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REPORT OF WORK COMPLETED	
<b>COGCC Location Name (ID)</b>	ORCHARD UNIT-68S96W 16SESE (312714)
<b>Operator Location Name</b>	P16OU
<b>COGCC Remediation Project #</b>	19158
<b>Legal Description</b>	SESE Section 16, T8S-R96W
<b>Coordinates (Lat/Long)</b>	39.344010 / -108.105850
<b>County</b>	Mesa County, Colorado

Mr. Janicek,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil & Gas LLC (Caerus) to document recent investigation activities associated with a historical release of frac water at the P16OU Well Pad (Location). The Location is 5.7 miles east of De Beque, Colorado in Mesa County as illustrated in the attached Topographic Location Map. Additional information on the Location and associated remediation project is provided in the title block above, the attached Site Diagrams, and laboratory analytical reports. This ROWC provides background on the Location, methods used to complete the remedial investigation, results of the investigation, and recommendations for how to proceed with this information.

## Background

On September 21, 2010, 10 barrels (bbls) of frac water were released after a one-inch valve failed during blending operations. The release was confined to the working surface of the pad and 8 bbls of frac water were recovered. The release was reported in a Colorado Oil and Gas Conservation Commission (COGCC) Form 19 (document # 2521854). No additional activities associated with this release have been documented.

## Methodology

On July 30, 2021, Confluence coordinated and oversaw investigation activities associated with the historical frac water release at the Location. All activities were conducted in accordance with approved COGCC Form 27 Document # 402644069. Using hand tools, two investigation points were sampled within the spill area. Investigation activities were conducted by Confluence personnel who characterized the soil using visual and olfactory observations and field-screened soil samples for volatile organic compounds using a photoionization detector (PID). Field screening was conducted at each investigation point between zero and six inches below ground surface (bgs). Field screening did not indicate impacts to soil, with PID measurements ranging from 2.3 to 6.7 parts per million (ppm). No staining or odor were noted at either of the investigation points. Soil samples were collected in laboratory provided jars, immediately placed on ice, and shipped for laboratory analysis.

of constituents listed in COGCC Table 910-1. Background soil samples were also collected from comparable, nearby, non-impacted native soil to establish background soil conditions including arsenic, pH, electrical conductivity (EC), and sodium adsorption ratio (SAR) per Rule 915.e.(2).D. Sample locations are illustrated in the attached Site Diagrams.

## Results

These results summarize observations from onsite investigation efforts and associated laboratory analytical results. For organizational and presentation purposes the results summary is divided between general observations of lithology and hydrogeology for the entire Location and excavation activities.

Collected spatial data are depicted in the attached Site Diagrams. Laboratory analytical reports are attached and summarized in the Laboratory Results Summary Table.

### Lithology and Hydrogeology

Lithology at the Location is characterized by silty sandy gravels. Groundwater is expected to flow northwest toward the Colorado River, located 2.5 miles northwest of the Location.

### Excavation Results

Laboratory results of spill investigation soil samples indicate compliance with COGCC Table 910-1 with the exception of arsenic. Arsenic exceedances range from 6.18 milligrams per kilogram (mg/kg) at sample location PH02 to 9.08 mg/kg at PH01. All other analytes are compliant with COGCC Table 910-1.

## Analysis and Recommendations

Laboratory results of spill investigation soil samples indicate concentrations of arsenic concentrations exceeding COGCC Table 910-1 within the historical spill area. However, background data suggests that these exceedances are within naturally occurring levels at the Location. Background samples collected from the nearby C16OU (COGCC Location ID 334416) indicate arsenic concentrations ranging up to 18.4 mg/kg. Based on these results, no additional investigation or remediation activities appear to be warranted. Confluence recommends that Caerus request closure of COGCC Remediation Project Number 19158 and a no further action (NFA) determination.

Confluence is grateful for the opportunity to support you with this project. If you have any questions about the methods, results or recommendations presented here, please do not hesitate to contact me.

Regards,



Chris McKisson  
Senior Project Manager  
(720) 490-6758  
[chris.mckisson@confluence-cc.com](mailto:chris.mckisson@confluence-cc.com)



## Attachments

- Topographic Map
- Site Diagram – Overview
- Site Diagram – Sample Locations
- Laboratory Results Summary Table
- Laboratory Analytical Reports





## Topographic Map

Caerus Oil and Gas LLC

P160U

(Orchard Unit - 68S96W/16SESE)

COGCC Location ID: 312714

Mesa County

SESE Sec. 16 T8S-R96W



Topographic map sourced from 2020 Earth Point using data provided by United States Geological Survey

Created by: Andrew Smith - 03/31/2021.

P160U



1 mi



## Site Diagram Overview

**Caerus Oil and Gas LLC**

P16OU

(ORCHARD UNIT-68S96W 16SESE)


COGCC Location ID: 312714


Mesa County

SESE Sec. 16 T8S-R96W



### Legend

 Soil Sample – 07/30/2021

 Spill Investigation Area

Spatial data was collected using a handheld GPS unit with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. The position of illustrated data may have been manually adjusted to align with the aerial imagery in a manner more representative of field conditions for presentation purposes only.

Map created by: Chris McKisson on 08/18/2021.

20210730 - P16OU (BGN@1')

20210730 - P16OU (BGE@2')

20210730 - P16OU (BGE@2')

20210730 - P16OU (BGS@2')

400 ft



## Site Diagram Sample Locations

### Caerus Oil and Gas LLC

P16OU

(ORCHARD UNIT-68S96W 16SESE)


COGCC Location ID: 312714


Mesa County

SESE Sec. 16 T8S-R96W



### Legend

 Soil Sample – 07/30/2021

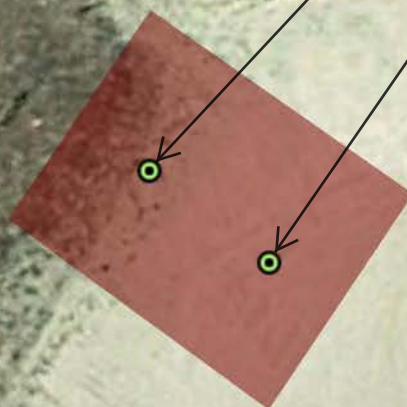
 Spill Investigation Area

Spatial data was collected using a handheld GPS unit with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. The position of illustrated data may have been manually adjusted to align with the aerial imagery in a manner more representative of field conditions for presentation purposes only.

