



February 13, 2024

Mr. Blair Rollins
Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

via email

Subject: WF09B-25 (I25A) Tank Release
CECMC Facility ID: 335651
CECMC Release ID: 485873
Garfield County, Colorado

Mr. Rollins,

Entrada Consulting Group, Inc. (Entrada) was contracted by Caerus Oil and Gas, LLC (Caerus, Operator) to conduct field screening and soil sampling in response to a release from the WF09B-25 (I25A) (Site) tank battery secondary containment.

The Site is located in the North Parachute Ranch unit of Caerus' Piceance operations area in the northeast quarter of the southeast quarter of section 25 of township 5 south and range 96 west of the 6th principal meridian in Garfield County, Colorado. It is identified in the Colorado Energy and Carbon Management Commission (CECMC) database by Facility ID 335651. The release is documented in the CECMC database by Release ID 485873.

PATHWAY TO GROUNDWATER

The Site lies at an elevation of 5818 feet above mean sea level (ft-amsl) and is located between two branches of the Middle Fork of Parachute Creek, which at its closest to the point of release (POR) is approximately 434 feet to the west and approximately 494 to the east. Both branches are ephemeral in nature and typically convey runoff during spring thaw and precipitation events.

The nearest groundwater wells actively permitted with the Colorado Division of Water Resources (DWR) are located approximately 330 feet south of the Site and are summarized in **Table A** below:

DWR Permit Number	Construction Date	Distance from POR (mi)	Direction from POR	Well Elevation (ft-amsl)	Static Depth to Groundwater (ft-bgs)	Groundwater Elevation (ft-amsl)	GW Elevation Difference from Site Surface (ft)
25482	1982-0-01	0.06	S	5814.0	20.0	5794.0	24.0
Unknown	Unknown	0.07	S	5813.0	18.9	5794.1	24.1

Table A - Summary of local groundwater elevation references.

Based on the information presented above, Entrada believes that shallow groundwater may be a concern at the Site and recommends that clearance soil samples be evaluated against CECMC Table 915-1 Protection of Groundwater Soil Screening Level (PGSSL) concentrations.

EXCAVATION FIELD SCREENING AND SOIL SAMPLING

An Entrada representative was on site on January 26 and January 30, 2024, to direct investigation operations, conduct field screening, and collect soil samples for lateral and vertical delineation of impacts. The release originated from an oil tank which filled the secondary containment with condensate. Prior to recovery, ambient temperatures allowed the liquid to thaw and the release breached the containment at a compromised point at the southwest corner and flowed approximately 200 feet to the southeast along the pad edge. A hydro excavation truck operated by X-Caliber Field Services, Inc (XFS) was used to recover standing fluids, which included a mixture of condensate and snowmelt, and to remove soil from select areas where field screening indicated the presence of hydrocarbon impact. Soil along the spill path was inspected for indications of hydrocarbon impacts (e.g. odor, staining) and screened for volatile organic compounds (VOCs) with a handheld photoionization detector (PID) equipped with a 10.6 eV lamp. Field screening and soil sample locations are shown in **Figure 1**.

On January 26, 2024, soil was screened at twelve (12) locations along the spill path at depths ranging 0.5 to 1.5 feet below ground surface (ft-bgs). VOC concentrations ranged from 0.28 parts per million (ppm) at 20240126-I25A 596-(SS03)@1 to 124.3 ppm at 20240126-I25A 596-(SS07)@1. Odor and possible staining were noted at select locations along the spill path. Soil at locations which exhibited elevated VOC concentrations was removed via hydro excavation and the soil beneath was field screened and sampled. A total of five (5) soil samples (20240126-I25A 596-(SS04)@1, 20240126-I25A 596-(SS05)@1, 20240126-I25A 596-(SS06)@1, 20240126-I25A 596-(SS07)@1.5 and 20240126-I25A 596-(SS10)@1.5) were collected to assess initial vertical and lateral delineation.

On January 30, 2024, Pinyon Field Services, LLC (PFS) was onsite to excavate and remove impacted soil adjacent to the POR on the southwest exterior of the secondary containment. The initial excavation measured approximately 30 feet in length by 30 feet in width with an approximate depth of 1.5 ft-bgs. A smaller secondary area was excavated at the containment edge due to elevated VOC concentrations and measured approximately 5 feet in length by 3 feet in width with an approximate depth of 3 ft-bgs. Soil was screened at eight (8) locations along the spill path at depths ranging from 1.5 to 3 ft-bgs. VOC concentrations ranged from 2.8 ppm at 20240130-I25A 596-(SS08)@1.5 to 527.1 ppm at 20240130-I25A 596-(SS15)@2. Odor and possible staining were noted at select locations within the excavated area. Soil at locations which exhibited elevated VOC concentrations was removed and the soil beneath was field screened and sampled. A total of three (3) soil samples (20240130-I25A 596-(SS11)@2, 20240130-I25A 596-(SS12)@1.5 and 20240130-I25A 596-(SS15)@2.5) were collected to assess excavation vertical and lateral delineation.

Groundwater was not observed at any point during delineation activities.

All soil samples were collected in 9 oz glass jars, sealed, labeled, and placed into an ice-filled cooler for preservation. Samples were submitted to Pace Analytical in Mt. Juliet, TN and analyzed for the following analyte suite:

- Total Petroleum Hydrocarbons – diesel range organics (TPH-DRO [C10-C28]) and Total Petroleum Hydrocarbons – oil range organics (TPH-ORO [C28-C36]) by U.S. Environmental Protection Agency (EPA) Method 8015M
- TPH – gasoline range organics (TPH-GRO [C6-C10]) by EPA Method 8015D/GRO
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene by EPA Method 8260B
- Polycyclic aromatic Hydrocarbons (PAHs)(CECMC Table 915-1) by EPA Method 8270C-SIM
- pH by EPA Method 9045D
- Metals (CECMC Table 915-1) by EPA Method 6010B
 - Hexavalent chromium by EPA Method 7199A
 - Hot-water soluble Boron by EPA Method 6010B-NE493, Ch 2
 - Arsenic by EPA Method 6020
- Electrical Conductivity (EC) by EPA Method 9050AMod
- Sodium adsorption ratio (SAR) by USDA Method H60

BACKGROUND SOIL SAMPLING

Two (2) site-specific background soil samples were collected at depths of 1 and 1.5 ft-bgs in undisturbed native soil to the north and northeast of the Site. Background sample locations are shown in **Figure 1**.

The samples were collected in 9 oz glass jars, sealed, labeled, and placed into an ice-filled cooler for preservation. They were submitted to Pace Analytical in Mt. Juliet, TN to be analyzed for the following:

- pH by EPA Method 9045D
- Electrical Conductivity (EC) by EPA Method 9050AMod
- Sodium adsorption ratio (SAR) by USDA Method H60
- Metals (CECMC Table 915-1) by EPA Method 6010B
 - Hexavalent chromium by EPA Method 7199A
 - Hot-water soluble Boron by EPA Method 6010B-NE493, Ch 2
 - Arsenic by EPA Method 6020

SOIL ANALYTICAL RESULTS

Analytical results for the eight (8) delineation soil samples are presented in **Table 1 and Table 2** along with CECMC Table 915-1 Cleanup Concentrations, PGSSLs, and Soil Suitability for Reclamation (SSR) standards for comparison. Results in exceedance of these standards are summarized below:

- Benzene was reported in exceedance of the PGSSL concentration of 0.0026 milligrams per kilogram (mg/kg) in four (4) samples:
 - 20240126-I25A 596-(SS04)@1 at 0.163 mg/kg
 - 20240126-I25A 596-(SS05)@1 at 0.0248 mg/kg
 - 20240130-I25A 596-(SS11)@2 at 0.00360 mg/kg
 - 20240130-I25A 596-(SS12)@1.5 at 0.00532 mg/kg

