0.0622	80.5	70-130	5.25	25	L640644-05	WG666086
Benzo(a)pyrene	mg/kg	0.0799	0.0760	98.8	70-130	5.01	25	L640644-05	WG666086
Benzo(b)fluoranthene	mg/kg	0.0698	0.0615	83.7	70-130	12.8	25	L640644-05	WG666086
Benzo(g,h,i)perylene	mg/kg	0.0775	0.0727	94.0	70-130	6.36	25	L640644-05	WG666086
Benzo(k)fluoranthene	mg/kg	0.0826	0.0816	101.	70-130	1.28	25	L640644-05	WG666086
Chrysene	mg/kg	0.0772	0.0772	93.7	70-130	0.0300	25	L640644-05	WG666086
Dibenz(a,h)anthracene	mg/kg	0.0829	0.0782	102.	70-130	5.87	25	L640644-05	WG666086
Fluoranthene	mg/kg	0.0673	0.0638	82.8	70-130	5.41	25	L640644-05	WG666086
Indeno(1,2,3-cd)pyrene	mg/kg	0.0807	0.0750	98.3	70-130	7.25	25	L640644-05	WG666086
Phenanthrene	mg/kg	0.0679	0.0661	84.1	70-130	2.64	25	L640644-05	WG666086
Pyrene	mg/kg	0.0716	0.0715	88.0	70-130	0.120	25	L640644-05	WG666086
2-Fluorobiphenyl				86.60	70-130				WG666086
Nitrobenzene-d5				82.30	70-130				WG666086
p-Terphenyl-d14				84.20	70-130				WG666086
Chromium,Hexavalent	mg/kg	1.48	1.24	7.40*	75-125	17.6	20	L640992-01	WG666486

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Arsenic	mg/kg	63.6	66.0	99.2	75-125	3.70	20	L640638-06	WG666989
Barium	mg/kg	98.0	96.9	104.	75-125	1.13	20	L640638-06	WG666989
Cadmium	mg/kg	46.1	47.2	92.2	75-125	2.36	20	L640638-06	WG666989
Chromium	mg/kg	66.2	62.7	104.	75-125	5.43	20	L640638-06	WG666989
Copper	mg/kg	73.5	77.9	105.	75-125	5.81	20	L640638-06	WG666989
Lead	mg/kg	56.7	56.4	96.4	75-125	0.531	20	L640638-06	WG666989
Nickel	mg/kg	53.8	56.7	87.6	75-125	5.25	20	L640638-06	WG666989
Selenium	mg/kg	44.6	46.9	89.2	75-125	5.03	20	L640638-06	WG666989
Silver	mg/kg	44.0	45.5	88.0	75-125	3.35	20	L640638-06	WG666989
Zinc	mg/kg	121.	133.	92.0	75-125	9.45	20	L640638-06	WG666989

Post Spike

Serial Dilution

Batch number /Run number / Sample number cross reference

WG665835: R2704424: L640562-01 03 05 06
 WG666013: R2705481: L640562-04
 WG666250: R2706561: L640562-02 04
 WG666624: R2708442: L640562-04
 WG666454: R2708520: L640562-04
 WG666086: R2709341 R2711383: L640562-04 04
 WG666486: R2710320: L640562-04
 WG666781: R2711605: L640562-01 02 03 04 05 06
 WG666803: R2712163: L640562-04
 WG666989: R2713241: L640562-04
 WG667471: R2716681: L640562-04

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

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Est. 1970

June 21, 2013

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.