

July 23, 2024

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## Report of Work Completed – Flowline Release

<b>ECMC Location Name (ID)</b>	N. PARACHUTE-65S95W/29NWSW (335607)
<b>Client Location Name</b>	L29 595
<b>ECMC Spill/Release Point ID</b>	486544
<b>Legal Description</b>	NWSW Sec. 29 T5SR95W
<b>Coordinates (Lat/Long)</b>	39.582928 / -108.085657
<b>County</b>	Garfield County, Colorado

Mr. Verbonitz,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil and Gas LLC (Caerus) to document findings of site investigation conducted in association with a release of produced water from a flowline at the L29 well pad (Location). The Location is 8.90 miles northeast of Parachute, Colorado in Garfield County, as illustrated in the attached Topographic Location Map. Additional information on the Location is provided in the title block above, attached Site Diagrams, and laboratory analytical reports. This ROWC provides background on the Location, methods used to complete the investigation, results of the investigation, and recommendations for how to proceed with this information.

### Background

On April 30, 2024, the operator identified a leak in the flowline associated with the N. PARACHUTE #EF06D L29 595 wellhead (API: 05-045-11643). Approximately one barrel (bbl) of produced water was released from the flowline. The release was reported via Energy & Carbon Management Commission (ECMC) Form 19 Document 403773900 to open Spill/Release Point ID 486544.

### Methodology

On May 9, 2024, Confluence provided initial sampling support to characterize soil impacts at the point of release (POR). Prior to Confluence's arrival on site, the flowline was trenched, and the POR was identified and exposed at the second elbow from the wellhead. Five soil samples were collected from the excavation: one from the base of the excavation directly beneath the POR at 6 feet below ground surface (bgs) and one from each sidewall at 4 feet bgs except for the south sidewall from which a sample was collected at 3 feet bgs. One composite sample was collected from the stockpiles associated with the excavation. Additionally, one background surface sample was collected from nearby, comparable, non-impacted soil to characterize native levels of inorganic constituents at the Location. Soil samples were characterized using visual and olfactory observations and field screened using a photoionization detector (PID).

All collected samples were placed in laboratory provided jars, immediately placed on ice, and shipped for laboratory analysis under a completed chain-of-custody form to Pace Analytical Services (Pace). Excavation soil samples and the stockpile sample were analyzed for all Table 915-1 constituents of concern, and background soil samples were submitted for analysis of electrical conductivity (EC), sodium adsorption ratio (SAR), pH, boron, and Table 915-1 metals. The excavation area and 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 site investigation activities. Collected spatial data are depicted in the attached Site Diagram. Laboratory analytical reports are attached and summarized in the Analytical Results Summary Table.

### Lithology and Hydrogeology

Soil at the Location is characterized as Rock outcrop-Torriorthents complex. Groundwater is expected to flow north toward the East Fork of Parachute Creek and ultimately to the Colorado River, located 8.50 miles southeast of the Location. The East Fork of Parachute Creek, located 140 feet north of the Location, is the nearest surface water and sits approximately 15 feet lower in elevation than the release area. Although precise depth to groundwater data at the Location is not available, Division of Water Resources (DWR) well permit number 56183-MH and DWR permit number 291490, both located approximately 0.70 miles west of the Location, list depths to groundwater of approximately 35 feet below ground surface (bgs) positioned topographically downgradient of the Location. Additionally, another well (DWR permit number 327469) located approximately 0.57 miles northeast of the Location, has a total depth of 75 feet bgs and is categorized as a dry well located topographically upgradient of the Location. The Location and all three wells are situated along the same drainage corridor adjacent to the East Fork of Parachute Creek. Based on these groundwater depths and the topographic profile of the drainage, depth to groundwater at the Location is estimated to be between 35 feet and 75 feet bgs. Groundwater was not observed in the excavation related to this investigation.

### Excavation Investigation

PID measurements of excavation samples ranged from 1.1 to 47.3 parts per million (ppm). Comparing analytical results of excavation soil samples to ECMC Table 915-1 Residential Soil Screening Levels (RSSLs), results are within allowable limits for all analyzed constituents of concern except for pH and arsenic. A single pH exceedance was reported in the west sidewall at 8.44, and arsenic exceedances range from 10.5 to 12.3 milligrams per kilogram (mg/kg). Comparing analytical results of excavation soil samples to Table 915-1 Protection of Groundwater Soil Screening Levels (PGSSLs), results are within allowable limits for all analyzed constituents of concern except for benzene, toluene, 1-methylnaphthalene, 2-methylnaphthalene, pH, arsenic, and barium. Benzene exceedances range from 0.00928 to 0.126 mg/kg, a single toluene exceedance of 0.713 mg/kg was detected in the south sidewall, 1-methylnaphthalene exceedances range from 0.222 to 0.0277 mg/kg, and 2-methylnaphthalene exceedances range from 0.0228 mg/kg to 0.0564 mg/kg. Barium exceedances range from 1,690 to 2,820 mg/kg, pH exceeds at 8.44, and arsenic exceedances range from 10.5 to 12.3 milligrams per kilogram (mg/kg).



## Stockpile Characterization

The stockpile composite sample indicated a PID measurement of 1.0 ppm. Analytical results of the stockpile soil sample exceed the Table 915-1 RSSL for arsenic at 16.2 mg/kg and exceed Table 915-1 PGSSLs for benzene, 2-methylnaphthalene, arsenic, and barium at 0.00790 mg/kg, 0.0366 mg/kg, 16.2 mg/kg, and 2,920 mg/kg, respectively.

## Background Investigation

Analytical results of the background soil sample exceed Table 915-1 RSSLs for pH and arsenic at 8.72 and 21.7 mg/kg, respectively. These results exceeded Table 915-1 PGSSLs for pH, barium, and arsenic at 8.72, 21.7 mg/kg, and 300 mg/kg, respectively.

## Recommendations and Analysis

Based on the estimated depth to water of between 35 feet and 75 feet bgs and the small volume of produced water released, Confluence recommends that Caerus request to compare analytical results for Spill/Release Point ID 484937 to Table 915-1 RSSLs as no reasonable pathway to groundwater appears to exist.

Although an elevated level of pH and elevated levels of arsenic remain in the release area, analytical results of the background sample collected from the Location indicate a native pH value of 8.72 and an arsenic value of 21.7 mg/kg. The background soil sample was collected 400 feet southwest of the Location and shares the same soil type with the release investigation area: Rock outcrop-Torriorthents complex. Despite an elevation difference of 59 feet, the parent material and lithology are consistent between the two areas. Therefore, it is reasonable to conclude that the background sample is representative of native conditions at the Location. Confluence recommends that Caerus request an alternative allowable limit for pH and arsenic of 8.72 and 21.7 mg/kg, respectively, in accordance with ECMC Table 915-1 Footnote 1.

Assuming the proposed screening levels and alternative allowable limits are approved, all constituents of concern are within allowable limits. Based on this information, Confluence recommends that Caerus request closure of Spill/Release Point ID 486544 with 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 us.

Regards,



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## Attachments

- Topographic Location Map
- Site Diagram – Site Investigation
- Site Diagram – Background Sample
- Analytical Results Summary Table
- Photographic Log
- Laboratory Reports



## Topographic Location Map

Caerus Oil and Gas LLC

L29 595

(N. PARACHUTE-65S95W/29NWSW)

ECMC Location ID: 335607

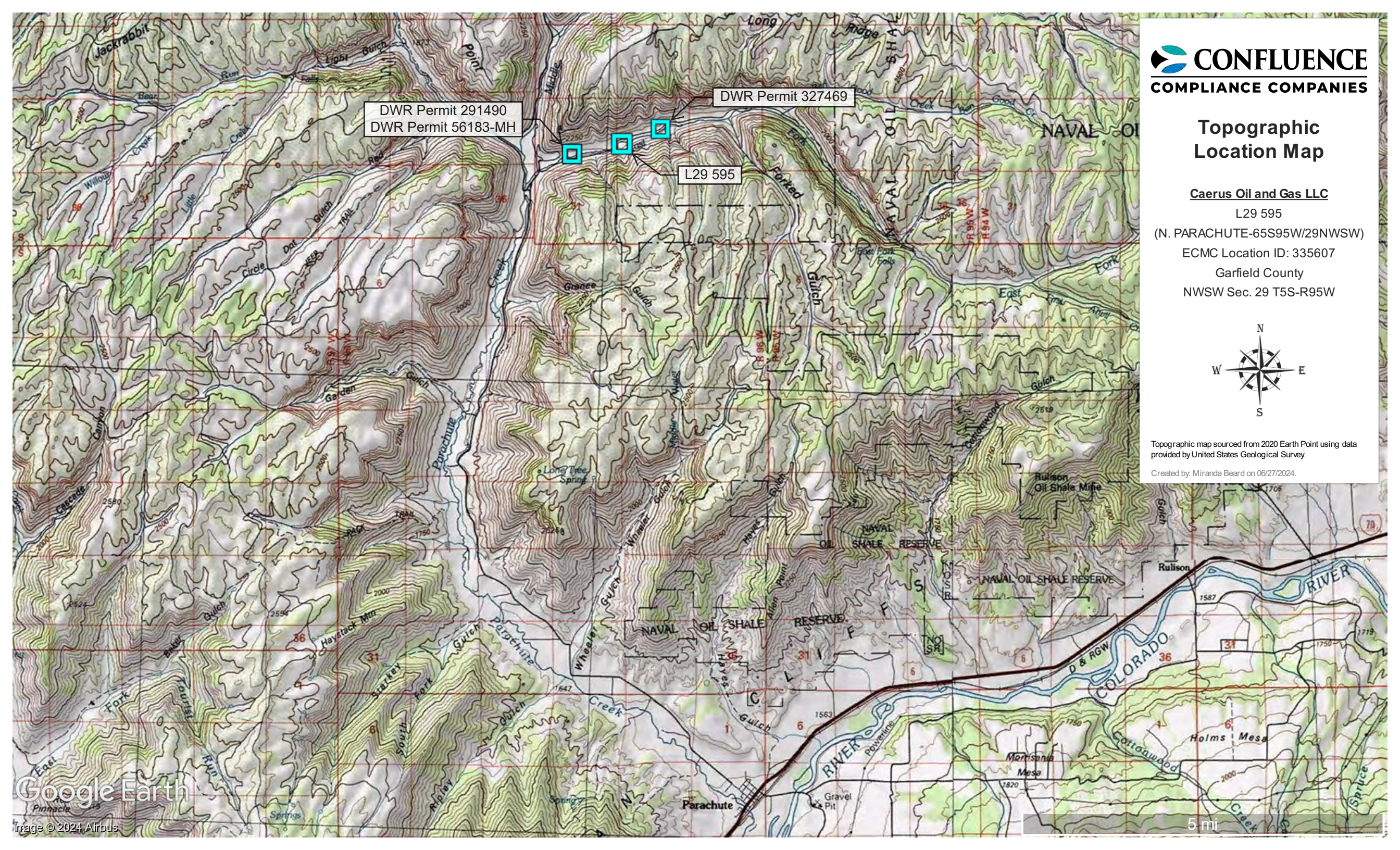
Garfield County

NWSW Sec. 29 T5S-R95W



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

Created by: Miranda Beard on 06/27/2024.



## Site Diagram Site Investigation

**Caerus Oil and Gas LLC**

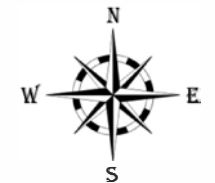
L29 595

(N. PARACHUTE-65S95W/29NWSW)




ECMC Location ID: 335607

Garfield County

NWSW Sec. 29 T5S-R95W



### Legend

-  Soil Sample
-  Excavation Extent – 05/09/2024
-  Soil Stockpile

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: Alex Slorby on 05/10/2024.

20240509-L29 595-(STOCK)

20240509-L29 595-(NW)@4

20240509-L29 595-(POR)@6

20240509-L29 595-(EW)@4

20240509-L29 595-(SW)@3

20240509-L29 595-(WW)@4

50 ft

## Site Diagram Background Sample

**Caerus Oil and Gas LLC**

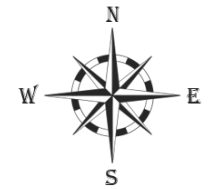
L29 595

(N. PARACHUTE-65S95W/29NWSW)



ECMC Location ID: 335607

Garfield County

NWSW Sec. 29 T5S-R95W



### Legend

-  Background Soil Sample
-  Excavation Extent – 05/09/2024

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: Miranda Beard on 05/22/2024.