Map created by: Chris McKisson on 08/18/2021.

20210730 - P16OU (PH02@6")

20210730 - P16OU (PH01@6")



Soil Screening and Remediation Limits				Organic Compounds (mg/kg [ppm])																			
COGCC Table 910-1 Allowable Concentration -->				500	NA	NA	0.17	85	100	175	1000	1000	0.22	0.022	0.22	2.2	22	0.022	1000	1000	0.22	23	1000
Location	Sample Date	Solid/Soil Source (Equipment) [Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.]	Sample ID	TPH (total volatile and extractable petroleum hydrocarbons) (GRO+DRO+ORO)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C28) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total (sum of o-, m-, p- isomers)	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(A)pyrene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3,C,D)pyrene	Naphthalene	Pyrene
P16OU	7/30/2021	Frac Tank	20210730 - P16OU (PH01@6")	17.9	<0.100	17.9	<0.00100	<0.00500	<0.00250	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.00600
P16OU	7/30/2021	Frac Tank	20210730 - P16OU (PH02@6")	20.1	<0.100	20.1	<0.00100	<0.00500	<0.00250	<0.00650	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.0200	<0.00600
P16OU	7/30/2021	Background	20210730 - P16OU (BGW@1')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P16OU	7/30/2021	Background	20210730 - P16OU (BGS@2')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P16OU	7/30/2021	Background	20210730 - P16OU (BGE@2')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P16OU	7/30/2021	Background	20210730 - P16OU (BGN@1')	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16OU	9/9/2010	Background	C16OU-SE BACK-090910	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16OU	9/9/2010	Background	C16OU-S BACK-090910	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16OU	9/9/2010	Background	C16OU-SW BACK-090910	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Soil Screening and Remediation Limits				Soil Suitability for Reclamation			Metals (mg/kg [ppm])											
COGCC Table 910-1 Allowable Concentration -->				4	12	6-9	0.39	15000	70	120000	23	3100	400	23	1600	390	390	23000
Location	Sample Date	Solid/Soil Source (Equipment) [Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.]	Sample ID	EC (Specific Conductance) (millimhos/centimeter) (by saturated paste method)	SAR (Sodium Adsorption Ratio) (calculation) (by saturated paste method)	pH (pH Units) (by saturated paste method)	Arsenic	Barium (LDNR True Total Barium)	Cadmium (mg/kg)	Chromium (III)	Chromium (VI)	Copper	Lead	Mercury (Total Mercury by EPA 7471)	Nickel	Selenium	Silver	Zinc
P16OU	7/30/2021	Frac Tank	20210730 - P16OU (PH01@6")	0.243	1.05	8.71	9.08	2400	0.0521	17.9	<2.00	15.8	8.49	<0.0400	16.1	1.13	<1.00	33.6
P16OU	7/30/2021	Frac Tank	20210730 - P16OU (PH02@6")	0.303	1.77	8.97	6.18	2660	<0.500	13.7	<2.00	12.9	7.73	<0.0400	12.6	0.867	<1.00	32.0
P16OU	7/30/2021	Background	20210730 - P16OU (BGW@1')	0.180	0.0529	8.26	5.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P16OU	7/30/2021	Background	20210730 - P16OU (BGS@2')	0.214	0.0647	8.25	4.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P16OU	7/30/2021	Background	20210730 - P16OU (BGE@2')	0.206	0.0627	8.22	3.87	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P16OU	7/30/2021	Background	20210730 - P16OU (BGN@1')	0.209	0.0487	7.99	4.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16OU	9/9/2010	Background	C16OU-SE BACK-090910	NA	NA	NA	17.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16OU	9/9/2010	Background	C16OU-S BACK-090910	NA	NA	NA	18.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C16OU	9/9/2010	Background	C16OU-SW BACK-090910	NA	NA	NA	15.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



**Caerus Oil and Gas**

Sample Delivery Group: L1385727  
Samples Received: 08/03/2021  
Project Number:  
Description: P16OU Historical  
Site: P16OU  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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# SAMPLE SUMMARY

20210730-P16OU(PH01@6") L1385727-01 Solid

Collected by  
AS

Collected date/time  
07/30/21 09:55

Received date/time  
08/03/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1717786	1	08/09/21 14:49	08/09/21 14:49	CCE	Mt. Juliet, TN
Calculated Results	WG1717265	1	08/06/21 08:21	08/10/21 10:32	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1716835	1	08/04/21 19:00	08/05/21 22:14	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1718942	1	08/06/21 15:00	08/06/21 18:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1718018	1	08/05/21 13:57	08/05/21 17:54	AMH	Mt. Juliet, TN
Mercury by Method 7471A	WG1719659	1	08/09/21 11:13	08/09/21 16:17	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1717265	1	08/06/21 08:21	08/10/21 10:32	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1717665	1	08/04/21 16:32	08/05/21 06:29	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1717543	1	08/04/21 16:32	08/04/21 21:45	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1718527	1	08/06/21 13:35	08/08/21 07:02	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1718944	1	08/06/21 15:28	08/06/21 23:38	LEA	Mt. Juliet, TN

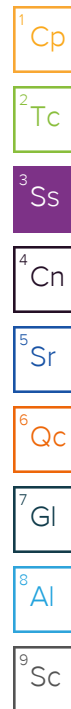
20210730-P16OU(PH02@6") L1385727-02 Solid

Collected by  
AS

Collected date/time  
07/30/21 10:00

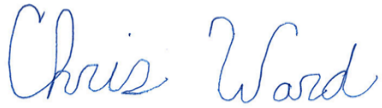
Received date/time  
08/03/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1717786	1	08/09/21 14:52	08/09/21 14:52	CCE	Mt. Juliet, TN
Calculated Results	WG1717265	1	08/06/21 08:21	08/10/21 10:35	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1716835	1	08/04/21 19:00	08/05/21 22:15	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1718942	1	08/06/21 15:00	08/06/21 18:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1718018	1	08/05/21 13:57	08/05/21 17:54	AMH	Mt. Juliet, TN
Mercury by Method 7471A	WG1719659	1	08/09/21 11:13	08/09/21 16:20	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1717265	1	08/06/21 08:21	08/10/21 10:35	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1717665	1	08/04/21 16:32	08/05/21 06:52	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1717543	1	08/04/21 16:32	08/04/21 22:04	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1718527	1	08/06/21 13:35	08/08/21 07:15	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1718944	1	08/06/21 15:28	08/06/21 23:56	LEA	Mt. Juliet, TN



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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.