- 1, 2, 4-trimethylbenzene was reported in exceedance of the PGSSL concentration of 0.0081 mg/kg in four (4) samples:
 - 20240126-I25A 596-(SS04)@1 at 0.0113 mg/kg
 - 20240130-I25A 596-(SS11)@2 at 0.0172 mg/kg
 - 20240130-I25A 596-(SS12)@1.5 at 0.120 mg/kg
 - 20240130-I25A 596-(SS13)@2.5 at 0.0164 mg/kg
- 1, 3, 5-trimethylbenzene was reported in exceedance of the PGSSL concentration of 0.0087 mg/kg in three (3) samples:
 - 20240130-I25A 596-(SS11)@2 at 0.0189 mg/kg
 - 20240130-I25A 596-(SS12)@1.5 at 0.145 mg/kg
 - 20240130-I25A 596-(SS13)@2.5 at 0.0201 mg/kg
- 1-methylnaphthalene was reported in exceedance of the PGSSL concentration of 0.006 mg/kg in all samples. All detections were at concentrations below the laboratory reportable detection limit (RDL) of 0.0200 mg/kg.
- 2-methylnaphthalene was reported in exceedance of the PGSSL concentration of 0.019 mg/kg in all samples. All detections were at concentrations below the laboratory RDL of 0.0200 mg/kg.
- Naphthalene was reported in exceedance of the PGSSL concentration of 0.0038 mg/kg in all samples. All detections were at concentrations below the laboratory RDL of 0.0200 mg/kg.
- Arsenic was reported in exceedance of the PGSSL concentration of 0.29 mg/kg in all samples, ranging from 8.72 mg/kg in sample 20240130-I25A 596-(SS11)@2 to 14.6 mg/kg in sample 20240130-NPR BG-(I25A 596-NE)@1.
- Barium was reported in exceedance of the PGSSL concentration of 82 mg/kg in all samples, at concentrations ranging from 206 mg/kg in sample 20240130-I25A 596-(SS11)@2 to 2440 mg/kg in sample 20240130-NPR BG-(I25A 596-NE)@1.
- Cadmium was identified in all samples at concentrations below the laboratory RDL of 1.00 mg/kg. The PGSSL concentration for Cadmium is 0.38 mg/kg.
- Hexavalent Chromium was identified in all samples at concentrations below the laboratory RDL of 1.00 mg/kg. The PGSSL concentration for hexavalent chromium is 0.00067 mg/kg.
- Lead was reported in exceedance of the PGSSL concentration of 14 mg/kg in seven (7) samples:
 - 20240126-I25A 596-(SS04)@1 at 14.1 mg/kg
 - 20240126-I25A 596-(SS06)@1 at 14.6 mg/kg
 - 20240126-I25A 596-(SS07)@1.5 at 22.6 mg/kg
 - 20240126-I25A 596-(SS10)@1.5 at 16.5 mg/kg
 - 20240130-I25A 596-(SS13)@2.5 at 19.7 mg/kg
 - 20240130-NPR BG-(I25A 596-N)@1.5 at 14.3 mg/kg
 - 20240130-NPR BG-(I25A 596-NE)@1 at 17.2 mg/kg
- Selenium was identified in all samples at concentrations below the laboratory RDL of 2.50 mg/kg. The PGSSL concentration for selenium is 0.26 mg/kg.

All remaining soil analytical results were below applicable CECMC Table 915-1 standards. Laboratory analytical reports and chain-of-custody documentation are included as **Attachments**.

GROUNDWATER SAMPLING AND ANALYSIS

As a precautionary measure, an Entrada representative collected a groundwater sample from Solvay Observation Well #1 on January 25, 2024.

The groundwater sample was collected in containers appropriate to the specified analyses, sealed, labelled, placed into an ice-filled cooler for preservation, and submitted to Pace Analytical in Mt. Juliet, TN for the following analyses:

- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), Naphthalene, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene (TMBs) by EPA Method 8260B
- Total dissolved solids (TDS) by EPA Method 2540 C-2011
- Chloride and Sulfate by EPA Method 9056A

No hydrocarbons were detected in the sample. Laboratory analytical reports and chain of custody documentation are included at **Attachments**.

CONCLUSIONS AND RECOMMENDATIONS

Soil analytical results reported concentrations of benzene, TMBs, and lead in exceedance of CECMC Table 915-1 PGSSLs in select samples. Elevated concentrations of arsenic and barium were reported in all samples; however, they were below the concentrations reported in the site-specific background soil samples. Entrada requests consideration of CECMC Table 915-1 Footnote 1 with respect to arsenic and barium exceedances.

Based on the information presented above, Entrada recommends the following:

- Additional excavation to address hydrocarbon impacts.
- Collection of a representative produced fluid sample from the Site to be analyzed for lead to determine whether it is present in the fluid at sufficient concentration to cause the elevated levels reported in the release cleanup soil samples.
- Request that the CECMC allow the following reduced analyte suite for all future soil samples:
 - Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)
 - 1,2,4-trimethylbenzene
 - 1,3,5-trimethylbenzene
 - 1-methylnaphthalene
 - 2-methylnaphthalene
 - Naphthalene
 - Lead

We appreciate the opportunity to assist Caerus Oil and Gas LLC. Please contact us at (970) 270-2986 if you have any questions.

Sincerely,

ENTRADA CONSULTING GROUP



Christopher Mace
Senior Geologist



Tim Dobransky
Principal Scientist

Attachments:

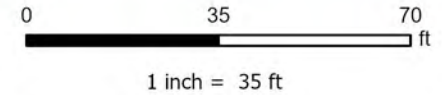
- Figure 1 – Site Diagram
- Table 1 – Soil Analytical Results – Organic
- Table 2 – Soil Analytical Results – Inorganic
- Photographic Log
- Soil Laboratory Analytical Reports
- Solvay Observation Well #1 Groundwater Analytical Results

FIGURES



LEGEND

- Background Sample
- Field Screening Location
- Riser Pipe
- Estimated Spill Path
- Soil Sample Location
- Excavation



Project No: 024-003

Map By: NDB

Date: 2/5/2024

I25A 596 Tank Release Diagram
 Caerus Oil and Gas LLC
 Lot 4, Section 25, T5S R96W, 6th PM
 Garfield County, Colorado



330 Grand Avenue, Unit C
 Grand Junction, CO 81501
 970-549-1015

Figure

1

TABLES



**TABLE 1
I25A 596
PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL
SOIL ANALYTICAL - ORGANIC**

Analyte	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)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)Pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Pyrene
915-1 PROTECTION OF GW	500			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.55	5.8	0.011	0.3	2.9	0.24	9	0.096	5.9	0.54	0.98	0.006	0.019	0.0038	1.3
915-1 RESIDENTIAL SOIL	500			1.2	190	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
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	mg/kg	mg/kg
Sample Name	Sample Date																							
20240126-I25A 596-(SS04)@1	01/26/2024	1.47	< 4.00	< 4.00	0.163	0.323	0.0113	0.0371	0.0113	< 0.00500	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	< 0.0200	< 0.0200	< 0.00600
20240126-I25A 596-(SS05)@1	01/26/2024	3.81	22.1	55.2	0.0248	0.172	0.00717	0.0561	< 0.00500	0.00720	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	< 0.0200	< 0.0200	< 0.00600
20240126-I25A 596-(SS06)@1	01/26/2024	0.122	< 4.00	< 4.00	< 0.00100	< 0.00500	< 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	< 0.0200	< 0.0200	< 0.0200	< 0.00600
20240126-I25A 596-(SS07)@1.5	01/26/2024	< 0.100	18.0	60.0	< 0.00100	< 0.00500	< 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	< 0.0200	< 0.0200	< 0.0200	< 0.00600
20240126-I25A 596-(SS10)@1.5	01/26/2024	0.292	14.6	52.5	< 0.00100	< 0.00500	< 0.00250	0.0125	< 0.00500	< 0.00500	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	< 0.0200	< 0.0200	< 0.00600
20240130-I25A 596-(SS11)@2	01/30/2024	1.22	15.1	48.0	0.00360	0.0313	0.00338	0.0548	0.0172	0.0189	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	< 0.0200	< 0.0200	< 0.00600
20240130-I25A 596-(SS12)@1.5	01/30/2024	1.71	23.8	83.3	0.00532	0.174	0.0487	0.750	0.120	0.145	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	< 0.0200	< 0.0200	< 0.00600
20240130-I25A 596-(SS13)@2.5	01/30/2024	0.588	16.9	59.8	0.00176	0.0146	0.00450	0.0610	0.0164	0.0201	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.0200	< 0.0200	< 0.0200	< 0.00600
20240130-NPR BG-(I25A 596-N)@1.5	01/30/2024																							
20240130-NPR BG-(I25A 596-NE)@1	01/30/2024																							

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






TABLE 2
I25A 596
PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL SOIL
ANALYTICAL - INORGANIC