20240509-NPRBG-(L29 595-S)@0.5



SOIL ANALYTICAL RESULTS TABLE  
L29 595

Analyte 915-1 PROTECTION OF GW 915-1 RESIDENTIAL SOIL				GRO	DRO	ORO	Benzene	Toluene	Ethylbenzene	Total Xylenes	1,2,4-TMB	1,3,5-TMB	Acenaphthene	Anthracene	Benz(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracen	Fluoranthene	Fluorene	Indeno(1,2,3-cd)Pyre	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Pyrene	
				500			1.2	490	5.8	58	30	27	360	1800	1.1	1.1	11	0.11	110	0.11	240	240	1.1	18	24	2	180	
Sample Name	Sample Type	Sample Date	Lab Report	Units			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
20240509-L29 595-(EW)@4	Excavation	05/09/2024	L1735512	0.606	54.7	117	<b>0.0177</b>	0.0208	< 0.00250	< 0.00650	< 0.00500	< 0.00500	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	<b>0.0277</b>	<b>0.0401</b>	< 0.0200	< 0.00600	
20240509-L29 595-(NW)@4	Excavation	05/09/2024	L1735512	0.368	31.8	88.9	<b>0.00335</b>	0.0205	< 0.00250	< 0.00650	< 0.00500	< 0.00500	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	<b>0.0228</b>	< 0.0200	< 0.00600	
20240509-L29 595-(POR)@6	POR	05/09/2024	L1735516	0.305	115	252	<b>0.00928</b>	0.00768	< 0.00250	< 0.00650	< 0.00500	< 0.00500	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	<b>0.0268</b>	< 0.0200	< 0.00600	
20240509-L29 595-(STOCK)	Stockpile	05/09/2024	L1735513	0.472	57.0	147	<b>0.00790</b>	0.0633	< 0.00250	< 0.00650	< 0.00500	< 0.00500	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	<b>0.0366</b>	< 0.0200	< 0.00600	
20240509-L29 595-(SW)@3	Excavation	05/09/2024	L1735512	1.49	130	279	<b>0.126</b>	<b>0.713</b>	0.00253	0.0157	< 0.00500	< 0.00500	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	<b>0.0233</b>	<b>0.0564</b>	< 0.0200	0.00608	
20240509-L29 595-(WW)@4	Excavation	05/09/2024	L1735512	0.972	85.4	198	<b>0.0172</b>	0.200	< 0.00250	0.00701	< 0.00500	< 0.00500	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	<b>0.0222</b>	<b>0.0417</b>	< 0.0200	0.00682	

Notes:  
 Bold with silver highlight: Exceeds RSSLs  
 Bold with blue highlight: Exceeds POGs  
 "<" (as in, less than laboratory reporting detection limit)



**SOIL ANALYTICAL RESULTS TABLE  
L29 595**

				<b>EC</b>	<b>SAR</b>	<b>PH</b>	<b>Boron</b>	<b>Arsenic</b>	<b>Barium</b>	<b>Cadmium</b>	<b>Chromium VI</b>	<b>Copper</b>	<b>Lead</b>	<b>Nickel</b>	<b>Selenium</b>	<b>Silver</b>	<b>Zinc</b>
<b>Analyte</b>				4	6	8.3	2	0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
<b>915-1 PROTECTION OF GW</b>				4	6	8.3	2	0.68	15000	71	0.3	3100	400	1500	390	390	23000
<b>915-1 RESIDENTIAL SOIL</b>																	
<b>Units</b>				mmhos/cm	No Unit	SU	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
<b>Sample Name</b>	<b>Sample Type</b>	<b>Sample Date</b>	<b>Lab Report</b>														
20240509-L29 595-(EW)@4	Excavation	05/09/2024	L1735512	0.495	1.81	8.28	0.931	<b>11.1</b>	<b>2010</b>	<b>&lt; 1.00</b>	<b>&lt; 1.00</b>	17.8	11.6	13.9	<b>&lt; 2.50</b>	< 0.500	44.7
20240509-L29 595-(NW)@4	Excavation	05/09/2024	L1735512	1.47	4.49	8.22	1.03	<b>10.5</b>	<b>1690</b>	<b>&lt; 1.00</b>	<b>&lt; 1.00</b>	18.2	11.0	12.1	<b>&lt; 2.50</b>	< 0.500	43.7
20240509-L29 595-(POR)@6	POR	05/09/2024	L1735516	1	2.47	7.83	0.822	<b>10.9</b>	<b>2490</b>	<b>&lt; 1.00</b>	<b>&lt; 1.00</b>	21.8	12.0	12.2	<b>&lt; 2.50</b>	< 0.500	52.2
20240509-L29 595-(STOCK)	Stockpile	05/09/2024	L1735513	1.32	4.63	8.20	1.07	<b>16.2</b>	<b>2920</b>	<b>&lt; 1.00</b>	<b>&lt; 1.00</b>	26.0	12.3	14.8	<b>&lt; 2.50</b>	< 0.500	54.7
20240509-L29 595-(SW)@3	Excavation	05/09/2024	L1735512	0.661	0.296	7.45	0.557	<b>12.3</b>	<b>2400</b>	<b>&lt; 1.00</b>	<b>&lt; 1.00</b>	23.5	11.6	12.6	<b>&lt; 2.50</b>	< 0.500	56.9
20240509-L29 595-(WW)@4	Excavation	05/09/2024	L1735512	0.497	3.11	<b>8.44</b>	1.03	<b>11.7</b>	<b>2820</b>	<b>&lt; 1.00</b>	<b>&lt; 1.00</b>	24.7	13.9	14.6	<b>&lt; 2.50</b>	< 0.500	55.8
20240509-NPRBG-(L29 595-S)@0.5	Background	05/09/2024	L1735520	0.3	0.951	<b>8.72</b>	0.679	<b>21.7</b>	<b>300</b>	<b>&lt; 1.00</b>	<b>&lt; 1.00</b>	24.4	13.8	14.2	<b>&lt; 2.50</b>	< 0.500	40.1

Notes:

Bold with silver highlight: Exceeds RSSLs

Bold with blue highlight: Exceeds POGs

"<" (as in, less than laboratory reporting detection limit)



## **Photographic Log**

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



L29 595 Overview: Orientation North



## **Photographic Log**

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



L29 595 View: Northeast



## **Photographic Log**

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



L29 595 View: Southwest



## Photographic Log

Remediation Investigation

L29 595 (ECMC Location ID: 335607)



L29 595 Excavation: Orientation Southeast



## Photographic Log

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



L29 595 Excavation: View East



## Photographic Log

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



L29 595 Excavation: View Southwest



## Photographic Log

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



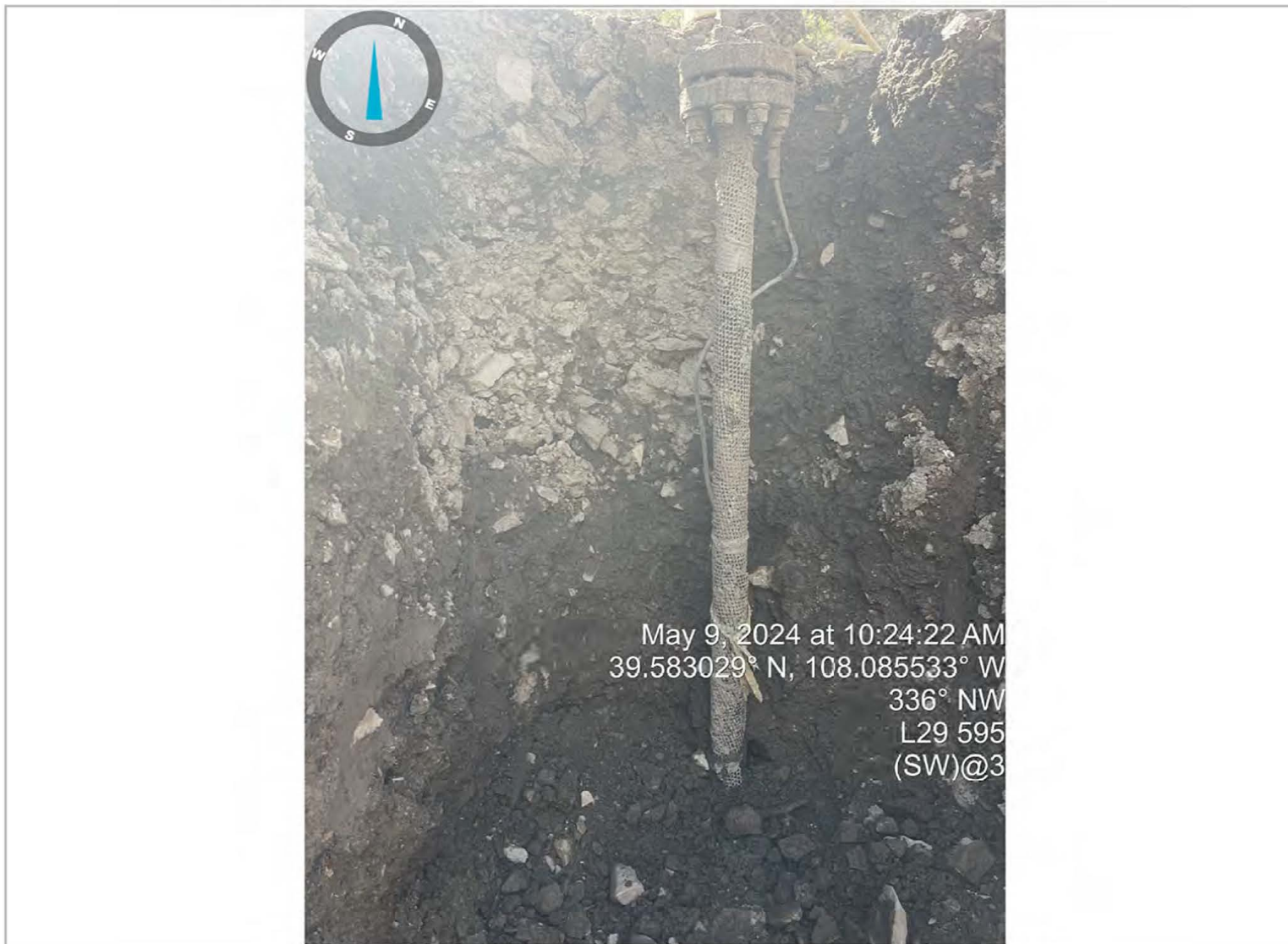
(POR)@6 Sample Location



## Photographic Log

Remediation Investigation

L29 595 (ECMC Location ID: 335607)



(SW)@3.5 Sample Location View: Southwest



## Photographic Log

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



(WW)@4 Sample Location View: southwest



## Photographic Log

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)

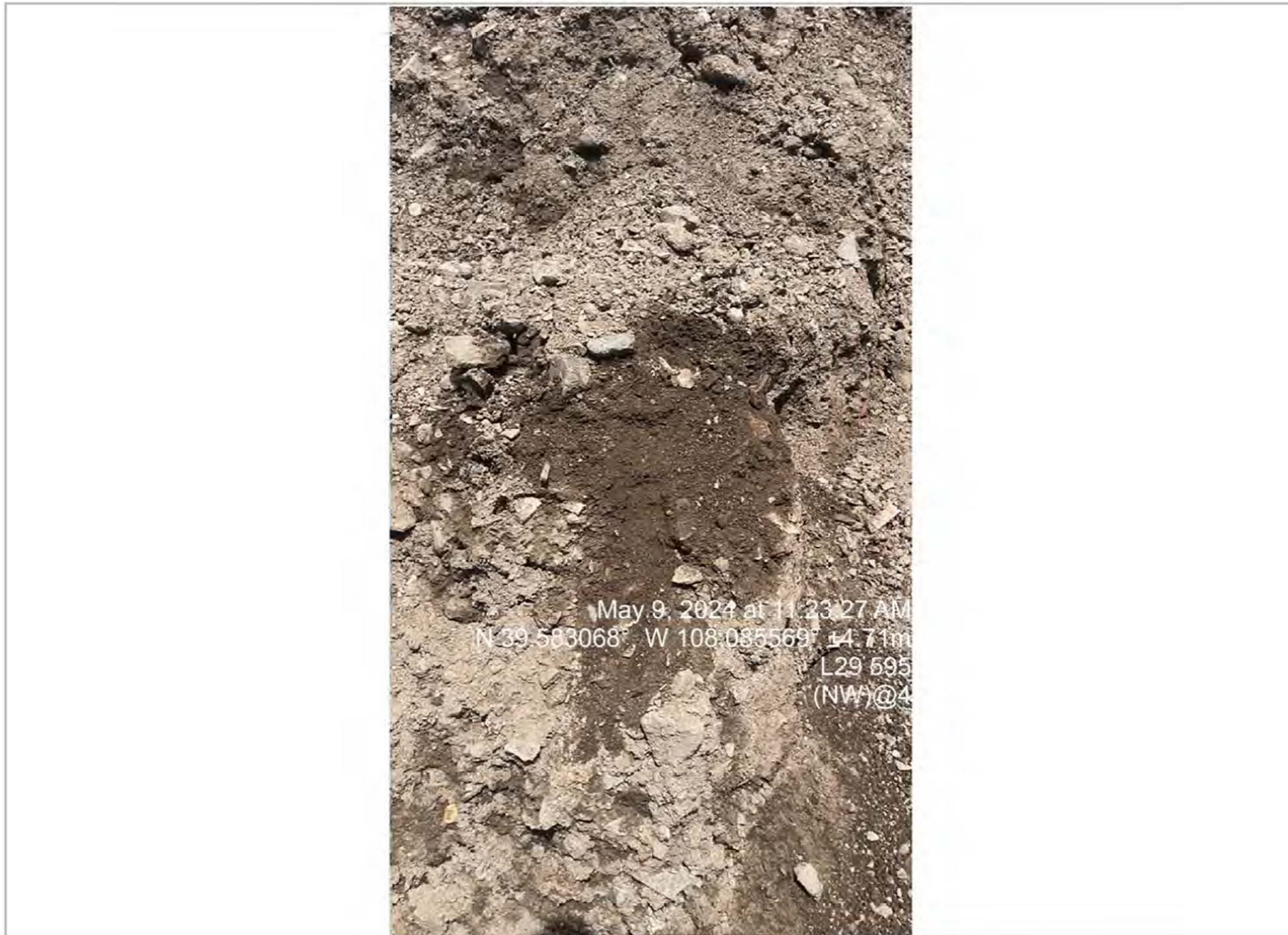


(EW)@4 Sample Location View: East



## Photographic Log

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



{NW}@4 Sample Location View: Northwest



## **Photographic Log**

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



(STOCK) Sample Location View: Southwest



## **Photographic Log**

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)