Chris Ward  
Project Manager





## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.05		1	08/09/2021 14:49	WG1717786

## Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	17.9		0.133	1.00	1	08/10/2021 10:32	<a href="#">WG1717265</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	U		0.640	2.00	1	08/05/2021 22:14	<a href="#">WG1716835</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.71	<a href="#">T8</a>	1	08/06/2021 18:30	<a href="#">WG1718942</a>

## Sample Narrative:

L1385727-01 WG1718942: 8.71 at 23.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	243		10.0	1	08/05/2021 17:54	<a href="#">WG1718018</a>

## Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	U		0.0180	0.0400	1	08/09/2021 16:17	<a href="#">WG1719659</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.08		0.518	2.00	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Barium	2400		0.0852	0.500	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Cadmium	0.0521	<a href="#">J</a>	0.0471	0.500	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Chromium	17.9		0.133	1.00	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Copper	15.8		0.400	2.00	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Lead	8.49		0.208	0.500	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Nickel	16.1		0.132	2.00	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Selenium	1.13	<a href="#">J</a>	0.764	2.00	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Silver	U		0.127	1.00	1	08/10/2021 10:32	<a href="#">WG1717265</a>
Zinc	33.6		0.832	5.00	1	08/10/2021 10:32	<a href="#">WG1717265</a>

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/05/2021 06:29	<a href="#">WG1717665</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	88.7			77.0-120		08/05/2021 06:29	<a href="#">WG1717665</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/04/2021 21:45	<a href="#">WG1717543</a>
Toluene	U		0.00130	0.00500	1	08/04/2021 21:45	<a href="#">WG1717543</a>
Ethylbenzene	U		0.000737	0.00250	1	08/04/2021 21:45	<a href="#">WG1717543</a>
Total Xylenes	U		0.000880	0.00650	1	08/04/2021 21:45	<a href="#">WG1717543</a>
(S) Toluene-d8	108			75.0-131		08/04/2021 21:45	<a href="#">WG1717543</a>
(S) 4-Bromofluorobenzene	87.2			67.0-138		08/04/2021 21:45	<a href="#">WG1717543</a>
(S) 1,2-Dichloroethane-d4	98.9			70.0-130		08/04/2021 21:45	<a href="#">WG1717543</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	17.9		0.769	4.00	1	08/08/2021 07:02	<a href="#">WG1718527</a>
(S) o-Terphenyl	45.2			18.0-148		08/08/2021 07:02	<a href="#">WG1718527</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Acenaphthene	U		0.00209	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Acenaphthylene	U		0.00216	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Chrysene	U		0.00232	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Fluoranthene	U		0.00227	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Fluorene	U		0.00205	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Naphthalene	U		0.00408	0.0200	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Phenanthrene	U		0.00231	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
Pyrene	U		0.00200	0.00600	1	08/06/2021 23:38	<a href="#">WG1718944</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/06/2021 23:38	<a href="#">WG1718944</a>
2-Methylnaphthalene	U		0.00427	0.0200	1	08/06/2021 23:38	<a href="#">WG1718944</a>
2-Chloronaphthalene	U		0.00466	0.0200	1	08/06/2021 23:38	<a href="#">WG1718944</a>
(S) p-Terphenyl-d14	114			23.0-120		08/06/2021 23:38	<a href="#">WG1718944</a>
(S) Nitrobenzene-d5	76.0			14.0-149		08/06/2021 23:38	<a href="#">WG1718944</a>
(S) 2-Fluorobiphenyl	88.0			34.0-125		08/06/2021 23:38	<a href="#">WG1718944</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.77		1	08/09/2021 14:52	WG1717786

## Calculated Results

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Trivalent	13.7		0.133	1.00	1	08/10/2021 10:35	<a href="#">WG1717265</a>

## Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium, Hexavalent	U		0.640	2.00	1	08/05/2021 22:15	<a href="#">WG1716835</a>

## Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.97	<a href="#">T8</a>	1	08/06/2021 18:30	<a href="#">WG1718942</a>

## Sample Narrative:

L1385727-02 WG1718942: 8.97 at 23.6C

## Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	303		10.0	1	08/05/2021 17:54	<a href="#">WG1718018</a>

## Mercury by Method 7471A

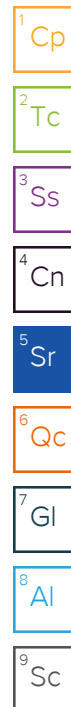
Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	U		0.0180	0.0400	1	08/09/2021 16:20	<a href="#">WG1719659</a>

## Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.18		0.518	2.00	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Barium	2660		0.0852	0.500	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Cadmium	U		0.0471	0.500	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Chromium	13.7		0.133	1.00	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Copper	12.9		0.400	2.00	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Lead	7.73		0.208	0.500	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Nickel	12.6		0.132	2.00	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Selenium	0.867	<a href="#">J</a>	0.764	2.00	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Silver	U		0.127	1.00	1	08/10/2021 10:35	<a href="#">WG1717265</a>
Zinc	32.0		0.832	5.00	1	08/10/2021 10:35	<a href="#">WG1717265</a>

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/05/2021 06:52	<a href="#">WG1717665</a>
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	86.7			77.0-120		08/05/2021 06:52	<a href="#">WG1717665</a>



