



February 23, 2017

Brett Middleton
Environmental Specialist
Encana Oil & Gas (USA) Inc.
143 Diamond Avenue
Parachute, CO 81635

Subject: Report of Work Completed – Soil Boring and Sampling
EF H29A 595 – Pit Closure and Remediation System
COGCC Location ID: 335594
SENE, Section 29, T5S-R95W
39.58838/-108.0706 (WGS 84)
Garfield County, Colorado

Dear Mr. Middleton:

Apex Companies, LLC (Apex), prepared this report of work completed for Encana Oil & Gas (USA) Inc. (Encana) to present the results of soil samples collected during soil boring activities carried out on the H29A well pad (location) in Encana's North Parachute Ranch.

These samples were collected to determine the status of ongoing in-situ remediation efforts at the location, and to evaluate the relative effectiveness of two types of installed soil vapor extraction (SVE) wells powered with wind turbines or solar blowers.

BACKGROUND

Based on records acquired from the Colorado Oil & Gas Conservation Commission (COGCC) and provided by Encana, the produced water storage pit at this location was closed in the Fall of 2012. Per COGCC rules the closure was documented in a Form 27. After removal of the pit liner, soil samples were collected and lab results indicated organic constituents of concern, TPH and benzene, above COGCC allowable concentrations, indicating a possible liner failure which was reported on a Form 19. A subsequent site investigation with an environmental drilling rig was undertaken to determine the vertical and horizontal extent of soil impacts, and to install vertical SVE wells to augment natural attenuation, monitor subsurface conditions, and support future remediation efforts. The site investigation activities and findings were reported in a Form 4 (Report of Work Completed).

- Form 27 (Doc: 2146043) (Rem: 7966)
- Form 19 (Doc: 2231696)
- Form 4 (Doc: 400815683)

APPROACH

Between November 16 and 17, 2016, an Apex drilling coordinator and drilling contractor advanced four soil borings with an 8.25-inch hollow-stem auger to depths of 25 to 65 feet below ground surface (bgs). Soil was field-screened, with visual and olfactory observation and a photoionization detector (PID), at 5-foot intervals using a 2-foot split-spoon sampler. At targeted sampling intervals, and where field-screening results indicated possible hydrocarbon impacts, soil samples were collected and submitted for laboratory analysis of TPH (DRO and GRO) and BTEX.

Results for the collected samples were compared to previous samples collected at similar depths. These comparisons were used to evaluate those portions of the pit where natural attenuation of hydrocarbons was being augmented by wind-powered ventilator turbines or solar blowers.

A summary of historic and recent laboratory results is attached to this letter, along with laboratory results from drilling efforts in November, 2016. A figure illustrating the location of the project site, and the referenced soil boring locations is also provided.

FINDINGS

A total of 11 samples were submitted to the laboratory for analysis, with five samples from the north side of the pit where wind-powered ventilator turbines capped installed SVE wells, and six samples from the south and west side of the pit where solar-powered blowers were installed.

The solar blowers were installed on the portion of the pit (south and west) with the highest initial concentrations of hydrocarbon constituents of concerns, while wind-powered turbines were installed on the north with the lower relative concentrations. This difference is also apparent in the most recent sample results, with four of the six samples with elevated hydrocarbon concentrations from the south and west side of the pit, and only two from the north. Five (5) of the 11 submitted samples were below COGCC allowable concentrations for TPH and BTEX. Of the six samples with elevated concentrations, three had TPH results between 500 and 1000 parts per million (ppm or mg/kg), while three were between 1000 and 1500 ppm, and one had a benzene result at 33 parts per billion. Groundwater was not encountered in any of the soil borings.

CONCLUSIONS

Based on laboratory results to date, it does appear that average hydrocarbon concentrations at the project site continue to decline. For more conclusive results and a dataset adequate to complete a more rigorous statistical evaluation of hydrocarbon degradation rates, Apex recommends that Encana collect a larger more comprehensive set of samples during the next scheduled soil sampling event and remediation system evaluation.

If you have any questions about this report, or the activities and conclusions described, please do not hesitate to contact me.

