



A03 596 (Location: 335720)
Pit (Facility: 414549)
Encana Oil & Gas (USA) Inc. (Operator: 100185)

REPORT OF WORK COMPLETED

- Form 27 (Doc: 2232895) (Rem: 7741)
- Form 19 (Spill Doc: 400776705)

Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 (Report of Work Completed and Notification of Completion) to document closure of a lined earthen pit and disposal of cuttings on the A03 596 well pad in the North Parachute area of operation in Garfield County.

Initial pit closure and characterization efforts were carried out in July, 2010. The pit was drained, and the liner and above liner solids were removed for offsite disposal. Below-liner soil conditions were assessed with field observations and each cell of the pit was characterized with a 5-point composite sample of the pit bottom submitted to a laboratory for analysis. Field observations noted staining and hydrocarbon odor in both cells of the pit, and sample results confirmed concentrations/levels above the allowable limits in COGCC Table 910-1 for TPH, SAR, and arsenic. A Form 19 was submitted to document discovery of impacted soils beneath the liner. A composite sample of drill cuttings visible onsite was also collected during initial sampling efforts.

Following identification of below-liner impacts, the pit excavations were left open through the remainder of 2010 and early 2011 to allow hydrocarbon impacts to naturally attenuate through biological processes.

Beginning in June, 2011 both pit cells were further characterized with a series of discrete grab samples. Those samples and field observations confirmed persistent hydrocarbon impacts in below-liner soils. A track-hoe was used to remove visually stained soils and the weir separating the two (2) cells of the pit, and stockpile material on the pad to support ex-situ remediation if necessary. Competent bedrock was encountered during excavation efforts which prevented vertical pursuit of soil impacts, but removal of stained soils from the pit walls was accomplished, and a final round of grab samples was completed for characterization purposes.

The stockpiled material from the pit excavation was characterized with a composite sample and laid out to support bioremediation of hydrocarbon impacts. The initial characterization sample was above the allowable concentration, so the material was turned, and a follow up sample was collected.

The previously identified drill cuttings stockpile was removed from its storage location and a second composite sample was collected to confirm the previous characterization.

Analytical results are provided in the attached summary table and laboratory reports.

NOTIFICATION OF COMPLETION

After excavation efforts were completed, six (6) clearance samples from the pit bottom and walls were analyzed for TPH. The three (3) wall samples returned results below the allowable limits in Table 910-1. The presence of competent bedrock prevented further vertical excavation of impacted material, as a result, two (2) of the three (3) pit bottom results remained above the allowable limit in Table 910-1. Encana requests that the COGCC consider the following physical and temporal conditions associated with this pit closure project as an alternative to the allowable limit for TPH identified in Table 910-1:

- The two samples in question were collected from the unrecoverable residual material on top of the bedrock. They are not representative of the bedrock or the geology beneath the bedrock, and only demonstrate that the removed material had hydrocarbon impacts.
- The pit excavation at this location held snowmelt and stormwater for several months with no liner in place. We propose that this impermeability is an indicator that below-liner impacts identified here are likely the extent of impacts resulting from the failed liner at this location, and that no offsite impacts occurred.
- Encana has maintained an extensive water quality monitoring program in the North Parachute Properties for nearly a decade, which includes quarterly sampling at area springs and streams. The nearest down gradient sampling point is a spring (ENPR30SP), with nearly 4 years of sampling data since the closure of this pit without any water quality problems identified. See attached topographic map for spring location.

Arsenic concentrations in the pit bottom and stockpile, and drill cuttings stockpile are above the allowable concentration in Table 910-1, but are within the range of background values for this area. Based on these results and Footnote 1 to COGCC Table 910-1, Encana requests that the COGCC consider the higher range of background arsenic values as the allowable concentration for this constituent. With regards to the inorganic constituents (SAR, EC, pH), the material represented by these samples are within the former pit footprint, are greater than five feet below the current working surface, and will be at an even greater depth below the final reclaimed working surface where the constituents will have no effect on revegetation efforts.

After bedrock refusal, and receipt of laboratory results demonstrating compliance of the pit walls, the drill cuttings stockpile (approximately 900 cubic yards) and pit spoil stockpile were placed in the pit excavation, and the pit was backfilled and reclaimed.

If the information provided here is satisfactory, please close the associated remediation project, and pit facility, and provide documentation of these record closures.

ATTACHMENTS

1. Topographic Location Map
2. Laboratory Results Summary Table
3. Laboratory Reports

North Parachute Mountain

Garfield County, Colorado

0 3,200 6,400 Feet

1 inch = 3,000 feet



T004S-R097W

T005S-R097W

T004S-R096W

T005S-R096W

T004S-R095W

T005S-R095W

A03 596 Pad and Pit
Location ID: 335720
Facility ID: 414549
Remediation #: 7741

ENPR30SP
spring sampling point

Encana Site Boundary
 Access Road
 Township Boundary

Surface Ownership

- Not Identified Below (clear)
- EnCana (transparent)
- USFS (transparent)
- BLM (transparent)

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

Location	Sample Date:	Sample Matrix	Matrix Notes	Organic Compounds in Soil (mg/kg [ppm])			Inorganics in Soil																	Metals in Soil (mg/kg [ppm])													
				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	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
A03	07/28/10	Pit	N pit bottom	4264	64	4200	0.11	0.5	0.25	1.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.39	BDL	0.14	BDL	1	13	8	8	2700	BDL	61	BDL	160	24	0.052	23	BDL	BDL	120
A03	07/28/10	Pit	S pit bottom	4090	190	3900	BDL	BDL	0.54	1.3	0.15	BDL	0.0094	BDL	BDL	BDL	BDL	BDL	0.017	0.74	BDL	0.33	1.2	25	7.9	4.5	430	BDL	80	BDL	14	14	BDL	28	BDL	BDL	39
A03	06/29/11	Pit	Pit bottom, N1	12001.5	1.5	12000																															
A03	06/29/11	Pit	Pit bottom, N2	11077	77	11000																															
A03	06/29/11	Pit	Pit bottom, N3	1300	BDL	1300																															
A03	06/29/11	Pit	Pit bottom, N4	1400	BDL	1400																															
A03	07/18/11	Pit	Pit bottom South - E bottom	8205.1	5.1	8200																															
A03	07/18/11	Pit	Pit bottom South - NW wall	550	BDL	550																															
A03	07/18/11	Pit	Pit bottom South - S bottom	1400	BDL	1400																															
A03	07/18/11	Pit	Pit bottom South - S wall	3900	BDL	3900																															
A03	07/18/11	Pit	Pit bottom South - SW bottom	34020	20	34000																															
A03	07/28/11	Pit	PitX North pit, E bottom	2700	BDL	2700																															
A03	07/28/11	Pit	PitX North pit, N wall	BDL	BDL	BDL																															
A03	07/28/11	Pit	PitX North pit, SE wall	BDL	BDL	BDL																															
A03	07/28/11	Pit	PitX North pit, W bottom	130	BDL	130																															
A03	07/28/11	Pit	PitX South pit, NW wall	65	BDL	65																															
A03	07/28/11	Pit	PitX South pit, W bottom	1700	BDL	1700																															
A03	07/28/11	Pit	PitX Spoil	610	BDL	610																															
A03	08/08/11	Pit	PitX spoil	340	BDL	340																															
A03	07/28/10	Cuttings		270	BDL	270	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.13	BDL	1.6	8	8	5.2	3600	BDL	23	BDL	14	19	BDL	12	BDL	BDL	42
A03	08/30/11	Cuttings		130	BDL	130	0.0068	BDL	0.011	0.0076	0.009	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.032	BDL	0.13	0.02	1.1	16	8.4	4.1	3200	0.63	19	BDL	18	16	BDL	11	BDL	BDL	42



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Est. 1970

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

Report Summary

Thursday August 05, 2010

Report Number: L471062

Samples Received: 07/29/10

Client Project: A03 Pit Closure

Description: A03 Pit Closure

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:

Jarred 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

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

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REPORT OF ANALYSIS

August 05, 2010

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

ESC Sample # : L471062-01

Date Received : July 29, 2010
 Description : A03 Pit Closure

Site ID :

Sample ID : A03-N. PIT-072810

Project # : A03 Pit Closure

Collected By : Blair Rollins
 Collection Date : 07/28/10 11:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	08/03/10	1
Chromium,Trivalent	61.	2.0	mg/kg	Calc.	07/31/10	1
ORP	250		mV	2580	08/03/10	1
pH	8.0		su	9045D	07/31/10	1
Sodium Adsorption Ratio	13.			Calc.	08/04/10	1
Specific Conductance	1000		umhos/cm	9050AMod	08/03/10	1
Mercury	0.052	0.020	mg/kg	7471	08/01/10	1
Arsenic	8.0	1.0	mg/kg	6010B	07/31/10	1
Barium	2700	0.25	mg/kg	6010B	07/31/10	1
Cadmium	BDL	0.25	mg/kg	6010B	07/31/10	1
Chromium	61.	0.50	mg/kg	6010B	07/31/10	1
Copper	160	1.0	mg/kg	6010B	07/31/10	1
Lead	24.	0.25	mg/kg	6010B	07/31/10	1
Nickel	23.	1.0	mg/kg	6010B	08/03/10	1
Selenium	BDL	1.0	mg/kg	6010B	07/31/10	1
Silver	BDL	0.50	mg/kg	6010B	07/31/10	1
Zinc	120	1.5	mg/kg	6010B	07/31/10	1
Benzene	0.11	0.025	mg/kg	8021/8015	07/31/10	50
Toluene	0.50	0.25	mg/kg	8021/8015	07/31/10	50
Ethylbenzene	0.25	0.025	mg/kg	8021/8015	07/31/10	50
Total Xylene	1.3	0.075	mg/kg	8021/8015	07/31/10	50
TPH (GC/FID) Low Fraction	64.	10.	mg/kg	GRO	07/29/10	100
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.5		% Rec.	8021/8015	07/29/10	100
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	07/31/10	50
TPH (GC/FID) High Fraction	4200	80.	mg/kg	3546/DRO	07/31/10	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	07/31/10	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L471062-01 (PH) - 8.0@21.4c



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REPORT OF ANALYSIS

Chris Hines
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August 05, 2010

Date Received : July 29, 2010
 Description : A03 Pit Closure
 Sample ID : A03-N. PIT-072810
 Collected By : Blair Rollins
 Collection Date : 07/28/10 11:30

ESC Sample # : L471062-01

Site ID :

Project # : A03 Pit Closure

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Chrysene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Fluorene	0.39	0.12	mg/kg	8270C-SIM	08/05/10	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Naphthalene	0.14	0.12	mg/kg	8270C-SIM	08/05/10	20
Phenanthrene	0.23	0.12	mg/kg	8270C-SIM	08/05/10	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
1-Methylnaphthalene	0.18	0.12	mg/kg	8270C-SIM	08/05/10	20
2-Methylnaphthalene	0.26	0.12	mg/kg	8270C-SIM	08/05/10	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	08/05/10	20
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	08/05/10	20
2-Fluorobiphenyl	0.00		% Rec.	8270C-SIM	08/05/10	20
p-Terphenyl-d14	0.00		% Rec.	8270C-SIM	08/05/10	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: 08/05/10 12:54 Printed: 08/05/10 14:38
 L471062-01 (PH) - 8.0@21.4c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L471062-01	WG491793	SAMP	Nitrobenzene-d5	R1314710	J7
	WG491793	SAMP	2-Fluorobiphenyl	R1314710	J7
	WG491793	SAMP	p-Terphenyl-d14	R1314710	J7
	WG490981	SAMP	o-Terphenyl	R1306211	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out

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
08/05/10 at 14:38:27

TSR Signing Reports: 358
R5 - Desired TAT

Create p-key for each project, and enter "project description" as Project Number and Project Name. Log all samples to separate L#s. Log all PAHs as SV8270PAHSIM. Log all BTEX samples by 8021.

Sample: L471062-01 Account: ENCANACO Received: 07/29/10 09:00 Due Date: 08/05/10 00:00 RPT Date: 08/05/10 12:54



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EnCana Oil & Gas Inc. - CO
 Chris Hines
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Quality Assurance Report
 Level II

L471062

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August 05, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG490720	07/29/10 14:01
a,a,a-Trifluorotoluene(FID)		% Rec.	98.08	59-128	WG490720	07/29/10 14:01
a,a,a-Trifluorotoluene(PID)		% Rec.	103.0	54-144	WG490720	07/29/10 14:01
TPH (GC/FID) High Fraction	< 4	ppm			WG490981	07/30/10 13:18
o-Terphenyl		% Rec.	89.17	50-150	WG490981	07/30/10 13:18
Arsenic	< 1	mg/kg			WG490955	07/30/10 23:42
Barium	< .25	mg/kg			WG490955	07/30/10 23:42
Cadmium	< .25	mg/kg			WG490955	07/30/10 23:42
Chromium	< .5	mg/kg			WG490955	07/30/10 23:42
Copper	< 1	mg/kg			WG490955	07/30/10 23:42
Lead	< .25	mg/kg			WG490955	07/30/10 23:42
Selenium	< 1	mg/kg			WG490955	07/30/10 23:42
Silver	< .5	mg/kg			WG490955	07/30/10 23:42
Zinc	< 1.5	mg/kg			WG490955	07/30/10 23:42
Benzene	< .0005	mg/kg			WG491279	07/31/10 05:03
Ethylbenzene	< .0005	mg/kg			WG491279	07/31/10 05:03
Toluene	< .005	mg/kg			WG491279	07/31/10 05:03
Total Xylene	< .0015	mg/kg			WG491279	07/31/10 05:03
a,a,a-Trifluorotoluene(FID)		% Rec.	100.2	59-128	WG491279	07/31/10 05:03
a,a,a-Trifluorotoluene(PID)		% Rec.	104.5	54-144	WG491279	07/31/10 05:03
Mercury	< .02	mg/kg			WG490972	08/01/10 10:25
pH	5.30	su			WG491011	07/31/10 10:45
Chromium,Hexavalent	< 2	mg/kg			WG491136	08/03/10 16:21
Nickel	< 1	mg/kg			WG490955	08/03/10 16:53
Specific Conductance	0.890	umhos/cm			WG491172	08/03/10 15:10
1-Methylnaphthalene	< .006	mg/kg			WG491793	08/04/10 18:40
2-Chloronaphthalene	< .006	mg/kg			WG491793	08/04/10 18:40
2-Methylnaphthalene	< .006	mg/kg			WG491793	08/04/10 18:40
Acenaphthene	< .006	mg/kg			WG491793	08/04/10 18:40
Acenaphthylene	< .006	mg/kg			WG491793	08/04/10 18:40
Anthracene	< .006	mg/kg			WG491793	08/04/10 18:40
Benzo(a)anthracene	< .006	mg/kg			WG491793	08/04/10 18:40
Benzo(a)pyrene	< .006	mg/kg			WG491793	08/04/10 18:40
Benzo(b)fluoranthene	< .006	mg/kg			WG491793	08/04/10 18:40
Benzo(g,h,i)perylene	< .006	mg/kg			WG491793	08/04/10 18:40
Benzo(k)fluoranthene	< .006	mg/kg			WG491793	08/04/10 18:40
Chrysene	< .006	mg/kg			WG491793	08/04/10 18:40
Dibenz(a,h)anthracene	< .006	mg/kg			WG491793	08/04/10 18:40
Fluoranthene	< .006	mg/kg			WG491793	08/04/10 18:40
Fluorene	< .006	mg/kg			WG491793	08/04/10 18:40
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG491793	08/04/10 18:40