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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/04/2021 22:04	<a href="#">WG1717543</a>
Toluene	U		0.00130	0.00500	1	08/04/2021 22:04	<a href="#">WG1717543</a>
Ethylbenzene	U		0.000737	0.00250	1	08/04/2021 22:04	<a href="#">WG1717543</a>
Total Xylenes	U		0.000880	0.00650	1	08/04/2021 22:04	<a href="#">WG1717543</a>
(S) Toluene-d8	101			75.0-131		08/04/2021 22:04	<a href="#">WG1717543</a>
(S) 4-Bromofluorobenzene	85.0			67.0-138		08/04/2021 22:04	<a href="#">WG1717543</a>
(S) 1,2-Dichloroethane-d4	93.8			70.0-130		08/04/2021 22:04	<a href="#">WG1717543</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	20.1		0.769	4.00	1	08/08/2021 07:15	<a href="#">WG1718527</a>
(S) o-Terphenyl	44.8			18.0-148		08/08/2021 07:15	<a href="#">WG1718527</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Acenaphthene	U		0.00209	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Acenaphthylene	U		0.00216	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Benzo(a)anthracene	U		0.00173	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Benzo(a)pyrene	U		0.00179	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Chrysene	U		0.00232	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Fluoranthene	U		0.00227	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Fluorene	U		0.00205	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Naphthalene	U		0.00408	0.0200	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Phenanthrene	U		0.00231	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
Pyrene	U		0.00200	0.00600	1	08/06/2021 23:56	<a href="#">WG1718944</a>
1-Methylnaphthalene	U		0.00449	0.0200	1	08/06/2021 23:56	<a href="#">WG1718944</a>
2-Methylnaphthalene	0.00555	U	0.00427	0.0200	1	08/06/2021 23:56	<a href="#">WG1718944</a>
2-Chloronaphthalene	U		0.00466	0.0200	1	08/06/2021 23:56	<a href="#">WG1718944</a>
(S) p-Terphenyl-d14	94.8			23.0-120		08/06/2021 23:56	<a href="#">WG1718944</a>
(S) Nitrobenzene-d5	71.5			14.0-149		08/06/2021 23:56	<a href="#">WG1718944</a>
(S) 2-Fluorobiphenyl	76.5			34.0-125		08/06/2021 23:56	<a href="#">WG1718944</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3688563-1 08/05/21 22:13

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Chromium,Hexavalent	U		0.640	2.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1385727-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1385727-01 08/05/21 22:14 • (DUP) R3688563-3 08/05/21 22:14

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	U	U	1	0.000		20

L1386201-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1386201-07 08/05/21 23:33 • (DUP) R3688563-8 08/05/21 23:33

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	0.837	U	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3688563-2 08/05/21 22:13

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	23.9	99.7	80.0-120	

L1385740-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1385740-01 08/05/21 22:16 • (MS) R3688563-6 08/05/21 22:40 • (MSD) R3688563-7 08/05/21 22:42

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	U	14.7	15.0	73.4	75.0	1	75.0-125	J6		2.16	20

L1385740-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1385740-01 08/05/21 22:16 • (MS) R3688563-4 08/05/21 22:20

	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Chromium,Hexavalent	641	U	750	117	50	75.0-125	

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3688994-2 08/06/21 18:30

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su			%		%
pH	7.81		1	0.385		1

Sample Narrative:

DUP: 7.81 at 23.3C

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3688994-3 08/06/21 18:30

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su			%		%
pH	8.23		1	0.122		1

Sample Narrative:

DUP: 8.23 at 23.1C

Laboratory Control Sample (LCS)

(LCS) R3688994-1 08/06/21 18:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.01 at 22.6C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3688498-1 08/05/21 17:54

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3688498-3 08/05/21 17:54

Analyte	Original Result	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance		342	1	6.33		20

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3688498-4 08/05/21 17:54

Analyte	Original Result	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance		207	1	0.194		20

Laboratory Control Sample (LCS)

(LCS) R3688498-2 08/05/21 17:54

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	899	916	102	85.0-115	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3689786-1 08/09/21 15:12

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3689786-2 08/09/21 15:15

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	mg/kg	mg/kg	%	%	
Mercury	0.500	0.430	85.9	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3690122-1 08/10/21 09:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3690122-2 08/10/21 09:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	98.2	98.2	80.0-120	
Barium	100	104	104	80.0-120	
Cadmium	100	98.9	98.9	80.0-120	
Chromium	100	98.9	98.9	80.0-120	
Copper	100	101	101	80.0-120	
Lead	100	100	100	80.0-120	
Nickel	100	103	103	80.0-120	
Selenium	100	101	101	80.0-120	
Silver	20.0	20.1	101	80.0-120	
Zinc	100	101	101	80.0-120	

L1385595-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1385595-01 08/10/21 09:21 • (MS) R3690122-5 08/10/21 09:29 • (MSD) R3690122-6 08/10/21 09:32

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	21.2	132	125	110	104	1	75.0-125			4.82	20
Barium	100	92.0	207	200	115	108	1	75.0-125			3.42	20
Cadmium	100	0.331	100	104	99.9	103	1	75.0-125			3.34	20
Chromium	100	6.39	104	109	97.4	103	1	75.0-125			4.94	20
Copper	100	446	482	576	36.2	131	1	75.0-125	V	V	17.9	20
Lead	100	262	328	323	65.9	61.2	1	75.0-125	J6	J6	1.45	20
Nickel	100	23.3	131	139	107	116	1	75.0-125			6.28	20

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1385595-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1385595-01 08/10/21 09:21 • (MS) R3690122-5 08/10/21 09:29 • (MSD) R3690122-6 08/10/21 09:32

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Selenium	100	U	101	105	101	104	1	75.0-125			3.61	20
Silver	20.0	1.40	22.3	22.5	105	105	1	75.0-125			0.616	20
Zinc	100	68.3	156	166	87.9	98.0	1	75.0-125			6.29	20

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3688202-2 08/05/21 00:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	92.1			77.0-120

