



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, Sampling, and Well Install
EF A28 595 – Pit Closure and Remediation System
COGCC Location ID: 335804
NENE, Section 28, T5S-R95W
39.590817/-108.053426 (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 in-situ soil samples collected during soil boring activities carried out on the A28 well pad 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 wind-powered ventilator turbines and solar-blowers capping installed vertical soil vapor extraction (SVE) wells. An additional SVE well was also installed during this effort.

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 2009. Per COGCC rules, the closure was documented in a Form 27, and a remediation number was assigned. After removal of the pit liner (2009), below-liner soil samples identified organic, inorganic, and metal constituents of concern above COGCC allowable concentrations, indicating a possible liner failure which was reported in a Form 19. Impacted material was stockpiled onsite (2010 – 2012), and interim reclamation was completed late 2012. The stockpiled material was covered with three (3') of native fill in the northwest corner of the pad. Using an environmental drilling rig, vertical SVE wells were installed to augment natural attenuation, monitor subsurface conditions, and support future remediation efforts. Additional detail on these project phases, may be found in the following COGCC documents associated with this project.

- Form 27 (Doc: 2232896) (Rem: 7742)
- Form 19 (Doc: 400781684)
- Form 4 (Doc: 400999848)

APPROACH

During November 15 activities on the location, an Apex drilling coordinator and drilling contractor advanced three soil borings with an 8.25-inch hollow-stem auger to depths of 25 feet below ground surface (bgs). Boring locations were located next to a wind-powered ventilator turbine and a solar-blower SVE well. Using a 2-foot split-spoon sampler, continuous screening with visual and olfactory observation, and a photoionization detector (PID) was conducted on the treatment stockpile. Where field-screening results indicated possible hydrocarbon impacts, soil samples were collected and submitted for laboratory analysis of TPH (DRO and GRO) and BTEX.

An additional soil boring location was selected to install a SVE well in a portion of the remediation stockpile where additional gas exchange in the subsurface was believed to be beneficial.

Results for the collected samples were compared to previous samples at similar depths within the same drilling area. These comparisons were used to provide data on the progress of augmented natural attenuation at the site.

A summary of historic and recent laboratory results is attached to this letter, along with laboratory results from drilling efforts in November, 2016. Figures illustrating the location of the project site and sampling locations are also provided. Historic sampling points identified in the attached figure were approximated from aerial imagery.

FINDINGS

A total of seven soil samples were submitted for laboratory analysis, with four showing low to moderate hydrocarbon concentrations above the COGCC allowable limit for TPH. Laboratory results from the soil boring locations next to the existing SVE wells (SBW01 and SBE01) were of lower average TPH concentration, than the samples collected from the boring location (SBMid) selected for its greater distance from existing SVE wells.

CONCLUSIONS

The apparent difference in TPH concentrations between the samples collected next to existing SVE wells and those collected further from the wells, seems to indicate point at the general effectiveness of the SVE wells in reducing hydrocarbon concentrations in the remediation stockpile. For a more complete understanding of soil conditions at the site, and possible effects of SVE wells in augmenting natural attenuation, Apex recommends that a larger number of soil borings and samples be collected in close proximity, and at distance from the installed SVE wells during the next scheduled site characterization event. Several intensive sampling events over coming years should provide adequate data to evaluate remediation system effectiveness with greater statistical confidence.

If you have any questions about this report, or the activities and conclusions described, please do not hesitate to contact me at 970-261-1127.