Sincerely,
Apex Companies, LLC



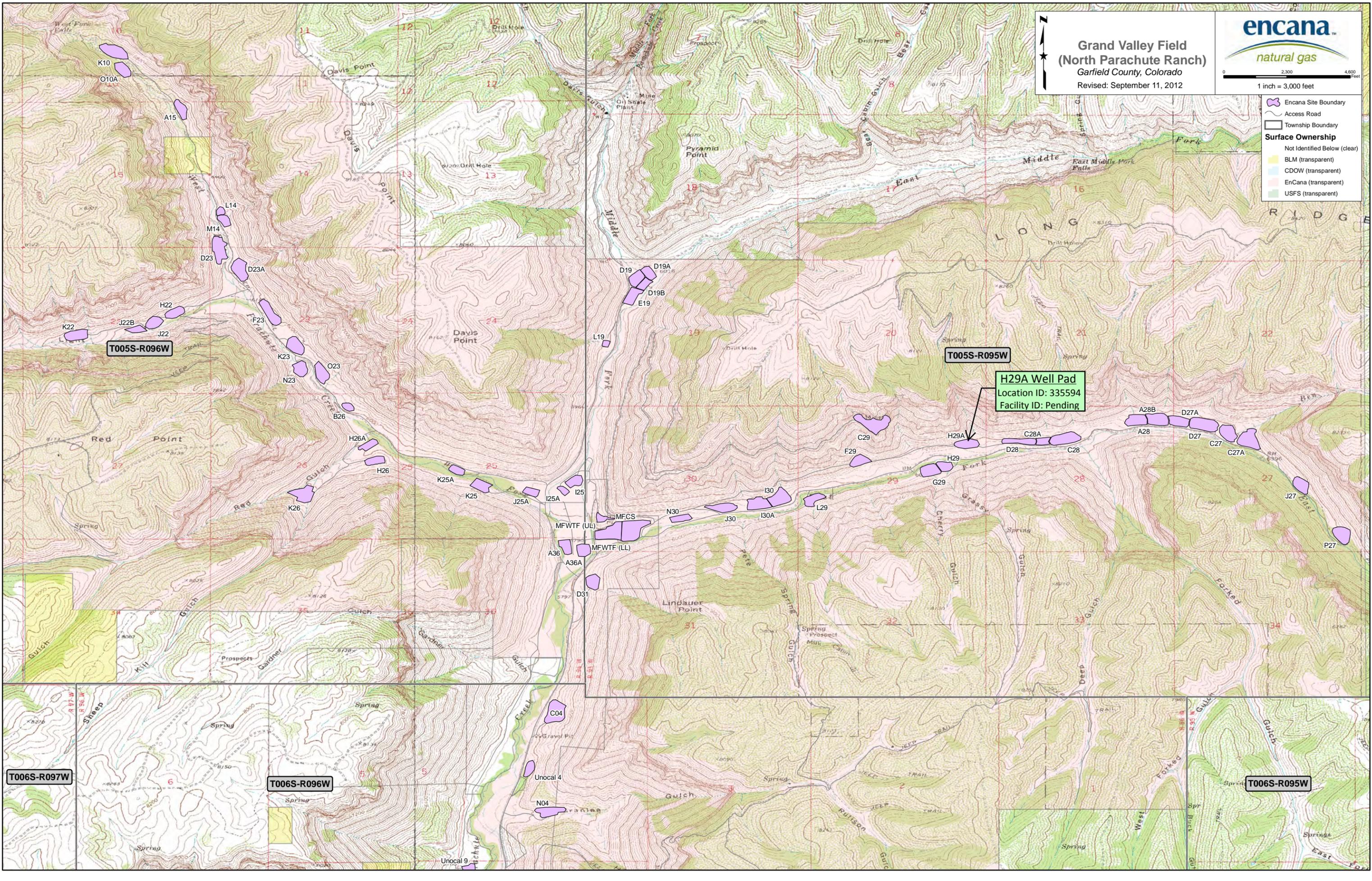
Chris Hines
Project Manager

ATTACHMENTS

- Location Map
- Site Diagram
- Laboratory Results Summary Table
- Laboratory Reports

Encana Site Boundary
 Encana Site Boundary
 Access Road
 Township Boundary

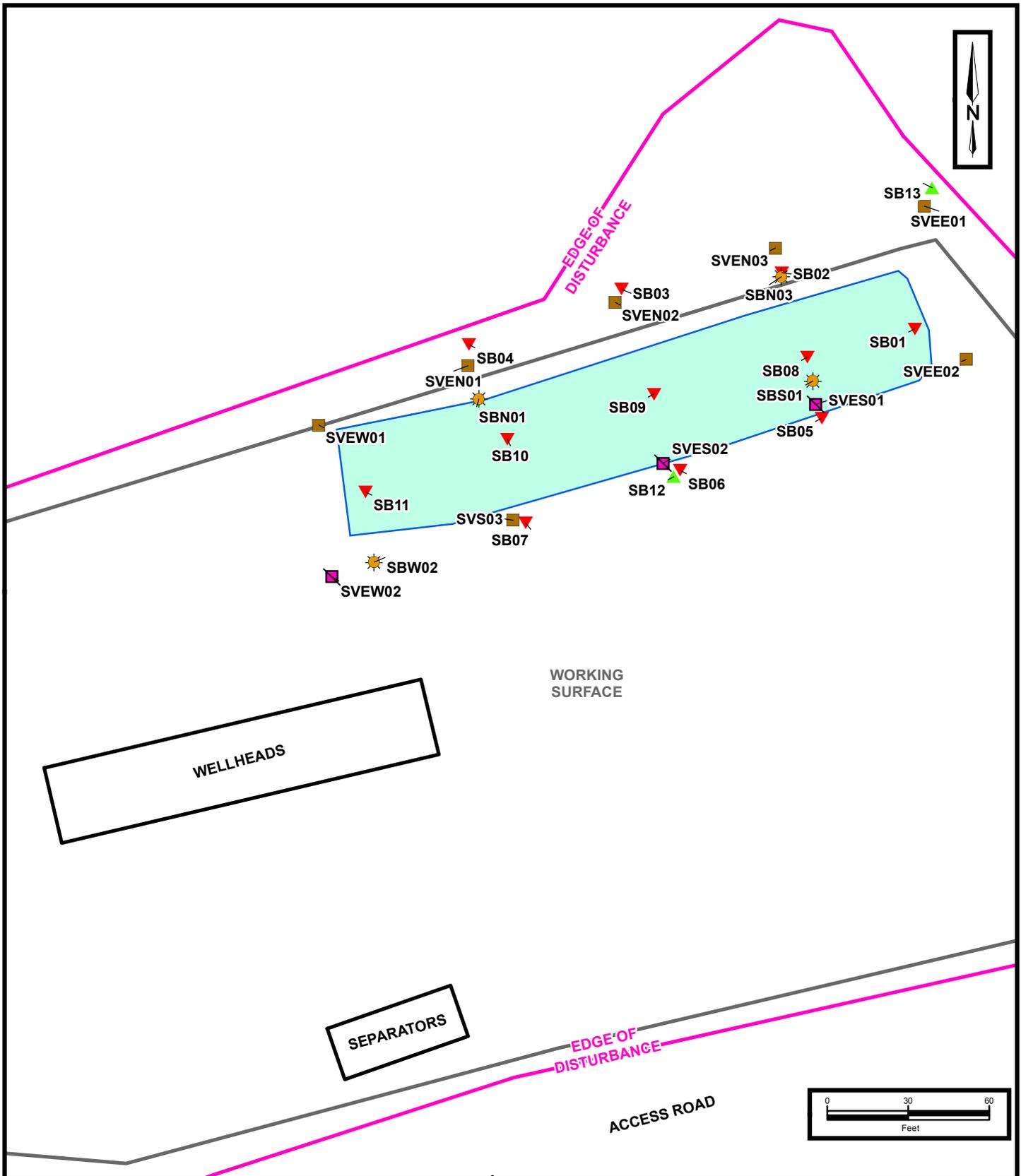
Surface Ownership
 Not Identified Below (clear)
 BLM (transparent)
 CDOW (transparent)
 EnCana (transparent)
 USFS (transparent)



T006S-R097W

T006S-R096W

T006S-R095W



- Pit Footprint
 - ☀ Soil Boring (November, 2016)
 - ▲ Soil Boring (April, 2013)
 - ▼ Soil Boring (February, 2013)
 - ◻ Solar-Powered
 - Wind-Powered
- Soil Boring & SVE Well Location (Installed July, 2013)**



EF H29A 595 Pad
COGCC Location ID: 335594
SENE, Section 29, T5S-R95W
39.58838, -108.0706
Garfield County, Colorado