Analyte		EC	SAR	pH	Boron	Arsenic	Barium	Cadmium	Chromium VI	Copper	Lead	Nickel	Selenium	Silver	Zinc
915-1 PROTECTION OF GW		4000	6	8.3	2	0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
915-1 RESIDENTIAL SOIL		4000	6	8.3	2	0.68	15000	71	0.3	3100	400	1500	390	390	23000
Units		umhos/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
Sample Name	Sample Date														
20240126-I25A 596-(SS04)@1	01/26/2024	350	0.281	7.41	0.524	9.10	1020	< 1.00	< 1.00	16.5	14.1	13.3	< 2.50	< 0.500	50.4
20240126-I25A 596-(SS05)@1	01/26/2024	369	0.329	7.68	0.420	8.97	522	< 1.00	< 1.00	15.5	12.1	12.5	< 2.50	< 0.500	43.2
20240126-I25A 596-(SS06)@1	01/26/2024	336	0.354	7.77	0.533	10.0	668	< 1.00	< 1.00	16.2	14.6	14.1	< 2.50	< 0.500	47.7
20240126-I25A 596-(SS07)@1.5	01/26/2024	447	0.815	7.68	0.751	9.31	1390	< 1.00	< 1.00	18.6	22.6	14.4	< 2.50	< 0.500	49.4
20240126-I25A 596-(SS10)@1.5	01/26/2024	464	1.05	7.65	0.719	8.86	587	< 1.00	< 1.00	16.7	16.5	12.6	< 2.50	< 0.500	48.5
20240130-I25A 596-(SS11)@2	01/30/2024	543	1.71	7.78	0.614	8.72	206	< 1.00	< 1.00	15.2	11.8	14.1	< 2.50	< 0.500	48.7
20240130-I25A 596-(SS12)@1.5	01/30/2024	715	1.09	7.68	0.688	9.98	239	< 1.00	< 1.00	16.7	12.2	15.8	< 2.50	< 0.500	48.8
20240130-I25A 596-(SS13)@2.5	01/30/2024	393	1.91	7.82	0.623	9.71	976	< 1.00	< 1.00	17.7	19.7	14.9	< 2.50	< 0.500	55.1
20240130-NPR BG-(I25A 596-N)@1.5	01/30/2024	298	0.426	7.70	0.597	10.7	955	< 1.00	< 1.00	17.2	14.3	15.2	< 2.50	< 0.500	52.4
20240130-NPR BG-(I25A 596-NE)@1	01/30/2024	464	0.359	7.60	0.504	14.6	2440	< 1.00	< 1.00	18.4	17.2	14.3	< 2.50	< 0.500	50.3

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

PHOTOGRAPHIC LOG

<p>Project Name: North Parachute Ranch I25A 596 Tank Release</p>	<p>Site Location: North Parachute Ranch I25A 596</p>	<p>Project Number: 024-003</p>
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: Potential spill path at SS01 screening location. View looking northwest.</p>		
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: Potential spill path from SS02 screening location. View looking northwest.</p>		

<p>Project Name: North Parachute Ranch I25A 596 Tank Release</p>	<p>Site Location: North Parachute Ranch I25A 596</p>	<p>Project Number: 024-003</p>
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: Potential spill path from SS03 screening location. View looking northwest.</p>		
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: Spill path at edge of location. View looking southwest.</p>		

<p>Project Name: North Parachute Ranch I25A 596 Tank Release</p>	<p>Site Location: North Parachute Ranch I25A 596</p>	<p>Project Number: 024-003</p>
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: Point of release and surrounding spill path zone. Sample points from SS08, SS09, and SS10 are in view. View looking north.</p>		
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: Point of release and SS10 screening and sampling location. View looking north.</p>		

<p>Project Name: North Parachute Ranch I25A 596 Tank Release</p>	<p>Site Location: North Parachute Ranch I25A 596</p>	<p>Project Number: 024-003</p>
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Facility:
North Parachute Ranch
I25A 596

Date: 2024-01-26

Description:
Tank containment at
failure point. View
looking north.





Facility:
North Parachute Ranch
I25A 596

Date: 2024-01-26

Description:
View of sheen near the
SS07 screening and
sampling location.



<p>Project Name: North Parachute Ranch I25A 596 Tank Release</p>	<p>Site Location: North Parachute Ranch I25A 596</p>	<p>Project Number: 024-003</p>
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-30</p> <p>Description: Excavation area at the release point and surrounding area. View looking southeast.</p>		
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-30</p> <p>Description: Excavation area at the POR and surrounding area looking east.</p>		

<p>Project Name: North Parachute Ranch I25A 596 Tank Release</p>	<p>Site Location: North Parachute Ranch I25A 596</p>	<p>Project Number: 024-003</p>
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: Secondary excavation at the containment. View looking northeast.</p>		
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: BG NE sample location looking south.</p>		

<p>Project Name: North Parachute Ranch I25A 596 Tank Release</p>	<p>Site Location: North Parachute Ranch I25A 596</p>	<p>Project Number: 024-003</p>
<p>Facility: North Parachute Ranch I25A 596</p> <p>Date: 2024-01-26</p> <p>Description: BG N sample location looking south.</p>	 <p>The photograph shows a hillside covered in dry, brownish vegetation and numerous yellow wildflowers. In the foreground, two black cylindrical markers with red caps are placed on the ground. In the background, a large white cylindrical tank is visible, along with other industrial structures and a dirt road. The sky is clear and blue.</p>	

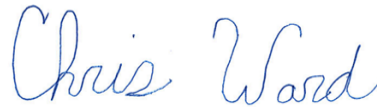
SOIL
LABORATORY ANALYTICAL REPORTS

Caerus Oil and Gas

Sample Delivery Group: L1699701
Samples Received: 01/27/2024
Project Number:
Description: NPR I25A 596 Tank Release

Report To: Blair Rollins
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

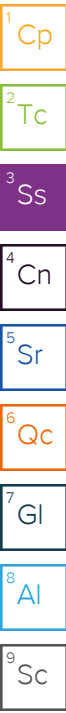
⁹ Sc

SAMPLE SUMMARY

20240126-I25A 596-(SS04)@1 L1699701-01 Solid

Collected by B. Abeyta
 Collected date/time 01/26/24 11:10
 Received date/time 01/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2216911	1	02/01/24 17:19	02/01/24 17:19	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2215117	1	01/31/24 03:34	01/31/24 15:28	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2216217	1	01/30/24 14:19	01/31/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2215287	1	01/29/24 09:17	02/04/24 18:00	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2216913	1	02/01/24 12:54	02/01/24 22:19	JTM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2214814	5	01/29/24 08:49	01/29/24 16:53	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2217528	1	01/30/24 23:26	02/01/24 03:22	GLN	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2218071	1	01/30/24 23:26	02/01/24 17:43	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2217054	1	01/31/24 19:06	02/01/24 02:27	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2214950	1	01/29/24 18:59	01/30/24 02:30	AGW	Mt. Juliet, TN



20240126-I25A 596-(SS05)@1 L1699701-02 Solid

Collected by B. Abeyta
 Collected date/time 01/26/24 11:20
 Received date/time 01/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2216911	1	02/01/24 17:21	02/01/24 17:21	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2215117	1	01/31/24 03:34	01/31/24 15:40	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2216217	1	01/30/24 14:19	01/31/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2215287	1	01/29/24 09:17	02/04/24 18:00	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2216913	1	02/01/24 12:54	02/01/24 22:27	JTM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2214814	5	01/29/24 08:49	01/29/24 16:56	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2217528	1	01/30/24 23:26	02/01/24 03:47	GLN	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2216977	1	01/30/24 23:26	01/31/24 15:50	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2218071	1	01/30/24 23:26	02/01/24 18:06	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2218425	2.92	02/02/24 08:23	02/03/24 10:33	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2214950	1	01/29/24 18:59	01/30/24 02:47	AGW	Mt. Juliet, TN

20240126-I25A 596-(SS06)@1 L1699701-03 Solid

Collected by B. Abeyta
 Collected date/time 01/26/24 11:30
 Received date/time 01/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2216911	1	02/01/24 17:23	02/01/24 17:23	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2215117	1	01/31/24 03:34	01/31/24 15:47	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2216217	1	01/30/24 14:19	01/31/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2215287	1	01/29/24 09:17	02/04/24 18:00	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2216913	1	02/01/24 12:54	02/01/24 22:30	JTM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2214814	5	01/29/24 08:49	01/29/24 16:59	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2218399	1	01/30/24 23:26	02/03/24 22:55	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2216977	1	01/30/24 23:26	01/31/24 16:09	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2218071	1	01/30/24 23:26	02/01/24 18:30	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2217054	1	01/31/24 19:06	02/01/24 03:38	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2214950	1	01/29/24 18:59	01/30/24 03:05	AGW	Mt. Juliet, TN

20240126-I25A 596-(SS07)@1.5 L1699701-04 Solid

Collected by B. Abeyta
 Collected date/time 01/26/24 14:40
 Received date/time 01/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2216911	1	02/01/24 17:24	02/01/24 17:24	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2215117	1	01/31/24 03:34	01/31/24 15:53	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2216217	1	01/30/24 14:19	01/31/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2215287	1	01/29/24 09:17	02/04/24 18:00	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2216913	1	02/01/24 12:54	02/01/24 22:33	JTM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2214814	5	01/29/24 08:49	01/29/24 17:03	LD	Mt. Juliet, TN