Laboratory Control Sample (LCS)

(LCS) R3688202-1 08/04/21 23:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.67	103	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			115	77.0-120	

L1385167-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1385167-01 08/05/21 02:49 • (MS) R3688202-3 08/05/21 09:04 • (MSD) R3688202-4 08/05/21 09:26

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	136	U	71.8	68.1	52.8	50.1	25	10.0-151			5.29	28
(S) a,a,a-Trifluorotoluene(FID)					104	104		77.0-120				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Method Blank (MB)

(MB) R3689343-3 08/04/21 18:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	104			75.0-131
(S) 4-Bromofluorobenzene	86.1			67.0-138
(S) 1,2-Dichloroethane-d4	105			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3689343-1 08/04/21 16:34 • (LCSD) R3689343-2 08/04/21 16:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.116	0.112	92.8	89.6	70.0-123			3.51	20
Ethylbenzene	0.125	0.118	0.115	94.4	92.0	74.0-126			2.58	20
Toluene	0.125	0.121	0.118	96.8	94.4	75.0-121			2.51	20
Xylenes, Total	0.375	0.370	0.355	98.7	94.7	72.0-127			4.14	20
(S) Toluene-d8				104	103	75.0-131				
(S) 4-Bromofluorobenzene				92.2	90.7	67.0-138				
(S) 1,2-Dichloroethane-d4				111	111	70.0-130				

L1385727-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1385727-01 08/04/21 21:45 • (MS) R3689343-4 08/05/21 01:14 • (MSD) R3689343-5 08/05/21 01:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.124	U	0.119	0.130	96.0	105	1	10.0-149			8.84	37
Ethylbenzene	0.124	U	0.120	0.132	96.8	106	1	10.0-160			9.52	38
Toluene	0.124	U	0.130	0.143	105	115	1	10.0-156			9.52	38
Xylenes, Total	0.372	U	0.297	0.417	79.8	112	1	10.0-160			33.6	38
(S) Toluene-d8					103	103		75.0-131				
(S) 4-Bromofluorobenzene					87.3	85.4		67.0-138				
(S) 1,2-Dichloroethane-d4					110	110		70.0-130				

Cp

Tc

Ss

Cn

Sr

Qc

Gl

Al

Sc

Method Blank (MB)

(MB) R3689303-1 08/08/21 03:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	56.2			18.0-148

Laboratory Control Sample (LCS)

(LCS) R3689303-2 08/08/21 04:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	36.6	73.2	50.0-150	
(S) o-Terphenyl			56.9	18.0-148	

L1385135-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1385135-02 08/08/21 04:45 • (MS) R3689303-3 08/08/21 04:58 • (MSD) R3689303-4 08/08/21 05:12

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) High Fraction	49.5	1.46	28.4	30.3	54.4	58.6	1	50.0-150			6.47	20
(S) o-Terphenyl					46.7	48.9		18.0-148				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3689231-2 08/06/21 20:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	77.8			14.0-149
(S) 2-Fluorobiphenyl	90.3			34.0-125
(S) p-Terphenyl-d14	118			23.0-120

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3689231-1 08/06/21 20:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0678	84.8	50.0-126	
Acenaphthene	0.0800	0.0706	88.3	50.0-120	
Acenaphthylene	0.0800	0.0726	90.8	50.0-120	
Benzo(a)anthracene	0.0800	0.0665	83.1	45.0-120	
Benzo(a)pyrene	0.0800	0.0650	81.3	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0706	88.3	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0712	89.0	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0691	86.4	49.0-125	
Chrysene	0.0800	0.0721	90.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0666	83.3	47.0-125	
Fluoranthene	0.0800	0.0710	88.8	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3689231-1 08/06/21 20:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Fluorene	0.0800	0.0706	88.3	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0659	82.4	46.0-125	
Naphthalene	0.0800	0.0673	84.1	50.0-120	
Phenanthrene	0.0800	0.0702	87.8	47.0-120	
Pyrene	0.0800	0.0806	101	43.0-123	
1-Methylnaphthalene	0.0800	0.0703	87.9	51.0-121	
2-Methylnaphthalene	0.0800	0.0674	84.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0684	85.5	50.0-120	
(S) Nitrobenzene-d5			84.1	14.0-149	
(S) 2-Fluorobiphenyl			95.1	34.0-125	
(S) p-Terphenyl-d14			122	23.0-120	J1

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(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.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
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.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> GI

<sup>8</sup> AI

<sup>9</sup> Sc



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



L1385727

**ALL BOLD OUTLINED AREAS are for LAB USE ONLY**

**Lab Project Manager:**

\*\* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other \_\_\_\_\_

## Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

LAB USE ONLY:

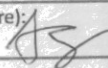
Lab Sample # / Comments:

LAB Sample Temperature Info:

Temp Blank Received: Y N NA  
Therm ID#: A761  
Cooler 1 Temp Upon Receipt: 1.7 °C  
Cooler 1 Therm Corr. Factor: 0.0 °C  
Cooler 1 Corrected Temp: 1.7 °C  
Comments:

Trip Blank Received: Y N NA  
HCL MeOH TSP Other

Non Conformance(s): YES / NO	Page: _____ of: _____
---------------------------------	--------------------------

Company: Caerus Oil and Gas LLC		Billing Information:	
Address: Info on file		Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins		Email To: Info on file	
Copy To: Chris McKisson, remediation@confluence-cc.com		Site Collection Info/Address:	
Customer Project Name/Number: P16OU Historical		State:      County/City:      Time Zone Collected: /      [ ] PT [X] MT [ ] CT [ ] ET	
Phone:	Site/Facility ID #: P16OU	Compliance Monitoring?	
Email:		[ ] Yes      [X] No	
Collected By (print): Andrew Smith	Purchase Order # : Quote #:	DW PWS ID #: DW Location Code:	
Collected By (signature): 	Turnaround Date Required: Standard 5-Day	Immediately Packed on Ice: [X] Yes      [ ] No	
Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold:	Rush: (Expedite Charges Apply) [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day	Field Filtered (if applicable): [ ] Yes      [ ] No  Analysis: _____	

Plastic (P) or Glass (G)

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

[illegible]

Customer Remarks / Special Conditions / Possible Hazards:  
PLEASE NOTE TABLE 910-1....NOT TABLE 915-1.