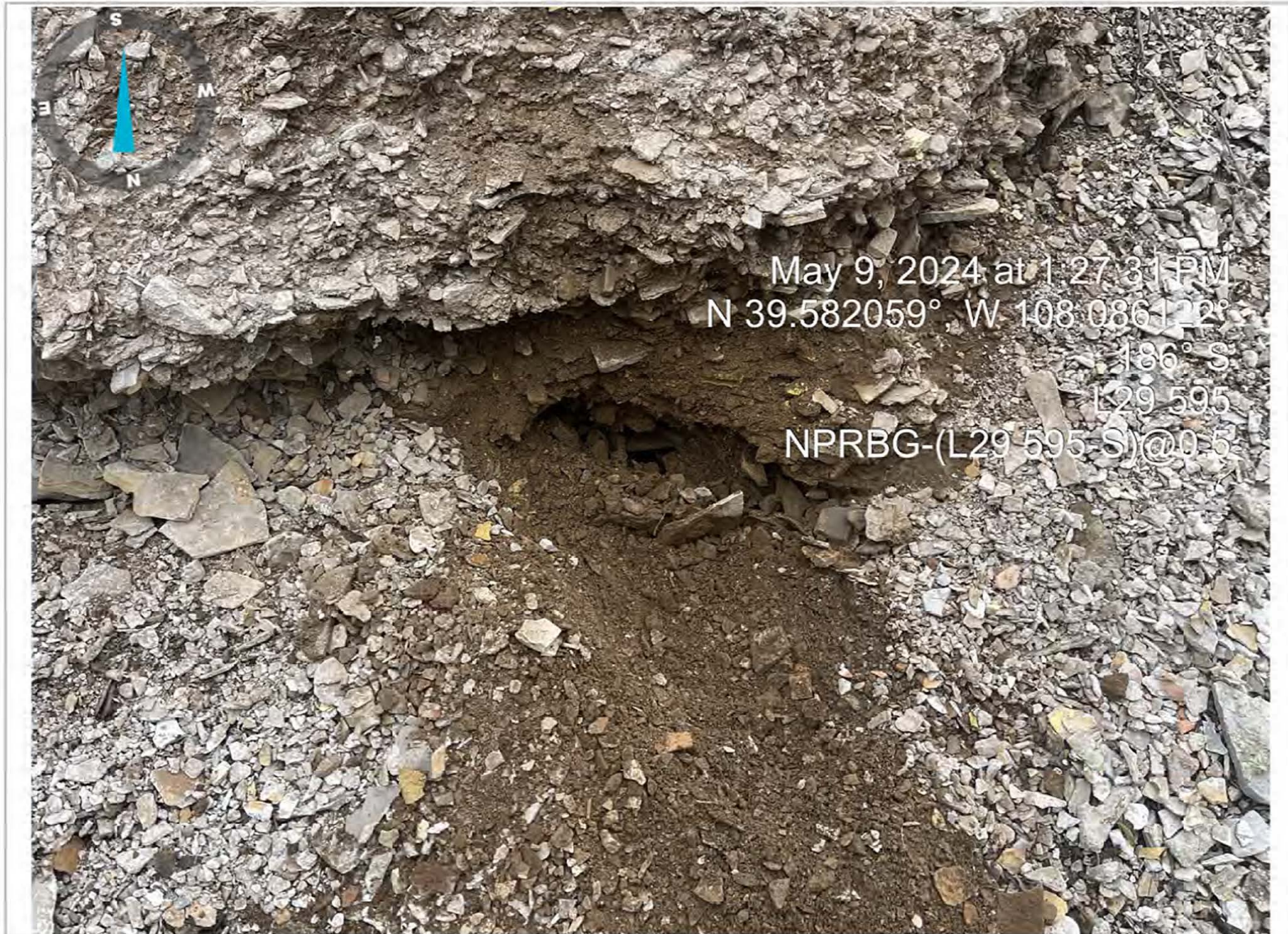


(STOCK) Sample Location View: South



## Photographic Log

Remediation Investigation  
L29 595 (ECMC Location ID: 335607)



NPRBG-(L29 595-S)@0.5 Sample Location View: South

## Caerus Oil and Gas

Sample Delivery Group: L1735516  
Samples Received: 05/11/2024  
Project Number: L29 595 FLOWLINE REL  
Description: L29 595 Flowline Release Release  
Site: L29 595  
Report To: Jake J. / Brett M. / Blair R. / Andy V.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:

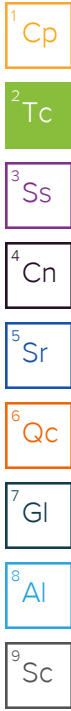


Chris Ward  
Project Manager

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.

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# SAMPLE SUMMARY

20240509-L29 595-(POR)@6 L1735516-01 Solid

Collected by: Alex Slorby  
 Collected date/time: 05/09/24 10:30  
 Received date/time: 05/11/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2287529	1	05/20/24 10:46	05/20/24 10:46	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2285521	1	05/17/24 08:04	05/20/24 01:02	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2289677	1	05/20/24 09:53	05/20/24 15:17	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2289676	1	05/20/24 09:50	05/20/24 14:47	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2287541	1	05/16/24 17:25	05/17/24 10:07	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2285436	5	05/16/24 16:52	05/18/24 13:16	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2288790	1	05/15/24 22:21	05/18/24 02:31	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2288321	1	05/15/24 22:21	05/17/24 21:30	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2288545	1	05/17/24 21:03	05/18/24 00:44	KKS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2288545	5	05/17/24 21:03	05/18/24 09:46	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2288102	1	05/17/24 11:18	05/17/24 23:12	MKM	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# 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

- 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	2.47		1	05/20/2024 10:46	WG2287529

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/20/2024 01:02	<a href="#">WG2285521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.83	<a href="#">T8</a>	1	05/20/2024 15:17	<a href="#">WG2289677</a>

Sample Narrative:

L1735516-01 WG2289677: 7.83 at 24.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1000		10.0	1	05/20/2024 14:47	<a href="#">WG2289676</a>

Sample Narrative:

L1735516-01 WG2289676: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

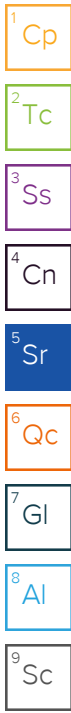
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.822		0.200	1	05/17/2024 10:07	<a href="#">WG2287541</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	10.9		1.00	5	05/18/2024 13:16	<a href="#">WG2285436</a>
Barium	2490	<a href="#">J3 O1 V</a>	2.50	5	05/18/2024 13:16	<a href="#">WG2285436</a>
Cadmium	ND		1.00	5	05/18/2024 13:16	<a href="#">WG2285436</a>
Copper	21.8		5.00	5	05/18/2024 13:16	<a href="#">WG2285436</a>
Lead	12.0		2.00	5	05/18/2024 13:16	<a href="#">WG2285436</a>
Nickel	12.2		2.50	5	05/18/2024 13:16	<a href="#">WG2285436</a>
Selenium	ND		2.50	5	05/18/2024 13:16	<a href="#">WG2285436</a>
Silver	ND		0.500	5	05/18/2024 13:16	<a href="#">WG2285436</a>
Zinc	52.2	<a href="#">J3 J6</a>	25.0	5	05/18/2024 13:16	<a href="#">WG2285436</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.305		0.100	1	05/18/2024 02:31	<a href="#">WG2288790</a>
(S) a, a, a-Trifluorotoluene(FID)	86.8		77.0-120		05/18/2024 02:31	<a href="#">WG2288790</a>



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00928		0.00100	1	05/17/2024 21:30	<a href="#">WG2288321</a>
Toluene	0.00768		0.00500	1	05/17/2024 21:30	<a href="#">WG2288321</a>
Ethylbenzene	ND		0.00250	1	05/17/2024 21:30	<a href="#">WG2288321</a>
Xylenes, Total	ND		0.00650	1	05/17/2024 21:30	<a href="#">WG2288321</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/17/2024 21:30	<a href="#">WG2288321</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	05/17/2024 21:30	<a href="#">WG2288321</a>
(S) Toluene-d8	97.7		75.0-131		05/17/2024 21:30	<a href="#">WG2288321</a>
(S) 4-Bromofluorobenzene	95.2		67.0-138		05/17/2024 21:30	<a href="#">WG2288321</a>
(S) 1,2-Dichloroethane-d4	96.1		70.0-130		05/17/2024 21:30	<a href="#">WG2288321</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	115		4.00	1	05/18/2024 00:44	<a href="#">WG2288545</a>
C28-C36 Motor Oil Range	252		20.0	5	05/18/2024 09:46	<a href="#">WG2288545</a>
(S) o-Terphenyl	34.7		18.0-148		05/18/2024 09:46	<a href="#">WG2288545</a>
(S) o-Terphenyl	73.1		18.0-148		05/18/2024 00:44	<a href="#">WG2288545</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Anthracene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Benzo(a)anthracene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Benzo(a)pyrene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Chrysene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Fluoranthene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Fluorene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
1-Methylnaphthalene	ND		0.0200	1	05/17/2024 23:12	<a href="#">WG2288102</a>
2-Methylnaphthalene	0.0268		0.0200	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Naphthalene	ND		0.0200	1	05/17/2024 23:12	<a href="#">WG2288102</a>
Pyrene	ND		0.00600	1	05/17/2024 23:12	<a href="#">WG2288102</a>
(S) p-Terphenyl-d14	88.1		23.0-120		05/17/2024 23:12	<a href="#">WG2288102</a>
(S) Nitrobenzene-d5	101		14.0-149		05/17/2024 23:12	<a href="#">WG2288102</a>
(S) 2-Fluorobiphenyl	92.3		34.0-125		05/17/2024 23:12	<a href="#">WG2288102</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071478-1 05/20/24 00:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

<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

L1735520-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1735520-01 05/20/24 01:15 • (DUP) R4071478-3 05/20/24 01:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

L1735945-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1735945-11 05/20/24 03:18 • (DUP) R4071478-8 05/20/24 03:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	52.2	P1	20

Laboratory Control Sample (LCS)

(LCS) R4071478-2 05/20/24 00:56

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.0	100	80.0-120	

L1735945-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735945-06 05/20/24 02:10 • (MS) R4071478-5 05/20/24 02:23 • (MSD) R4071478-6 05/20/24 02:29

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	ND	14.5	11.5	71.3	56.1	1	75.0-125	J6	J3 J6	23.4	20

L1735950-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735950-02 05/20/24 03:37 • (MS) R4071478-10 05/20/24 03:49 • (MSD) R4071478-11 05/20/24 03:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	ND	15.0	15.6	74.8	77.9	1	75.0-125	J6		4.04	20

L1735945-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1735945-06 05/20/24 02:10 • (MS) R4071478-7 05/20/24 02:35

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	651	ND	611	93.8	50	75.0-125	