* 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
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Quality Assurance Report
 Level II

L471062

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Est. 1970

August 05, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Naphthalene	< .006	mg/kg			WG491793	08/04/10 18:40
Phenanthrene	< .006	mg/kg			WG491793	08/04/10 18:40
Pyrene	< .006	mg/kg			WG491793	08/04/10 18:40
2-Fluorobiphenyl		% Rec.	95.36	21-120	WG491793	08/04/10 18:40
Nitrobenzene-d5		% Rec.	92.69	33-114	WG491793	08/04/10 18:40
p-Terphenyl-d14		% Rec.	119.9	18-142	WG491793	08/04/10 18:40

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Arsenic	mg/kg	26.0	28.0	7.02	20	L471124-05	WG490955
Barium	mg/kg	100.	85.9	18.1	20	L471124-05	WG490955
Cadmium	mg/kg	0	0	0	20	L471124-05	WG490955
Chromium	mg/kg	13.0	14.8	10.7	20	L471124-05	WG490955
Copper	mg/kg	26.0	30.7	17.3	20	L471124-05	WG490955
Lead	mg/kg	72.0	55.6	25.6*	20	L471124-05	WG490955
Selenium	mg/kg	0	0	0	20	L471124-05	WG490955
Silver	mg/kg	0	0	0	20	L471124-05	WG490955
Zinc	mg/kg	90.0	71.0	23.4*	20	L471124-05	WG490955
Mercury	mg/kg	0.0230	0.0250	8.77	20	L471045-01	WG490972
pH	su	7.60	7.50	1.32*	1	L470825-01	WG491011
Specific Conductance	umhos/cm	120.	120.	1.90	20	L471045-01	WG491172
Chromium,Hexavalent	mg/kg	0	0	0	20	L471047-01	WG491136
Chromium,Hexavalent	mg/kg	0	0	0	20	L471362-04	WG491136
ORP	mV	220.	220.	0	20	L471045-01	WG491167
ORP	mV	200.	200.	1.49	20	L471333-01	WG491167
Nickel	mg/kg	21.0	0	NA	20	L471124-05	WG490955

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.09	111.	67-135	WG490720
a,a,a-Trifluorotoluene(FID)				90.80	59-128	WG490720
TPH (GC/FID) High Fraction	ppm	60	51.1	85.1	50-150	WG490981
o-Terphenyl				95.53	50-150	WG490981
Arsenic	mg/kg	192	190.	99.0	78.6-120.8	WG490955
Barium	mg/kg	420	397.	94.5	78.8-121.4	WG490955
Cadmium	mg/kg	70.1	58.0	82.7	78.5-121.5	WG490955
Chromium	mg/kg	168	160.	95.2	80.4-120.2	WG490955
Copper	mg/kg	122	123.	101.	81.6-119.7	WG490955
Lead	mg/kg	113	111.	98.2	77.3-122.1	WG490955
Selenium	mg/kg	176	163.	92.6	75.6-125.0	WG490955
Silver	mg/kg	115	106.	92.2	66-133.9	WG490955

* 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			
Zinc	mg/kg	437	391.	89.5	78.5-121.7	WG490955
Benzene	mg/kg	.05	0.0527	105.	76-113	WG491279
Ethylbenzene	mg/kg	.05	0.0534	107.	78-115	WG491279
Toluene	mg/kg	.05	0.0534	107.	76-114	WG491279
Total Xylene	mg/kg	.15	0.166	111.	81-118	WG491279
a,a,a-Trifluorotoluene(FID)				99.70	59-128	WG491279
a,a,a-Trifluorotoluene(PID)				103.0	54-144	WG491279
Mercury	mg/kg	8.77	9.44	108.	71.6-127.7	WG490972
pH	su	9.36	9.30	99.4	98.9-102.0	WG491011
Specific Conductance	umhos/cm	406	430.	106.	85-115	WG491172
Chromium,Hexavalent	mg/kg	100	95.5	95.5	50-143	WG491136
ORP	mV	229	220.	96.1	95.6-104.37	WG491167
Nickel	mg/kg	74.1	73.4	99.1	78.8-121.2	WG490955
1-Methylnaphthalene	mg/kg	.033	0.0247	74.8	41-110	WG491793
2-Chloronaphthalene	mg/kg	.033	0.0257	78.0	43-109	WG491793
2-Methylnaphthalene	mg/kg	.033	0.0253	76.6	38-104	WG491793
Acenaphthene	mg/kg	.033	0.0254	77.1	48-103	WG491793
Acenaphthylene	mg/kg	.033	0.0264	80.1	43-106	WG491793
Anthracene	mg/kg	.033	0.0303	91.7	51-110	WG491793
Benzo(a)anthracene	mg/kg	.033	0.0288	87.3	38-126	WG491793
Benzo(a)pyrene	mg/kg	.033	0.0288	87.3	47-118	WG491793
Benzo(b)fluoranthene	mg/kg	.033	0.0324	98.1	47-118	WG491793
Benzo(g,h,i)perylene	mg/kg	.033	0.0291	88.2	40-125	WG491793
Benzo(k)fluoranthene	mg/kg	.033	0.0275	83.4	45-121	WG491793
Chrysene	mg/kg	.033	0.0294	89.1	35-135	WG491793
Dibenz(a,h)anthracene	mg/kg	.033	0.0289	87.4	41-124	WG491793
Fluoranthene	mg/kg	.033	0.0290	87.9	50-114	WG491793
Fluorene	mg/kg	.033	0.0263	79.8	49-109	WG491793
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0292	88.4	40-126	WG491793
Naphthalene	mg/kg	.033	0.0248	75.2	36-100	WG491793
Phenanthrene	mg/kg	.033	0.0285	86.4	46-108	WG491793
Pyrene	mg/kg	.033	0.0303	91.8	30-136	WG491793
2-Fluorobiphenyl				94.79	21-120	WG491793
Nitrobenzene-d5				88.93	33-114	WG491793
p-Terphenyl-d14				117.0	18-142	WG491793

Analyte	Units	Laboratory Control Sample Duplicate		Limit	RPD	Limit	Batch	
		Result	Ref					%Rec
TPH (GC/FID) Low Fraction	mg/kg	5.98	6.09	109.	67-135	1.84	20	WG490720
a,a,a-Trifluorotoluene(FID)				90.29	59-128			WG490720

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Analyte	Units	Laboratory Control		Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) High Fraction	ppm	48.3	51.1	80.0	50-150	5.68	25	WG490981
o-Terphenyl				93.98	50-150			WG490981
Benzene	mg/kg	0.0518	0.0527	104.	76-113	1.63	20	WG491279
Ethylbenzene	mg/kg	0.0527	0.0534	105.	78-115	1.42	20	WG491279
Toluene	mg/kg	0.0522	0.0534	104.	76-114	2.25	20	WG491279
Total Xylene	mg/kg	0.164	0.166	109.	81-118	1.41	20	WG491279
a,a,a-Trifluorotoluene(FID)				98.76	59-128			WG491279
a,a,a-Trifluorotoluene(PID)				102.0	54-144			WG491279
pH	su	9.30	9.30	99.0	98.9-102.0	0	20	WG491011
Specific Conductance	umhos/	430.	430.	106.	85-115	0	20	WG491172
Chromium,Hexavalent	mg/kg	95.0	95.5	95.0	50-143	0.525	20	WG491136
ORP	mV	220.	220.	96.0	95.6-104.37	0	20	WG491167
1-Methylnaphthalene	mg/kg	0.0238	0.0247	72.0	41-110	3.54	24	WG491793
2-Chloronaphthalene	mg/kg	0.0248	0.0257	75.0	43-109	3.76	21	WG491793
2-Methylnaphthalene	mg/kg	0.0244	0.0253	74.0	38-104	3.51	24	WG491793
Acenaphthene	mg/kg	0.0251	0.0254	76.0	48-103	1.21	20	WG491793
Acenaphthylene	mg/kg	0.0260	0.0264	79.0	43-106	1.74	20	WG491793
Anthracene	mg/kg	0.0282	0.0303	85.0	51-110	6.97	22	WG491793
Benzo(a)anthracene	mg/kg	0.0293	0.0288	89.0	38-126	1.74	20	WG491793
Benzo(a)pyrene	mg/kg	0.0282	0.0288	85.0	47-118	2.30	20	WG491793
Benzo(b)fluoranthene	mg/kg	0.0281	0.0324	85.0	47-118	13.9	29	WG491793
Benzo(g,h,i)perylene	mg/kg	0.0267	0.0291	81.0	40-125	8.80	20	WG491793
Benzo(k)fluoranthene	mg/kg	0.0297	0.0275	90.0	45-121	7.57	31	WG491793
Chrysene	mg/kg	0.0292	0.0294	88.0	35-135	0.589	20	WG491793
Dibenz(a,h)anthracene	mg/kg	0.0273	0.0289	83.0	41-124	5.41	20	WG491793
Fluoranthene	mg/kg	0.0288	0.0290	87.0	50-114	0.814	20	WG491793
Fluorene	mg/kg	0.0263	0.0263	80.0	49-109	0.263	19	WG491793
Indeno(1,2,3-cd)pyrene	mg/kg	0.0274	0.0292	83.0	40-126	6.28	20	WG491793
Naphthalene	mg/kg	0.0228	0.0248	69.0	36-100	8.31	24	WG491793
Phenanthrene	mg/kg	0.0286	0.0285	87.0	46-108	0.316	21	WG491793
Pyrene	mg/kg	0.0300	0.0303	91.0	30-136	1.04	20	WG491793
2-Fluorobiphenyl				83.99	21-120			WG491793
Nitrobenzene-d5				84.70	33-114			WG491793
p-Terphenyl-d14				115.5	18-142			WG491793

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
TPH (GC/FID) Low Fraction	mg/kg	23.0	0	5.5	83.8	55-109	L470868-01	WG490720
a,a,a-Trifluorotoluene(FID)					92.75	59-128		WG490720
Arsenic	mg/kg	71.1	28.0	50	86.2	75-125	L471124-05	WG490955
Barium	mg/kg	146.	85.9	50	120.	75-125	L471124-05	WG490955
Cadmium	mg/kg	43.6	0	50	87.2	75-125	L471124-05	WG490955
Chromium	mg/kg	60.8	14.8	50	92.0	75-125	L471124-05	WG490955
Copper	mg/kg	81.0	30.7	50	101.	75-125	L471124-05	WG490955

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Lead	mg/kg	122.	55.6	50	133.*	75-125	L471124-05	WG490955
Selenium	mg/kg	43.1	0	50	86.2	75-125	L471124-05	WG490955
Silver	mg/kg	48.4	0	50	96.8	75-125	L471124-05	WG490955
Zinc	mg/kg	140.	71.0	50	138.*	75-125	L471124-05	WG490955
Benzene	mg/kg	0.239	0	.05	95.6	32-137	L471362-02	WG491279
Ethylbenzene	mg/kg	0.224	0	.05	89.7	10-150	L471362-02	WG491279
Toluene	mg/kg	0.233	0	.05	93.4	20-142	L471362-02	WG491279
Total Xylene	mg/kg	0.701	0	.15	93.4	16-141	L471362-02	WG491279
a,a,a-Trifluorotoluene(FID)					97.83	59-128		WG491279
a,a,a-Trifluorotoluene(PID)					101.6	54-144		WG491279
Mercury	mg/kg	0.246	0.0250	.25	88.4	70-130	L471045-01	WG490972
Chromium,Hexavalent	mg/kg	19.5	0	20	97.5	50-150	L471045-01	WG491136
Nickel	mg/kg	62.5	0	50	125.	75-125	L471124-05	WG490955

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	18.6	23.0	67.8	55-109	21.1*	20	L470868-01	WG490720
a,a,a-Trifluorotoluene(FID)				93.60	59-128				WG490720
Arsenic	mg/kg	66.9	71.1	77.8	75-125	6.09	20	L471124-05	WG490955
Barium	mg/kg	140.	146.	108.	75-125	4.20	20	L471124-05	WG490955
Cadmium	mg/kg	41.9	43.6	83.8	75-125	3.98	20	L471124-05	WG490955
Chromium	mg/kg	59.0	60.8	88.4	75-125	3.01	20	L471124-05	WG490955
Copper	mg/kg	77.0	81.0	92.6	75-125	5.06	20	L471124-05	WG490955
Lead	mg/kg	121.	122.	131.*	75-125	0.823	20	L471124-05	WG490955
Selenium	mg/kg	41.9	43.1	83.8	75-125	2.82	20	L471124-05	WG490955
Silver	mg/kg	46.5	48.4	93.0	75-125	4.00	20	L471124-05	WG490955
Zinc	mg/kg	136.	140.	130.*	75-125	2.90	20	L471124-05	WG490955
Benzene	mg/kg	0.234	0.239	93.5	32-137	2.19	39	L471362-02	WG491279
Ethylbenzene	mg/kg	0.222	0.224	89.0	10-150	0.740	44	L471362-02	WG491279
Toluene	mg/kg	0.230	0.233	91.8	20-142	1.67	42	L471362-02	WG491279
Total Xylene	mg/kg	0.691	0.701	92.1	16-141	1.39	46	L471362-02	WG491279
a,a,a-Trifluorotoluene(FID)				97.49	59-128				WG491279
a,a,a-Trifluorotoluene(PID)				101.1	54-144				WG491279
Mercury	mg/kg	0.246	0.246	88.4	70-130	0	20	L471045-01	WG490972
Chromium,Hexavalent	mg/kg	18.3	19.5	91.5	50-150	6.35	20	L471045-01	WG491136
Nickel	mg/kg	64.5	62.5	129.*	75-125	3.15	20	L471124-05	WG490955

Batch number /Run number / Sample number cross reference

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WG490720: R1304610: L471062-01
WG490981: R1306211: L471062-01
WG490955: R1306675: L471062-01
WG491279: R1306750: L471062-01
WG490972: R1307072: L471062-01
WG491011: R1307150: L471062-01
WG491167: R1310928: L471062-01
WG491172: R1310969: L471062-01
WG491136: R1311089: L471062-01
WG491239: R1312128: L471062-01
WG491793: R1314710: L471062-01

* * 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.