Sincerely,
Apex Companies, LLC



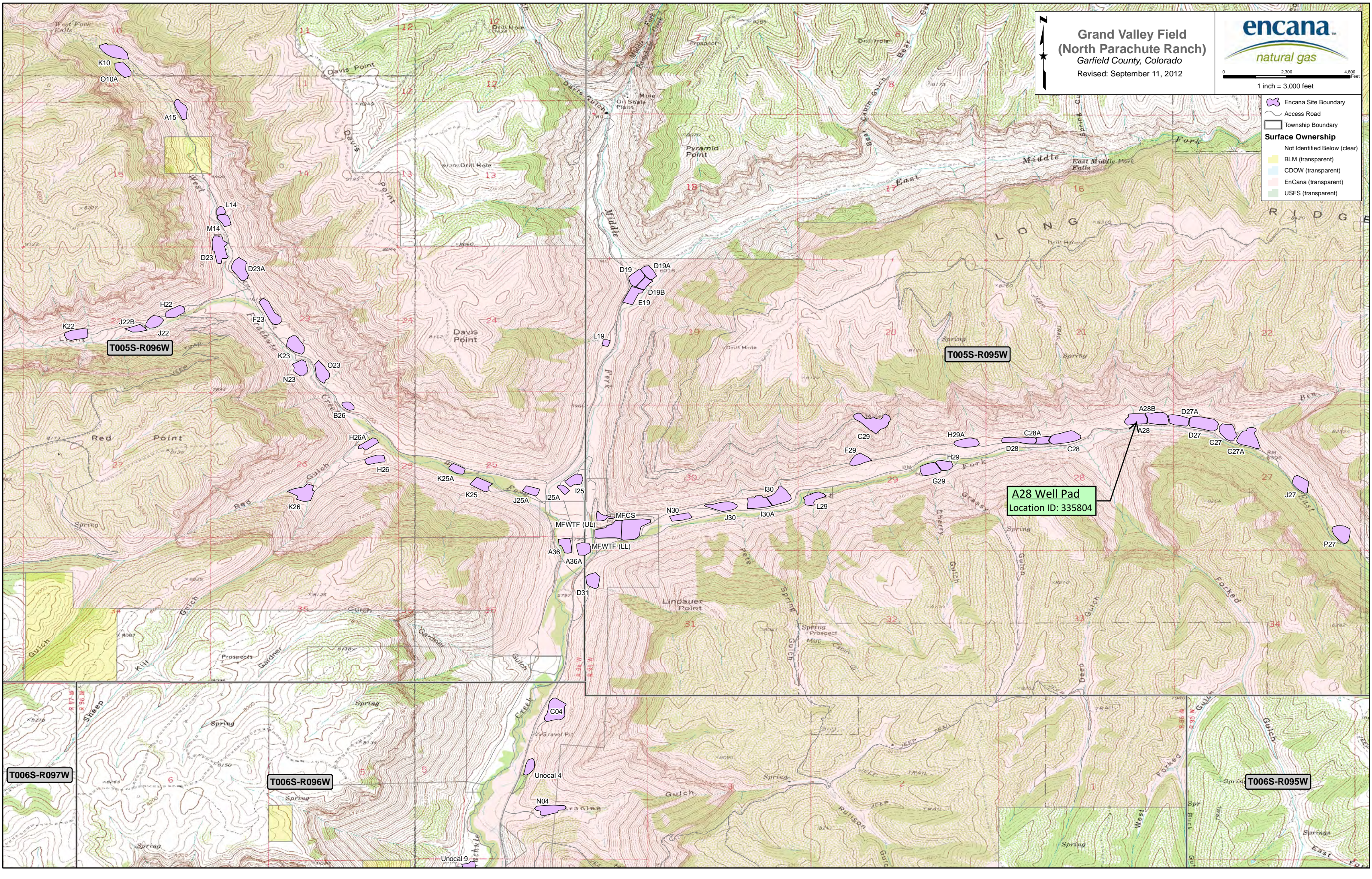
Chris Hines
Project Manager

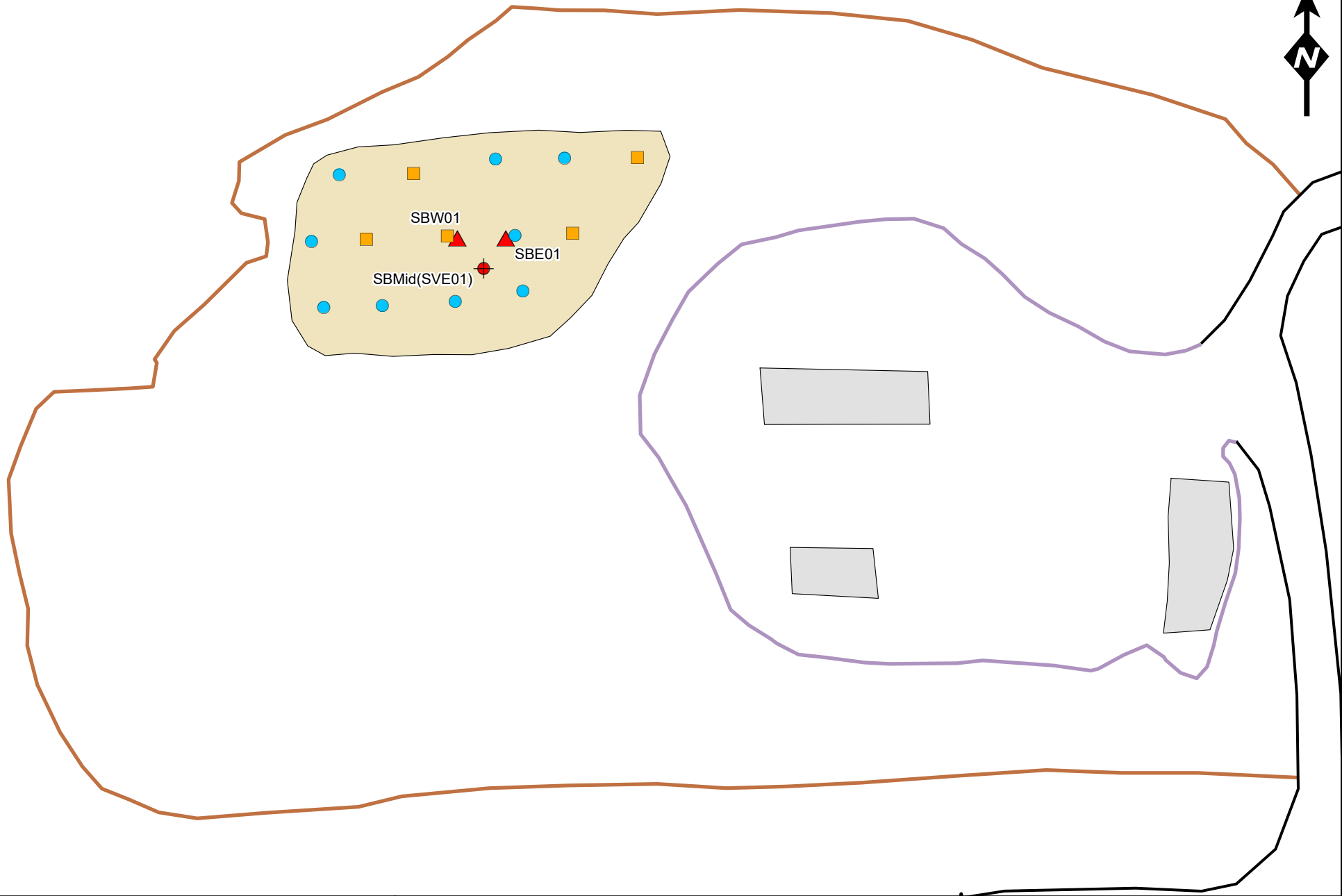
ATTACHMENTS










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

Encana Site Boundary
Access Road
Township Boundary

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





- | | |
|---|---|
|  Edge of Disturbance |  Soil Boring Location (2016) |
|  Access Road |  Installed SVE (2016) |
|  Working Surface |  Solar-Blower SVE (2013) |
|  Production Equipment |  Wind-Powered SVE (2013) |
|  Soil Treatment Stockpile | |



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970-263-8679
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A28 595 Well Pad
COGCC Location ID: 335804
NENE, Section 28, T5S-R95W
39.590817, -108.053426
Garfield County, Colorado

Location	Sample Date:	Sample Matrix	Matrix Notes	Organic Compounds in Soil (mg/kg [ppm])						
				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
Allowable Concentration -->				500			0.17	85	100	175
A28	11/15/16	Pit	SBW01 [13-15']	468.2	10.2	458	0.00973	0.00606	0.00633	0.0228
A28	11/15/16	Pit	SBW01 [15-17']	408	105	303	0.00498	<0.005	0.0132	0.0851
A28	11/15/16	Pit	SBW01 [25-27']	1375.64	5.64	1370	0.00755	0.00525	0.00185	0.00824
A28	11/15/16	Pit	SBE01 [15-17']	632	143	489	0.00851	<0.005	0.0102	0.0587
A28	11/15/16	Pit	SBE01 [21-23']	270.7	83.7	187	0.0119	0.00781	0.014	0.085
A28	11/15/16	Pit	SBMID [11-13'] SVE01	1014	106	908	0.00787	0.00591	0.00989	0.062
A28	11/15/16	Pit	SBMID [19-21'] SVE01	1729.7	9.7	1720	0.00707	0.00527	0.00465	0.0245