L1735950-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1735950-02 05/20/24 03:37 • (MS) R4071478-12 05/20/24 04:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	638	ND	581	91.1	50	75.0-125	

<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) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4071768-1 05/20/24 15:17 • (LCSD) R4071768-2 05/20/24 15:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.98	9.99	99.8	99.9	99.0-101			0.100	1

Sample Narrative:

LCS: 9.98 at 23.3C

LCSD: 9.99 at 23.4C

<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) R4071753-1 05/20/24 14:47

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

Sample Narrative:

BLANK: at 25C

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

(LCS) R4071753-2 05/20/24 14:47 • (LCSD) R4071753-3 05/20/24 14:47

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	733	745	744	102	102	85.0-115			0.134	20

Sample Narrative:

LCS: at 25C

LCSD: at 25C

<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) R4071014-1 05/17/24 09:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R4071014-2 05/17/24 09:41 • (LCSD) R4071014-3 05/17/24 09:43

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.11	1.09	111	109	80.0-120			1.84	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) R4071427-1 05/18/24 13:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS)

(LCS) R4071427-2 05/18/24 13:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	89.6	89.6	80.0-120	
Barium	100	85.6	85.6	80.0-120	
Cadmium	100	90.3	90.3	80.0-120	
Copper	100	98.2	98.2	80.0-120	
Lead	100	88.4	88.4	80.0-120	
Nickel	100	94.9	94.9	80.0-120	
Selenium	100	87.7	87.7	80.0-120	
Silver	20.0	18.7	93.3	80.0-120	
Zinc	100	87.5	87.5	80.0-120	

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1735516-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735516-01 05/18/24 13:16 • (MS) R4071427-5 05/18/24 13:25 • (MSD) R4071427-6 05/18/24 13:29

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	10.9	105	96.0	93.8	85.1	5	75.0-125			8.60	20
Barium	100	2490	2360	1200	0.000	0.000	5	75.0-125	V	J3 V	64.9	20
Cadmium	100	ND	98.2	90.5	97.8	90.0	5	75.0-125			8.17	20
Copper	100	21.8	119	107	97.0	84.7	5	75.0-125			10.9	20
Lead	100	12.0	109	94.8	96.6	82.7	5	75.0-125			13.6	20
Nickel	100	12.2	108	98.0	95.6	85.8	5	75.0-125			9.54	20
Selenium	100	ND	97.3	89.1	96.7	88.5	5	75.0-125			8.80	20
Silver	20.0	ND	21.0	18.8	105	94.0	5	75.0-125			10.8	20
Zinc	100	52.2	141	112	88.8	59.4	5	75.0-125		J3 J6	23.2	20

Method Blank (MB)

(MB) R4071704-2 05/18/24 01:06

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
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)	97.2			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4071704-1 05/18/24 00:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.10	102	72.0-127	
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)			103	77.0-120	

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

Method Blank (MB)

(MB) R4071586-3 05/17/24 16:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	97.6			75.0-131
(S) 4-Bromofluorobenzene	94.3			67.0-138
(S) 1,2-Dichloroethane-d4	102			70.0-130

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

(LCS) R4071586-1 05/17/24 14:24 • (LCSD) R4071586-2 05/17/24 14:43

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Benzene	0.125	0.132	0.140	106	112	70.0-123			5.88	20
Toluene	0.125	0.122	0.128	97.6	102	75.0-121			4.80	20
Ethylbenzene	0.125	0.114	0.120	91.2	96.0	74.0-126			5.13	20
Xylenes, Total	0.375	0.341	0.349	90.9	93.1	72.0-127			2.32	20
1,2,4-Trimethylbenzene	0.125	0.111	0.114	88.8	91.2	70.0-126			2.67	20
1,3,5-Trimethylbenzene	0.125	0.112	0.121	89.6	96.8	73.0-127			7.73	20
(S) Toluene-d8				101	102	75.0-131				
(S) 4-Bromofluorobenzene				99.7	97.3	67.0-138				
(S) 1,2-Dichloroethane-d4				98.5	104	70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071245-1 05/18/24 00:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	1.72	J	0.274	4.00
(S) o-Terphenyl	60.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4071245-2 05/18/24 00:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	29.8	59.6	50.0-150	
(S) o-Terphenyl			67.6	18.0-148	

L1735512-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735512-01 05/18/24 02:23 • (MS) R4071245-3 05/18/24 02:35 • (MSD) R4071245-4 05/18/24 02:48

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 %
C10-C28 Diesel Range	48.0	130	119	108	0.000	0.000	5	50.0-150	J6	J6	9.69	20
(S) o-Terphenyl					58.4	54.9		18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071272-2 05/17/24 19:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	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
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	102			23.0-120
(S) Nitrobenzene-d5	99.9			14.0-149
(S) 2-Fluorobiphenyl	102			34.0-125

<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) R4071272-1 05/17/24 19:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0833	104	50.0-120	
Anthracene	0.0800	0.0887	111	50.0-126	
Benzo(a)anthracene	0.0800	0.0870	109	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0824	103	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0822	103	49.0-125	
Benzo(a)pyrene	0.0800	0.0775	96.9	42.0-120	
Chrysene	0.0800	0.0898	112	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0802	100	47.0-125	
Fluoranthene	0.0800	0.0938	117	49.0-129	
Fluorene	0.0800	0.0907	113	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0782	97.8	46.0-125	
1-Methylnaphthalene	0.0800	0.0878	110	51.0-121	
2-Methylnaphthalene	0.0800	0.0847	106	50.0-120	
Naphthalene	0.0800	0.0835	104	50.0-120	
Pyrene	0.0800	0.0905	113	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4071272-1 05/17/24 19:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			111	23.0-120	
(S) Nitrobenzene-d5			110	14.0-149	
(S) 2-Fluorobiphenyl			112	34.0-125	

L1735574-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735574-04 05/18/24 00:05 • (MS) R4071272-3 05/18/24 00:22 • (MSD) R4071272-4 05/18/24 00:40

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 %
Acenaphthene	0.0799	0.0279	0.0785	0.102	63.6	93.1	1	14.0-127			26.0	27
Anthracene	0.0799	0.0986	0.199	0.202	126	130	1	10.0-145			1.50	30
Benzo(a)anthracene	0.0799	0.0624	0.193	0.168	164	133	1	10.0-139	J5		13.9	30
Benzo(b)fluoranthene	0.0799	0.0498	0.165	0.146	145	121	1	10.0-140	J5		12.2	36
Benzo(k)fluoranthene	0.0799	0.0194	0.111	0.106	115	109	1	10.0-137			4.61	31
Benzo(a)pyrene	0.0799	0.0695	0.202	0.179	166	138	1	10.0-141	J5		12.1	31
Chrysene	0.0799	0.0610	0.198	0.170	172	137	1	10.0-145	J5		15.2	30
Dibenz(a,h)anthracene	0.0799	0.00631	0.0802	0.0851	92.8	99.0	1	10.0-132			5.93	31
Fluoranthene	0.0799	0.134	0.321	0.259	235	157	1	10.0-153	J5	J5	21.4	33
Fluorene	0.0799	0.137	0.231	0.244	118	134	1	11.0-130		J5	5.47	29
Indeno(1,2,3-cd)pyrene	0.0799	0.0298	0.122	0.116	116	108	1	10.0-137			5.04	32
1-Methylnaphthalene	0.0799	0.458	0.648	0.774	239	397	1	10.0-142	V	V	17.7	28
2-Methylnaphthalene	0.0799	0.0251	0.0923	0.109	84.4	105	1	10.0-137			16.6	28
Naphthalene	0.0799	1.41	2.29	2.62	1110	1520	1	10.0-135	V	V	13.4	27
Pyrene	0.0799	0.209	0.458	0.369	313	201	1	10.0-148	J5	J5	21.5	35
(S) p-Terphenyl-d14					68.8	99.0		23.0-120				
(S) Nitrobenzene-d5					90.1	104		14.0-149				
(S) 2-Fluorobiphenyl					41.7	95.9		34.0-125				

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
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.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 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.

<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





# ANALYTICAL REPORT

May 20, 2024

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Caerus Oil and Gas

Sample Delivery Group: L1735512  
Samples Received: 05/11/2024  
Project Number: L29 595 FLOWLINE REL  
Description: L29 595 Flowline Release Release  
Site: L29 595  
Report To: Jake J. / Brett M. / Blair R. / Andy V.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:

*Chris Ward*

Chris Ward  
Project Manager

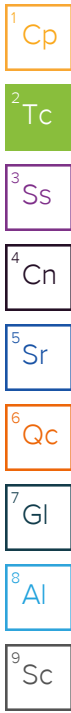
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory 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 mydata.pacelabs.com

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# SAMPLE SUMMARY

## 20240509-L29 595-(SW)@3 L1735512-01 Solid

Collected by: Alex Slorby  
 Collected date/time: 05/09/24 10:15  
 Received date/time: 05/11/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2287529	1	05/20/24 11:18	05/20/24 11:18	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2285188	1	05/17/24 07:58	05/20/24 09:10	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2289674	1	05/20/24 09:48	05/20/24 15:14	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2289672	1	05/20/24 09:46	05/20/24 14:20	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2287541	1	05/16/24 17:25	05/17/24 09:59	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2285436	5	05/16/24 16:52	05/18/24 13:32	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2287939	1	05/15/24 21:44	05/17/24 02:48	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2287585	1	05/15/24 21:44	05/16/24 16:14	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2288545	5	05/17/24 21:03	05/18/24 02:23	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2287721	1	05/16/24 15:18	05/17/24 08:09	MKM	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

## 20240509-L29 595-(WW)@4 L1735512-02 Solid

Collected by: Alex Slorby  
 Collected date/time: 05/09/24 10:40  
 Received date/time: 05/11/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2287529	1	05/20/24 11:21	05/20/24 11:21	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2285188	1	05/17/24 07:58	05/20/24 09:19	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2289674	1	05/20/24 09:48	05/20/24 15:14	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2289672	1	05/20/24 09:46	05/20/24 14:20	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2287541	1	05/16/24 17:25	05/17/24 10:01	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2285436	5	05/16/24 16:52	05/18/24 13:35	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2287939	1	05/15/24 21:44	05/17/24 08:19	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2287585	1	05/15/24 21:44	05/16/24 16:35	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2288545	1	05/17/24 21:03	05/18/24 00:32	KKS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2288545	5	05/17/24 21:03	05/18/24 09:32	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2287721	1	05/16/24 15:18	05/17/24 08:26	MKM	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

## 20240509-L29 595-(EW)@4 L1735512-03 Solid

Collected by: Alex Slorby  
 Collected date/time: 05/09/24 11:00  
 Received date/time: 05/11/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2287529	1	05/20/24 11:23	05/20/24 11:23	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2285188	1	05/17/24 07:58	05/20/24 09:28	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2289674	1	05/20/24 09:48	05/20/24 15:14	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2289672	1	05/20/24 09:46	05/20/24 14:20	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2287541	1	05/16/24 17:25	05/17/24 10:02	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2285436	5	05/16/24 16:52	05/18/24 13:38	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2287939	1	05/15/24 21:44	05/17/24 08:38	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2287585	1	05/15/24 21:44	05/16/24 16:55	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2288545	5	05/17/24 21:03	05/18/24 01:34	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2287721	1	05/16/24 15:18	05/17/24 08:43	MKM	Mt. Juliet, TN

## 20240509-L29 595-(NW)@4 L1735512-04 Solid

Collected by: Alex Slorby  
 Collected date/time: 05/09/24 11:20  
 Received date/time: 05/11/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2287529	1	05/20/24 10:41	05/20/24 10:41	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2285188	1	05/17/24 07:58	05/20/24 09:37	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2289674	1	05/20/24 09:48	05/20/24 15:14	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2289672	1	05/20/24 09:46	05/20/24 14:20	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2287541	1	05/16/24 17:25	05/17/24 10:04	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2285436	5	05/16/24 16:52	05/18/24 12:49	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2288790	1	05/15/24 21:44	05/18/24 01:53	JHH	Mt. Juliet, TN

# SAMPLE SUMMARY

20240509-L29 595-(NW)@4 L1735512-04 Solid

Collected by: Alex Slorby  
 Collected date/time: 05/09/24 11:20  
 Received date/time: 05/11/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2287585	1	05/15/24 21:44	05/16/24 17:15	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2288545	1	05/17/24 21:03	05/18/24 02:48	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2287721	1	05/16/24 15:18	05/17/24 07:51	MKM	Mt. Juliet, TN

- <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

# 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

- <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

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.296		1	05/20/2024 11:18	WG2287529

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/20/2024 09:10	<a href="#">WG2285188</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.45	<u>T8</u>	1	05/20/2024 15:14	<a href="#">WG2289674</a>