Type of Ice Used:	Wet	Blue	Dry	None
-------------------	-----	------	-----	------

SHORT HOLDS PRESENT (<72 hours):	Y	N	N/A
----------------------------------	---	---	-----

Packing Material Used:

Lab Tracking #:

Radchem sample(s) screened (<500 cpm): Y N NA

Samples received via:
-----------------------

FEDEX	UPS	Client	Courier	Pace Courier
-------	-----	--------	---------	--------------

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

Date/Time:

MTJL LAB USE ONLY

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

Date/Time:

Table #:

Acctnum:

Template

Prel

Relinquished by/Company: (Signature)

Date/Time:

Received by/Company: (Signature)

Date/Time:

**Caerus Oil and Gas**

Sample Delivery Group: L1385750  
Samples Received: 08/03/2021  
Project Number:  
Description: P16OU Historical  
Site: P16OU  
Report To: Brett Middleton  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward  
Project Manager

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 Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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<sup>1</sup> Cp
<sup>2</sup> Tc
<sup>3</sup> Ss
<sup>4</sup> Cn
<sup>5</sup> Sr
<sup>6</sup> Qc
<sup>7</sup> Gl
<sup>8</sup> Al
<sup>9</sup> Sc



# SAMPLE SUMMARY

## 20210730-P16OU(BGW@1') L1385750-01 Solid

Collected by  
AS

Collected date/time  
07/30/21 10:10

Received date/time  
08/03/21 15:12

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1717786	1	08/09/21 15:25	08/09/21 15:25	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1718942	1	08/06/21 15:00	08/06/21 18:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1718018	1	08/05/21 13:57	08/05/21 17:54	AMH	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1717573	5	08/05/21 07:04	08/05/21 21:18	LD	Mt. Juliet, TN

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

## 20210730-P16OU(BGS@2') L1385750-02 Solid

Collected by  
AS

Collected date/time  
07/30/21 10:25

Received date/time  
08/03/21 15:12

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1717786	1	08/09/21 15:28	08/09/21 15:28	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1718942	1	08/06/21 15:00	08/06/21 18:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1718018	1	08/05/21 13:57	08/05/21 17:54	AMH	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1717573	5	08/05/21 07:04	08/05/21 21:21	LD	Mt. Juliet, TN

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

## 20210730-P16OU(BGE@2') L1385750-03 Solid

Collected by  
AS

Collected date/time  
07/30/21 10:30

Received date/time  
08/03/21 15:12

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1717786	1	08/09/21 15:30	08/09/21 15:30	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1718942	1	08/06/21 15:00	08/06/21 18:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1718018	1	08/05/21 13:57	08/05/21 17:54	AMH	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1717573	5	08/05/21 07:04	08/05/21 21:25	LD	Mt. Juliet, TN

<sup>9</sup>Sc

## 20210730-P16OU(BGN@1') L1385750-04 Solid

Collected by  
AS

Collected date/time  
07/30/21 10:45

Received date/time  
08/03/21 15:12

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1717786	1	08/09/21 15:33	08/09/21 15:33	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1718942	1	08/06/21 15:00	08/06/21 18:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1718018	1	08/05/21 13:57	08/05/21 17:54	AMH	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1717573	5	08/05/21 07:04	08/05/21 21:28	LD	Mt. Juliet, TN

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, 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.



Chris Ward  
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0529		1	08/09/2021 15:25	WG1717786

<sup>1</sup> Cp

<sup>2</sup> Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.26	T8	1	08/06/2021 18:30	WG1718942

<sup>3</sup> Ss

<sup>4</sup> Cn

Sample Narrative:

L1385750-01 WG1718942: 8.26 at 23.5C

<sup>5</sup> Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	180		10.0	1	08/05/2021 17:54	WG1718018

<sup>6</sup> Qc

<sup>7</sup> Gl

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.01		0.100	1.00	5	08/05/2021 21:18	WG1717573

<sup>8</sup> Al

<sup>9</sup> Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0647		1	08/09/2021 15:28	WG1717786

<sup>1</sup> Cp

<sup>2</sup> Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.25	T8	1	08/06/2021 18:30	<a href="#">WG1718942</a>

<sup>3</sup> Ss

<sup>4</sup> Cn

Sample Narrative:

L1385750-02 WG1718942: 8.25 at 23.8C

<sup>5</sup> Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	<u>Qualifier</u>	RDL umhos/cm	Dilution	Analysis date / time	<u>Batch</u>
Specific Conductance	214		10.0	1	08/05/2021 17:54	<a href="#">WG1718018</a>

<sup>6</sup> Qc

<sup>7</sup> Gl

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	4.86		0.100	1.00	5	08/05/2021 21:21	<a href="#">WG1717573</a>

<sup>8</sup> Al

<sup>9</sup> Sc



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0627		1	08/09/2021 15:30	WG1717786

<sup>1</sup>Cp

<sup>2</sup>Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22	<a href="#">T8</a>	1	08/06/2021 18:30	<a href="#">WG1718942</a>

<sup>3</sup>Ss

<sup>4</sup>Cn

Sample Narrative:

L1385750-03 WG1718942: 8.22 at 23.1C

<sup>5</sup>Sr

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	206		10.0	1	08/05/2021 17:54	<a href="#">WG1718018</a>

<sup>6</sup>Qc

<sup>7</sup>Gl

Metals (ICPMS) by Method 6020

	Result	<u>Qualifier</u>	MDL	RDL	Dilution	Analysis	<u>Batch</u>
Analyte	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	3.87		0.100	1.00	5	08/05/2021 21:25	<a href="#">WG1717573</a>

<sup>8</sup>Al

<sup>9</sup>Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0487		1	08/09/2021 15:33	WG1717786

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.99	T8	1	08/06/2021 18:30	WG1718942

Sample Narrative:

L1385750-04 WG1718942: 7.99 at 23.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	umhos/cm		umhos/cm			
Specific Conductance	209		10.0	1	08/05/2021 17:54	WG1718018

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	4.22		0.100	1.00	5	08/05/2021 21:28	WG1717573

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1385744-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1385744-02 08/06/21 18:30 • (DUP) R3688994-2 08/06/21 18:30

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	7.78	7.81	1	0.385		1

Sample Narrative:

OS: 7.78 at 23.4C

DUP: 7.81 at 23.3C

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1385750-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1385750-03 08/06/21 18:30 • (DUP) R3688994-3 08/06/21 18:30

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	su	su		%		%
pH	8.22	8.23	1	0.122		1

Sample Narrative:

OS: 8.22 at 23.1C

DUP: 8.23 at 23.1C

Laboratory Control Sample (LCS)

(LCS) R3688994-1 08/06/21 18:30

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10.01 at 22.6C

Method Blank (MB)

(MB) R3688498-1 08/05/21 17:54

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U		10.0	10.0

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1385737-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1385737-03 08/05/21 17:54 • (DUP) R3688498-3 08/05/21 17:54

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	321	342	1	6.33		20

L1385750-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1385750-03 08/05/21 17:54 • (DUP) R3688498-4 08/05/21 17:54

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	206	207	1	0.194		20

Laboratory Control Sample (LCS)

(LCS) R3688498-2 08/05/21 17:54

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	899	916	102	85.0-115	



Method Blank (MB)

(MB) R3688556-1 08/05/21 20:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00

Laboratory Control Sample (LCS)

(LCS) R3688556-2 08/05/21 20:24

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	98.5	98.5	80.0-120	

L1385744-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1385744-01 08/05/21 20:28 • (MS) R3688556-4 08/05/21 20:37 • (MSD) R3688556-5 08/05/21 20:41

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.95	88.6	89.8	83.6	84.8	5	75.0-125			1.36	20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

## Qualifier Description

T8	Sample(s) received past/too close to holding time expiration.
----	---

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1 6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1 4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.







09/22/10

## Technical Report for

ENCANA

C16OU Background

Accutest Job Number: T59618

Sampling Date: 09/09/10

### Report to:

EnCana  
2717 Co. Rd. 215  
Parachute, CO 81635  
christopher.hines@encana.com; bradley.kieding@encana.com  
ATTN: Chris Hines

Total number of pages in report: 18



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

*Paul K Canevaro*

Paul Canevaro  
Laboratory Director

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-09C-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004)  
OK (9103) UT(7132714700)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.  
Test results relate only to samples analyzed.



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Sample Summary

ENCANA

Job No: T59618

C16OU Background

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
T59618-1	09/09/10	10:55	09/10/10	SO	Soil	C16OU-SE BACK-090910
T59618-2	09/09/10	11:00	09/10/10	SO	Soil	C16OU-S BACK-090910
T59618-3	09/09/10	11:05	09/10/10	SO	Soil	C16OU-SW BACK-090910

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** ENCANA**Job No** T59618**Site:** C16OU Background**Report Date** 9/22/2010 8:25:17 AM

3 Sample(s) were collected on 09/09/2010 and were received at Accutest on 09/10/2010 properly preserved, at 26.3 Deg. C and intact. These Samples received an Accutest job number of T59618. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Metals By Method SW846 6010B

**Matrix** SO**Batch ID:** MP12850

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) T59617-1DUP, T59617-1MS, T59617-1MSD, T59617-1SDL were used as the QC samples for metals.

### Wet Chemistry By Method SM 2540 G

**Matrix** SO**Batch ID:** GN25333

- Sample(s) T59617-3DUP were used as the QC samples for Solids, Percent.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used



## Sample Results

## Report of Analysis

Report of Analysis

<b>Client Sample ID:</b>	C16OU-SE BACK-090910	
<b>Lab Sample ID:</b>	T59618-1	<b>Date Sampled:</b> 09/09/10
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 09/10/10
		<b>Percent Solids:</b> 91.7
<b>Project:</b>	C16OU Background	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	17.5	0.58	mg/kg	1	09/16/10	09/19/10 TW	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA5107  
(2) Prep QC Batch: MP12850

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	C16OU-S BACK-090910	<b>Date Sampled:</b>	09/09/10
<b>Lab Sample ID:</b>	T59618-2	<b>Date Received:</b>	09/10/10
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.4
<b>Project:</b>	C16OU Background		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	18.4	0.65	mg/kg	1	09/16/10	09/19/10 TW	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA5107  
(2) Prep QC Batch: MP12850

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	C16OU-SW BACK-090910	<b>Date Sampled:</b>	09/09/10
<b>Lab Sample ID:</b>	T59618-3	<b>Date Received:</b>	09/10/10
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.7
<b>Project:</b>	C16OU Background		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	15.1	0.63	mg/kg	1	09/16/10	09/19/10 TW	SW846 6010B <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA5107  
(2) Prep QC Batch: MP12850

RL = Reporting Limit



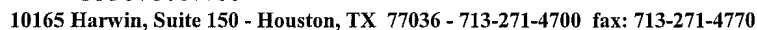
## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # <i>T59618</i>

**T59618: Chain of Custody**  
**Page 1 of 3**

# SAMPLE INSPECTION FORM

Accutest Job Number: T59618 Client: ENCANA Date/Time Received: 9/10/10 0945  
 # of Coolers Received: 1 Thermometer #: 1RGUN04 Temperature Adjustment Factor: +0.0°C

Cooler Temperatures (initial/adjusted): #1: 26.3/26.3 #2: \_\_\_\_\_ #3: \_\_\_\_\_ #4: \_\_\_\_\_ #5: \_\_\_\_\_  
 #6: \_\_\_\_\_ #7: \_\_\_\_\_ #8: \_\_\_\_\_ #9: \_\_\_\_\_ #10: \_\_\_\_\_ #11: \_\_\_\_\_ #12: \_\_\_\_\_