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Chris Hines
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
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Report Summary

Wednesday August 04, 2010

Report Number: L471064

Samples Received: 07/29/10

Client Project:

Description: A03 Pit Closure

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:

Jarred 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

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

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REPORT OF ANALYSIS

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

August 04, 2010

Date Received : July 29, 2010
 Description : A03 Pit Closure
 Sample ID : A03-S. PIT-072810
 Collected By : Blair Rollins
 Collection Date : 07/28/10 10:30

ESC Sample # : L471064-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	08/03/10	1
Chromium,Trivalent	80.	2.0	mg/kg	Calc.	07/31/10	1
ORP	270		mV	2580	08/03/10	1
pH	7.9		su	9045D	07/31/10	1
Sodium Adsorption Ratio	25.			Calc.	08/04/10	1
Specific Conductance	1200		umhos/cm	9050AMod	08/03/10	1
Mercury	BDL	0.020	mg/kg	7471	08/01/10	1
Arsenic	4.5	1.0	mg/kg	6010B	07/31/10	1
Barium	430	0.25	mg/kg	6010B	07/31/10	1
Cadmium	BDL	0.25	mg/kg	6010B	07/31/10	1
Chromium	80.	0.50	mg/kg	6010B	07/31/10	1
Copper	14.	1.0	mg/kg	6010B	07/31/10	1
Lead	14.	0.25	mg/kg	6010B	07/31/10	1
Nickel	28.	1.0	mg/kg	6010B	08/03/10	1
Selenium	BDL	1.0	mg/kg	6010B	07/31/10	1
Silver	BDL	0.50	mg/kg	6010B	07/31/10	1
Zinc	39.	1.5	mg/kg	6010B	07/31/10	1
Benzene	BDL	0.025	mg/kg	8021/8015	07/31/10	50
Toluene	BDL	0.25	mg/kg	8021/8015	07/31/10	50
Ethylbenzene	0.54	0.025	mg/kg	8021/8015	07/31/10	50
Total Xylene	1.3	0.075	mg/kg	8021/8015	07/31/10	50
TPH (GC/FID) Low Fraction	190	25.	mg/kg	GRO	07/29/10	250
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.0		% Rec.	8021/8015	07/29/10	250
a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021/8015	07/31/10	50
TPH (GC/FID) High Fraction	3900	80.	mg/kg	3546/DRO	07/30/10	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	07/30/10	20
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/02/10	1
Acenaphthene	0.15	0.12	mg/kg	8270C-SIM	08/03/10	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	08/03/10	20
Benzo(a)anthracene	0.0094	0.0060	mg/kg	8270C-SIM	08/02/10	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/02/10	1

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L471064-01 (PH) - 7.9@21.4c



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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

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

August 04, 2010

Date Received : July 29, 2010
Description : A03 Pit Closure
Sample ID : A03-S. PIT-072810
Collected By : Blair Rollins
Collection Date : 07/28/10 10:30

ESC Sample # : L471064-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/02/10	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	08/02/10	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/02/10	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	08/02/10	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/02/10	1
Fluoranthene	0.017	0.0060	mg/kg	8270C-SIM	08/02/10	1
Fluorene	0.74	0.12	mg/kg	8270C-SIM	08/03/10	20
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/02/10	1
Naphthalene	0.33	0.12	mg/kg	8270C-SIM	08/03/10	20
Phenanthrene	0.37	0.12	mg/kg	8270C-SIM	08/03/10	20
Pyrene	0.010	0.0060	mg/kg	8270C-SIM	08/02/10	1
1-Methylnaphthalene	0.80	0.12	mg/kg	8270C-SIM	08/03/10	20
2-Methylnaphthalene	0.77	0.12	mg/kg	8270C-SIM	08/03/10	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	08/03/10	20
Surrogate Recovery						
Nitrobenzene-d5	0.00		% Rec.	8270C-SIM	08/03/10	20
2-Fluorobiphenyl	0.00		% Rec.	8270C-SIM	08/03/10	20
p-Terphenyl-d14	135.		% Rec.	8270C-SIM	08/02/10	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 08/04/10 16:00 Printed: 08/04/10 16:00
L471064-01 (PH) - 7.9@21.4c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L471064-01	WG490985	SAMP	Nitrobenzene-d5	R1307689	J7
	WG490985	SAMP	2-Fluorobiphenyl	R1307689	J7
	WG490981	SAMP	o-Terphenyl	R1306211	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out

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
08/04/10 at 16:00:46

TSR Signing Reports: 358
R4 - Rush: Three Day

Log all samples to separate L#s. Log all PAHs as SV8270PAHSIM. Log all BTEX samples by 8021.

Sample: L471064-01 Account: ENCANACO Received: 07/29/10 09:00 Due Date: 08/03/10 00:00 RPT Date: 08/04/10 16:00



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG490720	07/29/10 14:01
a,a,a-Trifluorotoluene(FID)		% Rec.	98.08	59-128	WG490720	07/29/10 14:01
a,a,a-Trifluorotoluene(PID)		% Rec.	103.0	54-144	WG490720	07/29/10 14:01
TPH (GC/FID) High Fraction	< 4	ppm			WG490981	07/30/10 13:18
o-Terphenyl		% Rec.	89.17	50-150	WG490981	07/30/10 13:18
Arsenic	< 1	mg/kg			WG490955	07/30/10 23:42
Barium	< .25	mg/kg			WG490955	07/30/10 23:42
Cadmium	< .25	mg/kg			WG490955	07/30/10 23:42
Chromium	< .5	mg/kg			WG490955	07/30/10 23:42
Copper	< 1	mg/kg			WG490955	07/30/10 23:42
Lead	< .25	mg/kg			WG490955	07/30/10 23:42
Selenium	< 1	mg/kg			WG490955	07/30/10 23:42
Silver	< .5	mg/kg			WG490955	07/30/10 23:42
Zinc	< 1.5	mg/kg			WG490955	07/30/10 23:42
Benzene	< .0005	mg/kg			WG491279	07/31/10 05:03
Ethylbenzene	< .0005	mg/kg			WG491279	07/31/10 05:03
Toluene	< .005	mg/kg			WG491279	07/31/10 05:03
Total Xylene	< .0015	mg/kg			WG491279	07/31/10 05:03
a,a,a-Trifluorotoluene(FID)		% Rec.	100.2	59-128	WG491279	07/31/10 05:03
a,a,a-Trifluorotoluene(PID)		% Rec.	104.5	54-144	WG491279	07/31/10 05:03
Mercury	< .02	mg/kg			WG490972	08/01/10 10:25
pH	5.30	su			WG491011	07/31/10 10:45
1-Methylnaphthalene	< .006	mg/kg			WG490985	08/02/10 08:57
2-Chloronaphthalene	< .006	mg/kg			WG490985	08/02/10 08:57
2-Methylnaphthalene	< .006	mg/kg			WG490985	08/02/10 08:57
Acenaphthene	< .006	mg/kg			WG490985	08/02/10 08:57
Acenaphthylene	< .006	mg/kg			WG490985	08/02/10 08:57
Anthracene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(a)anthracene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(a)pyrene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(b)fluoranthene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(g,h,i)perylene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(k)fluoranthene	< .006	mg/kg			WG490985	08/02/10 08:57
Chrysene	< .006	mg/kg			WG490985	08/02/10 08:57
Dibenz(a,h)anthracene	< .006	mg/kg			WG490985	08/02/10 08:57
Fluoranthene	< .006	mg/kg			WG490985	08/02/10 08:57
Fluorene	< .006	mg/kg			WG490985	08/02/10 08:57
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG490985	08/02/10 08:57
Naphthalene	< .006	mg/kg			WG490985	08/02/10 08:57
Phenanthrene	< .006	mg/kg			WG490985	08/02/10 08:57
Pyrene	< .006	mg/kg			WG490985	08/02/10 08:57
2-Fluorobiphenyl		% Rec.	81.22	21-120	WG490985	08/02/10 08:57
Nitrobenzene-d5		% Rec.	75.07	33-114	WG490985	08/02/10 08:57
p-Terphenyl-d14		% Rec.	98.87	18-142	WG490985	08/02/10 08:57
Chromium,Hexavalent	< 2	mg/kg			WG491136	08/03/10 16:21

* 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	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Nickel	< 1	mg/kg			WG490955	08/03/10 16:53
Specific Conductance	0.890	umhos/cm			WG491172	08/03/10 15:10

Analyte	Units	Duplicate			Limit	Ref Samp	Batch
		Result	Duplicate	RPD			
Arsenic	mg/kg	26.0	28.0	7.02	20	L471124-05	WG490955
Barium	mg/kg	100.	85.9	18.1	20	L471124-05	WG490955
Cadmium	mg/kg	0	0	0	20	L471124-05	WG490955
Chromium	mg/kg	13.0	14.8	10.7	20	L471124-05	WG490955
Copper	mg/kg	26.0	30.7	17.3	20	L471124-05	WG490955
Lead	mg/kg	72.0	55.6	25.6*	20	L471124-05	WG490955
Selenium	mg/kg	0	0	0	20	L471124-05	WG490955
Silver	mg/kg	0	0	0	20	L471124-05	WG490955
Zinc	mg/kg	90.0	71.0	23.4*	20	L471124-05	WG490955
Mercury	mg/kg	0.0230	0.0250	8.77	20	L471045-01	WG490972
pH	su	7.60	7.50	1.32*	1	L470825-01	WG491011
Specific Conductance	umhos/cm	120.	120.	1.90	20	L471045-01	WG491172
Chromium,Hexavalent	mg/kg	0	0	0	20	L471047-01	WG491136
Chromium,Hexavalent	mg/kg	0	0	0	20	L471362-04	WG491136
ORP	mV	220.	220.	0	20	L471045-01	WG491167
ORP	mV	200.	200.	1.49	20	L471333-01	WG491167
Nickel	mg/kg	21.0	0	NA	20	L471124-05	WG490955

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.09	111.	67-135	WG490720
a,a,a-Trifluorotoluene(FID)				90.80	59-128	WG490720
TPH (GC/FID) High Fraction	ppm	60	51.1	85.1	50-150	WG490981
o-Terphenyl				95.53	50-150	WG490981
Arsenic	mg/kg	192	190.	99.0	78.6-120.8	WG490955
Barium	mg/kg	420	397.	94.5	78.8-121.4	WG490955
Cadmium	mg/kg	70.1	58.0	82.7	78.5-121.5	WG490955
Chromium	mg/kg	168	160.	95.2	80.4-120.2	WG490955
Copper	mg/kg	122	123.	101.	81.6-119.7	WG490955
Lead	mg/kg	113	111.	98.2	77.3-122.1	WG490955
Selenium	mg/kg	176	163.	92.6	75.6-125.0	WG490955
Silver	mg/kg	115	106.	92.2	66-133.9	WG490955
Zinc	mg/kg	437	391.	89.5	78.5-121.7	WG490955

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0527	105.	76-113	WG491279
Ethylbenzene	mg/kg	.05	0.0534	107.	78-115	WG491279
Toluene	mg/kg	.05	0.0534	107.	76-114	WG491279
Total Xylene	mg/kg	.15	0.166	111.	81-118	WG491279
a,a,a-Trifluorotoluene(FID)				99.70	59-128	WG491279
a,a,a-Trifluorotoluene(PID)				103.0	54-144	WG491279
Mercury	mg/kg	8.77	9.44	108.	71.6-127.7	WG490972
pH	su	9.36	9.30	99.4	98.9-102.0	WG491011
1-Methylnaphthalene	mg/kg	.033	0.0251	76.1	41-110	WG490985
2-Chloronaphthalene	mg/kg	.033	0.0249	75.5	43-109	WG490985
2-Methylnaphthalene	mg/kg	.033	0.0237	71.8	38-104	WG490985
Acenaphthene	mg/kg	.033	0.0243	73.6	48-103	WG490985
Acenaphthylene	mg/kg	.033	0.0227	68.8	43-106	WG490985
Anthracene	mg/kg	.033	0.0237	72.0	51-110	WG490985
Benzo(a)anthracene	mg/kg	.033	0.0222	67.2	38-126	WG490985
Benzo(a)pyrene	mg/kg	.033	0.0222	67.3	47-118	WG490985
Benzo(b)fluoranthene	mg/kg	.033	0.0198	60.1	47-118	WG490985
Benzo(g,h,i)perylene	mg/kg	.033	0.0224	67.7	40-125	WG490985
Benzo(k)fluoranthene	mg/kg	.033	0.0245	74.2	45-121	WG490985
Chrysene	mg/kg	.033	0.0266	80.5	35-135	WG490985
Dibenz(a,h)anthracene	mg/kg	.033	0.0226	68.5	41-124	WG490985
Fluoranthene	mg/kg	.033	0.0244	73.9	50-114	WG490985
Fluorene	mg/kg	.033	0.0239	72.4	49-109	WG490985
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0222	67.2	40-126	WG490985
Naphthalene	mg/kg	.033	0.0244	73.9	36-100	WG490985
Phenanthrene	mg/kg	.033	0.0239	72.3	46-108	WG490985
Pyrene	mg/kg	.033	0.0229	69.5	30-136	WG490985
2-Fluorobiphenyl				93.93	21-120	WG490985
Nitrobenzene-d5				81.37	33-114	WG490985
p-Terphenyl-d14				102.0	18-142	WG490985
Specific Conductance	umhos/cm	406	430.	106.	85-115	WG491172
Chromium,Hexavalent	mg/kg	100	95.5	95.5	50-143	WG491136
ORP	mV	229	220.	96.1	95.6-104.37	WG491167
Nickel	mg/kg	74.1	73.4	99.1	78.8-121.2	WG490955

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	5.98	6.09	109.	67-135	1.84	20	WG490720
a,a,a-Trifluorotoluene(FID)				90.29	59-128			WG490720
TPH (GC/FID) High Fraction	ppm	48.3	51.1	80.0	50-150	5.68	25	WG490981
o-Terphenyl				93.98	50-150			WG490981