## Sample Narrative:

L1735512-01 WG2289674: 7.45 at 23.8C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	661		10.0	1	05/20/2024 14:20	<a href="#">WG2289672</a>

## Sample Narrative:

L1735512-01 WG2289672: at 25C

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.557		0.200	1	05/17/2024 09:59	<a href="#">WG2287541</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	12.3		1.00	5	05/18/2024 13:32	<a href="#">WG2285436</a>
Barium	2400		2.50	5	05/18/2024 13:32	<a href="#">WG2285436</a>
Cadmium	ND		1.00	5	05/18/2024 13:32	<a href="#">WG2285436</a>
Copper	23.5		5.00	5	05/18/2024 13:32	<a href="#">WG2285436</a>
Lead	11.6		2.00	5	05/18/2024 13:32	<a href="#">WG2285436</a>
Nickel	12.6		2.50	5	05/18/2024 13:32	<a href="#">WG2285436</a>
Selenium	ND		2.50	5	05/18/2024 13:32	<a href="#">WG2285436</a>
Silver	ND		0.500	5	05/18/2024 13:32	<a href="#">WG2285436</a>
Zinc	56.9		25.0	5	05/18/2024 13:32	<a href="#">WG2285436</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.49		0.100	1	05/17/2024 02:48	<a href="#">WG2287939</a>
(S) a, a, a-Trifluorotoluene(FID)	84.7		77.0-120		05/17/2024 02:48	<a href="#">WG2287939</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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.126		0.00100	1	05/16/2024 16:14	<a href="#">WG2287585</a>
Toluene	0.713		0.00500	1	05/16/2024 16:14	<a href="#">WG2287585</a>
Ethylbenzene	0.00253		0.00250	1	05/16/2024 16:14	<a href="#">WG2287585</a>
Xylenes, Total	0.0157		0.00650	1	05/16/2024 16:14	<a href="#">WG2287585</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/16/2024 16:14	<a href="#">WG2287585</a>
1,3,5-Trimethylbenzene	ND	<u>J4</u>	0.00500	1	05/16/2024 16:14	<a href="#">WG2287585</a>
(S) Toluene-d8	111		75.0-131		05/16/2024 16:14	<a href="#">WG2287585</a>
(S) 4-Bromofluorobenzene	102		67.0-138		05/16/2024 16:14	<a href="#">WG2287585</a>
(S) 1,2-Dichloroethane-d4	88.8		70.0-130		05/16/2024 16:14	<a href="#">WG2287585</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	130	<u>J6</u>	20.0	5	05/18/2024 02:23	<a href="#">WG2288545</a>
C28-C36 Motor Oil Range	279		20.0	5	05/18/2024 02:23	<a href="#">WG2288545</a>
(S) o-Terphenyl	71.8		18.0-148		05/18/2024 02:23	<a href="#">WG2288545</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Anthracene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Benzo(a)anthracene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Benzo(a)pyrene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Chrysene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Fluoranthene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Fluorene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
1-Methylnaphthalene	0.0233		0.0200	1	05/17/2024 08:09	<a href="#">WG2287721</a>
2-Methylnaphthalene	0.0564		0.0200	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Naphthalene	ND		0.0200	1	05/17/2024 08:09	<a href="#">WG2287721</a>
Pyrene	0.00608		0.00600	1	05/17/2024 08:09	<a href="#">WG2287721</a>
(S) p-Terphenyl-d14	87.0		23.0-120		05/17/2024 08:09	<a href="#">WG2287721</a>
(S) Nitrobenzene-d5	32.6		14.0-149		05/17/2024 08:09	<a href="#">WG2287721</a>
(S) 2-Fluorobiphenyl	74.4		34.0-125		05/17/2024 08:09	<a href="#">WG2287721</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	3.11		1	05/20/2024 11:21	WG2287529

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/20/2024 09:19	<a href="#">WG2285188</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.44	<u>T8</u>	1	05/20/2024 15:14	<a href="#">WG2289674</a>

## Sample Narrative:

L1735512-02 WG2289674: 8.44 at 23.7C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	497		10.0	1	05/20/2024 14:20	<a href="#">WG2289672</a>

## Sample Narrative:

L1735512-02 WG2289672: at 25C

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.03		0.200	1	05/17/2024 10:01	<a href="#">WG2287541</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	11.7		1.00	5	05/18/2024 13:35	<a href="#">WG2285436</a>
Barium	2820		2.50	5	05/18/2024 13:35	<a href="#">WG2285436</a>
Cadmium	ND		1.00	5	05/18/2024 13:35	<a href="#">WG2285436</a>
Copper	24.7		5.00	5	05/18/2024 13:35	<a href="#">WG2285436</a>
Lead	13.9		2.00	5	05/18/2024 13:35	<a href="#">WG2285436</a>
Nickel	14.6		2.50	5	05/18/2024 13:35	<a href="#">WG2285436</a>
Selenium	ND		2.50	5	05/18/2024 13:35	<a href="#">WG2285436</a>
Silver	ND		0.500	5	05/18/2024 13:35	<a href="#">WG2285436</a>
Zinc	55.8		25.0	5	05/18/2024 13:35	<a href="#">WG2285436</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.972		0.100	1	05/17/2024 08:19	<a href="#">WG2287939</a>
(S) a, a, a-Trifluorotoluene(FID)	82.6		77.0-120		05/17/2024 08:19	<a href="#">WG2287939</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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0172		0.00100	1	05/16/2024 16:35	<a href="#">WG2287585</a>
Toluene	0.200		0.00500	1	05/16/2024 16:35	<a href="#">WG2287585</a>
Ethylbenzene	ND		0.00250	1	05/16/2024 16:35	<a href="#">WG2287585</a>
Xylenes, Total	0.00701		0.00650	1	05/16/2024 16:35	<a href="#">WG2287585</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/16/2024 16:35	<a href="#">WG2287585</a>
1,3,5-Trimethylbenzene	ND	<u>J4</u>	0.00500	1	05/16/2024 16:35	<a href="#">WG2287585</a>
(S) Toluene-d8	112		75.0-131		05/16/2024 16:35	<a href="#">WG2287585</a>
(S) 4-Bromofluorobenzene	102		67.0-138		05/16/2024 16:35	<a href="#">WG2287585</a>
(S) 1,2-Dichloroethane-d4	89.0		70.0-130		05/16/2024 16:35	<a href="#">WG2287585</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	85.4		4.00	1	05/18/2024 00:32	<a href="#">WG2288545</a>
C28-C36 Motor Oil Range	198		20.0	5	05/18/2024 09:32	<a href="#">WG2288545</a>
(S) o-Terphenyl	67.1		18.0-148		05/18/2024 00:32	<a href="#">WG2288545</a>
(S) o-Terphenyl	36.6		18.0-148		05/18/2024 09:32	<a href="#">WG2288545</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Anthracene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Benzo(a)anthracene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Benzo(a)pyrene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Chrysene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Fluoranthene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Fluorene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
1-Methylnaphthalene	0.0222		0.0200	1	05/17/2024 08:26	<a href="#">WG2287721</a>
2-Methylnaphthalene	0.0417		0.0200	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Naphthalene	ND		0.0200	1	05/17/2024 08:26	<a href="#">WG2287721</a>
Pyrene	0.00682		0.00600	1	05/17/2024 08:26	<a href="#">WG2287721</a>
(S) p-Terphenyl-d14	82.6		23.0-120		05/17/2024 08:26	<a href="#">WG2287721</a>
(S) Nitrobenzene-d5	67.6		14.0-149		05/17/2024 08:26	<a href="#">WG2287721</a>
(S) 2-Fluorobiphenyl	63.3		34.0-125		05/17/2024 08:26	<a href="#">WG2287721</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	1.81		1	05/20/2024 11:23	WG2287529

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/20/2024 09:28	<a href="#">WG2285188</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.28	<u>T8</u>	1	05/20/2024 15:14	<a href="#">WG2289674</a>

## Sample Narrative:

L1735512-03 WG2289674: 8.28 at 23.4C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	495		10.0	1	05/20/2024 14:20	<a href="#">WG2289672</a>

## Sample Narrative:

L1735512-03 WG2289672: at 25C

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.931		0.200	1	05/17/2024 10:02	<a href="#">WG2287541</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	11.1		1.00	5	05/18/2024 13:38	<a href="#">WG2285436</a>
Barium	2010		2.50	5	05/18/2024 13:38	<a href="#">WG2285436</a>
Cadmium	ND		1.00	5	05/18/2024 13:38	<a href="#">WG2285436</a>
Copper	17.8		5.00	5	05/18/2024 13:38	<a href="#">WG2285436</a>
Lead	11.6		2.00	5	05/18/2024 13:38	<a href="#">WG2285436</a>
Nickel	13.9		2.50	5	05/18/2024 13:38	<a href="#">WG2285436</a>
Selenium	ND		2.50	5	05/18/2024 13:38	<a href="#">WG2285436</a>
Silver	ND		0.500	5	05/18/2024 13:38	<a href="#">WG2285436</a>
Zinc	44.7		25.0	5	05/18/2024 13:38	<a href="#">WG2285436</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.606		0.100	1	05/17/2024 08:38	<a href="#">WG2287939</a>
(S) a, a, a-Trifluorotoluene(FID)	87.3		77.0-120		05/17/2024 08:38	<a href="#">WG2287939</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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.0177		0.00100	1	05/16/2024 16:55	<a href="#">WG2287585</a>
Toluene	0.0208		0.00500	1	05/16/2024 16:55	<a href="#">WG2287585</a>
Ethylbenzene	ND		0.00250	1	05/16/2024 16:55	<a href="#">WG2287585</a>
Xylenes, Total	ND		0.00650	1	05/16/2024 16:55	<a href="#">WG2287585</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/16/2024 16:55	<a href="#">WG2287585</a>
1,3,5-Trimethylbenzene	ND	<a href="#">J4</a>	0.00500	1	05/16/2024 16:55	<a href="#">WG2287585</a>
(S) Toluene-d8	111		75.0-131		05/16/2024 16:55	<a href="#">WG2287585</a>
(S) 4-Bromofluorobenzene	101		67.0-138		05/16/2024 16:55	<a href="#">WG2287585</a>
(S) 1,2-Dichloroethane-d4	90.1		70.0-130		05/16/2024 16:55	<a href="#">WG2287585</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	54.7		20.0	5	05/18/2024 01:34	<a href="#">WG2288545</a>
C28-C36 Motor Oil Range	117		20.0	5	05/18/2024 01:34	<a href="#">WG2288545</a>
(S) o-Terphenyl	73.7		18.0-148		05/18/2024 01:34	<a href="#">WG2288545</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Anthracene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Benzo(a)anthracene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Benzo(a)pyrene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Chrysene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Fluoranthene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Fluorene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
1-Methylnaphthalene	0.0277		0.0200	1	05/17/2024 08:43	<a href="#">WG2287721</a>
2-Methylnaphthalene	0.0401		0.0200	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Naphthalene	ND		0.0200	1	05/17/2024 08:43	<a href="#">WG2287721</a>
Pyrene	ND		0.00600	1	05/17/2024 08:43	<a href="#">WG2287721</a>
(S) p-Terphenyl-d14	77.8		23.0-120		05/17/2024 08:43	<a href="#">WG2287721</a>
(S) Nitrobenzene-d5	77.7		14.0-149		05/17/2024 08:43	<a href="#">WG2287721</a>
(S) 2-Fluorobiphenyl	70.9		34.0-125		05/17/2024 08:43	<a href="#">WG2287721</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	4.49		1	05/20/2024 10:41	WG2287529

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/20/2024 09:37	<a href="#">WG2285188</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22	<u>T8</u>	1	05/20/2024 15:14	<a href="#">WG2289674</a>

## Sample Narrative:

L1735512-04 WG2289674: 8.22 at 23.5C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1470		10.0	1	05/20/2024 14:20	<a href="#">WG2289672</a>