Analytes (BDL = Below Detection Limit; ND = Non Detect, U = below minimum detection)

Location	Sample Date:	Sample Matrix	Matrix Notes	Organic Compounds in Soil (mg/kg [ppm])						
				500	TPH (total volatile and extractable petroleum hydrocarbons) (TPH-GRO + TPH-DRO)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	0.17	85	100
H29A	10/22/12	Pit	Center (10-12)	679.8	9.8	670	0.091	BDL	0.041	0.38
H29A	10/22/12	Pit	Ebot (10-12)	3902	2	3900	0.0032	BDL	BDL	0.022
H29A	10/22/12	Pit	Ewall (10-12)	220	BDL	220	BDL	BDL	BDL	BDL
H29A	10/22/12	Pit	Nwall (10-12)	290	BDL	290	BDL	BDL	BDL	BDL
H29A	10/22/12	Pit	SEwall (10-12)	480	BDL	480	BDL	BDL	BDL	BDL
H29A	10/22/12	Pit	SWwall (10-12)	920	BDL	920	BDL	BDL	BDL	BDL
H29A	10/22/12	Pit	Wbot (10-12)	1200	300	900	0.22	2.3	1.2	9.9
H29A	10/22/12	Pit	WWall (10-12)	20002.3	2.3	20000	BDL	BDL	BDL	0.045
H29A	02/04/13	Pit	boring 1 [10-10.5']	21		21	BDL			
H29A	02/04/13	Pit	boring 1 [15-17.5']	2300		2300	0.012			
H29A	02/04/13	Pit	boring 1 [20-22.5']	2100		2100	0.035			
H29A	02/04/13	Pit	boring 1 [25-27.5']	1900		1900	0.047			
H29A	02/04/13	Pit	boring 1 [30-32.5']	1800		1800	0.044			
H29A	02/05/13	Pit	boring 2 [10-12']	83		83	BDL			
H29A	02/05/13	Pit	boring 1 [35-37']	102		102	0.046			
H29A	02/05/13	Pit	boring 1 [40-42']	1200		1200	0.15			
H29A	02/05/13	Pit	boring 1 [45-47']	2000		2000	0.16			
H29A	02/05/13	Pit	boring 1 [50-52']	1600		1600	0.16			
H29A	02/05/13	Pit	boring 2 [15-17']	310		310	0.021			
H29A	02/05/13	Pit	boring 2 [20-22']	660		660	0.035			
H29A	02/05/13	Pit	boring 2 [25-26.5']	600		600	0.034			
H29A	02/05/13	Pit	boring 2 [30-32']	730		730	0.048			
H29A	02/05/13	Pit	boring 2 [35-37']	BDL		BDL	0.024			
H29A	02/05/13	Pit	boring 2 [40-42']	12		12	BDL			
H29A	02/06/13	Pit	boring 3 [10-12']	BDL		BDL	BDL			
H29A	02/06/13	Pit	boring 4 [10-12']	28		28	BDL			
H29A	02/06/13	Pit	boring 5 [10-12']	BDL		BDL	BDL			
H29A	02/06/13	Pit	boring 6 [10-12']	710		710	BDL			
H29A	02/06/13	Pit	boring 3 [30-32']	4.7		4.7	BDL			
H29A	02/06/13	Pit	boring 3 [15-17']	1300		1300	0.0042			
H29A	02/06/13	Pit	boring 3 [20-22']	870		870	BDL			
H29A	02/06/13	Pit	boring 3 [25-27']	BDL		BDL	BDL			
H29A	02/06/13	Pit	boring 4 [15-17.5']	31		31	BDL			
H29A	02/06/13	Pit	boring 4 [20-22']	20		20	BDL			
H29A	02/06/13	Pit	boring 4 [25-25.5']	85		85	BDL			
H29A	02/06/13	Pit	boring 5 [15-17']	1900		1900	0.057			
H29A	02/06/13	Pit	boring 5 [20-22']	2300		2300	0.063			
H29A	02/06/13	Pit	boring 5 [25-27']	1000		1000	0.057			
H29A	02/06/13	Pit	boring 5 [30-32']	1300		1300	0.054			
H29A	02/06/13	Pit	boring 6 [15-17']	1700		1700	0.012			
H29A	02/06/13	Pit	boring 6 [20-22']	1600		1600	0.061			

Location	Sample Date:	Sample Matrix	Matrix Notes	Organic Compounds in Soil (mg/kg [ppm])						
				500			0.17	85	100	175
				TPH (total volatile and extractable petroleum hydrocarbons) (TPH-GRO + TPH-DRO)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total
H29A	02/06/13	Pit	boring 6 [25-27']	540		540	0.12			
H29A	02/06/13	Pit	boring 6 [30-32']	650		650	0.072			
H29A	02/07/13	Pit	boring 10 [10-12']	65		65	0.0053			
H29A	02/07/13	Pit	boring 10 [12-14']	140		140	0.0037			
H29A	02/07/13	Pit	boring 7 [10-12']	BDL		BDL	0.0064			
H29A	02/07/13	Pit	boring 8 [10-12']	76		76	0.0049			
H29A	02/07/13	Pit	boring 8 [12-14']	480		480	BDL			
H29A	02/07/13	Pit	boring 9 [10-12']	23		23	0.0064			
H29A	02/07/13	Pit	boring 9 [12-14']	BDL		BDL	0.016			
H29A	02/07/13	Pit	boring 10 [15-17']	730		730	1.1			
H29A	02/07/13	Pit	boring 10 [20-22']	550		550	0.021			
H29A	02/07/13	Pit	boring 7 [15-17']	870		870	0.019			
H29A	02/07/13	Pit	boring 7 [20-22']	620		620	0.069			
H29A	02/07/13	Pit	boring 7 [25-27']	220		220	0.095			
H29A	02/07/13	Pit	boring 7 [30-32']	500		500	0.082			
H29A	02/07/13	Pit	boring 8 [15-17']	780		780	0.07			
H29A	02/07/13	Pit	boring 8 [20-22']	600		600	0.088			
H29A	02/07/13	Pit	boring 9 [15-17']	1300		1300	0.096			
H29A	02/07/13	Pit	boring 9 [20-22']	720		720	0.086			
H29A	02/08/13	Pit	boring 11 [10-12']	660		660	BDL			
H29A	02/08/13	Pit	boring 11 [15-17']	1800		1800	1.8			
H29A	02/08/13	Pit	boring 11 [20-22']	1600		1600	0.14			
H29A	04/29/13	Pit	boring 12 [40-42']	BDL		BDL				
H29A	04/29/13	Pit	boring 12 [60-62']	BDL		BDL				
H29A	04/30/13	Pit	boring 12 [70-72']	12		12				
H29A	04/30/13	Pit	boring 13 [30-32']	1400		1400				
H29A	04/30/13	Pit	boring 13 [45-47']	72		72				
H29A	04/30/13	Pit	boring 13 [55-57']	69		69				
H29A	07/16/13	Pit	SBW01 (30-32)	BDL		BDL	BDL	BDL	BDL	BDL
H29A	07/16/13	Pit	SBW01 (40-42)	27		27	BDL	BDL	BDL	BDL
H29A	07/18/13	Pit	SBE02 (25-27)	960		960	0.085	0.046	0.013	0.16
H29A	07/18/13	Pit	SBE02 (55-57)	12		12	BDL	BDL	BDL	BDL
H29A	07/19/13	Pit	SBS01 (10-12)	BDL		BDL	0.091	BDL	0.12	1.6
H29A	07/22/13	Pit	SBS01 (65-67)	25		25	BDL	BDL	BDL	BDL
H29A	07/24/13	Pit	SBW01 (30-32)	12	BDL	12	BDL	BDL	BDL	BDL
H29A	07/24/13	Pit	SBW02 (24-26)	220		220	BDL	BDL	BDL	BDL
H29A	07/24/13	Pit	SBW02 (59-61)	9.7		9.7	0.21	0.76	0.14	1.4
H29A	07/25/13	Pit	SBE01 (75-77)	50	BDL	50	BDL	BDL	BDL	0.0086
H29A	07/26/13	Pit	SBS01 (65-67)	2002.2	2.2	2000	0.11	0.11	0.016	0.14