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Benzene	mg/kg	0.0518	0.0527	104.		76-113	1.63	20	WG491279
Ethylbenzene	mg/kg	0.0527	0.0534	105.		78-115	1.42	20	WG491279
Toluene	mg/kg	0.0522	0.0534	104.		76-114	2.25	20	WG491279
Total Xylene	mg/kg	0.164	0.166	109.		81-118	1.41	20	WG491279
a,a,a-Trifluorotoluene(FID)				98.76		59-128			WG491279
a,a,a-Trifluorotoluene(PID)				102.0		54-144			WG491279
pH	su	9.30	9.30	99.0		98.9-102.0	0	20	WG491011
1-Methylnaphthalene	mg/kg	0.0237	0.0251	72.0		41-110	5.77	24	WG490985
2-Chloronaphthalene	mg/kg	0.0240	0.0249	73.0		43-109	3.88	21	WG490985
2-Methylnaphthalene	mg/kg	0.0232	0.0237	70.0		38-104	2.06	24	WG490985
Acenaphthene	mg/kg	0.0217	0.0243	66.0		48-103	11.4	20	WG490985
Acenaphthylene	mg/kg	0.0205	0.0227	62.0		43-106	10.4	20	WG490985
Anthracene	mg/kg	0.0222	0.0237	67.0		51-110	6.60	22	WG490985
Benzo(a)anthracene	mg/kg	0.0215	0.0222	65.0		38-126	2.92	20	WG490985
Benzo(a)pyrene	mg/kg	0.0205	0.0222	62.0		47-118	8.09	20	WG490985
Benzo(b)fluoranthene	mg/kg	0.0209	0.0198	63.0		47-118	5.05	29	WG490985
Benzo(g,h,i)perylene	mg/kg	0.0213	0.0224	64.0		40-125	4.81	20	WG490985
Benzo(k)fluoranthene	mg/kg	0.0219	0.0245	66.0		45-121	11.0	31	WG490985
Chrysene	mg/kg	0.0232	0.0266	70.0		35-135	13.7	20	WG490985
Dibenz(a,h)anthracene	mg/kg	0.0212	0.0226	64.0		41-124	6.62	20	WG490985
Fluoranthene	mg/kg	0.0211	0.0244	64.0		50-114	14.3	20	WG490985
Fluorene	mg/kg	0.0221	0.0239	67.0		49-109	7.56	19	WG490985
Indeno(1,2,3-cd)pyrene	mg/kg	0.0209	0.0222	63.0		40-126	6.15	20	WG490985
Naphthalene	mg/kg	0.0228	0.0244	69.0		36-100	6.93	24	WG490985
Phenanthrene	mg/kg	0.0223	0.0239	67.0		46-108	6.97	21	WG490985
Pyrene	mg/kg	0.0234	0.0229	71.0		30-136	2.04	20	WG490985
2-Fluorobiphenyl				83.22		21-120			WG490985
Nitrobenzene-d5				75.22		33-114			WG490985
p-Terphenyl-d14				100.0		18-142			WG490985
Specific Conductance	umhos/	430.	430.	106.		85-115	0	20	WG491172
Chromium,Hexavalent	mg/kg	95.0	95.5	95.0		50-143	0.525	20	WG491136
ORP	mV	220.	220.	96.0		95.6-104.37	0	20	WG491167

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
TPH (GC/FID) Low Fraction	mg/kg	23.0	0	5.5	83.8	55-109	L470868-01	WG490720
a,a,a-Trifluorotoluene(FID)					92.75	59-128		WG490720
Arsenic	mg/kg	71.1	28.0	50	86.2	75-125	L471124-05	WG490955
Barium	mg/kg	146.	85.9	50	120.	75-125	L471124-05	WG490955
Cadmium	mg/kg	43.6	0	50	87.2	75-125	L471124-05	WG490955
Chromium	mg/kg	60.8	14.8	50	92.0	75-125	L471124-05	WG490955
Copper	mg/kg	81.0	30.7	50	101.	75-125	L471124-05	WG490955
Lead	mg/kg	122.	55.6	50	133.*	75-125	L471124-05	WG490955
Selenium	mg/kg	43.1	0	50	86.2	75-125	L471124-05	WG490955
Silver	mg/kg	48.4	0	50	96.8	75-125	L471124-05	WG490955
Zinc	mg/kg	140.	71.0	50	138.*	75-125	L471124-05	WG490955

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.239	0	.05	95.6	32-137	L471362-02	WG491279
Ethylbenzene	mg/kg	0.224	0	.05	89.7	10-150	L471362-02	WG491279
Toluene	mg/kg	0.233	0	.05	93.4	20-142	L471362-02	WG491279
Total Xylene	mg/kg	0.701	0	.15	93.4	16-141	L471362-02	WG491279
a,a,a-Trifluorotoluene(FID)					97.83	59-128		WG491279
a,a,a-Trifluorotoluene(PID)					101.6	54-144		WG491279
Mercury	mg/kg	0.246	0.0250	.25	88.4	70-130	L471045-01	WG490972
Chromium,Hexavalent	mg/kg	19.5	0	20	97.5	50-150	L471045-01	WG491136
Nickel	mg/kg	62.5	0	50	125.	75-125	L471124-05	WG490955

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	18.6	23.0	67.8	55-109	21.1*	20	L470868-01	WG490720
a,a,a-Trifluorotoluene(FID)				93.60	59-128				WG490720
Arsenic	mg/kg	66.9	71.1	77.8	75-125	6.09	20	L471124-05	WG490955
Barium	mg/kg	140.	146.	108.	75-125	4.20	20	L471124-05	WG490955
Cadmium	mg/kg	41.9	43.6	83.8	75-125	3.98	20	L471124-05	WG490955
Chromium	mg/kg	59.0	60.8	88.4	75-125	3.01	20	L471124-05	WG490955
Copper	mg/kg	77.0	81.0	92.6	75-125	5.06	20	L471124-05	WG490955
Lead	mg/kg	121.	122.	131.*	75-125	0.823	20	L471124-05	WG490955
Selenium	mg/kg	41.9	43.1	83.8	75-125	2.82	20	L471124-05	WG490955
Silver	mg/kg	46.5	48.4	93.0	75-125	4.00	20	L471124-05	WG490955
Zinc	mg/kg	136.	140.	130.*	75-125	2.90	20	L471124-05	WG490955
Benzene	mg/kg	0.234	0.239	93.5	32-137	2.19	39	L471362-02	WG491279
Ethylbenzene	mg/kg	0.222	0.224	89.0	10-150	0.740	44	L471362-02	WG491279
Toluene	mg/kg	0.230	0.233	91.8	20-142	1.67	42	L471362-02	WG491279
Total Xylene	mg/kg	0.691	0.701	92.1	16-141	1.39	46	L471362-02	WG491279
a,a,a-Trifluorotoluene(FID)				97.49	59-128				WG491279
a,a,a-Trifluorotoluene(PID)				101.1	54-144				WG491279
Mercury	mg/kg	0.246	0.246	88.4	70-130	0	20	L471045-01	WG490972
Chromium,Hexavalent	mg/kg	18.3	19.5	91.5	50-150	6.35	20	L471045-01	WG491136
Nickel	mg/kg	64.5	62.5	129.*	75-125	3.15	20	L471124-05	WG490955

Batch number /Run number / Sample number cross reference

WG490720: R1304610: L471064-01
 WG490981: R1306211: L471064-01
 WG490955: R1306675: L471064-01
 WG491279: R1306750: L471064-01
 WG490972: R1307072: L471064-01
 WG491011: R1307150: L471064-01

* 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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Quality Assurance Report
Level II

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WG490985: R1307689: L471064-01
WG491167: R1310928: L471064-01
WG491172: R1310969: L471064-01
WG491136: R1311089: L471064-01
WG491239: R1312128: L471064-01

* * 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.



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Chris Hines
EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
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Report Summary

Wednesday July 06, 2011

Report Number: L523945


Samples Received: 07/01/11

Client Project:

Description: A03-Pit & Background

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:


Jared 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

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

July 06, 2011

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ESC Sample # : L523945-01

Date Received : July 01, 2011
Description : A03-Pit & Background

Site ID : A03

Sample ID : A03-PBN1-062911 8-10IN

Project # :

Collected By : Brennen Graff
Collection Date : 06/29/11 12:23

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	1.5	0.50	mg/kg	8015D/GRO	07/01/11	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	99.9		% Rec.	602/8015	07/01/11	5
TPH (GC/FID) High Fraction	12000	400	mg/kg	3546/DRO	07/05/11	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	07/05/11	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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ESC Sample # : L523945-02

Date Received : July 01, 2011
Description : A03-Pit & Background

Site ID : A03

Sample ID : A03-PBN2-062911 8-10IN

Project # :

Collected By : Brennen Graff
Collection Date : 06/29/11 12:40

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	77.	10.	mg/kg	8015D/GRO	07/01/11	100
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	105.		% Rec.	602/8015	07/01/11	100
TPH (GC/FID) High Fraction	11000	400	mg/kg	3546/DRO	07/05/11	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	07/05/11	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Date Received : July 01, 2011
Description : A03-Pit & Background
Sample ID : A03-PBN3-062911 4-6IN
Collected By : Brennen Graff
Collection Date : 06/29/11 12:48

ESC Sample # : L523945-03
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Date Received : July 01, 2011
Description : A03-Pit & Background
Sample ID : A03-PBN4-062911 8-10IN
Collected By : Brennen Graff
Collection Date : 06/29/11 12:54

ESC Sample # : L523945-04
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Date Received : July 01, 2011
Description : A03-Pit & Background
Sample ID : A03-BGN-062911 24-26IN
Collected By : Brennen Graff
Collection Date : 06/29/11 13:40

ESC Sample # : L523945-05

Site ID : A03

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.2	1.0	mg/kg	6010B	07/02/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 06, 2011

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ESC Sample # : L523945-06

Date Received : July 01, 2011
Description : A03-Pit & Background
Sample ID : A03-BGNE-062911 6-8IN
Collected By : Brennen Graff
Collection Date : 06/29/11 13:54

Site ID : A03

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	1.0	mg/kg	6010B	07/02/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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July 06, 2011

Date Received : July 01, 2011
Description : A03-Pit & Background
Sample ID : A03-BGE-062911 14-16IN
Collected By : Brennen Graff
Collection Date : 06/29/11 14:06

ESC Sample # : L523945-07

Site ID : A03

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	1.6	1.0	mg/kg	6010B	07/02/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 06, 2011

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ESC Sample # : L523945-08

Date Received : July 01, 2011
Description : A03-Pit & Background
Sample ID : A03-BGSE-062911 10-12IN

Site ID : A03

Collected By : Brennen Graff
Collection Date : 06/29/11 14:18

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	2.8	1.0	mg/kg	6010B	07/02/11	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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July 06, 2011

Date Received : July 01, 2011
Description : A03-Pit & Background
Sample ID : A03-BGSW-062911 12-14IN
Collected By : Brennen Graff
Collection Date : 06/29/11 14:27

ESC Sample # : L523945-09

Site ID : A03

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	BDL	1.0	mg/kg	6010B	07/02/11	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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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L523945-01	WG543739	SAMP	TPH (GC/FID) Low Fraction	R1748929	J6
	WG543793	SAMP	o-Terphenyl	R1750069	J7
L523945-02	WG543793	SAMP	o-Terphenyl	R1750069	J7
L523945-03	WG543793	SAMP	o-Terphenyl	R1750069	J7
L523945-04	WG543793	SAMP	o-Terphenyl	R1750069	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out

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.



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG543739	07/01/11 17:17
a,a,a-Trifluorotoluene(FID)		% Rec.	104.4	59-128	WG543739	07/01/11 17:17
Arsenic	< 1	mg/kg			WG543752	07/03/11 00:59
TPH (GC/FID) High Fraction	< 4	ppm			WG543793	07/05/11 10:34
o-Terphenyl		% Rec.	72.82	50-150	WG543793	07/05/11 10:34

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Arsenic	mg/kg	11.0	8.40	28.6*	20	L523956-04	WG543752

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.01	109.	67-135	WG543739
a,a,a-Trifluorotoluene(FID)				110.4	59-128	WG543739
Arsenic	mg/kg	192	180.	93.8	78.6-120.8	WG543752
TPH (GC/FID) High Fraction	ppm	60	47.0	78.3	50-150	WG543793
o-Terphenyl				69.02	50-150	WG543793

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	6.11	6.01	111.	67-135	1.63	20	WG543739
a,a,a-Trifluorotoluene(FID)				111.2	59-128			WG543739
TPH (GC/FID) High Fraction	ppm	47.8	47.0	80.0	50-150	1.79	25	WG543793
o-Terphenyl				71.59	50-150			WG543793

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
TPH (GC/FID) Low Fraction	mg/kg	14.7	1.50	5.5	47.9*	55-109	L523945-01	WG543739
a,a,a-Trifluorotoluene(FID)					101.0	59-128		WG543739
Arsenic	mg/kg	57.0	8.40	50	97.2	75-125	L523956-04	WG543752
TPH (GC/FID) High Fraction	ppm	42.4	0	60	70.6	50-150	L523369-01	WG543793
o-Terphenyl					67.30	50-150		WG543793

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	15.1	14.7	49.4*	55-109	2.84	20	L523945-01	WG543739
a,a,a-Trifluorotoluene(FID)				101.6	59-128				WG543739
Arsenic	mg/kg	57.6	57.0	98.4	75-125	1.05	20	L523956-04	WG543752

* 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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Table with columns: Analyte, Units, MSD, Matrix, Spike, Duplicate, Ref, %Rec, Limit, RPD, Limit Ref Samp, Batch. Rows include TPH (GC/FID) High Fraction and o-Terphenyl.

Batch number /Run number / Sample number cross reference

WG543739: R1748929: L523945-01 02 03 04
WG543752: R1749289: L523945-05 06 07 08 09
WG543793: R1750069: L523945-01 02 03 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.'



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EnCana Oil & Gas Inc. - CO
Chris Hines
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report
Level II

L523945

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

July 06, 2011

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.