EnCana Oil & Gas - Parachute, CO

Sample Delivery Group: L873888
Samples Received: 11/19/2016
Project Number: EF A28 595 PIT CLOSU
Description: EF A28 595 Site Characterization
Site: EF A28 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	5
⁵Sr: Sample Results	6
20161115-A28(SBW01) 13-15 L873888-01	6
20161115-A28(SBW01) 15-17 L873888-02	7
20161115-A28(SBW01) 25-27 L873888-03	8
20161115-A28(SBE01) 15-17 L873888-04	9
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⁶Gl: Glossary of Terms	13
⁷Al: Accreditations & Locations	14
⁸Sc: Chain of Custody	15



SAMPLE SUMMARY



20161115-A28(SBW01) 13-15 L873888-01 Solid

Collected by
Jana Nilsen
Collected date/time
11/15/16 11:00
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	5	11/25/16 11:38	11/30/16 20:45	KLM
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG928851	1	11/22/16 08:47	11/28/16 23:00	DAH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 08:47	11/26/16 20:55	BRA

1
Cp

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20161115-A28(SBW01) 15-17 L873888-02 Solid

Collected by
Jana Nilsen
Collected date/time
11/15/16 11:05
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 20:32	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	49	11/25/16 17:02	11/28/16 17:52	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 08:47	11/26/16 21:15	BRA

20161115-A28(SBW01) 25-27 L873888-03 Solid

Collected by
Jana Nilsen
Collected date/time
11/15/16 11:45
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 22:32	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	1	11/22/16 08:47	11/25/16 18:15	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 08:47	11/26/16 21:35	BRA

20161115-A28(SBE01) 15-17 L873888-04 Solid

Collected by
Jana Nilsen
Collected date/time
11/15/16 13:53
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 21:32	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	49.5	11/25/16 17:02	11/28/16 18:14	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 08:47	11/26/16 21:55	BRA

20161115-A28(SBE01) 21-23 L873888-05 Solid

Collected by
Jana Nilsen
Collected date/time
11/15/16 14:12
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 19:55	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	50	11/25/16 17:02	11/28/16 18:36	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 08:47	11/26/16 22:15	BRA

20161115-A28(SBMIDSVE01) 11-13 L873888-06 Solid

Collected by
Jana Nilsen
Collected date/time
11/15/16 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	20	11/25/16 11:38	11/25/16 22:20	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	25	11/25/16 17:02	11/28/16 18:59	DWR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 08:47	11/27/16 03:15	BRA

SAMPLE SUMMARY



20161115-A28(SBMIDSVE01) 19-21 L873888-07 Solid

Collected by
Jana Nilsen

Collected date/time
11/15/16 15:55

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 22:08	TH
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG929436	1	11/22/16 08:47	11/25/16 21:24	BMB
Volatile Organic Compounds (GC/MS) by Method 8260B	WG928848	1	11/22/16 08:47	11/27/16 03:35	BRA