## Sample Narrative:

L1735512-04 WG2289672: at 25C

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.03		0.200	1	05/17/2024 10:04	<a href="#">WG2287541</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	10.5		1.00	5	05/18/2024 12:49	<a href="#">WG2285436</a>
Barium	1690		2.50	5	05/18/2024 12:49	<a href="#">WG2285436</a>
Cadmium	ND		1.00	5	05/18/2024 12:49	<a href="#">WG2285436</a>
Copper	18.2		5.00	5	05/18/2024 12:49	<a href="#">WG2285436</a>
Lead	11.0		2.00	5	05/18/2024 12:49	<a href="#">WG2285436</a>
Nickel	12.1		2.50	5	05/18/2024 12:49	<a href="#">WG2285436</a>
Selenium	ND		2.50	5	05/18/2024 12:49	<a href="#">WG2285436</a>
Silver	ND		0.500	5	05/18/2024 12:49	<a href="#">WG2285436</a>
Zinc	43.7		25.0	5	05/18/2024 12:49	<a href="#">WG2285436</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.368		0.100	1	05/18/2024 01:53	<a href="#">WG2288790</a>
(S) a, a, a-Trifluorotoluene(FID)	86.2		77.0-120		05/18/2024 01:53	<a href="#">WG2288790</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	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00335		0.00100	1	05/16/2024 17:15	<a href="#">WG2287585</a>
Toluene	0.0205		0.00500	1	05/16/2024 17:15	<a href="#">WG2287585</a>
Ethylbenzene	ND		0.00250	1	05/16/2024 17:15	<a href="#">WG2287585</a>
Xylenes, Total	ND		0.00650	1	05/16/2024 17:15	<a href="#">WG2287585</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/16/2024 17:15	<a href="#">WG2287585</a>
1,3,5-Trimethylbenzene	ND	<a href="#">J4</a>	0.00500	1	05/16/2024 17:15	<a href="#">WG2287585</a>
(S) Toluene-d8	112		75.0-131		05/16/2024 17:15	<a href="#">WG2287585</a>
(S) 4-Bromofluorobenzene	101		67.0-138		05/16/2024 17:15	<a href="#">WG2287585</a>
(S) 1,2-Dichloroethane-d4	88.1		70.0-130		05/16/2024 17:15	<a href="#">WG2287585</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	31.8		4.00	1	05/18/2024 02:48	<a href="#">WG2288545</a>
C28-C36 Motor Oil Range	88.9		4.00	1	05/18/2024 02:48	<a href="#">WG2288545</a>
(S) o-Terphenyl	29.7		18.0-148		05/18/2024 02:48	<a href="#">WG2288545</a>

6 Qc

7 Gl

8 Al

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Anthracene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Benzo(a)anthracene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Benzo(a)pyrene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Chrysene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Fluoranthene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Fluorene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
1-Methylnaphthalene	ND		0.0200	1	05/17/2024 07:51	<a href="#">WG2287721</a>
2-Methylnaphthalene	0.0228		0.0200	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Naphthalene	ND		0.0200	1	05/17/2024 07:51	<a href="#">WG2287721</a>
Pyrene	ND		0.00600	1	05/17/2024 07:51	<a href="#">WG2287721</a>
(S) p-Terphenyl-d14	85.2		23.0-120		05/17/2024 07:51	<a href="#">WG2287721</a>
(S) Nitrobenzene-d5	65.6		14.0-149		05/17/2024 07:51	<a href="#">WG2287721</a>
(S) 2-Fluorobiphenyl	65.5		34.0-125		05/17/2024 07:51	<a href="#">WG2287721</a>

9 Sc

Method Blank (MB)

(MB) R4071591-1 05/20/24 04:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

<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

L1735485-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1735485-13 05/20/24 06:47 • (DUP) R4071591-7 05/20/24 06:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

L1735513-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1735513-01 05/20/24 10:04 • (DUP) R4071591-12 05/20/24 10:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R4071591-2 05/20/24 04:51

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.6	106	80.0-120	

L1735391-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735391-04 05/20/24 05:27 • (MS) R4071591-4 05/20/24 05:45 • (MSD) R4071591-5 05/20/24 05:53

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	1.63	20.4	15.8	93.9	70.6	1	75.0-125		J3 J6	25.8	20

L1735487-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735487-04 05/20/24 08:17 • (MS) R4071591-9 05/20/24 08:35 • (MSD) R4071591-10 05/20/24 08:43

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	ND	13.0	13.6	65.0	67.9	1	75.0-125	J6	J6	4.31	20

L1735391-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1735391-04 05/20/24 05:27 • (MS) R4071591-6 05/20/24 06:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	643	1.63	548	85.3	50	75.0-125	

L1735487-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1735487-04 05/20/24 08:17 • (MS) R4071591-11 05/20/24 08:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	631	ND	504	79.8	50	75.0-125	

<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) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4071782-1 05/20/24 15:14 • (LCSD) R4071782-2 05/20/24 15:14

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.97	9.98	99.7	99.8	99.0-101			0.100	1

Sample Narrative:

LCS: 9.97 at 23.5C  
LCSD: 9.98 at 23.6C

- <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) R4071755-1 05/20/24 14:20

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

Sample Narrative:

BLANK: at 25C

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

(LCS) R4071755-2 05/20/24 14:20 • (LCSD) R4071755-3 05/20/24 14:20

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	733	743	741	101	101	85.0-115			0.270	20

Sample Narrative:

LCS: at 25C

LCSD: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071014-1 05/17/24 09:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R4071014-2 05/17/24 09:41 • (LCSD) R4071014-3 05/17/24 09:43

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.11	1.09	111	109	80.0-120			1.84	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) R4071427-1 05/18/24 13:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS)

(LCS) R4071427-2 05/18/24 13:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	89.6	89.6	80.0-120	
Barium	100	85.6	85.6	80.0-120	
Cadmium	100	90.3	90.3	80.0-120	
Copper	100	98.2	98.2	80.0-120	
Lead	100	88.4	88.4	80.0-120	
Nickel	100	94.9	94.9	80.0-120	
Selenium	100	87.7	87.7	80.0-120	
Silver	20.0	18.7	93.3	80.0-120	
Zinc	100	87.5	87.5	80.0-120	

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1735516-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735516-01 05/18/24 13:16 • (MS) R4071427-5 05/18/24 13:25 • (MSD) R4071427-6 05/18/24 13:29

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	10.9	105	96.0	93.8	85.1	5	75.0-125			8.60	20
Barium	100	2490	2360	1200	0.000	0.000	5	75.0-125	V	J3 V	64.9	20
Cadmium	100	ND	98.2	90.5	97.8	90.0	5	75.0-125			8.17	20
Copper	100	21.8	119	107	97.0	84.7	5	75.0-125			10.9	20
Lead	100	12.0	109	94.8	96.6	82.7	5	75.0-125			13.6	20
Nickel	100	12.2	108	98.0	95.6	85.8	5	75.0-125			9.54	20
Selenium	100	ND	97.3	89.1	96.7	88.5	5	75.0-125			8.80	20
Silver	20.0	ND	21.0	18.8	105	94.0	5	75.0-125			10.8	20
Zinc	100	52.2	141	112	88.8	59.4	5	75.0-125		J3 J6	23.2	20

Method Blank (MB)

(MB) R4071189-2 05/16/24 22:04

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
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)	96.0			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4071189-1 05/16/24 21:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.68	114	72.0-127	
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)			108	77.0-120	

<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) R4071704-2 05/18/24 01:06

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)	97.2			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4071704-1 05/18/24 00:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.10	102	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			103	77.0-120	

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

Method Blank (MB)

(MB) R4070815-2 05/16/24 08:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	111			75.0-131
(S) 4-Bromofluorobenzene	99.6			67.0-138
(S) 1,2-Dichloroethane-d4	89.9			70.0-130

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

(LCS) R4070815-1 05/16/24 07:07 • (LCSD) R4070815-3 05/16/24 09:07

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Benzene	0.125	0.113	0.114	90.4	91.2	70.0-123			0.881	20
Toluene	0.125	0.109	0.113	87.2	90.4	75.0-121			3.60	20
Ethylbenzene	0.125	0.113	0.114	90.4	91.2	74.0-126			0.881	20
Xylenes, Total	0.375	0.307	0.321	81.9	85.6	72.0-127			4.46	20
1,2,4-Trimethylbenzene	0.125	0.0933	0.0899	74.6	71.9	70.0-126			3.71	20
1,3,5-Trimethylbenzene	0.125	0.0893	0.0911	71.4	72.9	73.0-127	J4	J4	2.00	20
(S) Toluene-d8				111	111	75.0-131				
(S) 4-Bromofluorobenzene				103	101	67.0-138				
(S) 1,2-Dichloroethane-d4				97.5	96.1	70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071245-1 05/18/24 00:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	1.72	J	0.274	4.00
(S) o-Terphenyl	60.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4071245-2 05/18/24 00:44

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
C10-C28 Diesel Range	50.0	29.8	59.6	50.0-150	
(S) o-Terphenyl			67.6	18.0-148	

L1735512-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735512-01 05/18/24 02:23 • (MS) R4071245-3 05/18/24 02:35 • (MSD) R4071245-4 05/18/24 02:48

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
C10-C28 Diesel Range	48.0	130	119	108	0.000	0.000	5	50.0-150	J6	J6	9.69	20
(S) o-Terphenyl					58.4	54.9		18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071049-2 05/16/24 23:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	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
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	115			23.0-120
(S) Nitrobenzene-d5	62.1			14.0-149
(S) 2-Fluorobiphenyl	84.7			34.0-125

<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) R4071049-1 05/16/24 23:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0728	91.0	50.0-120	
Anthracene	0.0800	0.0674	84.3	50.0-126	
Benzo(a)anthracene	0.0800	0.0676	84.5	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0788	98.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0735	91.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0603	75.4	42.0-120	
Chrysene	0.0800	0.0782	97.8	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0751	93.9	47.0-125	
Fluoranthene	0.0800	0.0760	95.0	49.0-129	
Fluorene	0.0800	0.0801	100	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0709	88.6	46.0-125	
1-Methylnaphthalene	0.0800	0.0728	91.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0723	90.4	50.0-120	
Naphthalene	0.0800	0.0701	87.6	50.0-120	
Pyrene	0.0800	0.0798	99.8	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4071049-1 05/16/24 23:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			114	23.0-120	
(S) Nitrobenzene-d5			84.9	14.0-149	
(S) 2-Fluorobiphenyl			97.0	34.0-125	

L1735438-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735438-02 05/17/24 05:55 • (MS) R4071049-3 05/17/24 06:13 • (MSD) R4071049-4 05/17/24 06:31

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 %
Acenaphthene	0.0781	ND	0.0366	0.0350	46.9	45.1	1	14.0-127			4.47	27
Anthracene	0.0781	ND	0.0405	0.0412	51.9	53.1	1	10.0-145			1.71	30
Benzo(a)anthracene	0.0781	ND	0.0435	0.0460	55.8	59.3	1	10.0-139			5.59	30
Benzo(b)fluoranthene	0.0781	ND	0.0417	0.0436	53.5	56.2	1	10.0-140			4.45	36
Benzo(k)fluoranthene	0.0781	ND	0.0504	0.0583	64.6	75.1	1	10.0-137			14.5	31
Benzo(a)pyrene	0.0781	ND	0.0448	0.0478	57.4	61.6	1	10.0-141			6.48	31
Chrysene	0.0781	ND	0.0534	0.0574	68.5	74.0	1	10.0-145			7.22	30
Dibenz(a,h)anthracene	0.0781	ND	0.0483	0.0579	61.9	74.6	1	10.0-132			18.1	31
Fluoranthene	0.0781	ND	0.0416	0.0425	53.3	54.8	1	10.0-153			2.14	33
Fluorene	0.0781	ND	0.0426	0.0412	54.6	53.1	1	11.0-130			3.34	29
Indeno(1,2,3-cd)pyrene	0.0781	ND	0.0397	0.0436	50.9	56.2	1	10.0-137			9.36	32
1-Methylnaphthalene	0.0781	ND	0.0372	0.0335	47.4	42.9	1	10.0-142			10.5	28
2-Methylnaphthalene	0.0781	ND	0.0403	0.0351	51.1	44.6	1	10.0-137			13.8	28
Naphthalene	0.0781	ND	0.0410	0.0337	52.1	43.0	1	10.0-135			19.5	27
Pyrene	0.0781	ND	0.0418	0.0435	53.6	56.1	1	10.0-148			3.99	35
(S) p-Terphenyl-d14					73.9	85.7		23.0-120				
(S) Nitrobenzene-d5					70.0	73.7		14.0-149				
(S) 2-Fluorobiphenyl					56.1	66.0		34.0-125				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# GLOSSARY OF TERMS

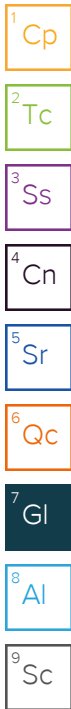
## Guide to Reading and Understanding Your Laboratory Report

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

# ACCREDITATIONS & LOCATIONS

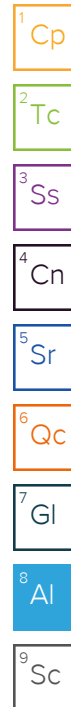
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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.