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

Report Summary

Sunday July 24, 2011

Report Number: L527096

Samples Received: 07/21/11

Client Project:

Description: A03 South 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:

Daphne Richards , 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

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

July 24, 2011

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

Date Received : July 21, 2011
Description : A03 South Pit
Sample ID : A03-SPNWW-071811 0-3 IN
Collected By : Brennen Graff
Collection Date : 07/08/11 10:35

ESC Sample # : L527096-01
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

July 24, 2011

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

Date Received : July 21, 2011
Description : A03 South Pit
Sample ID : A03-SPSWB-071811 2-4 IN
Collected By : Brennen Graff
Collection Date : 07/08/11 10:40

ESC Sample # : L527096-02
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

July 24, 2011

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

Date Received : July 21, 2011
Description : A03 South Pit
Sample ID : A03-SPSB-071811 0-1 IN
Collected By : Brennen Graff
Collection Date : 07/08/11 10:48

ESC Sample # : L527096-03
Site ID : A03
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/21/11	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	103.		% Rec.	602/8015	07/21/11	5
TPH (GC/FID) High Fraction	1400	80.	mg/kg	3546/DRO	07/22/11	20
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	07/22/11	20

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Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

July 24, 2011

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

Date Received : July 21, 2011
Description : A03 South Pit
Sample ID : A03-SPSW-071811 6-8 FT
Collected By : Brennen Graff
Collection Date : 07/08/11 10:54

ESC Sample # : L527096-04
Site ID : A03
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/21/11	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	107.		% Rec.	602/8015	07/21/11	5
TPH (GC/FID) High Fraction	3900	200	mg/kg	3546/DRO	07/22/11	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	07/22/11	50

BDL - Below Detection Limit

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REPORT OF ANALYSIS

July 24, 2011

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

Date Received : July 21, 2011
Description : A03 South Pit
Sample ID : A03-SPEB-071811 0-2 IN
Collected By : Brennen Graff
Collection Date : 07/08/11 10:59

ESC Sample # : L527096-05
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

BDL - Below Detection Limit
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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L527096-01	WG546767	SAMP	o-Terphenyl	R1778451	J7
L527096-02	WG546767	SAMP	o-Terphenyl	R1778451	J7
L527096-03	WG546767	SAMP	o-Terphenyl	R1778451	J7
L527096-04	WG546767	SAMP	o-Terphenyl	R1778451	J7
L527096-05	WG546767	SAMP	o-Terphenyl	R1778451	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out

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
07/24/11 at 14:48:22

TSR Signing Reports: 358
R3 - Rush: Two Day

Sample: L527096-01 Account: ENCANACO Received: 07/21/11 09:00 Due Date: 07/25/11 00:00 RPT Date: 07/24/11 14:48
Sample: L527096-02 Account: ENCANACO Received: 07/21/11 09:00 Due Date: 07/25/11 00:00 RPT Date: 07/24/11 14:48
Sample: L527096-03 Account: ENCANACO Received: 07/21/11 09:00 Due Date: 07/25/11 00:00 RPT Date: 07/24/11 14:48
Sample: L527096-04 Account: ENCANACO Received: 07/21/11 09:00 Due Date: 07/25/11 00:00 RPT Date: 07/24/11 14:48
Sample: L527096-05 Account: ENCANACO Received: 07/21/11 09:00 Due Date: 07/25/11 00:00 RPT Date: 07/24/11 14:48



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EnCana Oil & Gas Inc. - CO
Chris Hines / Jake Harris
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report
Level II

L527096

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July 24, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG546723	07/21/11 13:48
a,a,a-Trifluorotoluene(FID)		% Rec.	104.8	59-128	WG546723	07/21/11 13:48
TPH (GC/FID) High Fraction	< 4	ppm			WG546767	07/22/11 09:42
o-Terphenyl		% Rec.	88.69	50-150	WG546767	07/22/11 09:42

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.83	124.	67-135	WG546723
a,a,a-Trifluorotoluene(FID)				110.5	59-128	WG546723
TPH (GC/FID) High Fraction	ppm	60	49.4	82.4	50-150	WG546767
o-Terphenyl				78.87	50-150	WG546767

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	6.86	6.83	125.	67-135	0.460	20	WG546723
a,a,a-Trifluorotoluene(FID)				110.6	59-128			WG546723
TPH (GC/FID) High Fraction	ppm	48.7	49.4	81.0	50-150	1.59	20	WG546767
o-Terphenyl				77.67	50-150			WG546767

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
TPH (GC/FID) Low Fraction	mg/kg	25.1	0	5.5	91.2	55-109	L527096-01	WG546723
a,a,a-Trifluorotoluene(FID)					108.0	59-128		WG546723

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	26.5	25.1	96.4	55-109	5.51	20	L527096-01	WG546723
a,a,a-Trifluorotoluene(FID)				108.9	59-128				WG546723

Batch number /Run number / Sample number cross reference

WG546723: R1776610: L527096-01 02 03 04 05
WG546767: R1778451: L527096-01 02 03 04 05

* * 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.'



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EnCana Oil & Gas Inc. - CO
Chris Hines / Jake Harris
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Parachute, CO 81635

Quality Assurance Report
Level II

L527096

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Est. 1970

July 24, 2011

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.

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

Report Summary

Tuesday August 02, 2011

Report Number: L528611

Samples Received: 07/30/11

Client Project:

Description: A03 Pit Closure

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:

Jared 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

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

August 02, 2011

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

Date Received : July 30, 2011
Description : A03 Pit Closure
Sample ID : A03-PITX-SP-WB-072811 0-3 IN
Collected By : Brennan Graff
Collection Date : 07/28/11 10:33

ESC Sample # : L528611-01
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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REPORT OF ANALYSIS

August 02, 2011

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

Date Received : July 30, 2011
Description : A03 Pit Closure
Sample ID : A03-PITX-SP-NWW-072811 0-3 IN
Collected By : Brennan Graff
Collection Date : 07/28/11 10:39

ESC Sample # : L528611-02
Site ID : A03
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/30/11	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	95.5		% Rec.	602/8015	07/30/11	5
TPH (GC/FID) High Fraction	65.	4.0	mg/kg	3546/DRO	08/02/11	1
Surrogate recovery(%) o-Terphenyl	64.4		% Rec.	3546/DRO	08/02/11	1

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August 02, 2011

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EnCana Oil & Gas Inc. - CO
2717 County Road 215, Suite 100
Parachute, CO 81635

Date Received : July 30, 2011
Description : A03 Pit Closure
Sample ID : A03-PITX-NP-WB-072811 3-5 IN
Collected By : Brennan Graff
Collection Date : 07/28/11 10:42

ESC Sample # : L528611-03
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

BDL - Below Detection Limit
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REPORT OF ANALYSIS

August 02, 2011

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

Date Received : July 30, 2011
Description : A03 Pit Closure
Sample ID : A03-PITX-NP-EB-072811 0-3 IN
Collected By : Brennan Graff
Collection Date : 07/28/11 10:45

ESC Sample # : L528611-04
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

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REPORT OF ANALYSIS

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

August 02, 2011

Date Received : July 30, 2011
Description : A03 Pit Closure
Sample ID : A03-PITX-NP-NW-072811 0-3 IN
Collected By : Brennan Graff
Collection Date : 07/28/11 10:49

ESC Sample # : L528611-05
Site ID : A03
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/30/11	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	94.5		% Rec.	602/8015	07/30/11	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	08/02/11	1
Surrogate recovery(%) o-Terphenyl	79.5		% Rec.	3546/DRO	08/02/11	1

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

Date Received : July 30, 2011
Description : A03 Pit Closure
Sample ID : A03-PITX-NP-SEW-072811 2-4 IN
Collected By : Brennan Graff
Collection Date : 07/28/11 10:52

ESC Sample # : L528611-06
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

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: 08/02/11 12:16 Printed: 08/02/11 13:07



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REPORT OF ANALYSIS

August 02, 2011

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

Date Received : July 30, 2011
Description : A03 Pit Closure
Sample ID : A03-PITX-SPOIL-072811 6-8 IN
Collected By : Brennan Graff
Collection Date : 07/28/11 11:14

ESC Sample # : L528611-07
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

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: 08/02/11 12:16 Printed: 08/02/11 13:07

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L528611-01	WG548264	SAMP	TPH (GC/FID) Low Fraction	R1795671	J6J3
	WG548318	SAMP	o-Terphenyl	R1798890	J7
L528611-04	WG548318	SAMP	o-Terphenyl	R1798890	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J7	Surrogate recovery limits cannot be evaluated; surrogates were diluted out

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.



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Quality Assurance Report
Level II

L528611

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August 02, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG548264	07/30/11 21:31
a,a,a-Trifluorotoluene(FID)		% Rec.	94.58	59-128	WG548264	07/30/11 21:31
TPH (GC/FID) High Fraction	< 4	ppm			WG548318	08/01/11 22:01
o-Terphenyl		% Rec.	93.30	50-150	WG548318	08/01/11 22:01

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.15	93.6	67-135	WG548264
a,a,a-Trifluorotoluene(FID)				100.9	59-128	WG548264
TPH (GC/FID) High Fraction	ppm	60	48.7	81.2	50-150	WG548318
o-Terphenyl				85.26	50-150	WG548318

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	5.08	5.15	92.0	67-135	1.19	20	WG548264
a,a,a-Trifluorotoluene(FID)				101.0	59-128			WG548264
TPH (GC/FID) High Fraction	ppm	49.6	48.7	83.0	50-150	1.84	25	WG548318
o-Terphenyl				86.30	50-150			WG548318

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
TPH (GC/FID) Low Fraction	mg/kg	17.1	0	5.5	62.2	55-109	L528611-01	WG548264
a,a,a-Trifluorotoluene(FID)					98.59	59-128		WG548264
TPH (GC/FID) High Fraction	ppm	42.7	0	60	71.1	50-150	L528369-06	WG548318
o-Terphenyl					77.92	50-150		WG548318

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	12.9	17.1	47.0*	55-109	28.0*	20	L528611-01	WG548264
a,a,a-Trifluorotoluene(FID)				97.71	59-128				WG548264
TPH (GC/FID) High Fraction	ppm	45.7	42.7	76.2	50-150	6.97	25	L528369-06	WG548318
o-Terphenyl				81.03	50-150				WG548318

Batch number /Run number / Sample number cross reference

WG548264: R1795671: L528611-01 02 03 04 05 06 07
WG548318: R1798890: L528611-01 02 03 04 05 06 07

* * 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.'



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August 02, 2011

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.



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

Report Summary

Friday August 12, 2011

Report Number: L530193


Samples Received: 08/10/11

Client Project:

Description: A03 Pit Closure

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:


Jared 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

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REPORT OF ANALYSIS

August 12, 2011

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

Date Received : August 10, 2011
Description : A03 Pit Closure
Sample ID : A03-PITX-SPOIL-080811 4-6IN
Collected By : Brennen Graff
Collection Date : 08/08/11 12:49

ESC Sample # : L530193-01
Site ID : A03
Project # :

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include TPH (GC/FID) Low Fraction, Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID), TPH (GC/FID) High Fraction, and Surrogate recovery(%) o-Terphenyl.

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: 08/12/11 09:48 Printed: 08/12/11 09:48

Summary of Remarks For Samples Printed
08/12/11 at 09:48:33

TSR Signing Reports: 358
R3 - Rush: Two Day

Sample: L530193-01 Account: ENCANACO Received: 08/10/11 09:00 Due Date: 08/12/11 00:00 RPT Date: 08/12/11 09:48



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August 12, 2011

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG549816	08/10/11 15:34
a,a,a-Trifluorotoluene(FID)		% Rec.	98.13	59-128	WG549816	08/10/11 15:34
TPH (GC/FID) High Fraction	< 4	ppm			WG549763	08/11/11 15:43
o-Terphenyl		% Rec.	65.13	50-150	WG549763	08/11/11 15:43

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.45	99.1	67-135	WG549816
a,a,a-Trifluorotoluene(FID)				105.0	59-128	WG549816
TPH (GC/FID) High Fraction	ppm	60	47.6	79.3	50-150	WG549763
o-Terphenyl				72.80	50-150	WG549763

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) Low Fraction	mg/kg	5.99	5.45	109.	67-135	9.39	20	WG549816
a,a,a-Trifluorotoluene(FID)				105.6	59-128			WG549816
TPH (GC/FID) High Fraction	ppm	49.4	47.6	82.0	50-150	3.87	25	WG549763
o-Terphenyl				74.82	50-150			WG549763

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
TPH (GC/FID) Low Fraction	mg/kg	24.6	0	5.5	89.5	55-109	L530126-01	WG549816
a,a,a-Trifluorotoluene(FID)					101.6	59-128		WG549816
TPH (GC/FID) High Fraction	ppm	40.5	0	60	67.4	50-150	L529828-01	WG549763
o-Terphenyl					61.16	50-150		WG549763

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
TPH (GC/FID) Low Fraction	mg/kg	22.4	24.6	81.6	55-109	9.21	20	L530126-01	WG549816
a,a,a-Trifluorotoluene(FID)				100.1	59-128				WG549816
TPH (GC/FID) High Fraction	ppm	45.0	40.5	74.9	50-150	10.5	25	L529828-01	WG549763
o-Terphenyl				68.29	50-150				WG549763

Batch number /Run number / Sample number cross reference

WG549816: R1810457: L530193-01
WG549763: R1811890: L530193-01

* * 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.'



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Quality Assurance Report
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August 12, 2011

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

Report Summary

Thursday August 05, 2010

Report Number: L471058

Samples Received: 07/29/10

Client Project: A03 Pit Closure

Description: A03 Pit Closure

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:

Jarred 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

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REPORT OF ANALYSIS

August 05, 2010

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

ESC Sample # : L471058-01

Date Received : July 29, 2010
 Description : A03 Pit Closure
 Sample ID : A03-CUTTINGS-072810

Site ID :

Collected By : Blair Rollins
 Collection Date : 07/28/10 11:00

Project # : A03 Pit Closure

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	10.	mg/kg	3060A/7196A	08/03/10	5
Chromium,Trivalent	23.	10.	mg/kg	Calc.	07/31/10	1
ORP	290		mV	2580	08/03/10	1
pH	8.0		su	9045D	07/31/10	1
Sodium Adsorption Ratio	8.0			Calc.	08/04/10	1
Specific Conductance	1600		umhos/cm	9050AMod	08/03/10	1
Mercury	BDL	0.020	mg/kg	7471	08/01/10	1
Arsenic	5.2	1.0	mg/kg	6010B	07/31/10	1
Barium	3600	0.25	mg/kg	6010B	07/31/10	1
Cadmium	BDL	0.25	mg/kg	6010B	07/31/10	1
Chromium	23.	0.50	mg/kg	6010B	07/31/10	1
Copper	14.	1.0	mg/kg	6010B	07/31/10	1
Lead	19.	0.25	mg/kg	6010B	07/31/10	1
Nickel	12.	1.0	mg/kg	6010B	08/03/10	1
Selenium	BDL	1.0	mg/kg	6010B	07/31/10	1
Silver	BDL	0.50	mg/kg	6010B	07/31/10	1
Zinc	42.	1.5	mg/kg	6010B	07/31/10	1
Benzene	BDL	0.0025	mg/kg	8021/8015	07/29/10	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/29/10	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/29/10	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/29/10	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/29/10	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.9		% Rec.	8021/8015	07/29/10	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	07/29/10	5
TPH (GC/FID) High Fraction	270	4.0	mg/kg	3546/DRO	07/30/10	1
Surrogate recovery(%)						
o-Terphenyl	50.2		% Rec.	3546/DRO	07/30/10	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Acenaphthene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Acenaphthylene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Benzo(a)anthracene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Benzo(a)pyrene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L471058-01 (PH) - 8.0@21.3c

L471058-01 (CR6) - diluted due to dark sample, used sample blank



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REPORT OF ANALYSIS

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

August 05, 2010

Date Received : July 29, 2010
 Description : A03 Pit Closure
 Sample ID : A03-CUTTINGS-072810
 Collected By : Blair Rollins
 Collection Date : 07/28/10 11:00

ESC Sample # : L471058-01

Site ID :

Project # : A03 Pit Closure

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Benzo(g,h,i)perylene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Benzo(k)fluoranthene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Chrysene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Dibenz(a,h)anthracene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Fluoranthene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Fluorene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Indeno(1,2,3-cd)pyrene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Naphthalene	0.13	0.060	mg/kg	8270C-SIM	08/05/10	10
Phenanthrene	0.063	0.060	mg/kg	8270C-SIM	08/05/10	10
Pyrene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
1-Methylnaphthalene	0.12	0.060	mg/kg	8270C-SIM	08/05/10	10
2-Methylnaphthalene	0.21	0.060	mg/kg	8270C-SIM	08/05/10	10
2-Chloronaphthalene	BDL	0.060	mg/kg	8270C-SIM	08/05/10	10
Surrogate Recovery						
Nitrobenzene-d5	88.1		% Rec.	8270C-SIM	08/05/10	10
2-Fluorobiphenyl	105.		% Rec.	8270C-SIM	08/05/10	10
p-Terphenyl-d14	107.		% Rec.	8270C-SIM	08/05/10	10

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: 08/05/10 11:19 Printed: 08/05/10 14:38

L471058-01 (PH) - 8.0@21.3c

L471058-01 (CR6) - diluted due to dark sample, used sample blank

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L471058-01	WG491136	SAMP	Chromium, Hexavalent	R1311089	0

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
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.