Location	Sample Date:	Sample Matrix	Matrix Notes	Organic Compounds in Soil (mg/kg [ppm])						
				500			0.17	85	100	175
				TPH (total volatile and extractable petroleum hydrocarbons) (TPH-GRO + TPH-DRO)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total
H29A	11/16/16	Pit	SBN01 (10-12)	873.35	1.35	872	0.0107	0.0169	0.00321	0.00954
H29A	11/16/16	Pit	SBN01 (25-27)	27.651	0.251	27.4	0.0026	0.00741	0.003	0.00331
H29A	11/16/16	Pit	SBS01 (10-12)	1062.29	2.29	1060	0.0462	0.0244	0.00778	0.0272
H29A	11/16/16	Pit	SBS01 (25-27)	1261.85	1.85	1260	0.0795	0.14	0.0278	0.15
H29A	11/16/16	Pit	SBS01 (50-52)	332.499	0.499	332	0.024	0.0368	0.00593	0.0308
H29A	11/16/16	Pit	SBW02 (25-27)	829.98	1.98	828	0.0704	0.151	0.032	0.165
H29A	11/16/16	Pit	SBW02 (35-37)	926.42	3.42	923	0.0987	0.0907	0.01	0.0755
H29A	11/16/16	Pit	SBW02 (60-62)	16.754	0.154	16.6	0.0033	0.0118	0.0046	0.0054
H29A	11/17/16	Pit	SBN03 (15-17)	1253.25	3.25	1250	0.33	0.241	0.32	3.15
H29A	11/17/16	Pit	SBN03 (40-42)	149.761	0.761	149	0.00466	0.0092	0.00236	0.00791
H29A	11/17/16	Pit	SBN03 (45-47)	24.989	0.489	24.5	0.00252	<0.005	0.00169	0.00402

EnCana Oil & Gas - Parachute, CO

Sample Delivery Group: L873893
Samples Received: 11/19/2016
Project Number: EF H29A 595 PIT CLOS
Description: EF H29A 595 Site Characterization
Site: EF H29A 595
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Shane Gambill
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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²Tc: Table of Contents	2
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SAMPLE SUMMARY



20161116-H29A(SVSVES01) 10-12 L873893-01 Solid

Collected by
Chris Hines
Collected date/time
11/16/16 08:45
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	20	11/25/16 11:38	11/25/16 22:56	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	1	11/22/16 09:36	11/25/16 21:45	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 09:36	11/27/16 03:55	BRA

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Gl

7
Al

8
Sc

20161116-H29A(SVSVES01) 50-52 L873893-02 Solid

Collected by
Chris Hines
Collected date/time
11/16/16 11:30
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	20	11/25/16 11:38	11/25/16 22:44	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	1	11/22/16 09:36	11/25/16 22:06	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 09:36	11/27/16 04:15	BRA

20161116-H29A(SVSVENO1) 10-12 L873893-03 Solid

Collected by
Chris Hines
Collected date/time
11/16/16 16:30
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	50	11/25/16 11:38	11/25/16 23:08	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	1	11/22/16 09:36	11/25/16 22:27	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 09:36	11/27/16 05:35	BRA

20161116-H29A(SVSVENO1) 25-27 L873893-04 Solid

Collected by
Chris Hines
Collected date/time
11/16/16 16:50
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	1	11/25/16 11:38	11/25/16 20:44	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	1	11/22/16 09:36	11/25/16 22:48	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 09:36	11/27/16 05:55	BRA

20161116-H29A(SVSVEW02) 35-37 L873893-05 Solid

Collected by
Chris Hines
Collected date/time
11/16/16 13:35
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	200	11/25/16 11:38	11/29/16 07:20	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	1	11/22/16 09:36	11/25/16 23:09	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 09:36	11/27/16 06:14	BRA

20161116-H29A(SVSVEW02) 60-62 L873893-06 Solid

Collected by
Chris Hines
Collected date/time
11/16/16 15:25
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	1	11/25/16 11:38	11/25/16 19:19	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	1	11/22/16 09:36	11/25/16 23:30	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928900	1	11/22/16 09:36	11/23/16 04:38	DAH

SAMPLE SUMMARY



20161116-H29A(SBSVES01) 25-27 L873893-07 Solid

Collected by: Chris Hines
 Collected date/time: 11/16/16 09:10
 Received date/time: 11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG930575	200	11/30/16 00:33	11/30/16 15:33	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929902	1	11/30/16 10:11	11/30/16 18:04	JHH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG930656	1	11/30/16 10:11	11/30/16 14:56	JBE