L173 SS12

**CHAIN-OF-CUSTODY Analytical Request Document**  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>  
 Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: Caerus Oil and Gas LLC  
 Address: Info on file  
 Report To: Jake Janicek, Brett Middleton, Blair Rollins, Andrew Verbonitz  
 Copy To: --  
 Billing Information: Info on file  
 Email To: info on file  
 Site Collection Info/Address: NA

Customer Project Name/Number: L29 595 Flowline Release Release  
 State: County/City: Time Zone Collected:  
 CO / Garfield [ ]PT [X]MT [ ]CT [ ]ET  
 Phone: (701) 721-5415 Site/Facility ID #: L29 595  
 Email: alex.slorby@confluence-cc.com  
 Collected By (print): Alex Slorby Purchase Order #: NA  
 Quote #: NA  
 Collected By (signature): *Alex Slorby* Turnaround Date Required: **Standard Turnaround**  
 Immediately Packed on Ice: [X] Yes [ ] No  
 Sample Disposal: Rush: (Expedite Charges Apply)  
 [X] Dispose as appropriate [ ] Same Day [ ] Next Day  
 [ ] Return [ ] 2 Day [ ] 3 Day  
 [ ] Archive: [ ] 4 Day [ ] 5 Day  
 [ ] Hold: Field Filtered (if applicable):  
 [ ] Yes [ ] No  
 Analysis: NA

\* 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)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)	Table 915-1 VOC's	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	CR6IC
			Date	Time	Date	Time										
20240509-L29 595-(SW)@3	SL	G	5/9/2024	1015				4	G	X	X	X	X	X	X	X
20240509-L29 595-(WW)@4	SL	G	5/9/2024	1040				4	G	X	X	X	X	X	X	X
20240509-L29 595-(EW)@4	SL	G	5/9/2024	1100				4	G	X	X	X	X	X	X	X
20240509-L29 595-(NW)@4	SL	G	5/9/2024	1120				4	G	X	X	X	X	X	X	X

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here  
**D073**

**ALL BOLD OUTLINED AREAS are for LAB USE ONLY**  
 Container Preservative Type \*\* 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

Table 915-1 VOC's	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	CR6IC
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Lab Profile/Line:  
 Lab Sample Receipt Checklist:  
 Custody Seals Present/Intact Y N (P)  
 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: 16  
 2.079.1 = 2.1 E046

Customer Remarks / Special Conditions / Possible Hazards: Type of Ice Used:  Wet Blue Dry None  
 Packing Material Used: SHORT HOLDS PRESENT (<72 hours): Y  N/A  
 Lab Tracking #: 5892 7564 7228  
 Radchem sample(s) screened (<500 cpm):  Y  N  NA  
 Samples received via:  FEDEX  UPS  Client  Courier  Pace Courier  
 Relinquished by/Company: (Signature) *Alex Slorby* Date/Time: 5/10/2024 1030 Received by/Company: (Signature) *[Signature]* Date/Time: \_\_\_\_\_  
 Relinquished by/Company: (Signature) *[Signature]* Date/Time: 5/10/24 1200 Received by/Company: (Signature) *[Signature]* Date/Time: \_\_\_\_\_  
 Relinquished by/Company: (Signature) *[Signature]* Date/Time: \_\_\_\_\_ Received by/Company: (Signature) *Charles Stevenson* Date/Time: 5-11-24 9:30  
 MTJL LAB USE ONLY  
 Table #:  
 Acctnum:  
 Template:  
 Prelogin:  
 PM:  
 PB:  
 Trip Blank Received: Y  N/A  
 HCL MeOH TSP Other  
 Non Conformance(s): YES / NO Page: 1 of: 1



# ANALYTICAL REPORT

May 20, 2024

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Caerus Oil and Gas

Sample Delivery Group: L1735513  
Samples Received: 05/11/2024  
Project Number:  
Description: L29 595 Flowline Release Release  
Site: L29 595  
Report To: Jake J. / Brett M. / Blair R. / Andy V.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:

*Chris Ward*

Chris Ward  
Project Manager

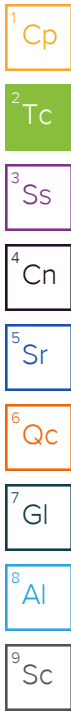
Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory 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 mydata.pacelabs.com

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# SAMPLE SUMMARY

20240509-L29 595-(STOCK) L1735513-01 Solid

Collected by: Alex Slorby  
 Collected date/time: 05/09/24 12:55  
 Received date/time: 05/11/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2287529	1	05/20/24 10:44	05/20/24 10:44	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2285188	1	05/17/24 07:58	05/20/24 10:04	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2289677	1	05/20/24 09:53	05/20/24 15:17	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2289676	1	05/20/24 09:50	05/20/24 14:47	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2287541	1	05/16/24 17:25	05/17/24 10:06	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2285436	5	05/16/24 16:52	05/18/24 12:53	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2288790	1.01	05/15/24 22:21	05/18/24 02:12	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2288321	1	05/15/24 22:21	05/17/24 21:49	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2288545	1	05/17/24 21:03	05/18/24 03:00	KKS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2287721	1	05/16/24 15:18	05/17/24 09:00	MKM	Mt. Juliet, TN

1 Cp

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# 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

<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

## Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.63		1	05/20/2024 10:44	WG2287529

## Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/20/2024 10:04	<a href="#">WG2285188</a>

## Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.20	<u>T8</u>	1	05/20/2024 15:17	<a href="#">WG2289677</a>

## Sample Narrative:

L1735513-01 WG2289677: 8.2 at 24.2C

## Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1320		10.0	1	05/20/2024 14:47	<a href="#">WG2289676</a>

## Sample Narrative:

L1735513-01 WG2289676: at 25C

## Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.07		0.200	1	05/17/2024 10:06	<a href="#">WG2287541</a>

## Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	16.2		1.00	5	05/18/2024 12:53	<a href="#">WG2285436</a>
Barium	2920		2.50	5	05/18/2024 12:53	<a href="#">WG2285436</a>
Cadmium	ND		1.00	5	05/18/2024 12:53	<a href="#">WG2285436</a>
Copper	26.0		5.00	5	05/18/2024 12:53	<a href="#">WG2285436</a>
Lead	12.3		2.00	5	05/18/2024 12:53	<a href="#">WG2285436</a>
Nickel	14.8		2.50	5	05/18/2024 12:53	<a href="#">WG2285436</a>
Selenium	ND		2.50	5	05/18/2024 12:53	<a href="#">WG2285436</a>
Silver	ND		0.500	5	05/18/2024 12:53	<a href="#">WG2285436</a>
Zinc	54.7		25.0	5	05/18/2024 12:53	<a href="#">WG2285436</a>

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.472		0.101	1.01	05/18/2024 02:12	<a href="#">WG2288790</a>
(S) a, a, a-Trifluorotoluene(FID)	87.8		77.0-120		05/18/2024 02:12	<a href="#">WG2288790</a>

1 Cp

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6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00790		0.00100	1	05/17/2024 21:49	<a href="#">WG2288321</a>
Toluene	0.0633		0.00500	1	05/17/2024 21:49	<a href="#">WG2288321</a>
Ethylbenzene	ND		0.00250	1	05/17/2024 21:49	<a href="#">WG2288321</a>
Xylenes, Total	ND		0.00650	1	05/17/2024 21:49	<a href="#">WG2288321</a>
1,2,4-Trimethylbenzene	ND		0.00500	1	05/17/2024 21:49	<a href="#">WG2288321</a>
1,3,5-Trimethylbenzene	ND		0.00500	1	05/17/2024 21:49	<a href="#">WG2288321</a>
(S) Toluene-d8	99.9		75.0-131		05/17/2024 21:49	<a href="#">WG2288321</a>
(S) 4-Bromofluorobenzene	98.3		67.0-138		05/17/2024 21:49	<a href="#">WG2288321</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		05/17/2024 21:49	<a href="#">WG2288321</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	57.0		4.00	1	05/18/2024 03:00	<a href="#">WG2288545</a>
C28-C36 Motor Oil Range	147		4.00	1	05/18/2024 03:00	<a href="#">WG2288545</a>
(S) o-Terphenyl	38.8		18.0-148		05/18/2024 03:00	<a href="#">WG2288545</a>

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Anthracene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Benzo(a)anthracene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Benzo(b)fluoranthene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Benzo(k)fluoranthene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Benzo(a)pyrene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Chrysene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Dibenz(a,h)anthracene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Fluoranthene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Fluorene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
1-Methylnaphthalene	ND		0.0200	1	05/17/2024 09:00	<a href="#">WG2287721</a>
2-Methylnaphthalene	0.0366		0.0200	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Naphthalene	ND		0.0200	1	05/17/2024 09:00	<a href="#">WG2287721</a>
Pyrene	ND		0.00600	1	05/17/2024 09:00	<a href="#">WG2287721</a>
(S) p-Terphenyl-d14	87.3		23.0-120		05/17/2024 09:00	<a href="#">WG2287721</a>
(S) Nitrobenzene-d5	66.5		14.0-149		05/17/2024 09:00	<a href="#">WG2287721</a>
(S) 2-Fluorobiphenyl	70.6		34.0-125		05/17/2024 09:00	<a href="#">WG2287721</a>

1 Cp

2 Tc

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6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071591-1 05/20/24 04:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

<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

L1735485-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1735485-13 05/20/24 06:47 • (DUP) R4071591-7 05/20/24 06:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

L1735513-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1735513-01 05/20/24 10:04 • (DUP) R4071591-12 05/20/24 10:13

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R4071591-2 05/20/24 04:51

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.6	106	80.0-120	

L1735391-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735391-04 05/20/24 05:27 • (MS) R4071591-4 05/20/24 05:45 • (MSD) R4071591-5 05/20/24 05:53

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	1.63	20.4	15.8	93.9	70.6	1	75.0-125		J3 J6	25.8	20

L1735487-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735487-04 05/20/24 08:17 • (MS) R4071591-9 05/20/24 08:35 • (MSD) R4071591-10 05/20/24 08:43

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	ND	13.0	13.6	65.0	67.9	1	75.0-125	J6	J6	4.31	20

L1735391-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1735391-04 05/20/24 05:27 • (MS) R4071591-6 05/20/24 06:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	643	1.63	548	85.3	50	75.0-125	

L1735487-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1735487-04 05/20/24 08:17 • (MS) R4071591-11 05/20/24 08:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	631	ND	504	79.8	50	75.0-125	

<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) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4071768-1 05/20/24 15:17 • (LCSD) R4071768-2 05/20/24 15:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.98	9.99	99.8	99.9	99.0-101			0.100	1

Sample Narrative:

LCS: 9.98 at 23.3C  
LCSD: 9.99 at 23.4C

- <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) R4071753-1 05/20/24 14:47

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

Sample Narrative:

BLANK: at 25C

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

(LCS) R4071753-2 05/20/24 14:47 • (LCSD) R4071753-3 05/20/24 14:47

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	umhos/cm	umhos/cm	umhos/cm	%	%	%			%	%
Specific Conductance	733	745	744	102	102	85.0-115			0.134	20

Sample Narrative:

LCS: at 25C

LCSD: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071014-1 05/17/24 09:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R4071014-2 05/17/24 09:41 • (LCSD) R4071014-3 05/17/24 09:43

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.11	1.09	111	109	80.0-120			1.84	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) R4071427-1 05/18/24 13:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS)

(LCS) R4071427-2 05/18/24 13:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	89.6	89.6	80.0-120	
Barium	100	85.6	85.6	80.0-120	
Cadmium	100	90.3	90.3	80.0-120	
Copper	100	98.2	98.2	80.0-120	
Lead	100	88.4	88.4	80.0-120	
Nickel	100	94.9	94.9	80.0-120	
Selenium	100	87.7	87.7	80.0-120	
Silver	20.0	18.7	93.3	80.0-120	
Zinc	100	87.5	87.5	80.0-120	

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1735516-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735516-01 05/18/24 13:16 • (MS) R4071427-5 05/18/24 13:25 • (MSD) R4071427-6 05/18/24 13:29

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	10.9	105	96.0	93.8	85.1	5	75.0-125			8.60	20
Barium	100	2490	2360	1200	0.000	0.000	5	75.0-125	V	J3 V	64.9	20
Cadmium	100	ND	98.2	90.5	97.8	90.0	5	75.0-125			8.17	20
Copper	100	21.8	119	107	97.0	84.7	5	75.0-125			10.9	20
Lead	100	12.0	109	94.8	96.6	82.7	5	75.0-125			13.6	20
Nickel	100	12.2	108	98.0	95.6	85.8	5	75.0-125			9.54	20
Selenium	100	ND	97.3	89.1	96.7	88.5	5	75.0-125			8.80	20
Silver	20.0	ND	21.0	18.8	105	94.0	5	75.0-125			10.8	20
Zinc	100	52.2	141	112	88.8	59.4	5	75.0-125		J3 J6	23.2	20

Method Blank (MB)