SAMPLE SUMMARY

20240126-I25A 596-(SS07@1.5 L1699701-04 Solid

Collected by B. Abeyta Collected date/time 01/26/24 14:40 Received date/time 01/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2218399	1	01/30/24 23:26	02/03/24 23:14	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2216977	1	01/30/24 23:26	01/31/24 16:28	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2217054	1	01/31/24 19:06	02/01/24 05:44	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2214950	1	01/29/24 18:59	01/30/24 03:23	AGW	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

20240126-I25A 596-(SS10@1.5 L1699701-05 Solid

Collected by B. Abeyta Collected date/time 01/26/24 14:50 Received date/time 01/27/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2216911	1	02/01/24 16:48	02/01/24 16:48	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2215117	1	01/31/24 03:34	01/31/24 15:59	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2216217	1	01/30/24 14:19	01/31/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2215287	1	01/29/24 09:17	02/04/24 18:00	EPW	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2216913	1	02/01/24 12:54	02/01/24 22:36	JTM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2214814	5	01/29/24 08:49	01/29/24 17:06	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2217528	1	01/30/24 23:26	02/01/24 05:00	GLN	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2216977	1	01/30/24 23:26	01/31/24 16:47	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2218425	2.56	02/02/24 08:23	02/03/24 10:47	KAP	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2214950	1	01/29/24 18:59	01/30/24 04:16	AGW	Mt. Juliet, TN

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	0.281		1	02/01/2024 17:19	WG2216911

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/31/2024 15:28	WG2215117

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.41	<u>T8</u>	1	01/31/2024 16:30	WG2216217

Sample Narrative:

L1699701-01 WG2216217: 7.41 at 19.8C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	350		10.0	1	02/04/2024 18:00	WG2215287

Sample Narrative:

L1699701-01 WG2215287: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.524		0.200	1	02/01/2024 22:19	WG2216913

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.10		1.00	5	01/29/2024 16:53	WG2214814
Barium	1020		2.50	5	01/29/2024 16:53	WG2214814
Cadmium	ND		1.00	5	01/29/2024 16:53	WG2214814
Copper	16.5		5.00	5	01/29/2024 16:53	WG2214814
Lead	14.1		2.00	5	01/29/2024 16:53	WG2214814
Nickel	13.3		2.50	5	01/29/2024 16:53	WG2214814
Selenium	ND		2.50	5	01/29/2024 16:53	WG2214814
Silver	ND		0.500	5	01/29/2024 16:53	WG2214814
Zinc	50.4		25.0	5	01/29/2024 16:53	WG2214814

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.47		0.100	1	02/01/2024 03:22	WG2217528
(S) a, a, a-Trifluorotoluene(FID)	87.0		77.0-120		02/01/2024 03:22	WG2217528

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	0.163		0.00100	1	02/01/2024 17:43	WG2218071
Toluene	0.323		0.00500	1	02/01/2024 17:43	WG2218071
Ethylbenzene	0.0113		0.00250	1	02/01/2024 17:43	WG2218071
Xylenes, Total	0.0371		0.00650	1	02/01/2024 17:43	WG2218071
1,2,4-Trimethylbenzene	0.0113		0.00500	1	02/01/2024 17:43	WG2218071
1,3,5-Trimethylbenzene	ND		0.00500	1	02/01/2024 17:43	WG2218071
(S) Toluene-d8	104		75.0-131		02/01/2024 17:43	WG2218071
(S) 4-Bromofluorobenzene	96.3		67.0-138		02/01/2024 17:43	WG2218071
(S) 1,2-Dichloroethane-d4	116		70.0-130		02/01/2024 17:43	WG2218071

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	ND		4.00	1	02/01/2024 02:27	WG2217054
C28-C36 Motor Oil Range	ND		4.00	1	02/01/2024 02:27	WG2217054
(S) o-Terphenyl	25.3		18.0-148		02/01/2024 02:27	WG2217054

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	01/30/2024 02:30	WG2214950
Anthracene	ND		0.00600	1	01/30/2024 02:30	WG2214950
Benzo(a)anthracene	ND		0.00600	1	01/30/2024 02:30	WG2214950
Benzo(b)fluoranthene	ND		0.00600	1	01/30/2024 02:30	WG2214950
Benzo(k)fluoranthene	ND		0.00600	1	01/30/2024 02:30	WG2214950
Benzo(a)pyrene	ND		0.00600	1	01/30/2024 02:30	WG2214950
Chrysene	ND		0.00600	1	01/30/2024 02:30	WG2214950
Dibenz(a,h)anthracene	ND		0.00600	1	01/30/2024 02:30	WG2214950
Fluoranthene	ND		0.00600	1	01/30/2024 02:30	WG2214950
Fluorene	ND	J4	0.00600	1	01/30/2024 02:30	WG2214950
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	01/30/2024 02:30	WG2214950
1-Methylnaphthalene	ND		0.0200	1	01/30/2024 02:30	WG2214950
2-Methylnaphthalene	ND		0.0200	1	01/30/2024 02:30	WG2214950
Naphthalene	ND		0.0200	1	01/30/2024 02:30	WG2214950
Pyrene	ND		0.00600	1	01/30/2024 02:30	WG2214950
(S) p-Terphenyl-d14	71.9		23.0-120		01/30/2024 02:30	WG2214950
(S) Nitrobenzene-d5	130		14.0-149		01/30/2024 02:30	WG2214950
(S) 2-Fluorobiphenyl	82.5		34.0-125		01/30/2024 02:30	WG2214950

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.329		1	02/01/2024 17:21	WG2216911

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/31/2024 15:40	WG2215117

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.68	<u>T8</u>	1	01/31/2024 16:30	WG2216217

Sample Narrative:

L1699701-02 WG2216217: 7.68 at 19.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	369		10.0	1	02/04/2024 18:00	WG2215287

Sample Narrative:

L1699701-02 WG2215287: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.420		0.200	1	02/01/2024 22:27	WG2216913

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.97		1.00	5	01/29/2024 16:56	WG2214814
Barium	522		2.50	5	01/29/2024 16:56	WG2214814
Cadmium	ND		1.00	5	01/29/2024 16:56	WG2214814
Copper	15.5		5.00	5	01/29/2024 16:56	WG2214814
Lead	12.1		2.00	5	01/29/2024 16:56	WG2214814
Nickel	12.5		2.50	5	01/29/2024 16:56	WG2214814
Selenium	ND		2.50	5	01/29/2024 16:56	WG2214814
Silver	ND		0.500	5	01/29/2024 16:56	WG2214814
Zinc	43.2		25.0	5	01/29/2024 16:56	WG2214814

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	3.81		0.100	1	02/01/2024 03:47	WG2217528
(S) a, a, a-Trifluorotoluene(FID)	82.9		77.0-120		02/01/2024 03:47	WG2217528

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	0.0248		0.00100	1	01/31/2024 15:50	WG2216977
Toluene	0.172		0.00500	1	01/31/2024 15:50	WG2216977
Ethylbenzene	0.00717		0.00250	1	01/31/2024 15:50	WG2216977
Xylenes, Total	0.0561		0.00650	1	01/31/2024 15:50	WG2216977
1,2,4-Trimethylbenzene	ND		0.00500	1	02/01/2024 18:06	WG2218071
1,3,5-Trimethylbenzene	0.00720		0.00500	1	02/01/2024 18:06	WG2218071
(S) Toluene-d8	91.9		75.0-131		01/31/2024 15:50	WG2216977
(S) Toluene-d8	106		75.0-131		02/01/2024 18:06	WG2218071
(S) 4-Bromofluorobenzene	105		67.0-138		01/31/2024 15:50	WG2216977
(S) 4-Bromofluorobenzene	99.7		67.0-138		02/01/2024 18:06	WG2218071
(S) 1,2-Dichloroethane-d4	122		70.0-130		01/31/2024 15:50	WG2216977
(S) 1,2-Dichloroethane-d4	115		70.0-130		02/01/2024 18:06	WG2218071

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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	22.1		11.7	2.92	02/03/2024 10:33	WG2218425
C28-C36 Motor Oil Range	55.2		11.7	2.92	02/03/2024 10:33	WG2218425
(S) o-Terphenyl	42.4		18.0-148		02/03/2024 10:33	WG2218425