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Gl

⁷Al

⁸Sc



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	10.2		0.100	1	11/28/2016 23:00	WG928851
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	94.2		59.0-128		11/28/2016 23:00	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	0.00973		0.00100	1	11/26/2016 20:55	WG928848
Toluene	0.00606		0.00500	1	11/26/2016 20:55	WG928848
Ethylbenzene	0.00633		0.00100	1	11/26/2016 20:55	WG928848
Total Xylenes	0.0228		0.00300	1	11/26/2016 20:55	WG928848
(S) <i>Toluene-d8</i>	102		88.7-115		11/26/2016 20:55	WG928848
(S) <i>Dibromofluoromethane</i>	131	J1	76.3-123		11/26/2016 20:55	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	107		87.2-117		11/26/2016 20:55	WG928848
(S) <i>4-Bromofluorobenzene</i>	113		69.7-129		11/26/2016 20:55	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	458		20.0	5	11/30/2016 20:45	WG929315
(S) <i>o</i> -Terphenyl	112		50.0-150		11/30/2016 20:45	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	105		4.90	49	11/28/2016 17:52	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	98.3		59.0-128		11/28/2016 17:52	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	0.00498		0.00100	1	11/26/2016 21:15	WG928848
Toluene	ND		0.00500	1	11/26/2016 21:15	WG928848
Ethylbenzene	0.0132		0.00100	1	11/26/2016 21:15	WG928848
Total Xylenes	0.0851		0.00300	1	11/26/2016 21:15	WG928848
(S) <i>Toluene-d8</i>	110		88.7-115		11/26/2016 21:15	WG928848
(S) <i>Dibromofluoromethane</i>	132	J1	76.3-123		11/26/2016 21:15	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	101		87.2-117		11/26/2016 21:15	WG928848
(S) <i>4-Bromofluorobenzene</i>	151	J1	69.7-129		11/26/2016 21:15	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	303		4.00	1	11/25/2016 20:32	WG929315
(S) <i>o</i> -Terphenyl	85.8		50.0-150		11/25/2016 20:32	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	5.64	<u>J6</u>	0.100	1	11/25/2016 18:15	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	93.7		59.0-128		11/25/2016 18:15	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	0.00755		0.00100	1	11/26/2016 21:35	WG928848
Toluene	0.00525		0.00500	1	11/26/2016 21:35	WG928848
Ethylbenzene	0.00185		0.00100	1	11/26/2016 21:35	WG928848
Total Xylenes	0.00824		0.00300	1	11/26/2016 21:35	WG928848
(S) <i>Toluene-d8</i>	107		88.7-115		11/26/2016 21:35	WG928848
(S) <i>Dibromofluoromethane</i>	136	<u>J1</u>	76.3-123		11/26/2016 21:35	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	102		87.2-117		11/26/2016 21:35	WG928848
(S) <i>4-Bromofluorobenzene</i>	106		69.7-129		11/26/2016 21:35	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	1370		80.0	20	11/25/2016 22:32	WG929315
(S) <i>o</i> -Terphenyl	137	<u>J7</u>	50.0-150		11/25/2016 22:32	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	143		4.95	49.5	11/28/2016 18:14	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	96.3		59.0-128		11/28/2016 18:14	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	0.00851		0.00100	1	11/26/2016 21:55	WG928848
Toluene	ND		0.00500	1	11/26/2016 21:55	WG928848
Ethylbenzene	0.0102		0.00100	1	11/26/2016 21:55	WG928848
Total Xylenes	0.0587		0.00300	1	11/26/2016 21:55	WG928848
(S) <i>Toluene-d8</i>	112		88.7-115		11/26/2016 21:55	WG928848
(S) <i>Dibromofluoromethane</i>	129	J1	76.3-123		11/26/2016 21:55	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	100		87.2-117		11/26/2016 21:55	WG928848
(S) <i>4-Bromofluorobenzene</i>	113		69.7-129		11/26/2016 21:55	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	489		40.0	10	11/25/2016 21:32	WG929315
(S) <i>o</i> -Terphenyl	112		50.0-150		11/25/2016 21:32	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	83.7		5.00	50	11/28/2016 18:36	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	97.4		59.0-128		11/28/2016 18:36	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	0.0119		0.00100	1	11/26/2016 22:15	WG928848
Toluene	0.00781		0.00500	1	11/26/2016 22:15	WG928848
Ethylbenzene	0.0140		0.00100	1	11/26/2016 22:15	WG928848
Total Xylenes	0.0850		0.00300	1	11/26/2016 22:15	WG928848
(S) <i>Toluene-d8</i>	98.6		88.7-115		11/26/2016 22:15	WG928848
(S) <i>Dibromofluoromethane</i>	123		76.3-123		11/26/2016 22:15	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	95.8		87.2-117		11/26/2016 22:15	WG928848
(S) <i>4-Bromofluorobenzene</i>	113		69.7-129		11/26/2016 22:15	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	187		4.00	1	11/25/2016 19:55	WG929315
(S) <i>o</i> -Terphenyl	87.9		50.0-150		11/25/2016 19:55	WG929315