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Gl

⁷Al

⁸Sc

20161116-H29A(SBSVEW02) 25-27 L873893-08 Solid

Collected by: Chris Hines
 Collected date/time: 11/16/16 13:11
 Received date/time: 11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG930575	200	11/30/16 00:33	11/30/16 15:21	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929902	1	11/30/16 10:11	11/30/16 18:26	JHH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG930656	1	11/30/16 10:11	11/30/16 15:16	JBE



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Shane Gambill
Technical Service Representative

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Gl
- ⁷ Al
- ⁸ Sc



Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	2.29		0.100	1	11/25/2016 21:45	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	97.5		59.0-128		11/25/2016 21:45	WG929436

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0462		0.00100	1	11/27/2016 03:55	WG928848
Toluene	0.0244		0.00500	1	11/27/2016 03:55	WG928848
Ethylbenzene	0.00778		0.00100	1	11/27/2016 03:55	WG928848
Total Xylenes	0.0272		0.00300	1	11/27/2016 03:55	WG928848
(S) <i>Toluene-d8</i>	104		88.7-115		11/27/2016 03:55	WG928848
(S) <i>Dibromofluoromethane</i>	131	J1	76.3-123		11/27/2016 03:55	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	104		87.2-117		11/27/2016 03:55	WG928848
(S) <i>4-Bromofluorobenzene</i>	93.3		69.7-129		11/27/2016 03:55	WG928848

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1060		80.0	20	11/25/2016 22:56	WG929315
(S) <i>o</i> -Terphenyl	121	J7	50.0-150		11/25/2016 22:56	WG929315



Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.499		0.100	1	11/25/2016 22:06	WG929436
(S) a,a,a-Trifluorotoluene(FID)	109		59.0-128		11/25/2016 22:06	WG929436

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0240		0.00100	1	11/27/2016 04:15	WG928848
Toluene	0.0368		0.00500	1	11/27/2016 04:15	WG928848
Ethylbenzene	0.00593		0.00100	1	11/27/2016 04:15	WG928848
Total Xylenes	0.0308		0.00300	1	11/27/2016 04:15	WG928848
(S) Toluene-d8	103		88.7-115		11/27/2016 04:15	WG928848
(S) Dibromofluoromethane	124	J1	76.3-123		11/27/2016 04:15	WG928848
(S) a,a,a-Trifluorotoluene	100		87.2-117		11/27/2016 04:15	WG928848
(S) 4-Bromofluorobenzene	96.6		69.7-129		11/27/2016 04:15	WG928848

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	332		80.0	20	11/25/2016 22:44	WG929315
(S) o-Terphenyl	146	J7	50.0-150		11/25/2016 22:44	WG929315



Collected date/time: 11/16/16 16:30

L873893

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.35		0.100	1	11/25/2016 22:27	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	99.3		59.0-128		11/25/2016 22:27	WG929436

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0107		0.00100	1	11/27/2016 05:35	WG928848
Toluene	0.0169		0.00500	1	11/27/2016 05:35	WG928848
Ethylbenzene	0.00321		0.00100	1	11/27/2016 05:35	WG928848
Total Xylenes	0.00954		0.00300	1	11/27/2016 05:35	WG928848
(S) <i>Toluene-d8</i>	102		88.7-115		11/27/2016 05:35	WG928848
(S) <i>Dibromofluoromethane</i>	125	J1	76.3-123		11/27/2016 05:35	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	105		87.2-117		11/27/2016 05:35	WG928848
(S) <i>4</i> -Bromofluorobenzene	87.4		69.7-129		11/27/2016 05:35	WG928848

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	872		200	50	11/25/2016 23:08	WG929315
(S) <i>o</i> -Terphenyl	140	J7	50.0-150		11/25/2016 23:08	WG929315



Collected date/time: 11/16/16 16:50

L873893

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.251		0.100	1	11/25/2016 22:48	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	107		59.0-128		11/25/2016 22:48	WG929436

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00260		0.00100	1	11/27/2016 05:55	WG928848
Toluene	0.00741		0.00500	1	11/27/2016 05:55	WG928848
Ethylbenzene	0.00300		0.00100	1	11/27/2016 05:55	WG928848
Total Xylenes	0.00331		0.00300	1	11/27/2016 05:55	WG928848
(S) <i>Toluene-d8</i>	96.5		88.7-115		11/27/2016 05:55	WG928848
(S) <i>Dibromofluoromethane</i>	131	J1	76.3-123		11/27/2016 05:55	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	104		87.2-117		11/27/2016 05:55	WG928848
(S) <i>4-Bromofluorobenzene</i>	98.8		69.7-129		11/27/2016 05:55	WG928848

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	27.4		4.00	1	11/25/2016 20:44	WG929315
(S) <i>o</i> -Terphenyl	83.3		50.0-150		11/25/2016 20:44	WG929315



Collected date/time: 11/16/16 13:35

L873893

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	3.42		0.100	1	11/25/2016 23:09	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	86.3		59.0-128		11/25/2016 23:09	WG929436

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0987		0.00100	1	11/27/2016 06:14	WG928848
Toluene	0.0907		0.00500	1	11/27/2016 06:14	WG928848
Ethylbenzene	0.0100		0.00100	1	11/27/2016 06:14	WG928848
Total Xylenes	0.0755		0.00300	1	11/27/2016 06:14	WG928848
(S) <i>Toluene-d8</i>	103		88.7-115		11/27/2016 06:14	WG928848
(S) <i>Dibromofluoromethane</i>	125	J1	76.3-123		11/27/2016 06:14	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	99.3		87.2-117		11/27/2016 06:14	WG928848
(S) <i>4-Bromofluorobenzene</i>	82.5		69.7-129		11/27/2016 06:14	WG928848

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	923		800	200	11/29/2016 07:20	WG929315
(S) <i>o</i> -Terphenyl	0.000	J7	50.0-150		11/29/2016 07:20	WG929315



Collected date/time: 11/16/16 15:25

L873893

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.154		0.100	1	11/25/2016 23:30	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	110		59.0-128		11/25/2016 23:30	WG929436