(MB) R4071704-2 05/18/24 01:06

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
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)	97.2			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4071704-1 05/18/24 00:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.10	102	72.0-127	
<sup>(S)</sup> a,a,a-Trifluorotoluene(FID)			103	77.0-120	

<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) R4071586-3 05/17/24 16:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	97.6			75.0-131
(S) 4-Bromofluorobenzene	94.3			67.0-138
(S) 1,2-Dichloroethane-d4	102			70.0-130

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

(LCS) R4071586-1 05/17/24 14:24 • (LCSD) R4071586-2 05/17/24 14:43

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Benzene	0.125	0.132	0.140	106	112	70.0-123			5.88	20
Toluene	0.125	0.122	0.128	97.6	102	75.0-121			4.80	20
Ethylbenzene	0.125	0.114	0.120	91.2	96.0	74.0-126			5.13	20
Xylenes, Total	0.375	0.341	0.349	90.9	93.1	72.0-127			2.32	20
1,2,4-Trimethylbenzene	0.125	0.111	0.114	88.8	91.2	70.0-126			2.67	20
1,3,5-Trimethylbenzene	0.125	0.112	0.121	89.6	96.8	73.0-127			7.73	20
(S) Toluene-d8				101	102	75.0-131				
(S) 4-Bromofluorobenzene				99.7	97.3	67.0-138				
(S) 1,2-Dichloroethane-d4				98.5	104	70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071245-1 05/18/24 00:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	1.72	J	0.274	4.00
(S) o-Terphenyl	60.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4071245-2 05/18/24 00:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	29.8	59.6	50.0-150	
(S) o-Terphenyl			67.6	18.0-148	

L1735512-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735512-01 05/18/24 02:23 • (MS) R4071245-3 05/18/24 02:35 • (MSD) R4071245-4 05/18/24 02:48

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 %
C10-C28 Diesel Range	48.0	130	119	108	0.000	0.000	5	50.0-150	J6	J6	9.69	20
(S) o-Terphenyl					58.4	54.9		18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4071049-2 05/16/24 23:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	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
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	115			23.0-120
(S) Nitrobenzene-d5	62.1			14.0-149
(S) 2-Fluorobiphenyl	84.7			34.0-125

<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) R4071049-1 05/16/24 23:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0728	91.0	50.0-120	
Anthracene	0.0800	0.0674	84.3	50.0-126	
Benzo(a)anthracene	0.0800	0.0676	84.5	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0788	98.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0735	91.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0603	75.4	42.0-120	
Chrysene	0.0800	0.0782	97.8	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0751	93.9	47.0-125	
Fluoranthene	0.0800	0.0760	95.0	49.0-129	
Fluorene	0.0800	0.0801	100	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0709	88.6	46.0-125	
1-Methylnaphthalene	0.0800	0.0728	91.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0723	90.4	50.0-120	
Naphthalene	0.0800	0.0701	87.6	50.0-120	
Pyrene	0.0800	0.0798	99.8	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4071049-1 05/16/24 23:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			114	23.0-120	
(S) Nitrobenzene-d5			84.9	14.0-149	
(S) 2-Fluorobiphenyl			97.0	34.0-125	

L1735438-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735438-02 05/17/24 05:55 • (MS) R4071049-3 05/17/24 06:13 • (MSD) R4071049-4 05/17/24 06:31

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 %
Acenaphthene	0.0781	ND	0.0366	0.0350	46.9	45.1	1	14.0-127			4.47	27
Anthracene	0.0781	ND	0.0405	0.0412	51.9	53.1	1	10.0-145			1.71	30
Benzo(a)anthracene	0.0781	ND	0.0435	0.0460	55.8	59.3	1	10.0-139			5.59	30
Benzo(b)fluoranthene	0.0781	ND	0.0417	0.0436	53.5	56.2	1	10.0-140			4.45	36
Benzo(k)fluoranthene	0.0781	ND	0.0504	0.0583	64.6	75.1	1	10.0-137			14.5	31
Benzo(a)pyrene	0.0781	ND	0.0448	0.0478	57.4	61.6	1	10.0-141			6.48	31
Chrysene	0.0781	ND	0.0534	0.0574	68.5	74.0	1	10.0-145			7.22	30
Dibenz(a,h)anthracene	0.0781	ND	0.0483	0.0579	61.9	74.6	1	10.0-132			18.1	31
Fluoranthene	0.0781	ND	0.0416	0.0425	53.3	54.8	1	10.0-153			2.14	33
Fluorene	0.0781	ND	0.0426	0.0412	54.6	53.1	1	11.0-130			3.34	29
Indeno(1,2,3-cd)pyrene	0.0781	ND	0.0397	0.0436	50.9	56.2	1	10.0-137			9.36	32
1-Methylnaphthalene	0.0781	ND	0.0372	0.0335	47.4	42.9	1	10.0-142			10.5	28
2-Methylnaphthalene	0.0781	ND	0.0403	0.0351	51.1	44.6	1	10.0-137			13.8	28
Naphthalene	0.0781	ND	0.0410	0.0337	52.1	43.0	1	10.0-135			19.5	27
Pyrene	0.0781	ND	0.0418	0.0435	53.6	56.1	1	10.0-148			3.99	35
(S) p-Terphenyl-d14					73.9	85.7		23.0-120				
(S) Nitrobenzene-d5					70.0	73.7		14.0-149				
(S) 2-Fluorobiphenyl					56.1	66.0		34.0-125				

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# ACCREDITATIONS & LOCATIONS

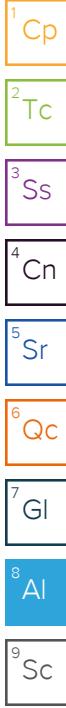
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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.







# ANALYTICAL REPORT

May 21, 2024

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Caerus Oil and Gas

Sample Delivery Group: L1735520  
Samples Received: 05/11/2024  
Project Number: L29 595 BACKGROUNDS  
Description: L29 595 Backgrounds  
Site: L29 595  
Report To: Jake J. / Brett M. / Blair R. / Andy V.  
143 Diamond Avenue  
Parachute, CO 81635

Entire Report Reviewed By:

*Chris Ward*










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 mydata.pacelabs.com

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# SAMPLE SUMMARY

20240509-NPRBG-(L29 595-S)@0.5 L1735520-01 Solid

Collected by: Alex Slorby  
 Collected date/time: 05/09/24 13:25  
 Received date/time: 05/11/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2289596	1	05/20/24 18:11	05/20/24 18:11	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2285521	1	05/17/24 08:04	05/20/24 01:15	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2289677	1	05/20/24 09:53	05/20/24 15:17	BJM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2289676	1	05/20/24 09:50	05/20/24 14:47	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2287541	1	05/16/24 17:25	05/17/24 10:11	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2285436	5	05/16/24 16:52	05/18/24 12:59	LD	Mt. Juliet, TN

1 Cp

2 Tc

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# 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

- <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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.951		1	05/20/2024 18:11	WG2289596

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/20/2024 01:15	<a href="#">WG2285521</a>

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.72	<u>T8</u>	1	05/20/2024 15:17	<a href="#">WG2289677</a>

Sample Narrative:

L1735520-01 WG2289677: 8.72 at 24.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	300		10.0	1	05/20/2024 14:47	<a href="#">WG2289676</a>

Sample Narrative:

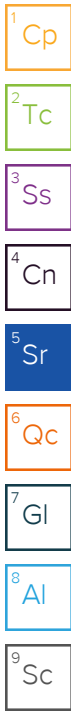
L1735520-01 WG2289676: at 25C

Metals (ICP) by Method 6010B-NE493 Ch 2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.679		0.200	1	05/17/2024 10:11	<a href="#">WG2287541</a>

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	21.7		1.00	5	05/18/2024 12:59	<a href="#">WG2285436</a>
Barium	300		2.50	5	05/18/2024 12:59	<a href="#">WG2285436</a>
Cadmium	ND		1.00	5	05/18/2024 12:59	<a href="#">WG2285436</a>
Copper	24.4		5.00	5	05/18/2024 12:59	<a href="#">WG2285436</a>
Lead	13.8		2.00	5	05/18/2024 12:59	<a href="#">WG2285436</a>
Nickel	14.2		2.50	5	05/18/2024 12:59	<a href="#">WG2285436</a>
Selenium	ND		2.50	5	05/18/2024 12:59	<a href="#">WG2285436</a>
Silver	ND		0.500	5	05/18/2024 12:59	<a href="#">WG2285436</a>
Zinc	40.1		25.0	5	05/18/2024 12:59	<a href="#">WG2285436</a>



Method Blank (MB)

(MB) R4071478-1 05/20/24 00:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

<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

L1735520-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1735520-01 05/20/24 01:15 • (DUP) R4071478-3 05/20/24 01:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

L1735945-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1735945-11 05/20/24 03:18 • (DUP) R4071478-8 05/20/24 03:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	52.2	P1	20

Laboratory Control Sample (LCS)

(LCS) R4071478-2 05/20/24 00:56

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.0	100	80.0-120	

L1735945-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735945-06 05/20/24 02:10 • (MS) R4071478-5 05/20/24 02:23 • (MSD) R4071478-6 05/20/24 02:29

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	ND	14.5	11.5	71.3	56.1	1	75.0-125	J6	J3 J6	23.4	20

L1735950-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735950-02 05/20/24 03:37 • (MS) R4071478-10 05/20/24 03:49 • (MSD) R4071478-11 05/20/24 03:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	ND	15.0	15.6	74.8	77.9	1	75.0-125	J6		4.04	20

L1735945-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1735945-06 05/20/24 02:10 • (MS) R4071478-7 05/20/24 02:35

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	651	ND	611	93.8	50	75.0-125	

L1735950-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1735950-02 05/20/24 03:37 • (MS) R4071478-12 05/20/24 04:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	638	ND	581	91.1	50	75.0-125	

<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) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4071768-1 05/20/24 15:17 • (LCSD) R4071768-2 05/20/24 15:17

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
	su	su	su	%	%	%			%	%
pH	10.0	9.98	9.99	99.8	99.9	99.0-101			0.100	1

Sample Narrative:

LCS: 9.98 at 23.3C

LCSD: 9.99 at 23.4C

<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) R4071753-1 05/20/24 14:47

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

Sample Narrative:

BLANK: at 25C

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

(LCS) R4071753-2 05/20/24 14:47 • (LCSD) R4071753-3 05/20/24 14:47

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCSD Result umhos/cm	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Specific Conductance	733	745	744	102	102	85.0-115			0.134	20

Sample Narrative:

LCS: at 25C

LCSD: at 25C

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

Method Blank (MB)

(MB) R4071014-1 05/17/24 09:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R4071014-2 05/17/24 09:41 • (LCSD) R4071014-3 05/17/24 09:43

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.11	1.09	111	109	80.0-120			1.84	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) R4071427-1 05/18/24 13:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

Laboratory Control Sample (LCS)

(LCS) R4071427-2 05/18/24 13:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	89.6	89.6	80.0-120	
Barium	100	85.6	85.6	80.0-120	
Cadmium	100	90.3	90.3	80.0-120	
Copper	100	98.2	98.2	80.0-120	
Lead	100	88.4	88.4	80.0-120	
Nickel	100	94.9	94.9	80.0-120	
Selenium	100	87.7	87.7	80.0-120	
Silver	20.0	18.7	93.3	80.0-120	
Zinc	100	87.5	87.5	80.0-120	

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1735516-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1735516-01 05/18/24 13:16 • (MS) R4071427-5 05/18/24 13:25 • (MSD) R4071427-6 05/18/24 13:29

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	10.9	105	96.0	93.8	85.1	5	75.0-125			8.60	20
Barium	100	2490	2360	1200	0.000	0.000	5	75.0-125	V	J3 V	64.9	20
Cadmium	100	ND	98.2	90.5	97.8	90.0	5	75.0-125			8.17	20
Copper	100	21.8	119	107	97.0	84.7	5	75.0-125			10.9	20
Lead	100	12.0	109	94.8	96.6	82.7	5	75.0-125			13.6	20
Nickel	100	12.2	108	98.0	95.6	85.8	5	75.0-125			9.54	20
Selenium	100	ND	97.3	89.1	96.7	88.5	5	75.0-125			8.80	20
Silver	20.0	ND	21.0	18.8	105	94.0	5	75.0-125			10.8	20
Zinc	100	52.2	141	112	88.8	59.4	5	75.0-125		J3 J6	23.2	20

# 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.

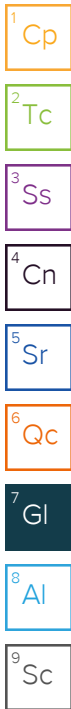
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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

J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
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.



# 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
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Kentucky <sup>2</sup>	16	South Dakota	n/a
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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

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