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	01/30/2024 02:47	WG2214950
Anthracene	ND		0.00600	1	01/30/2024 02:47	WG2214950
Benzo(a)anthracene	ND		0.00600	1	01/30/2024 02:47	WG2214950
Benzo(b)fluoranthene	ND		0.00600	1	01/30/2024 02:47	WG2214950
Benzo(k)fluoranthene	ND		0.00600	1	01/30/2024 02:47	WG2214950
Benzo(a)pyrene	ND		0.00600	1	01/30/2024 02:47	WG2214950
Chrysene	ND		0.00600	1	01/30/2024 02:47	WG2214950
Dibenz(a,h)anthracene	ND		0.00600	1	01/30/2024 02:47	WG2214950
Fluoranthene	ND		0.00600	1	01/30/2024 02:47	WG2214950
Fluorene	ND	J4	0.00600	1	01/30/2024 02:47	WG2214950
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	01/30/2024 02:47	WG2214950
1-Methylnaphthalene	ND		0.0200	1	01/30/2024 02:47	WG2214950
2-Methylnaphthalene	ND		0.0200	1	01/30/2024 02:47	WG2214950
Naphthalene	ND		0.0200	1	01/30/2024 02:47	WG2214950
Pyrene	ND		0.00600	1	01/30/2024 02:47	WG2214950
(S) p-Terphenyl-d14	72.9		23.0-120		01/30/2024 02:47	WG2214950
(S) Nitrobenzene-d5	120		14.0-149		01/30/2024 02:47	WG2214950
(S) 2-Fluorobiphenyl	80.4		34.0-125		01/30/2024 02:47	WG2214950

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.354		1	02/01/2024 17:23	WG2216911

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/31/2024 15:47	WG2215117

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.77	<u>T8</u>	1	01/31/2024 16:30	WG2216217

Sample Narrative:

L1699701-03 WG2216217: 7.77 at 19.7C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	336		10.0	1	02/04/2024 18:00	WG2215287

Sample Narrative:

L1699701-03 WG2215287: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.533		0.200	1	02/01/2024 22:30	WG2216913

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	10.0		1.00	5	01/29/2024 16:59	WG2214814
Barium	668		2.50	5	01/29/2024 16:59	WG2214814
Cadmium	ND		1.00	5	01/29/2024 16:59	WG2214814
Copper	16.2		5.00	5	01/29/2024 16:59	WG2214814
Lead	14.6		2.00	5	01/29/2024 16:59	WG2214814
Nickel	14.1		2.50	5	01/29/2024 16:59	WG2214814
Selenium	ND		2.50	5	01/29/2024 16:59	WG2214814
Silver	ND		0.500	5	01/29/2024 16:59	WG2214814
Zinc	47.7		25.0	5	01/29/2024 16:59	WG2214814

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.122		0.100	1	02/03/2024 22:55	WG2218399
(S) a, a, a-Trifluorotoluene(FID)	83.5		77.0-120		02/03/2024 22:55	WG2218399

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	ND		0.00100	1	01/31/2024 16:09	WG2216977
Toluene	ND		0.00500	1	01/31/2024 16:09	WG2216977
Ethylbenzene	ND		0.00250	1	01/31/2024 16:09	WG2216977
Xylenes, Total	ND		0.00650	1	01/31/2024 16:09	WG2216977
1,2,4-Trimethylbenzene	ND		0.00500	1	02/01/2024 18:30	WG2218071
1,3,5-Trimethylbenzene	ND		0.00500	1	01/31/2024 16:09	WG2216977
(S) Toluene-d8	89.1		75.0-131		01/31/2024 16:09	WG2216977
(S) Toluene-d8	106		75.0-131		02/01/2024 18:30	WG2218071
(S) 4-Bromofluorobenzene	102		67.0-138		01/31/2024 16:09	WG2216977
(S) 4-Bromofluorobenzene	102		67.0-138		02/01/2024 18:30	WG2218071
(S) 1,2-Dichloroethane-d4	120		70.0-130		01/31/2024 16:09	WG2216977
(S) 1,2-Dichloroethane-d4	115		70.0-130		02/01/2024 18:30	WG2218071

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

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	ND		4.00	1	02/01/2024 03:38	WG2217054
C28-C36 Motor Oil Range	ND		4.00	1	02/01/2024 03:38	WG2217054
(S) o-Terphenyl	24.2		18.0-148		02/01/2024 03:38	WG2217054

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	01/30/2024 03:05	WG2214950
Anthracene	ND		0.00600	1	01/30/2024 03:05	WG2214950
Benzo(a)anthracene	ND		0.00600	1	01/30/2024 03:05	WG2214950
Benzo(b)fluoranthene	ND		0.00600	1	01/30/2024 03:05	WG2214950
Benzo(k)fluoranthene	ND		0.00600	1	01/30/2024 03:05	WG2214950
Benzo(a)pyrene	ND		0.00600	1	01/30/2024 03:05	WG2214950
Chrysene	ND		0.00600	1	01/30/2024 03:05	WG2214950
Dibenz(a,h)anthracene	ND		0.00600	1	01/30/2024 03:05	WG2214950
Fluoranthene	ND		0.00600	1	01/30/2024 03:05	WG2214950
Fluorene	ND	J4	0.00600	1	01/30/2024 03:05	WG2214950
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	01/30/2024 03:05	WG2214950
1-Methylnaphthalene	ND		0.0200	1	01/30/2024 03:05	WG2214950
2-Methylnaphthalene	ND		0.0200	1	01/30/2024 03:05	WG2214950
Naphthalene	ND		0.0200	1	01/30/2024 03:05	WG2214950
Pyrene	ND		0.00600	1	01/30/2024 03:05	WG2214950
(S) p-Terphenyl-d14	51.5		23.0-120		01/30/2024 03:05	WG2214950
(S) Nitrobenzene-d5	114		14.0-149		01/30/2024 03:05	WG2214950
(S) 2-Fluorobiphenyl	57.4		34.0-125		01/30/2024 03:05	WG2214950

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.815		1	02/01/2024 17:24	WG2216911

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/31/2024 15:53	WG2215117

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.68	T8	1	01/31/2024 16:30	WG2216217

Sample Narrative:

L1699701-04 WG2216217: 7.68 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	447		10.0	1	02/04/2024 18:00	WG2215287

Sample Narrative:

L1699701-04 WG2215287: at 25C

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

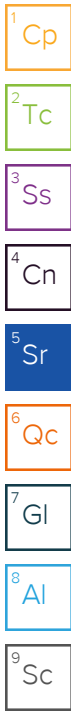
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.751		0.200	1	02/01/2024 22:33	WG2216913

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.31		1.00	5	01/29/2024 17:03	WG2214814
Barium	1390		2.50	5	01/29/2024 17:03	WG2214814
Cadmium	ND		1.00	5	01/29/2024 17:03	WG2214814
Copper	18.6		5.00	5	01/29/2024 17:03	WG2214814
Lead	22.6		2.00	5	01/29/2024 17:03	WG2214814
Nickel	14.4		2.50	5	01/29/2024 17:03	WG2214814
Selenium	ND		2.50	5	01/29/2024 17:03	WG2214814
Silver	ND		0.500	5	01/29/2024 17:03	WG2214814
Zinc	49.4		25.0	5	01/29/2024 17:03	WG2214814

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	ND		0.100	1	02/03/2024 23:14	WG2218399
(S) a, a, a-Trifluorotoluene(FID)	83.9		77.0-120		02/03/2024 23:14	WG2218399



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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	01/31/2024 16:28	WG2216977
Toluene	ND		0.00500	1	01/31/2024 16:28	WG2216977
Ethylbenzene	ND		0.00250	1	01/31/2024 16:28	WG2216977
Xylenes, Total	ND		0.00650	1	01/31/2024 16:28	WG2216977
1,2,4-Trimethylbenzene	ND		0.00500	1	01/31/2024 16:28	WG2216977
1,3,5-Trimethylbenzene	ND		0.00500	1	01/31/2024 16:28	WG2216977
(S) Toluene-d8	91.2		75.0-131		01/31/2024 16:28	WG2216977
(S) 4-Bromofluorobenzene	99.6		67.0-138		01/31/2024 16:28	WG2216977
(S) 1,2-Dichloroethane-d4	115		70.0-130		01/31/2024 16:28	WG2216977

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	18.0		4.00	1	02/01/2024 05:44	WG2217054
C28-C36 Motor Oil Range	60.0		4.00	1	02/01/2024 05:44	WG2217054
(S) o-Terphenyl	30.6		18.0-148		02/01/2024 05:44	WG2217054

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	J3	0.00600	1	01/30/2024 03:23	WG2214950
Anthracene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
Benzo(a)anthracene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
Benzo(b)fluoranthene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
Benzo(k)fluoranthene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
Benzo(a)pyrene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
Chrysene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
Dibenz(a,h)anthracene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
Fluoranthene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
Fluorene	ND	J3 J4	0.00600	1	01/30/2024 03:23	WG2214950
Indeno(1,2,3-cd)pyrene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
1-Methylnaphthalene	ND	J3	0.0200	1	01/30/2024 03:23	WG2214950
2-Methylnaphthalene	ND	J3	0.0200	1	01/30/2024 03:23	WG2214950
Naphthalene	ND	J3	0.0200	1	01/30/2024 03:23	WG2214950
Pyrene	ND	J3	0.00600	1	01/30/2024 03:23	WG2214950
(S) p-Terphenyl-d14	83.0		23.0-120		01/30/2024 03:23	WG2214950
(S) Nitrobenzene-d5	130		14.0-149		01/30/2024 03:23	WG2214950
(S) 2-Fluorobiphenyl	89.5		34.0-125		01/30/2024 03:23	WG2214950