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00330		0.00100	1	11/23/2016 04:38	WG928900
Toluene	0.0118		0.00500	1	11/23/2016 04:38	WG928900
Ethylbenzene	0.00460		0.00100	1	11/23/2016 04:38	WG928900
Total Xylenes	0.00540		0.00300	1	11/23/2016 04:38	WG928900
(S) <i>Toluene-d8</i>	107		88.7-115		11/23/2016 04:38	WG928900
(S) <i>Dibromofluoromethane</i>	115		76.3-123		11/23/2016 04:38	WG928900
(S) <i>a,a,a</i> -Trifluorotoluene	108		87.2-117		11/23/2016 04:38	WG928900
(S) <i>4-Bromofluorobenzene</i>	89.1		69.7-129		11/23/2016 04:38	WG928900

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	16.6		4.00	1	11/25/2016 19:19	WG929315
(S) <i>o</i> -Terphenyl	79.8		50.0-150		11/25/2016 19:19	WG929315



Collected date/time: 11/16/16 09:10

L873893

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.85		0.100	1	11/30/2016 18:04	WG929902
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	87.1		59.0-128		11/30/2016 18:04	WG929902

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0795		0.00100	1	11/30/2016 14:56	WG930656
Toluene	0.140		0.00500	1	11/30/2016 14:56	WG930656
Ethylbenzene	0.0278		0.00100	1	11/30/2016 14:56	WG930656
Total Xylenes	0.150		0.00300	1	11/30/2016 14:56	WG930656
(S) <i>Toluene-d8</i>	95.9		88.7-115		11/30/2016 14:56	WG930656
(S) <i>Dibromofluoromethane</i>	107		76.3-123		11/30/2016 14:56	WG930656
(S) <i>a,a,a</i> -Trifluorotoluene	88.6		87.2-117		11/30/2016 14:56	WG930656
(S) <i>4-Bromofluorobenzene</i>	55.2	J2	69.7-129		11/30/2016 14:56	WG930656

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1260		800	200	11/30/2016 15:33	WG930575
(S) <i>o</i> -Terphenyl	0.000	J7	50.0-150		11/30/2016 15:33	WG930575



Collected date/time: 11/16/16 13:11

L873893

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.98		0.100	1	11/30/2016 18:26	WG929902
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	87.0		59.0-128		11/30/2016 18:26	WG929902

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0704		0.00100	1	11/30/2016 15:16	WG930656
Toluene	0.151		0.00500	1	11/30/2016 15:16	WG930656
Ethylbenzene	0.0320		0.00100	1	11/30/2016 15:16	WG930656
Total Xylenes	0.165		0.00300	1	11/30/2016 15:16	WG930656
(S) <i>Toluene-d8</i>	91.9		88.7-115		11/30/2016 15:16	WG930656
(S) <i>Dibromofluoromethane</i>	111		76.3-123		11/30/2016 15:16	WG930656
(S) <i>a,a,a</i> -Trifluorotoluene	80.9	J2	87.2-117		11/30/2016 15:16	WG930656
(S) <i>4-Bromofluorobenzene</i>	55.8	J2	69.7-129		11/30/2016 15:16	WG930656

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	828		800	200	11/30/2016 15:21	WG930575
(S) <i>o</i> -Terphenyl	0.000	J7	50.0-150		11/30/2016 15:21	WG930575



Abbreviations and Definitions

SDG	Sample Delivery Group.
RDL	Reported Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Gl

⁷ Al

⁸ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

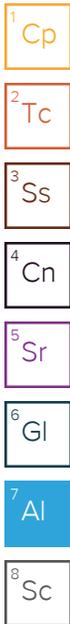
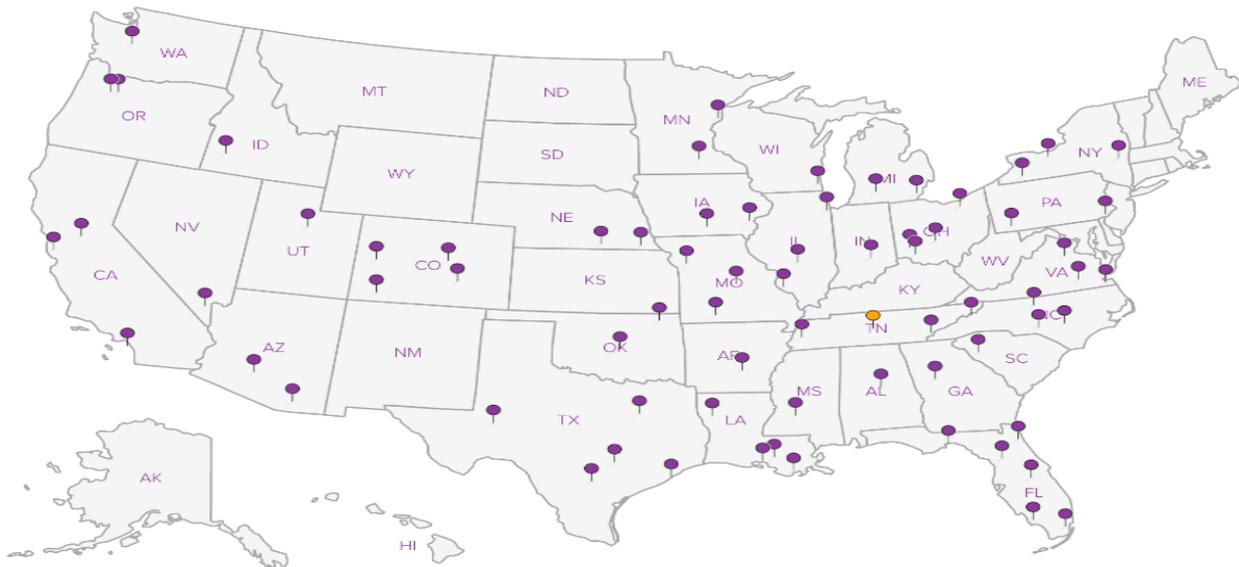
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Company Name/Address: Encana Oil & Gas (USA) Inc. 143 Diamond Avenue Parachute, CO 81635 *ENCANACO*		Billing Information: Brett Middleton 143 Diamond Avenue Parachute, CO 81635 970-285-2653		Analysis / Container / Preservative								Chain of Custody Page <u> </u> of <u> </u>	
Report to: Brett Middleton		Email To: brett.middleton@encana.com		<div style="text-align: right;">  ESC <small>L · A · B S · C · I · E · N · C · E · S</small> <hr/> <small>YOUR LAB OF CHOICE</small> <small>12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859</small> </div>									
Project Description: EF H29A 595 Site Characterization		City/State Collected: Colorado											
Phone: 970-285-2793		Client Project # EF H29A 595 Pit Closure											
Fax:		Lab Project #											