Method of Delivery: FEDEX UPS Accutest Courier Greyhound Delivery Other

## COOLER INFORMATION

- ☐ Custody seal missing or not intact
- ☐ Temperature criteria not met
- ☐ Wet ice received in cooler

## CHAIN OF CUSTODY

- ☐ Chain of Custody not received
- ☐ Sample D/T unclear or missing
- ☐ Analyses unclear or missing
- ☐ COC not properly executed

## SAMPLE INFORMATION

- ☐ Sample containers received broken
- ☐ VOC vials have headspace
- ☐ Sample labels missing or illegible
- ☐ ID on COC does not match label(s)
- ☐ D/T on COC does not match label(s)
- ☐ Sample/Bottles rcvd but no analysis on COC
- ☐ Sample listed on COC, but not received
- ☐ Bottles missing for requested analysis
- ☐ Insufficient volume for analysis
- ☐ Sample received improperly preserved

## TRIP BLANK INFORMATION

- ☐ Trip Blank on COC but not received
- ☐ Trip Blank received but not on COC
- ☐ Trip Blank not intact
- ☐ Received Water Trip Blank
- ☐ Received Soil TB

Number of Encores? \_\_\_\_\_  
 Number of 5035 kts? \_\_\_\_\_  
 Number of lab-filtered metals? \_\_\_\_\_

Summary of Discrepancies:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TECHNICIAN SIGNATURE/DATE: [Signature] 9/10/10

INFORMATION AND SAMPLE LABELING VERIFIED BY: G C 9/10/10

## CORRECTIVE ACTIONS

Client Representative Notified: \_\_\_\_\_ Date: \_\_\_\_\_

By Accutest Representative: \_\_\_\_\_ Via: Phone Email

Client Instructions: \_\_\_\_\_

I:\mwalker\form\samplemanagement SM023 Revised 8/11/10

T59618: Chain of Custody

Page 2 of 3

JOB #: T59618 DATE/TIME RECEIVED: 9/10/10 0945  
CLIENT: ENCANA INITIALS: JS

[illegible]

LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer

Rev 8/13/01 awn

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## Metals Analysis

### QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: T59618  
Account: ENCACOP - ENCANA  
Project: C160U Background

QC Batch ID: MP12850  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/16/10

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.41	.73		
Antimony	0.50	.05	.085		
Arsenic	0.50	.085	.085	0.17	<0.50
Barium	10	.049	.069		
Beryllium	0.25	.0028	.0055		
Boron	5.0	.07	.17		
Cadmium	0.25	.0055	.014		
Calcium	250	.37	1.3		
Chromium	0.50	.012	.023		
Cobalt	2.5	.0075	.03		
Copper	1.3	.056	.056		
Iron	5.0	.057	1.1		
Lead	0.50	.05	.05		
Lithium	15	.1			
Magnesium	250	.38	1.3		
Manganese	0.75	.0027	.037		
Molybdenum	0.50	.02	.025		
Nickel	2.0	.035	.057		
Potassium	250	2	10		
Selenium	0.50	.077	.14		
Silver	0.50	.058	.058		
Sodium	250	.46	1.6		
Strontium	1.0	.0031	.059		
Thallium	0.50	.034	.04		
Tin	1.0	.035	.035		
Titanium	1.0	.015	.029		
Vanadium	2.5	.015	.034		
Zinc	1.0	.026	.084		

Associated samples MP12850: T59618-1, T59618-2, T59618-3

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T59618  
Account: ENCACOP - ENCANA  
Project: C160U Background

QC Batch ID: MP12850  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date:

09/16/10

09/16/10

Metal	T59617-1 Original	DUP	RPD	QC Limits	T59617-1 Original MS	Spikelot MPTW4	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic	10.1	11.7	14.7	0-20	10.1	32.9	24.2	94.3
Barium								80-120
Beryllium								
Boron								
Cadmium	anr							
Calcium	anr							
Chromium	anr							
Cobalt								
Copper	anr							
Iron								
Lead	anr							
Lithium								
Magnesium	anr							
Manganese								
Molybdenum	anr							
Nickel	anr							
Potassium	anr							
Selenium	anr							
Silver								
Sodium	anr							
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc	anr							

Associated samples MP12850: T59618-1, T59618-2, T59618-3

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T59618  
Account: ENCACOP - ENCANA  
Project: C160U Background

QC Batch ID: MP12850  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/16/10

Metal	T59617-1 Original	MSD	Spikelot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	10.1	33.4	24.2	96.2	1.5	20
Barium						
Beryllium						
Boron						
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	anr					
Lithium						
Magnesium	anr					
Manganese						
Molybdenum	anr					
Nickel	anr					
Potassium	anr					
Selenium	anr					
Silver						
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP12850: T59618-1, T59618-2, T59618-3

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

## SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T59618  
Account: ENCACOP - ENCANA  
Project: C160U Background

QC Batch ID: MP12850  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: mg/kg

Prep Date: 09/16/10

Metal	LCS Result	Spikelot MPLCD054	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	140	158	88.6	82-118
Barium				
Beryllium				
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Lithium				
Magnesium	anr			
Manganese				
Molybdenum	anr			
Nickel	anr			
Potassium	anr			
Selenium	anr			
Silver				
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP12850: T59618-1, T59618-2, T59618-3

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested



SERIAL DILUTION RESULTS SUMMARY

Login Number: T59618  
Account: ENCACOP - ENCANA  
Project: C160U Background

QC Batch ID: MP12850  
Matrix Type: SOLID

Methods: SW846 6010B  
Units: ug/l

Prep Date: 09/16/10

Metal		T59617-1 Original SDL 1:5		%DIF	QC Limits
Aluminum					
Antimony					
Arsenic	174	184		5.7	0-10
Barium					
Beryllium					
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt					
Copper	anr				
Iron					
Lead	anr				
Lithium					
Magnesium	anr				
Manganese					
Molybdenum	anr				
Nickel	anr				
Potassium	anr				
Selenium	anr				
Silver					
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc	anr				

Associated samples MP12850: T59618-1, T59618-2, T59618-3

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits  
(anr) Analyte not requested