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	1.05		1	02/01/2024 16:48	WG2216911

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/31/2024 15:59	WG2215117

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.65	<u>T8</u>	1	01/31/2024 16:30	WG2216217

Sample Narrative:

L1699701-05 WG2216217: 7.65 at 19.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	464		10.0	1	02/04/2024 18:00	WG2215287

Sample Narrative:

L1699701-05 WG2215287: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.719		0.200	1	02/01/2024 22:36	WG2216913

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.86		1.00	5	01/29/2024 17:06	WG2214814
Barium	587		2.50	5	01/29/2024 17:06	WG2214814
Cadmium	ND		1.00	5	01/29/2024 17:06	WG2214814
Copper	16.7		5.00	5	01/29/2024 17:06	WG2214814
Lead	16.5		2.00	5	01/29/2024 17:06	WG2214814
Nickel	12.6		2.50	5	01/29/2024 17:06	WG2214814
Selenium	ND		2.50	5	01/29/2024 17:06	WG2214814
Silver	ND		0.500	5	01/29/2024 17:06	WG2214814
Zinc	48.5		25.0	5	01/29/2024 17:06	WG2214814

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.292	<u>B</u>	0.100	1	02/01/2024 05:00	WG2217528
(S) a, a, a-Trifluorotoluene(FID)	89.6		77.0-120		02/01/2024 05:00	WG2217528

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	ND		0.00100	1	01/31/2024 16:47	WG2216977
Toluene	ND		0.00500	1	01/31/2024 16:47	WG2216977
Ethylbenzene	ND		0.00250	1	01/31/2024 16:47	WG2216977
Xylenes, Total	0.0125		0.00650	1	01/31/2024 16:47	WG2216977
1,2,4-Trimethylbenzene	ND		0.00500	1	01/31/2024 16:47	WG2216977
1,3,5-Trimethylbenzene	ND		0.00500	1	01/31/2024 16:47	WG2216977
(S) Toluene-d8	91.2		75.0-131		01/31/2024 16:47	WG2216977
(S) 4-Bromofluorobenzene	104		67.0-138		01/31/2024 16:47	WG2216977
(S) 1,2-Dichloroethane-d4	122		70.0-130		01/31/2024 16:47	WG2216977

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	14.6		10.2	2.56	02/03/2024 10:47	WG2218425
C28-C36 Motor Oil Range	52.5		10.2	2.56	02/03/2024 10:47	WG2218425
(S) o-Terphenyl	28.4		18.0-148		02/03/2024 10:47	WG2218425

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	01/30/2024 04:16	WG2214950
Anthracene	ND		0.00600	1	01/30/2024 04:16	WG2214950
Benzo(a)anthracene	ND		0.00600	1	01/30/2024 04:16	WG2214950
Benzo(b)fluoranthene	ND		0.00600	1	01/30/2024 04:16	WG2214950
Benzo(k)fluoranthene	ND		0.00600	1	01/30/2024 04:16	WG2214950
Benzo(a)pyrene	ND		0.00600	1	01/30/2024 04:16	WG2214950
Chrysene	ND		0.00600	1	01/30/2024 04:16	WG2214950
Dibenz(a,h)anthracene	ND		0.00600	1	01/30/2024 04:16	WG2214950
Fluoranthene	ND		0.00600	1	01/30/2024 04:16	WG2214950
Fluorene	ND	<u>J4</u>	0.00600	1	01/30/2024 04:16	WG2214950
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	01/30/2024 04:16	WG2214950
1-Methylnaphthalene	ND		0.0200	1	01/30/2024 04:16	WG2214950
2-Methylnaphthalene	ND		0.0200	1	01/30/2024 04:16	WG2214950
Naphthalene	ND		0.0200	1	01/30/2024 04:16	WG2214950
Pyrene	ND		0.00600	1	01/30/2024 04:16	WG2214950
(S) p-Terphenyl-d14	58.2		23.0-120		01/30/2024 04:16	WG2214950
(S) Nitrobenzene-d5	96.8		14.0-149		01/30/2024 04:16	WG2214950
(S) 2-Fluorobiphenyl	62.2		34.0-125		01/30/2024 04:16	WG2214950

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4028405-1 01/31/24 12:39

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

L1699588-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1699588-01 01/31/24 14:26 • (DUP) R4028405-11 01/31/24 14:32

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

⁷Gl

⁸Al

⁹Sc

L1699701-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1699701-01 01/31/24 15:28 • (DUP) R4028405-12 01/31/24 15:34

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) R4028405-2 01/31/24 12:47

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	11.0	110	80.0-120	

L1699583-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699583-01 01/31/24 12:53 • (MS) R4028405-3 01/31/24 12:59 • (MSD) R4028405-4 01/31/24 13:06

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	19.1	23.1	95.4	115	1	75.0-125			19.0	20

L1699583-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699583-04 01/31/24 13:37 • (MS) R4028405-7 01/31/24 13:55 • (MSD) R4028405-8 01/31/24 14:01

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	22.9	21.9	115	110	1	75.0-125			4.51	20

L1699583-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1699583-01 01/31/24 12:53 • (MS) R4028405-5 01/31/24 13:12

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	782	123	50	75.0-125	

L1699583-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1699583-04 01/31/24 13:37 • (MS) R4028405-9 01/31/24 14:08

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	ND	687	107	50	75.0-125	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1699585-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1699585-02 01/31/24 16:30 • (DUP) R4028423-2 01/31/24 16:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.10	8.08	1	0.247		1

Sample Narrative:

OS: 8.1 at 19.7C

DUP: 8.08 at 19.7C

L1699701-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1699701-03 01/31/24 16:30 • (DUP) R4028423-3 01/31/24 16:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	su	su		%		%
pH	7.77	7.78	1	0.129		1

Sample Narrative:

OS: 7.77 at 19.7C

DUP: 7.78 at 19.7C

Laboratory Control Sample (LCS)

(LCS) R4028423-1 01/31/24 16:30

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

Sample Narrative:

LCS: 10 at 19.4C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4029645-1 02/04/24 18:00

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1699700-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1699700-01 02/04/24 18:00 • (DUP) R4029645-3 02/04/24 18:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	257	257	1	0.0390		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1699711-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1699711-03 02/04/24 18:00 • (DUP) R4029645-4 02/04/24 18:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	448	447	1	0.223		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4029645-2 02/04/24 18:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	327	331	101	85.0-115	

Sample Narrative:

LCS: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4029052-1 02/01/24 21:53

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) R4029052-2 02/01/24 21:56 • (LCSD) R4029052-3 02/01/24 21:58

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	1.06	1.08	106	108	80.0-120			2.29	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4027382-1 01/29/24 15:56

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R4027382-2 01/29/24 15:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.6	93.6	80.0-120	
Barium	100	89.5	89.5	80.0-120	
Cadmium	100	98.0	98.0	80.0-120	
Copper	100	92.9	92.9	80.0-120	
Lead	100	94.5	94.5	80.0-120	
Nickel	100	97.2	97.2	80.0-120	
Selenium	100	95.3	95.3	80.0-120	
Silver	20.0	18.8	94.1	80.0-120	
Zinc	100	93.4	93.4	80.0-120	

⁷Gl

⁸Al

⁹Sc

L1699536-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699536-01 01/29/24 16:03 • (MS) R4027382-5 01/29/24 16:12 • (MSD) R4027382-6 01/29/24 16:16

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	7.65	95.2	91.4	87.5	83.8	5	75.0-125			4.04	20
Barium	100	41.4	124	122	82.2	80.6	5	75.0-125			1.30	20
Cadmium	100	ND	94.2	90.3	94.2	90.3	5	75.0-125			4.17	20
Copper	100	10.3	96.7	91.4	86.4	81.1	5	75.0-125			5.57	20
Lead	100	13.6	99.2	93.5	85.6	80.0	5	75.0-125			5.86	20
Nickel	100	8.45	99.5	95.6	91.0	87.1	5	75.0-125			3.98	20
Selenium	100	ND	92.8	85.1	92.3	84.6	5	75.0-125			8.67	20
Silver	20.0	ND	18.2	17.6	91.0	88.2	5	75.0-125			3.13	20
Zinc	100	28.2	116	109	87.3	81.1	5	75.0-125			5.46	20