Collected by (print): Chris Hines		Site/Facility ID # EF H29A 595		P.O. #	
Collected by (signature):		Rush? (Lab MUST Be Notified) ___ Same Day200% ___ Next Day100% ___ Two Day50% ___ Three Day25%		Date Results Needed Standard Email? ___ No <input checked="" type="checkbox"/> Yes FAX? <input checked="" type="checkbox"/> No ___ Yes	
Immediately Packed on Ice: N ___ Y ___				No. of Cntrs	

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	BTEX	TPH (DRO & GRO)	Rem./Contaminant	Sample # (lab only)
20161116-H29A(SBSVES01)	Grab	SS	10-12	11/16/16	0845	2	X	X		-01
20161116-H29A(SBSVES01)	Grab	SS	25-27	11/16/16	0910	2	X	X	HOLD	-07
20161116-H29A(SBSVES01)	Grab	SS	50-52	11/16/16	1130	2	X	X		-02
20161116-H29A(SBSVEN01)	Grab	SS	10-12	11/16/16	1630	3	X	X		-03
20161116-H29A(SBSVEN01)	Grab	SS	25-27	11/16/16	1650	3	X	X		-04
20161116-H29A(SBSVEW01)	Grab	SS	25-27	11/16/16	1311	2	X	X	HOLD	-08
20161116-H29A(SBSVEW01)	Grab	SS	35-37	11/16/16	1335	2	X	X		-05
20161116-H29A(SBSVEW01)	Grab	SS	60-62	11/16/16	1525	2	X	X		-06

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____				pH _____ Temp _____		Hold # 11-095	
Remarks: 20161116-H29A(SBSVES01), 20161116-H29A(SBSVEN01), 20161116-H29A(SBSVEW02)				Flow _____ Other _____		Condition: (lab use only)	
Relinquished by: (Signature)	Date: 11/17/16	Time: 1500	Received by: (Signature)	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____		COC Seal Intact: ___ Y ___ N <input checked="" type="checkbox"/> NA	
Relinquished by: (Signature)	Date: 11/17/16	Time: 1730	Received by: (Signature)	Temp: 27 °C Bottles Received: 18		pH Checked: _____ NCF: _____	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11-19-16 Time: 9w			



L · A · B · S · C · I · E · N · C · E · S

YOUR LAB OF CHOICE

Cooler Receipt Form

Client: FENCANAO	SDG#	UG73893		
Cooler Received/Opened On: 11-19-16	Temperature Upon Receipt:	2.7 °C		
Received by: Greg Dearmon				
Signature: Greg Dearmon				
Receipt Check List		Yes	No	N/A
Were custody seals on outside of cooler and intact?				/
Were custody papers properly filled out?		/		
Did all bottles arrive in good condition?		/		
Were correct bottles used for the analyses requested?		/		
Was sufficient amount of sample sent in each bottle?		/		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)				/
If applicable, was an observable VOA headspace present?				/
Non Conformance Generated. (If yes see attached NCF)				

L873893

Jeremy W. Watkins

From: Shane Gambill
Sent: Tuesday, November 29, 2016 4:06 PM
To: Andy Vann; Login
Subject: L873893 *ENCANCO*

Importance: High

Andy:

Please log and add both hold samples to log in # L873893 (11-095) for 20161116-H29A(SBSVE501) 25-27' and 20161116-H29A(SBSVEW02) 25-27' for V8260BTEX, GRO, DRO. Please note samples run out of hold 11/30.

Thanks,
Shane Gambill
Technical Service Representative
ESC Lab Sciences | 12065 Lebanon Rd. Mt. Juliet, TN 37122
Office: (615) 773-9747
sgambill@esclabsciences.com | www.esclabsciences.com



November 30, 2016

EnCana Oil & Gas - Parachute, CO

Sample Delivery Group: L873863
Samples Received: 11/19/2016
Project Number: EF H29A 595 PIT CLOS
Description: EF H29A 595 Site Characterization
Site: EF H29A 595
Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Shane Gambill
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



¹Cp: Cover Page	1	
²Tc: Table of Contents	2	
³Ss: Sample Summary	3	
⁴Cn: Case Narrative	4	
⁵Sr: Sample Results	5	
20161117-H29ASVEN03(15-17) L873863-01	5	
20161117-H29ASVEN03(40-42) L873863-02	6	
20161117-H29ASVEN03(45-47) L873863-03	7	
⁶Gl: Glossary of Terms	8	
⁷Al: Accreditations & Locations	9	
⁸Sc: Chain of Custody	10	

SAMPLE SUMMARY



20161117-H29ASVEN03(15-17) L873863-01 Solid

Collected by
Chris Hines
Collected date/time
11/17/16 07:46
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	200	11/25/16 11:38	11/29/16 07:07	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG928851	1	11/21/16 15:13	11/28/16 15:39	JHH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	24.5	11/21/16 14:57	11/29/16 15:15	BMB

1
Cp

2
Tc

3
Ss

20161117-H29ASVEN03(40-42) L873863-02 Solid

Collected by
Chris Hines
Collected date/time
11/17/16 08:40
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	10	11/25/16 11:38	11/25/16 21:20	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG928851	1	11/21/16 15:13	11/28/16 19:16	DAH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/21/16 15:13	11/26/16 19:15	BRA

4
Cn

5
Sr

6
Gl

20161117-H29ASVEN03(45-47) L873863-03 Solid

Collected by
Chris Hines
Collected date/time
11/17/16 09:00
Received date/time
11/19/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi-Volatile Organic Compounds (GC) by Method 8015	WG929315	1	11/25/16 11:38	11/25/16 20:56	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG928851	1	11/21/16 15:13	11/28/16 19:40	DAH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/21/16 15:13	11/26/16 19:35	BRA

7
Al

8
Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Shane Gambill
Technical Service Representative

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Gl
- ⁷ Al
- ⁸ Sc



Collected date/time: 11/17/16 07:46

L873863

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	3.25		0.100	1	11/28/2016 15:39	WG928851
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	99.5		59.0-128		11/28/2016 15:39	WG928851