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
08/05/10 at 14:38:25

TSR Signing Reports: 358
R5 - Desired TAT

Create p-key for each project, and enter "project description" as Project Number and Project Name. Log all samples to separate L#s. Log all PAHs as SV8270PAHSIM. Log all BTEX samples by 8021.

Sample: L471058-01 Account: ENCANACO Received: 07/29/10 09:00 Due Date: 08/05/10 00:00 RPT Date: 08/05/10 11:19



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Quality Assurance Report
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L471058

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 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

August 05, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG490720	07/29/10 14:01
Ethylbenzene	< .0005	mg/kg			WG490720	07/29/10 14:01
Toluene	< .005	mg/kg			WG490720	07/29/10 14:01
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG490720	07/29/10 14:01
Total Xylene	< .0015	mg/kg			WG490720	07/29/10 14:01
a,a,a-Trifluorotoluene(FID)		% Rec.	98.08	59-128	WG490720	07/29/10 14:01
a,a,a-Trifluorotoluene(PID)		% Rec.	103.0	54-144	WG490720	07/29/10 14:01
TPH (GC/FID) High Fraction	< 4	ppm			WG490981	07/30/10 13:18
o-Terphenyl		% Rec.	89.17	50-150	WG490981	07/30/10 13:18
Arsenic	< 1	mg/kg			WG490955	07/30/10 23:42
Barium	< .25	mg/kg			WG490955	07/30/10 23:42
Cadmium	< .25	mg/kg			WG490955	07/30/10 23:42
Chromium	< .5	mg/kg			WG490955	07/30/10 23:42
Copper	< 1	mg/kg			WG490955	07/30/10 23:42
Lead	< .25	mg/kg			WG490955	07/30/10 23:42
Selenium	< 1	mg/kg			WG490955	07/30/10 23:42
Silver	< .5	mg/kg			WG490955	07/30/10 23:42
Zinc	< 1.5	mg/kg			WG490955	07/30/10 23:42
Mercury	< .02	mg/kg			WG490972	08/01/10 10:25
pH	5.30	su			WG491011	07/31/10 10:45
1-Methylnaphthalene	< .006	mg/kg			WG490985	08/02/10 08:57
2-Chloronaphthalene	< .006	mg/kg			WG490985	08/02/10 08:57
2-Methylnaphthalene	< .006	mg/kg			WG490985	08/02/10 08:57
Acenaphthene	< .006	mg/kg			WG490985	08/02/10 08:57
Acenaphthylene	< .006	mg/kg			WG490985	08/02/10 08:57
Anthracene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(a)anthracene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(a)pyrene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(b)fluoranthene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(g,h,i)perylene	< .006	mg/kg			WG490985	08/02/10 08:57
Benzo(k)fluoranthene	< .006	mg/kg			WG490985	08/02/10 08:57
Chrysene	< .006	mg/kg			WG490985	08/02/10 08:57
Dibenz(a,h)anthracene	< .006	mg/kg			WG490985	08/02/10 08:57
Fluoranthene	< .006	mg/kg			WG490985	08/02/10 08:57
Fluorene	< .006	mg/kg			WG490985	08/02/10 08:57
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG490985	08/02/10 08:57
Naphthalene	< .006	mg/kg			WG490985	08/02/10 08:57
Phenanthrene	< .006	mg/kg			WG490985	08/02/10 08:57
Pyrene	< .006	mg/kg			WG490985	08/02/10 08:57
2-Fluorobiphenyl		% Rec.	81.22	21-120	WG490985	08/02/10 08:57
Nitrobenzene-d5		% Rec.	75.07	33-114	WG490985	08/02/10 08:57
p-Terphenyl-d14		% Rec.	98.87	18-142	WG490985	08/02/10 08:57
Chromium,Hexavalent	< 2	mg/kg			WG491136	08/03/10 16:21
Nickel	< 1	mg/kg			WG490955	08/03/10 16:53

* Performance of this Analyte is outside of established criteria.
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Est. 1970

August 05, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Specific Conductance	0.890	umhos/cm			WG491172	08/03/10 15:10

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Arsenic	mg/kg	26.0	28.0	7.02	20	L471124-05	WG490955
Barium	mg/kg	100.	85.9	18.1	20	L471124-05	WG490955
Cadmium	mg/kg	0	0	0	20	L471124-05	WG490955
Chromium	mg/kg	13.0	14.8	10.7	20	L471124-05	WG490955
Copper	mg/kg	26.0	30.7	17.3	20	L471124-05	WG490955
Lead	mg/kg	72.0	55.6	25.6*	20	L471124-05	WG490955
Selenium	mg/kg	0	0	0	20	L471124-05	WG490955
Silver	mg/kg	0	0	0	20	L471124-05	WG490955
Zinc	mg/kg	90.0	71.0	23.4*	20	L471124-05	WG490955
Mercury	mg/kg	0.0230	0.0250	8.77	20	L471045-01	WG490972
pH	su	7.60	7.50	1.32*	1	L470825-01	WG491011
Specific Conductance	umhos/cm	120.	120.	1.90	20	L471045-01	WG491172
Chromium,Hexavalent	mg/kg	0	0	0	20	L471047-01	WG491136
Chromium,Hexavalent	mg/kg	0	0	0	20	L471362-04	WG491136
ORP	mV	220.	220.	0	20	L471045-01	WG491167
ORP	mV	200.	200.	1.49	20	L471333-01	WG491167
Nickel	mg/kg	21.0	0	NA	20	L471124-05	WG490955

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0535	107.	76-113	WG490720
Ethylbenzene	mg/kg	.05	0.0544	109.	78-115	WG490720
Toluene	mg/kg	.05	0.0541	108.	76-114	WG490720
Total Xylene	mg/kg	.15	0.165	110.	81-118	WG490720
a,a,a-Trifluorotoluene(PID)				101.6	54-144	WG490720
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.09	111.	67-135	WG490720
a,a,a-Trifluorotoluene(FID)				90.80	59-128	WG490720
TPH (GC/FID) High Fraction	ppm	60	51.1	85.1	50-150	WG490981
o-Terphenyl				95.53	50-150	WG490981
Arsenic	mg/kg	192	190.	99.0	78.6-120.8	WG490955
Barium	mg/kg	420	397.	94.5	78.8-121.4	WG490955
Cadmium	mg/kg	70.1	58.0	82.7	78.5-121.5	WG490955
Chromium	mg/kg	168	160.	95.2	80.4-120.2	WG490955
Copper	mg/kg	122	123.	101.	81.6-119.7	WG490955
Lead	mg/kg	113	111.	98.2	77.3-122.1	WG490955
Selenium	mg/kg	176	163.	92.6	75.6-125.0	WG490955

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Silver	mg/kg	115	106.	92.2	66-133.9	WG490955
Zinc	mg/kg	437	391.	89.5	78.5-121.7	WG490955
Mercury	mg/kg	8.77	9.44	108.	71.6-127.7	WG490972
pH	su	9.36	9.30	99.4	98.9-102.0	WG491011
1-Methylnaphthalene	mg/kg	.033	0.0251	76.1	41-110	WG490985
2-Chloronaphthalene	mg/kg	.033	0.0249	75.5	43-109	WG490985
2-Methylnaphthalene	mg/kg	.033	0.0237	71.8	38-104	WG490985
Acenaphthene	mg/kg	.033	0.0243	73.6	48-103	WG490985
Acenaphthylene	mg/kg	.033	0.0227	68.8	43-106	WG490985
Anthracene	mg/kg	.033	0.0237	72.0	51-110	WG490985
Benzo(a)anthracene	mg/kg	.033	0.0222	67.2	38-126	WG490985
Benzo(a)pyrene	mg/kg	.033	0.0222	67.3	47-118	WG490985
Benzo(b)fluoranthene	mg/kg	.033	0.0198	60.1	47-118	WG490985
Benzo(g,h,i)perylene	mg/kg	.033	0.0224	67.7	40-125	WG490985
Benzo(k)fluoranthene	mg/kg	.033	0.0245	74.2	45-121	WG490985
Chrysene	mg/kg	.033	0.0266	80.5	35-135	WG490985
Dibenz(a,h)anthracene	mg/kg	.033	0.0226	68.5	41-124	WG490985
Fluoranthene	mg/kg	.033	0.0244	73.9	50-114	WG490985
Fluorene	mg/kg	.033	0.0239	72.4	49-109	WG490985
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0222	67.2	40-126	WG490985
Naphthalene	mg/kg	.033	0.0244	73.9	36-100	WG490985
Phenanthrene	mg/kg	.033	0.0239	72.3	46-108	WG490985
Pyrene	mg/kg	.033	0.0229	69.5	30-136	WG490985
2-Fluorobiphenyl				93.93	21-120	WG490985
Nitrobenzene-d5				81.37	33-114	WG490985
p-Terphenyl-d14				102.0	18-142	WG490985
Specific Conductance	umhos/cm	406	430.	106.	85-115	WG491172
Chromium,Hexavalent	mg/kg	100	95.5	95.5	50-143	WG491136
ORP	mV	229	220.	96.1	95.6-104.37	WG491167
Nickel	mg/kg	74.1	73.4	99.1	78.8-121.2	WG490955

Analyte	Units	Laboratory Control Sample Duplicate		%Rec	Limit	RPD	Limit	Batch
		Result	Ref					
Benzene	mg/kg	0.0526	0.0535	105.	76-113	1.59	20	WG490720
Ethylbenzene	mg/kg	0.0535	0.0544	107.	78-115	1.62	20	WG490720
Toluene	mg/kg	0.0531	0.0541	106.	76-114	1.90	20	WG490720
Total Xylene	mg/kg	0.162	0.165	108.	81-118	1.86	20	WG490720
a,a,a-Trifluorotoluene(PID)				101.1	54-144			WG490720
TPH (GC/FID) Low Fraction	mg/kg	5.98	6.09	109.	67-135	1.84	20	WG490720
a,a,a-Trifluorotoluene(FID)				90.29	59-128			WG490720
TPH (GC/FID) High Fraction	ppm	48.3	51.1	80.0	50-150	5.68	25	WG490981
o-Terphenyl				93.98	50-150			WG490981

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Est. 1970

August 05, 2010

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
pH	su	9.30	9.30	99.0	98.9-102.0	0	20	WG491011
1-Methylnaphthalene	mg/kg	0.0237	0.0251	72.0	41-110	5.77	24	WG490985
2-Chloronaphthalene	mg/kg	0.0240	0.0249	73.0	43-109	3.88	21	WG490985
2-Methylnaphthalene	mg/kg	0.0232	0.0237	70.0	38-104	2.06	24	WG490985
Acenaphthene	mg/kg	0.0217	0.0243	66.0	48-103	11.4	20	WG490985
Acenaphthylene	mg/kg	0.0205	0.0227	62.0	43-106	10.4	20	WG490985
Anthracene	mg/kg	0.0222	0.0237	67.0	51-110	6.60	22	WG490985
Benzo(a)anthracene	mg/kg	0.0215	0.0222	65.0	38-126	2.92	20	WG490985
Benzo(a)pyrene	mg/kg	0.0205	0.0222	62.0	47-118	8.09	20	WG490985
Benzo(b)fluoranthene	mg/kg	0.0209	0.0198	63.0	47-118	5.05	29	WG490985
Benzo(g,h,i)perylene	mg/kg	0.0213	0.0224	64.0	40-125	4.81	20	WG490985
Benzo(k)fluoranthene	mg/kg	0.0219	0.0245	66.0	45-121	11.0	31	WG490985
Chrysene	mg/kg	0.0232	0.0266	70.0	35-135	13.7	20	WG490985
Dibenz(a,h)anthracene	mg/kg	0.0212	0.0226	64.0	41-124	6.62	20	WG490985
Fluoranthene	mg/kg	0.0211	0.0244	64.0	50-114	14.3	20	WG490985
Fluorene	mg/kg	0.0221	0.0239	67.0	49-109	7.56	19	WG490985
Indeno(1,2,3-cd)pyrene	mg/kg	0.0209	0.0222	63.0	40-126	6.15	20	WG490985
Naphthalene	mg/kg	0.0228	0.0244	69.0	36-100	6.93	24	WG490985
Phenanthrene	mg/kg	0.0223	0.0239	67.0	46-108	6.97	21	WG490985
Pyrene	mg/kg	0.0234	0.0229	71.0	30-136	2.04	20	WG490985
2-Fluorobiphenyl				83.22	21-120			WG490985
Nitrobenzene-d5				75.22	33-114			WG490985
p-Terphenyl-d14				100.0	18-142			WG490985
Specific Conductance	umhos/	430.	430.	106.	85-115	0	20	WG491172
Chromium,Hexavalent	mg/kg	95.0	95.5	95.0	50-143	0.525	20	WG491136
ORP	mV	220.	220.	96.0	95.6-104.37	0	20	WG491167

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.254	0	.05	102.	32-137	L470868-01	WG490720
Ethylbenzene	mg/kg	0.246	0	.05	98.3	10-150	L470868-01	WG490720
Toluene	mg/kg	0.256	0	.05	102.	20-142	L470868-01	WG490720
Total Xylene	mg/kg	0.757	0	.15	101.	16-141	L470868-01	WG490720
a,a,a-Trifluorotoluene(PID)					101.6	54-144		WG490720
TPH (GC/FID) Low Fraction	mg/kg	23.0	0	5.5	83.8	55-109	L470868-01	WG490720
a,a,a-Trifluorotoluene(FID)					92.75	59-128		WG490720
Arsenic	mg/kg	71.1	28.0	50	86.2	75-125	L471124-05	WG490955
Barium	mg/kg	146.	85.9	50	120.	75-125	L471124-05	WG490955
Cadmium	mg/kg	43.6	0	50	87.2	75-125	L471124-05	WG490955
Chromium	mg/kg	60.8	14.8	50	92.0	75-125	L471124-05	WG490955
Copper	mg/kg	81.0	30.7	50	101.	75-125	L471124-05	WG490955
Lead	mg/kg	122.	55.6	50	133.*	75-125	L471124-05	WG490955
Selenium	mg/kg	43.1	0	50	86.2	75-125	L471124-05	WG490955
Silver	mg/kg	48.4	0	50	96.8	75-125	L471124-05	WG490955
Zinc	mg/kg	140.	71.0	50	138.*	75-125	L471124-05	WG490955
Mercury	mg/kg	0.246	0.0250	.25	88.4	70-130	L471045-01	WG490972