Method Blank (MB)

(MB) R4028994-3 01/31/24 23:17

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0382	↓	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	97.2			77.0-120

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

(LCS) R4028994-1 01/31/24 22:03 • (LCSD) R4028994-2 01/31/24 22:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	6.12	6.24	111	113	72.0-127			1.94	20
(S) a,a,a-Trifluorotoluene(FID)				100	104	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) R4029946-3 02/03/24 21:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
^(S) a,a,a-Trifluorotoluene(FID)	92.5			77.0-120

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

(LCS) R4029946-1 02/03/24 20:12 • (LCSD) R4029946-2 02/03/24 20:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.29	5.08	96.2	92.4	72.0-127			4.05	20
^(S) a,a,a-Trifluorotoluene(FID)				96.7	96.8	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) R4028235-3 01/31/24 10:29

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	90.4			75.0-131
(S) 4-Bromofluorobenzene	100			67.0-138
(S) 1,2-Dichloroethane-d4	125			70.0-130

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

(LCS) R4028235-1 01/31/24 08:53 • (LCSD) R4028235-2 01/31/24 09:12

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	0.119	0.121	95.2	96.8	70.0-123			1.67	20
Toluene	0.125	0.110	0.111	88.0	88.8	75.0-121			0.905	20
Ethylbenzene	0.125	0.105	0.107	84.0	85.6	74.0-126			1.89	20
Xylenes, Total	0.375	0.318	0.314	84.8	83.7	72.0-127			1.27	20
1,2,4-Trimethylbenzene	0.125	0.129	0.129	103	103	70.0-126			0.000	20
1,3,5-Trimethylbenzene	0.125	0.121	0.119	96.8	95.2	73.0-127			1.67	20
(S) Toluene-d8				93.8	93.1	75.0-131				
(S) 4-Bromofluorobenzene				96.9	94.8	67.0-138				
(S) 1,2-Dichloroethane-d4				126	125	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) R4029289-3 02/01/24 10:56

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	105			75.0-131
(S) 4-Bromofluorobenzene	99.1			67.0-138
(S) 1,2-Dichloroethane-d4	119			70.0-130

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

(LCS) R4029289-1 02/01/24 09:19 • (LCSD) R4029289-2 02/01/24 09:37

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	0.128	0.132	102	106	70.0-123			3.08	20
Toluene	0.125	0.125	0.129	100	103	75.0-121			3.15	20
Ethylbenzene	0.125	0.127	0.133	102	106	74.0-126			4.62	20
Xylenes, Total	0.375	0.376	0.375	100	100	72.0-127			0.266	20
1,2,4-Trimethylbenzene	0.125	0.110	0.112	88.0	89.6	70.0-126			1.80	20
1,3,5-Trimethylbenzene	0.125	0.117	0.118	93.6	94.4	73.0-127			0.851	20
(S) Toluene-d8				103	105	75.0-131				
(S) 4-Bromofluorobenzene				102	103	67.0-138				
(S) 1,2-Dichloroethane-d4				119	117	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) R4028572-1 02/01/24 01:31

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	0.530	J	0.274	4.00
(S) o-Terphenyl	59.5			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4028572-2 02/01/24 01:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
C10-C28 Diesel Range	50.0	36.0	72.0	50.0-150	
(S) o-Terphenyl			57.8	18.0-148	

L1699697-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699697-02 02/01/24 02:41 • (MS) R4028572-3 02/01/24 02:56 • (MSD) R4028572-4 02/01/24 03:10

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	50.1	ND	42.1	35.3	80.2	67.0	1	50.0-150			17.6	20
(S) o-Terphenyl					53.3	50.8		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) R4029560-1 02/03/24 09:41

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	U		0.274	4.00
(S) o-Terphenyl	54.2			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4029560-2 02/03/24 09:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	37.6	75.2	50.0-150	
(S) o-Terphenyl			67.0	18.0-148	

L1700942-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1700942-01 02/03/24 12:05 • (MS) R4029560-3 02/03/24 12:18 • (MSD) R4029560-4 02/03/24 12:31

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 %
C10-C28 Diesel Range	49.2	10.4	47.0	40.9	74.4	61.6	1	50.0-150			13.9	20
(S) o-Terphenyl					52.4	49.2		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) R4029355-2 01/30/24 00:08

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	89.3			23.0-120
(S) Nitrobenzene-d5	120			14.0-149
(S) 2-Fluorobiphenyl	92.8			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4029355-1 01/29/24 23:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0862	108	50.0-120	
Anthracene	0.0800	0.0849	106	50.0-126	
Benzo(a)anthracene	0.0800	0.0864	108	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0832	104	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0797	99.6	49.0-125	
Benzo(a)pyrene	0.0800	0.0740	92.5	42.0-120	
Chrysene	0.0800	0.0880	110	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0807	101	47.0-125	
Fluoranthene	0.0800	0.0873	109	49.0-129	
Fluorene	0.0800	0.101	126	49.0-120	J4
Indeno(1,2,3-cd)pyrene	0.0800	0.0829	104	46.0-125	
1-Methylnaphthalene	0.0800	0.0925	116	51.0-121	
2-Methylnaphthalene	0.0800	0.0951	119	50.0-120	
Naphthalene	0.0800	0.0869	109	50.0-120	
Pyrene	0.0800	0.0841	105	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4029355-1 01/29/24 23:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			115	23.0-120	
(S) Nitrobenzene-d5			171	14.0-149	J1
(S) 2-Fluorobiphenyl			124	34.0-125	

L1699701-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699701-04 01/30/24 03:23 • (MS) R4029355-3 01/30/24 03:40 • (MSD) R4029355-4 01/30/24 03:58

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	0.158	ND	0.141	0.0637	89.2	80.4	1	14.0-127		J3	75.5	27
Anthracene	0.158	ND	0.152	0.0684	96.2	86.4	1	10.0-145		J3	75.9	30
Benzo(a)anthracene	0.158	ND	0.154	0.0709	97.5	89.5	1	10.0-139		J3	73.9	30
Benzo(b)fluoranthene	0.158	ND	0.141	0.0635	89.2	80.2	1	10.0-140		J3	75.8	36
Benzo(k)fluoranthene	0.158	ND	0.130	0.0598	82.3	75.5	1	10.0-137		J3	74.0	31
Benzo(a)pyrene	0.158	ND	0.144	0.0656	91.1	82.8	1	10.0-141		J3	74.8	31
Chrysene	0.158	ND	0.137	0.0656	86.7	82.8	1	10.0-145		J3	70.5	30
Dibenz(a,h)anthracene	0.158	ND	0.140	0.0631	88.6	79.7	1	10.0-132		J3	75.7	31
Fluoranthene	0.158	ND	0.153	0.0718	96.8	90.7	1	10.0-153		J3	72.2	33
Fluorene	0.158	ND	0.165	0.0759	104	95.8	1	11.0-130		J3	74.0	29
Indeno(1,2,3-cd)pyrene	0.158	ND	0.145	0.0648	91.8	81.8	1	10.0-137		J3	76.5	32
1-Methylnaphthalene	0.158	ND	0.155	0.0770	94.4	89.9	1	10.0-142		J3	67.2	28
2-Methylnaphthalene	0.158	ND	0.162	0.0813	95.5	88.6	1	10.0-137		J3	66.3	28
Naphthalene	0.158	ND	0.146	0.0708	89.0	82.6	1	10.0-135		J3	69.4	27
Pyrene	0.158	ND	0.132	0.0625	83.5	78.9	1	10.0-148		J3	71.5	35
(S) p-Terphenyl-d14					83.2	75.9		23.0-120				
(S) Nitrobenzene-d5					136	118		14.0-149				
(S) 2-Fluorobiphenyl					94.5	81.4		34.0-125				

Sample Narrative:

MSD: RPD failures due to double spike added to MS by mistake.

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

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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.
T8	Sample(s) received past/too close to holding time expiration.