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.330		0.0245	24.5	11/29/2016 15:15	WG928848
Toluene	0.241		0.122	24.5	11/29/2016 15:15	WG928848
Ethylbenzene	0.320		0.0245	24.5	11/29/2016 15:15	WG928848
Total Xylenes	3.15		0.0735	24.5	11/29/2016 15:15	WG928848
(S) <i>Toluene-d8</i>	105		88.7-115		11/29/2016 15:15	WG928848
(S) <i>Dibromofluoromethane</i>	99.0		76.3-123		11/29/2016 15:15	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	106		87.2-117		11/29/2016 15:15	WG928848
(S) <i>4-Bromofluorobenzene</i>	91.8		69.7-129		11/29/2016 15:15	WG928848

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	1250		800	200	11/29/2016 07:07	WG929315
(S) <i>o</i> -Terphenyl	0.000	J7	50.0-150		11/29/2016 07:07	WG929315



Collected date/time: 11/17/16 08:40

L873863

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.761		0.100	1	11/28/2016 19:16	WG928851
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	109		59.0-128		11/28/2016 19:16	WG928851

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00466		0.00100	1	11/26/2016 19:15	WG928848
Toluene	0.00920		0.00500	1	11/26/2016 19:15	WG928848
Ethylbenzene	0.00236		0.00100	1	11/26/2016 19:15	WG928848
Total Xylenes	0.00791		0.00300	1	11/26/2016 19:15	WG928848
(S) <i>Toluene-d8</i>	104		88.7-115		11/26/2016 19:15	WG928848
(S) <i>Dibromofluoromethane</i>	136	J1	76.3-123		11/26/2016 19:15	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	105		87.2-117		11/26/2016 19:15	WG928848
(S) <i>4-Bromofluorobenzene</i>	102		69.7-129		11/26/2016 19:15	WG928848

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	149		40.0	10	11/25/2016 21:20	WG929315
(S) <i>o</i> -Terphenyl	105		50.0-150		11/25/2016 21:20	WG929315



Collected date/time: 11/17/16 09:00

L873863

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.487		0.100	1	11/28/2016 19:40	WG928851
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	111		59.0-128		11/28/2016 19:40	WG928851

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00252	V3	0.00100	1	11/26/2016 19:35	WG928848
Toluene	ND		0.00500	1	11/26/2016 19:35	WG928848
Ethylbenzene	0.00169		0.00100	1	11/26/2016 19:35	WG928848
Total Xylenes	0.00402		0.00300	1	11/26/2016 19:35	WG928848
(S) <i>Toluene-d8</i>	101		88.7-115		11/26/2016 19:35	WG928848
(S) <i>Dibromofluoromethane</i>	142	J1	76.3-123		11/26/2016 19:35	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	111		87.2-117		11/26/2016 19:35	WG928848
(S) <i>4-Bromofluorobenzene</i>	96.6		69.7-129		11/26/2016 19:35	WG928848

4 Cn

5 Sr

6 Gl

7 Al

8 Sc

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	24.5		4.00	1	11/25/2016 20:56	WG929315
(S) <i>o</i> -Terphenyl	75.3		50.0-150		11/25/2016 20:56	WG929315



Abbreviations and Definitions

SDG	Sample Delivery Group.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
V3	The internal standard exhibited poor recovery due to sample matrix interference. The analytical results will be biased high. BDL results will be unaffected.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Gl

⁷ Al

⁸ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

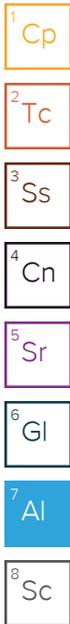
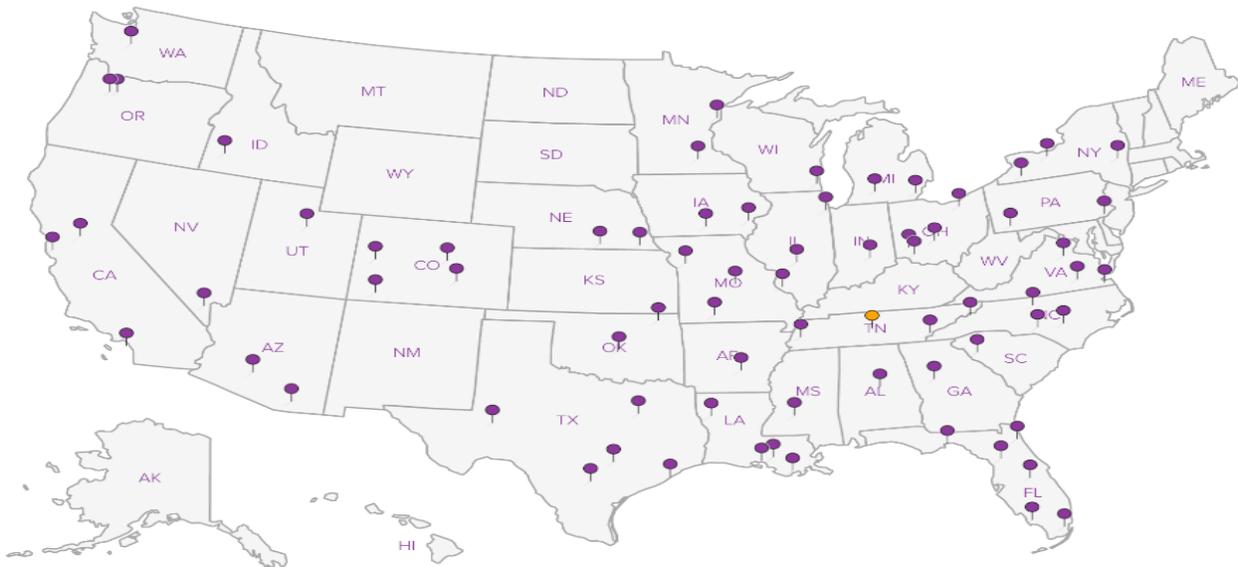
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**





Cooler Receipt Form					
Client:	<i>Environco</i>	SDG#	<i>877863</i>		
Cooler Received/Opened On:	<i>11/19/16</i>	Temperature Upon Receipt:	<i>3.2 °c</i>		
Received by: Joseph Roberts					
Signature: <i>Joseph R.</i>					
Receipt Check List			Yes	No	N/A
Were custody seals on outside of cooler and intact?					✓
Were custody papers properly filled out?			✓		
Did all bottles arrive in good condition?			✓		
Were correct bottles used for the analyses requested?			✓		
Was sufficient amount of sample sent in each bottle?			✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)					✓
If applicable, was an observable VOA headspace present?					✓
Non Conformance Generated. (If yes see attached NCF)					