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Chromium,Hexavalent	mg/kg	19.5	0	20	97.5	50-150	L471045-01	WG491136
Nickel	mg/kg	62.5	0	50	125.	75-125	L471124-05	WG490955

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.241	0.254	96.5	32-137	5.14	39	L470868-01	WG490720
Ethylbenzene	mg/kg	0.220	0.246	88.0	10-150	11.1	44	L470868-01	WG490720
Toluene	mg/kg	0.235	0.256	94.1	20-142	8.46	42	L470868-01	WG490720
Total Xylene	mg/kg	0.672	0.757	89.5	16-141	12.0	46	L470868-01	WG490720
a,a,a-Trifluorotoluene(PID)				100.9	54-144				WG490720
TPH (GC/FID) Low Fraction	mg/kg	18.6	23.0	67.8	55-109	21.1*	20	L470868-01	WG490720
a,a,a-Trifluorotoluene(FID)				93.60	59-128				WG490720
Arsenic	mg/kg	66.9	71.1	77.8	75-125	6.09	20	L471124-05	WG490955
Barium	mg/kg	140.	146.	108.	75-125	4.20	20	L471124-05	WG490955
Cadmium	mg/kg	41.9	43.6	83.8	75-125	3.98	20	L471124-05	WG490955
Chromium	mg/kg	59.0	60.8	88.4	75-125	3.01	20	L471124-05	WG490955
Copper	mg/kg	77.0	81.0	92.6	75-125	5.06	20	L471124-05	WG490955
Lead	mg/kg	121.	122.	131.*	75-125	0.823	20	L471124-05	WG490955
Selenium	mg/kg	41.9	43.1	83.8	75-125	2.82	20	L471124-05	WG490955
Silver	mg/kg	46.5	48.4	93.0	75-125	4.00	20	L471124-05	WG490955
Zinc	mg/kg	136.	140.	130.*	75-125	2.90	20	L471124-05	WG490955
Mercury	mg/kg	0.246	0.246	88.4	70-130	0	20	L471045-01	WG490972
Chromium,Hexavalent	mg/kg	18.3	19.5	91.5	50-150	6.35	20	L471045-01	WG491136
Nickel	mg/kg	64.5	62.5	129.*	75-125	3.15	20	L471124-05	WG490955

Batch number /Run number / Sample number cross reference

WG490720: R1304610: L471058-01
 WG490981: R1306211: L471058-01
 WG490955: R1306675: L471058-01
 WG490972: R1307072: L471058-01
 WG491011: R1307150: L471058-01
 WG490985: R1307689: L471058-01
 WG491167: R1310928: L471058-01
 WG491172: R1310969: L471058-01
 WG491136: R1311089: L471058-01
 WG491239: R1312128: L471058-01

* * 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.'



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Chris Hines
2717 County Road 215, Suite 100

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Level II

L471058

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August 05, 2010

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.



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

Report Summary

Wednesday September 07, 2011

Report Number: L533834

Samples Received: 09/01/11

Client Project:

Description: A03-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:

Jared 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

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

September 07, 2011

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

ESC Sample # : L533834-01

Date Received : September 01, 2011
 Description : A03-Cuttings

Site ID : A03

Sample ID : A03-CUT-083011

Project # :

Collected By : Brennan Graff
 Collection Date : 08/30/11 09:13

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	09/03/11	1
Chromium,Trivalent	19.	2.0	mg/kg	Calc.	09/04/11	1
ORP	43.		mV	2580	09/07/11	1
pH	8.4		su	9045D	09/02/11	1
Sodium Adsorption Ratio	16.			Calc.	09/05/11	1
Specific Conductance	1100		umhos/cm	9050AMod	09/03/11	1
Mercury	BDL	0.020	mg/kg	7471	09/03/11	1
Arsenic	4.1	1.0	mg/kg	6010B	09/04/11	1
Barium	3200	0.25	mg/kg	6010B	09/04/11	1
Cadmium	0.63	0.25	mg/kg	6010B	09/04/11	1
Chromium	19.	0.50	mg/kg	6010B	09/04/11	1
Copper	18.	1.0	mg/kg	6010B	09/04/11	1
Lead	16.	0.25	mg/kg	6010B	09/04/11	1
Nickel	11.	1.0	mg/kg	6010B	09/04/11	1
Selenium	BDL	1.0	mg/kg	6010B	09/04/11	1
Silver	BDL	0.50	mg/kg	6010B	09/04/11	1
Zinc	42.	1.5	mg/kg	6010B	09/04/11	1
Benzene	0.0068	0.0025	mg/kg	8021/8015	09/02/11	5
Toluene	BDL	0.025	mg/kg	8021/8015	09/02/11	5
Ethylbenzene	0.011	0.0025	mg/kg	8021/8015	09/02/11	5
Total Xylene	0.0076	0.0075	mg/kg	8021/8015	09/02/11	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	09/02/11	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.5		% Rec.	8021/8015	09/02/11	5
a,a,a-Trifluorotoluene(PID)	100.		% Rec.	8021/8015	09/02/11	5
TPH (GC/FID) High Fraction	130	20.	mg/kg	3546/DRO	09/02/11	5
Surrogate recovery(%)						
o-Terphenyl	52.0		% Rec.	3546/DRO	09/02/11	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	09/03/11	1
Acenaphthene	0.0087	0.0060	mg/kg	8270C-SIM	09/03/11	1
Acenaphthylene	0.0086	0.0060	mg/kg	8270C-SIM	09/03/11	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	09/03/11	1
Benzo(a)pyrene	BDL	0.030	mg/kg	8270C-SIM	09/04/11	5

BDL - Below Detection Limit
 Det. Limit - Practical Quantitation Limit(PQL)
 L533834-01 (PH) - 8.38@20.4c



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REPORT OF ANALYSIS

September 07, 2011

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

ESC Sample # : L533834-01

Date Received : September 01, 2011
Description : A03-Cuttings

Site ID : A03

Sample ID : A03-CUT-083011

Project # :

Collected By : Brennan Graff
Collection Date : 08/30/11 09:13

Table with 7 columns: Parameter, Result, Det. Limit, Units, Method, Date, Dil. Rows include various polycyclic aromatic hydrocarbons and surrogate recovery results.

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: 09/07/11 15:55 Printed: 09/07/11 16:54
L533834-01 (PH) - 8.38@20.4c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L533834-01	WG553321	SAMP	Benzo(a)pyrene	R1843412	O
	WG553321	SAMP	Benzo(b)fluoranthene	R1843412	O
	WG553321	SAMP	Benzo(g,h,i)perylene	R1843412	O
	WG553321	SAMP	Benzo(k)fluoranthene	R1843412	O
	WG553321	SAMP	Dibenz(a,h)anthracene	R1843412	O
	WG553321	SAMP	Indeno(1,2,3-cd)pyrene	R1843412	O
	WG553915	SAMP	ORP	R1847892	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
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.



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG553273	09/01/11 21:49
Ethylbenzene	< .0005	mg/kg			WG553273	09/01/11 21:49
Toluene	< .005	mg/kg			WG553273	09/01/11 21:49
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG553273	09/01/11 21:49
Total Xylene	< .0015	mg/kg			WG553273	09/01/11 21:49
a,a,a-Trifluorotoluene(FID)		% Rec.	95.96	59-128	WG553273	09/01/11 21:49
a,a,a-Trifluorotoluene(PID)		% Rec.	100.8	54-144	WG553273	09/01/11 21:49
TPH (GC/FID) High Fraction	< 4	ppm			WG553314	09/02/11 10:08
o-Terphenyl		% Rec.	67.29	50-150	WG553314	09/02/11 10:08
pH	5.20	su			WG553152	09/02/11 11:10
Chromium, Hexavalent	< 2	mg/kg			WG553150	09/03/11 13:30
1-Methylnaphthalene	< .006	mg/kg			WG553321	09/03/11 08:39
2-Chloronaphthalene	< .006	mg/kg			WG553321	09/03/11 08:39
2-Methylnaphthalene	< .006	mg/kg			WG553321	09/03/11 08:39
Acenaphthene	< .006	mg/kg			WG553321	09/03/11 08:39
Acenaphthylene	< .006	mg/kg			WG553321	09/03/11 08:39
Anthracene	< .006	mg/kg			WG553321	09/03/11 08:39
Benzo(a)anthracene	< .006	mg/kg			WG553321	09/03/11 08:39
Benzo(a)pyrene	< .006	mg/kg			WG553321	09/03/11 08:39
Benzo(b)fluoranthene	< .006	mg/kg			WG553321	09/03/11 08:39
Benzo(g,h,i)perylene	< .006	mg/kg			WG553321	09/03/11 08:39
Benzo(k)fluoranthene	< .006	mg/kg			WG553321	09/03/11 08:39
Chrysene	< .006	mg/kg			WG553321	09/03/11 08:39
Dibenz(a,h)anthracene	< .006	mg/kg			WG553321	09/03/11 08:39
Fluoranthene	< .006	mg/kg			WG553321	09/03/11 08:39
Fluorene	< .006	mg/kg			WG553321	09/03/11 08:39
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG553321	09/03/11 08:39
Naphthalene	< .006	mg/kg			WG553321	09/03/11 08:39
Phenanthrene	< .006	mg/kg			WG553321	09/03/11 08:39
Pyrene	< .006	mg/kg			WG553321	09/03/11 08:39
2-Fluorobiphenyl		% Rec.	59.77	34-129	WG553321	09/03/11 08:39
Nitrobenzene-d5		% Rec.	59.61	14-141	WG553321	09/03/11 08:39
p-Terphenyl-d14		% Rec.	68.67	25-139	WG553321	09/03/11 08:39
Arsenic	< 1	mg/kg			WG553516	09/03/11 23:48
Barium	< .25	mg/kg			WG553516	09/03/11 23:48
Cadmium	< .25	mg/kg			WG553516	09/03/11 23:48
Chromium	< .5	mg/kg			WG553516	09/03/11 23:48
Copper	< 1	mg/kg			WG553516	09/03/11 23:48
Lead	< .25	mg/kg			WG553516	09/03/11 23:48
Nickel	< 1	mg/kg			WG553516	09/03/11 23:48
Selenium	< 1	mg/kg			WG553516	09/03/11 23:48
Silver	< .5	mg/kg			WG553516	09/03/11 23:48
Zinc	< 1.5	mg/kg			WG553516	09/03/11 23:48
Mercury	< .02	mg/kg			WG553406	09/03/11 11:03
Specific Conductance	2.10	umhos/cm			WG553490	09/03/11 14:19

* 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	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
pH	su	6.90	6.90	0.145	1	L533650-01	WG553152
pH	su	7.90	7.90	0	1	L533838-07	WG553152
Chromium,Hexavalent	mg/kg	0	0	0	20	L533838-07	WG553150
Chromium,Hexavalent	mg/kg	0	0	0	20	L533650-01	WG553150
Arsenic	mg/kg	2.90	3.10	7.01	20	L534095-07	WG553516
Barium	mg/kg	110.	98.0	10.6	20	L534095-07	WG553516
Cadmium	mg/kg	0.400	0.340	15.2	20	L534095-07	WG553516
Chromium	mg/kg	7.20	6.70	7.19	20	L534095-07	WG553516
Copper	mg/kg	5.70	5.26	8.55	20	L534095-07	WG553516
Lead	mg/kg	5.40	5.00	8.25	20	L534095-07	WG553516
Nickel	mg/kg	6.30	5.82	8.40	20	L534095-07	WG553516
Selenium	mg/kg	0	0	0	20	L534095-07	WG553516
Silver	mg/kg	0	0	0	20	L534095-07	WG553516
Zinc	mg/kg	18.0	17.0	7.91	20	L534095-07	WG553516
Mercury	mg/kg	0.0240	0.0250	5.34	20	L533676-04	WG553406
Specific Conductance	umhos/cm	2200	1900	14.6	20	L533651-01	WG553490
Specific Conductance	umhos/cm	1100	1100	0	20	L534043-02	WG553490
ORP	mV	51.0	52.0	1.94	20	L533651-01	WG553915
ORP	mV	56.0	54.0	3.64	20	L534302-05	WG553915

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0509	102.	76-113	WG553273
Ethylbenzene	mg/kg	.05	0.0524	105.	78-115	WG553273
Toluene	mg/kg	.05	0.0549	110.	76-114	WG553273
Total Xylene	mg/kg	.15	0.155	103.	81-118	WG553273
a,a,a-Trifluorotoluene(PID)				99.24	54-144	WG553273
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.88	107.	67-135	WG553273
a,a,a-Trifluorotoluene(FID)				96.54	59-128	WG553273
TPH (GC/FID) High Fraction	ppm	60	44.4	74.0	50-150	WG553314
o-Terphenyl				70.07	50-150	WG553314
pH	su	9.04	9.00	99.6	98-101	WG553152
Chromium,Hexavalent	mg/kg	132	90.8	68.8	50-150	WG553150
1-Methylnaphthalene	mg/kg	.033	0.0182	55.0	48-113	WG553321
2-Chloronaphthalene	mg/kg	.033	0.0188	57.0	51-114	WG553321
2-Methylnaphthalene	mg/kg	.033	0.0187	56.8	44-109	WG553321
Acenaphthene	mg/kg	.033	0.0183	55.6	52-108	WG553321
Acenaphthylene	mg/kg	.033	0.0184	55.9	51-110	WG553321
Anthracene	mg/kg	.033	0.0210	63.8	58-120	WG553321
Benzo(a)anthracene	mg/kg	.033	0.0208	63.1	54-110	WG553321