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

L873888

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	106		2.50	25	11/28/2016 18:59	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	97.6		59.0-128		11/28/2016 18:59	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	0.00787		0.00100	1	11/27/2016 03:15	WG928848
Toluene	0.00591		0.00500	1	11/27/2016 03:15	WG928848
Ethylbenzene	0.00989		0.00100	1	11/27/2016 03:15	WG928848
Total Xylenes	0.0620		0.00300	1	11/27/2016 03:15	WG928848
(S) <i>Toluene-d8</i>	102		88.7-115		11/27/2016 03:15	WG928848
(S) <i>Dibromofluoromethane</i>	122		76.3-123		11/27/2016 03:15	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	99.0		87.2-117		11/27/2016 03:15	WG928848
(S) <i>4-Bromofluorobenzene</i>	125		69.7-129		11/27/2016 03:15	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	908		80.0	20	11/25/2016 22:20	WG929315
(S) <i>o</i> -Terphenyl	174	J7	50.0-150		11/25/2016 22:20	WG929315



Collected date/time: 11/15/16 15:55

L873888

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	9.70		0.100	1	11/25/2016 21:24	WG929436
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	93.7		59.0-128		11/25/2016 21:24	WG929436

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00707		0.00100	1	11/27/2016 03:35	WG928848
Toluene	0.00527		0.00500	1	11/27/2016 03:35	WG928848
Ethylbenzene	0.00465		0.00100	1	11/27/2016 03:35	WG928848
Total Xylenes	0.0245		0.00300	1	11/27/2016 03:35	WG928848
(S) <i>Toluene-d8</i>	112		88.7-115		11/27/2016 03:35	WG928848
(S) <i>Dibromofluoromethane</i>	130	J1	76.3-123		11/27/2016 03:35	WG928848
(S) <i>a,a,a</i> -Trifluorotoluene	103		87.2-117		11/27/2016 03:35	WG928848
(S) <i>4</i> -Bromofluorobenzene	104		69.7-129		11/27/2016 03:35	WG928848

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	1720		80.0	20	11/25/2016 22:08	WG929315
(S) <i>o</i> -Terphenyl	137	J7	50.0-150		11/25/2016 22:08	WG929315

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Gl

7 Al

8 Sc



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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
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

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 ___ of ___	
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YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to: Brett Middleton	Email To: brett.middleton@encana.com
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Project Description: EF A28 595 Site Characterization		City/State Collected: Colorado
Phone: 970-285-2793	Client Project # EF A28 595 Pit Closure	Lab Project #
Fax:		
Collected by (print): Jana Nilsen	Site/Facility ID # EF A28 595	P.O. #
Collected by (signature):	Rush? (Lab MUST Be Notified) ___ Same Day200% ___ Next Day100% ___ Two Day50% ___ Three Day25%	Date Results Needed Standard
Immediately Packed on Ice N ___ Y ___		Email? ___ No <input checked="" type="checkbox"/> Yes FAX? <input checked="" type="checkbox"/> No ___ Yes

L# **1873888**
A147

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX	TPH (DRO & GRO)											
20161115-A28(SBW01) 1 _h	Grab	SS	13-15	11/15/16	1100	2	X	X											
20161115-A28(SBW01) 1 _h	Grab	SS	15-17	11/15/16	1105	3	X	X											
20161115-A28(SBW01) 2 _h	Grab	SS	25-27	11/15/16	1145	3	X	X											
20161115-A28(SBE01) 1 _h	Grab	SS	15-17	11/15/16	1353	3	X	X											
20161115-A28(SBE01) 2 _h	Grab	SS	21-23	11/15/16	1412	3	X	X											
20161115-A28(SBMidSV _h)	Grab	SS	11-13	11/15/16	1525	3	X	X											
20161115-A28(SBMidSV _h)	Grab	SS	19-21	11/15/16	1555	3	X	X											

Rem./Contaminant	Sample # (lab only)
	-01
	-02
	-03
	-04
	-05
	-06
	-07

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

Remarks: **0161115-A28(SBMidSVE01)**

pH _____ Temp _____
Flow _____ Other _____

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"/> Courler <input type="checkbox"/> _____	Condition: (lab use only)
Relinquished by: (Signature)	Date: 11/17/16	Time: 1708	Received by: (Signature)	Temp: 2.7 °C Bottles Received: 20	COC Seal Intact: ___ Y ___ N <input checked="" type="checkbox"/> NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11-19-16 Time: 9:00	pH Checked: NCF:



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

YOUR LAB OF CHOICE

Cooler Receipt Form

Client: ENCANACO	SDG#	U873888	
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)			