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzo(a)pyrene	mg/kg	.033	0.0208	63.0	56-118	WG553321
Benzo(b)fluoranthene	mg/kg	.033	0.0208	63.1	55-114	WG553321
Benzo(g,h,i)perylene	mg/kg	.033	0.0248	75.1	48-130	WG553321
Benzo(k)fluoranthene	mg/kg	.033	0.0208	63.0	55-122	WG553321
Chrysene	mg/kg	.033	0.0212	64.2	57-118	WG553321
Dibenz(a,h)anthracene	mg/kg	.033	0.0231	70.1	53-122	WG553321
Fluoranthene	mg/kg	.033	0.0214	64.7	58-118	WG553321
Fluorene	mg/kg	.033	0.0198	60.0	54-109	WG553321
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.0229	69.5	51-125	WG553321
Naphthalene	mg/kg	.033	0.0167	50.6	45-105	WG553321
Phenanthrene	mg/kg	.033	0.0199	60.3	53-114	WG553321
Pyrene	mg/kg	.033	0.0232	70.4	53-121	WG553321
2-Fluorobiphenyl				56.04	34-129	WG553321
Nitrobenzene-d5				52.21	14-141	WG553321
p-Terphenyl-d14				67.84	25-139	WG553321
Arsenic	mg/kg	92.6	92.4	99.8	82.9-117	WG553516
Barium	mg/kg	169	174.	103.	82.8-117	WG553516
Cadmium	mg/kg	61.8	60.6	98.1	83.3-117	WG553516
Chromium	mg/kg	71.3	72.2	101.	81.8-118	WG553516
Copper	mg/kg	81.2	86.3	106.	83.9-116	WG553516
Lead	mg/kg	92.4	94.1	102.	83.3-117	WG553516
Nickel	mg/kg	59.1	58.9	99.7	83.8-116	WG553516
Selenium	mg/kg	89.5	87.5	97.8	79-121	WG553516
Silver	mg/kg	34.4	33.8	98.3	66.3-134	WG553516
Zinc	mg/kg	141	137.	97.2	80.9-119	WG553516
Mercury	mg/kg	3.77	4.54	120.	71.6-128	WG553406
Specific Conductance	umhos/cm	427	430.	101.	85-115	WG553490
ORP	mV	229	220.	96.1	95.6-104.37	WG553915

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0521	0.0509	104.	76-113	2.25	20	WG553273
Ethylbenzene	mg/kg	0.0523	0.0524	105.	78-115	0.200	20	WG553273
Toluene	mg/kg	0.0546	0.0549	109.	76-114	0.370	20	WG553273
Total Xylene	mg/kg	0.154	0.155	103.	81-118	0.490	20	WG553273
a,a,a-Trifluorotoluene(PID)				99.04	54-144			WG553273
TPH (GC/FID) Low Fraction	mg/kg	6.00	5.88	109.	67-135	2.14	20	WG553273
a,a,a-Trifluorotoluene(FID)				96.05	59-128			WG553273
TPH (GC/FID) High Fraction	ppm	43.2	44.4	72.0	50-150	2.62	25	WG553314
o-Terphenyl				66.12	50-150			WG553314
pH	su	9.00	9.00	100.	98-101	0	20	WG553152
Chromium,Hexavalent	mg/kg	89.6	90.8	68.0	50-150	1.33	20	WG553150

* 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 Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1-Methylnaphthalene	mg/kg	0.0211	0.0182	64.0	48-113	14.9	24	WG553321
2-Chloronaphthalene	mg/kg	0.0209	0.0188	63.0	51-114	10.6	24	WG553321
2-Methylnaphthalene	mg/kg	0.0214	0.0187	65.0	44-109	13.2	24	WG553321
Acenaphthene	mg/kg	0.0212	0.0183	64.0	52-108	14.4	22	WG553321
Acenaphthylene	mg/kg	0.0217	0.0184	66.0	51-110	16.4	21	WG553321
Anthracene	mg/kg	0.0247	0.0210	75.0	58-120	16.0	20	WG553321
Benzo(a)anthracene	mg/kg	0.0230	0.0208	70.0	54-110	10.0	22	WG553321
Benzo(a)pyrene	mg/kg	0.0229	0.0208	69.0	56-118	9.67	21	WG553321
Benzo(b)fluoranthene	mg/kg	0.0220	0.0208	67.0	55-114	5.43	20	WG553321
Benzo(g,h,i)perylene	mg/kg	0.0271	0.0248	82.0	48-130	8.97	20	WG553321
Benzo(k)fluoranthene	mg/kg	0.0237	0.0208	72.0	55-122	13.0	25	WG553321
Chrysene	mg/kg	0.0231	0.0212	70.0	57-118	8.91	20	WG553321
Dibenz(a,h)anthracene	mg/kg	0.0252	0.0231	76.0	53-122	8.46	20	WG553321
Fluoranthene	mg/kg	0.0236	0.0214	72.0	58-118	10.1	20	WG553321
Fluorene	mg/kg	0.0230	0.0198	70.0	54-109	14.7	20	WG553321
Indeno(1,2,3-cd)pyrene	mg/kg	0.0253	0.0229	77.0	51-125	9.94	21	WG553321
Naphthalene	mg/kg	0.0200	0.0167	60.0	45-105	17.9	24	WG553321
Phenanthrene	mg/kg	0.0234	0.0199	71.0	53-114	16.2	20	WG553321
Pyrene	mg/kg	0.0254	0.0232	77.0	53-121	8.86	20	WG553321
2-Fluorobiphenyl				65.16	34-129			WG553321
Nitrobenzene-d5				60.71	14-141			WG553321
p-Terphenyl-d14				74.55	25-139			WG553321
Specific Conductance	umhos/	430.	430.	101.	85-115	0	20	WG553490
ORP	mV	220.	220.	96.0	95.6-104.37	0	20	WG553915

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene	mg/kg	0.200	0	.05	79.9	32-137	L533818-01	WG553273
Ethylbenzene	mg/kg	0.166	0	.05	66.6	10-150	L533818-01	WG553273
Toluene	mg/kg	0.198	0	.05	79.0	20-142	L533818-01	WG553273
Total Xylene	mg/kg	0.502	0	.15	66.9	16-141	L533818-01	WG553273
a,a,a-Trifluorotoluene(PID)					98.87	54-144		WG553273
TPH (GC/FID) Low Fraction	mg/kg	18.0	0	5.5	65.6	55-109	L533818-01	WG553273
a,a,a-Trifluorotoluene(FID)					98.44	59-128		WG553273
TPH (GC/FID) High Fraction	ppm	341.	210.	60	219.*	50-150	L532893-01	WG553314
o-Terphenyl					48.55*	50-150		WG553314
Chromium,Hexavalent	mg/kg	1.80	0	20	9.00*	50-150	L533838-07	WG553150
Arsenic	mg/kg	50.6	3.10	50	95.0	75-125	L534095-07	WG553516
Barium	mg/kg	155.	98.0	50	114.	75-125	L534095-07	WG553516
Cadmium	mg/kg	47.5	0.340	50	94.3	75-125	L534095-07	WG553516
Chromium	mg/kg	56.2	6.70	50	99.0	75-125	L534095-07	WG553516
Copper	mg/kg	55.7	5.26	50	101.	75-125	L534095-07	WG553516
Lead	mg/kg	54.8	5.00	50	99.6	75-125	L534095-07	WG553516
Nickel	mg/kg	53.6	5.82	50	95.6	75-125	L534095-07	WG553516
Selenium	mg/kg	44.9	0	50	89.8	75-125	L534095-07	WG553516
Silver	mg/kg	47.6	0	50	95.2	75-125	L534095-07	WG553516
Zinc	mg/kg	63.1	17.0	50	92.2	75-125	L534095-07	WG553516

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Mercury	mg/kg	0.294	0.0250	.25	108.	70-130	L533676-04	WG553406
1-Methylnaphthalene	mg/kg	0.0499	0.0280	.033	66.4	25-155	L533838-03	WG553321
2-Chloronaphthalene	mg/kg	0.0310	0	.033	93.9	31-153	L533838-03	WG553321
2-Methylnaphthalene	mg/kg	0.0907	0.0810	.033	29.3	22-172	L533838-03	WG553321
Acenaphthene	mg/kg	0.0346	0	.033	105.	43-133	L533838-03	WG553321
Acenaphthylene	mg/kg	0.0327	0	.033	99.1	42-146	L533838-03	WG553321
Anthracene	mg/kg	0.0375	0	.033	114.	38-153	L533838-03	WG553321
Benzo(a)anthracene	mg/kg	0.0357	0	.033	108.	31-142	L533838-03	WG553321
Benzo(a)pyrene	mg/kg	0.0353	0	.033	107.	26-152	L533838-03	WG553321
Benzo(b)fluoranthene	mg/kg	0.0399	0	.033	121.	10-188	L533838-03	WG553321
Benzo(g,h,i)perylene	mg/kg	0.0244	0	.033	73.8	10-176	L533838-03	WG553321
Benzo(k)fluoranthene	mg/kg	0.0372	0	.033	112.	22-163	L533838-03	WG553321
Chrysene	mg/kg	0.0365	0	.033	110.	26-146	L533838-03	WG553321
Dibenz(a,h)anthracene	mg/kg	0.0270	0	.033	81.9	10-160	L533838-03	WG553321
Fluoranthene	mg/kg	0.0367	0	.033	111.	23-160	L533838-03	WG553321
Fluorene	mg/kg	0.0391	0.00680	.033	98.0	44-143	L533838-03	WG553321
Indeno(1,2,3-cd)pyrene	mg/kg	0.0263	0	.033	79.6	10-157	L533838-03	WG553321
Naphthalene	mg/kg	0.0599	0.0400	.033	60.3	22-156	L533838-03	WG553321
Phenanthrene	mg/kg	0.0455	0.0230	.033	68.1	23-164	L533838-03	WG553321
Pyrene	mg/kg	0.0390	0	.033	118.	12-170	L533838-03	WG553321
2-Fluorobiphenyl					89.79	34-129		WG553321
Nitrobenzene-d5					90.35	14-141		WG553321
p-Terphenyl-d14					107.4	25-139		WG553321

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.215	0.200	86.2	32-137	7.56	39	L533818-01	WG553273
Ethylbenzene	mg/kg	0.179	0.166	71.8	10-150	7.54	44	L533818-01	WG553273
Toluene	mg/kg	0.206	0.198	82.5	20-142	4.34	42	L533818-01	WG553273
Total Xylene	mg/kg	0.529	0.502	70.5	16-141	5.29	46	L533818-01	WG553273
a,a,a-Trifluorotoluene(PID)				98.76	54-144				WG553273
TPH (GC/FID) Low Fraction	mg/kg	17.9	18.0	65.1	55-109	0.710	20	L533818-01	WG553273
a,a,a-Trifluorotoluene(FID)				98.68	59-128				WG553273
TPH (GC/FID) High Fraction	ppm	405.	341.	325.*	50-150	17.1	25	L532893-01	WG553314
o-Terphenyl				48.73*	50-150				WG553314
Chromium,Hexavalent	mg/kg	6.56	1.80	32.8*	50-150	114.*	20	L533838-07	WG553150
Arsenic	mg/kg	50.8	50.6	95.4	75-125	0.394	20	L534095-07	WG553516
Barium	mg/kg	147.	155.	98.0	75-125	5.30	20	L534095-07	WG553516
Cadmium	mg/kg	48.0	47.5	95.3	75-125	1.05	20	L534095-07	WG553516
Chromium	mg/kg	56.3	56.2	99.2	75-125	0.178	20	L534095-07	WG553516
Copper	mg/kg	57.0	55.7	103.	75-125	2.31	20	L534095-07	WG553516
Lead	mg/kg	54.4	54.8	98.8	75-125	0.733	20	L534095-07	WG553516
Nickel	mg/kg	53.7	53.6	95.8	75-125	0.186	20	L534095-07	WG553516
Selenium	mg/kg	44.7	44.9	89.4	75-125	0.446	20	L534095-07	WG553516
Silver	mg/kg	48.9	47.6	97.8	75-125	2.69	20	L534095-07	WG553516
Zinc	mg/kg	63.8	63.1	93.6	75-125	1.10	20	L534095-07	WG553516
Mercury	mg/kg	0.263	0.294	95.2	70-130	11.1	20	L533676-04	WG553406

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit Ref	Samp	Batch
			Ref	%Rec					
1-Methylnaphthalene	mg/kg	0.0552	0.0499	82.3	25-155	9.98	27	L533838-03	WG553321
2-Chloronaphthalene	mg/kg	0.0313	0.0310	94.9	31-153	1.09	22	L533838-03	WG553321
2-Methylnaphthalene	mg/kg	0.0997	0.0907	56.7	22-172	9.50	29	L533838-03	WG553321
Acenaphthene	mg/kg	0.0343	0.0346	104.	43-133	0.679	26	L533838-03	WG553321
Acenaphthylene	mg/kg	0.0313	0.0327	95.0	42-146	4.26	22	L533838-03	WG553321
Anthracene	mg/kg	0.0358	0.0375	108.	38-153	4.63	27	L533838-03	WG553321
Benzo(a)anthracene	mg/kg	0.0332	0.0357	100.	31-142	7.35	31	L533838-03	WG553321
Benzo(a)pyrene	mg/kg	0.0345	0.0353	104.	26-152	2.34	32	L533838-03	WG553321
Benzo(b)fluoranthene	mg/kg	0.0452	0.0399	137.	10-188	12.5	33	L533838-03	WG553321
Benzo(g,h,i)perylene	mg/kg	0.0124	0.0244	37.6	10-176	64.9*	30	L533838-03	WG553321
Benzo(k)fluoranthene	mg/kg	0.0460	0.0372	139.	22-163	21.3	29	L533838-03	WG553321
Chrysene	mg/kg	0.0338	0.0365	102.	26-146	7.50	30	L533838-03	WG553321
Dibenz(a,h)anthracene	mg/kg	0.0150	0.0270	45.4	10-160	57.3*	39	L533838-03	WG553321
Fluoranthene	mg/kg	0.0363	0.0367	110.	23-160	1.08	22	L533838-03	WG553321
Fluorene	mg/kg	0.0401	0.0391	101.	44-143	2.31	23	L533838-03	WG553321
Indeno(1,2,3-cd)pyrene	mg/kg	0.0145	0.0263	44.0	10-157	57.5*	40	L533838-03	WG553321
Naphthalene	mg/kg	0.0625	0.0599	68.2	22-156	4.27	27	L533838-03	WG553321
Phenanthrene	mg/kg	0.0461	0.0455	69.8	23-164	1.27	25	L533838-03	WG553321
Pyrene	mg/kg	0.0406	0.0390	123.	12-170	4.02	24	L533838-03	WG553321
2-Fluorobiphenyl				83.87	34-129				WG553321
Nitrobenzene-d5				83.41	14-141				WG553321
p-Terphenyl-d14				110.4	25-139				WG553321

Batch number /Run number / Sample number cross reference

WG553273: R1841132: L533834-01
 WG553314: R1842212: L533834-01
 WG553152: R1842252: L533834-01
 WG553150: R1843372: L533834-01
 WG553321: R1843412: L533834-01
 WG553516: R1843792: L533834-01
 WG553406: R1843893: L533834-01
 WG553355: R1844533: L533834-01
 WG553490: R1844692: L533834-01
 WG553915: R1847892: L533834-01

* * 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.