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 ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	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 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ 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.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Company Name/Address: Caerus Oil & Gas 143 Diamond Ave Parachute, CO 81635		Billing Information: Same as left.		Pres Chk	Analysis / Container / Preservative					Chain of Custody Page ___ of ___	
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Report to: Blair Rollins		Email To: brollins@caerusoilandgas.com		City/State Collected: CO		Please Circle: PT MT CT ET		 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Alt: 800-767-5859 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			
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Project Description: NPR I25A 596 Tank Release		Client Project #		Lab Project #		Phone: (970) 640-6919		Collected by (print): B. Abeyta		Site/Facility ID #		P.O. #		Collected by (signature): <i>B. Abeyta</i>		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input checked="" type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #		Date Results Needed		No. of Cntrs		TABLE 915 GRO/DRO/ORO TABLE 915 Metals TABLE 915 VOCs TABLE 915 pH, SPCON, SAR TABLE 915 PAHs		SDG # 1699701 C227 Acctnum: Template: Prelogin: PM: PB: Shipped Via:	
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Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	TABLE 915 GRO/DRO/ORO	TABLE 915 Metals	TABLE 915 VOCs	TABLE 915 pH, SPCON, SAR	TABLE 915 PAHs	Remarks	Sample # (lab only)
20240126-I25A 596-(SS04)@1	Grab	SS	1	01/26/2024	1110	4	X	X	X	X	X		-01
20240126-I25A 596-(SS05)@1	Grab	SS	1	01/26/2024	1120	4	X	X	X	X	X		-02
20240126-I25A 596-(SS06)@1	Grab	SS	1	01/26/2024	1130	4	X	X	X	X	X		-03
20240126-I25A 596-(SS07)@1.5	Grab	SS	1.5	01/26/2024	1440	4	X	X	X	X	X		-04
20240126-I25A 596-(SS10)@1.5	Grab	SS	1.5	01/26/2024	1450	4	X	X	X	X	X		-05

* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other _____	Remarks:	pH _____ Temp _____		Flow _____ Other _____		Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> NP <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input checked="" type="checkbox"/> <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> <input type="checkbox"/> N	
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Relinquished by: (Signature) <i>B. Abeyta</i>	Date: 1/26/24	Time: 1730	Received by: (Signature) <i>[Signature]</i>	Trip Blank Received: Yes/No HCL/MeOH TBR	Temp: 70.8 °C	Bottles Received: 1702.1	If preservation required by Login: Date/Time
Relinquished by: (Signature) <i>[Signature]</i>	Date: 1/26/24	Time: 1800	Received by: (Signature) <i>[Signature]</i>	Date: 1-27-24	Time: 01:00	Hold:	Condition: NCF / OK

Caerus Oil and Gas

Sample Delivery Group: L1700856
Samples Received: 01/31/2024
Project Number:
Description: NPR I25A 596 Tank Release

Report To: Blair Rollins
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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¹ Cp

² Tc

³ Ss

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SAMPLE SUMMARY

20240130-I25A 596-(SS11)@2 L1700856-01 Solid

Collected by B. Abeyta Collected date/time 01/30/24 11:25 Received date/time 01/31/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2218612	1	02/03/24 12:57	02/03/24 12:57	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2217537	1	02/01/24 03:33	02/05/24 03:02	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2217869	1	02/01/24 10:41	02/02/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2219340	1	02/03/24 10:13	02/06/24 14:21	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2218616	1	02/03/24 10:32	02/03/24 21:56	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2217765	5	02/01/24 17:00	02/01/24 22:29	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2218697	1	02/01/24 18:55	02/02/24 21:04	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2219137	1	02/01/24 18:55	02/02/24 23:02	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2217622	1	02/01/24 17:21	02/02/24 10:47	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2218419	1	02/02/24 09:44	02/03/24 04:32	MKM	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

20240130-I25A 596-(SS12)@1.5 L1700856-02 Solid

Collected by B. Abeyta Collected date/time 01/30/24 11:10 Received date/time 01/31/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2218612	1	02/03/24 13:00	02/03/24 13:00	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2217537	1	02/01/24 03:33	02/05/24 03:08	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2217870	1	02/01/24 10:36	02/02/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2219340	1	02/03/24 10:13	02/06/24 14:21	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2218616	1	02/03/24 10:32	02/03/24 21:58	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2217765	5	02/01/24 17:00	02/01/24 22:33	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2218697	1	02/01/24 18:55	02/02/24 21:28	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2219137	1	02/01/24 18:55	02/02/24 23:21	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2217622	1	02/01/24 17:21	02/02/24 03:41	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2218523	1	02/02/24 09:39	02/03/24 02:14	MKM	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

20240130-I25A 596-(SS13)@2.5 L1700856-03 Solid

Collected by B. Abeyta Collected date/time 01/30/24 11:40 Received date/time 01/31/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2218612	1	02/03/24 13:03	02/03/24 13:03	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2217537	1	02/01/24 03:33	02/05/24 03:14	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2217870	1	02/01/24 10:36	02/02/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2219340	1	02/03/24 10:13	02/06/24 14:21	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2218616	1	02/03/24 10:32	02/03/24 22:00	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2217765	5	02/01/24 17:00	02/01/24 22:36	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2218697	1	02/01/24 18:55	02/02/24 21:53	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2219137	1	02/01/24 18:55	02/02/24 23:40	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2217622	1	02/01/24 17:21	02/02/24 10:59	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2218523	1	02/02/24 09:39	02/02/24 22:38	MKM	Mt. Juliet, TN

CASE NARRATIVE

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



Chris Ward
Project Manager

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	1.71		1	02/03/2024 12:57	WG2218612

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	02/05/2024 03:02	WG2217537

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.78	<u>T8</u>	1	02/02/2024 16:30	WG2217869

Sample Narrative:

L1700856-01 WG2217869: 7.78 at 21.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	543		10.0	1	02/06/2024 14:21	WG2219340

Sample Narrative:

L1700856-01 WG2219340: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.614		0.200	1	02/03/2024 21:56	WG2218616

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.72		1.00	5	02/01/2024 22:29	WG2217765
Barium	206		2.50	5	02/01/2024 22:29	WG2217765
Cadmium	ND		1.00	5	02/01/2024 22:29	WG2217765
Copper	15.2		5.00	5	02/01/2024 22:29	WG2217765
Lead	11.8		2.00	5	02/01/2024 22:29	WG2217765
Nickel	14.1		2.50	5	02/01/2024 22:29	WG2217765
Selenium	ND		2.50	5	02/01/2024 22:29	WG2217765
Silver	ND		0.500	5	02/01/2024 22:29	WG2217765
Zinc	48.7		25.0	5	02/01/2024 22:29	WG2217765

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.22		0.100	1	02/02/2024 21:04	WG2218697
(S) a, a, a-Trifluorotoluene(FID)	87.9		77.0-120		02/02/2024 21:04	WG2218697

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	0.00360		0.00100	1	02/02/2024 23:02	WG2219137
Toluene	0.0313		0.00500	1	02/02/2024 23:02	WG2219137
Ethylbenzene	0.00338		0.00250	1	02/02/2024 23:02	WG2219137
Xylenes, Total	0.0548		0.00650	1	02/02/2024 23:02	WG2219137
1,2,4-Trimethylbenzene	0.0172		0.00500	1	02/02/2024 23:02	WG2219137
1,3,5-Trimethylbenzene	0.0189		0.00500	1	02/02/2024 23:02	WG2219137
(S) Toluene-d8	95.7		75.0-131		02/02/2024 23:02	WG2219137
(S) 4-Bromofluorobenzene	101		67.0-138		02/02/2024 23:02	WG2219137
(S) 1,2-Dichloroethane-d4	92.4		70.0-130		02/02/2024 23:02	WG2219137

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	15.1		4.00	1	02/02/2024 10:47	WG2217622
C28-C36 Motor Oil Range	48.0		4.00	1	02/02/2024 10:47	WG2217622
(S) o-Terphenyl	35.8		18.0-148		02/02/2024 10:47	WG2217622

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	02/03/2024 04:32	WG2218419
Anthracene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Benzo(a)anthracene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Benzo(b)fluoranthene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Benzo(k)fluoranthene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Benzo(a)pyrene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Chrysene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Dibenz(a,h)anthracene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Fluoranthene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Fluorene	ND		0.00600	1	02/03/2024 04:32	WG2218419
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	02/03/2024 04:32	WG2218419
1-Methylnaphthalene	ND		0.0200	1	02/03/2024 04:32	WG2218419
2-Methylnaphthalene	ND		0.0200	1	02/03/2024 04:32	WG2218419
Naphthalene	ND		0.0200	1	02/03/2024 04:32	WG2218419
Pyrene	ND		0.00600	1	02/03/2024 04:32	WG2218419
(S) p-Terphenyl-d14	75.4		23.0-120		02/03/2024 04:32	WG2218419
(S) Nitrobenzene-d5	54.2		14.0-149		02/03/2024 04:32	WG2218419
(S) 2-Fluorobiphenyl	67.0		34.0-125		02/03/2024 04:32	WG2218419

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.09		1	02/03/2024 13:00	WG2218612

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	02/05/2024 03:08	WG2217537

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.68	T8	1	02/02/2024 16:30	WG2217870

Sample Narrative:

L1700856-02 WG2217870: 7.68 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	715		10.0	1	02/06/2024 14:21	WG2219340

Sample Narrative:

L1700856-02 WG2219340: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.688		0.200	1	02/03/2024 21:58	WG2218616

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.98		1.00	5	02/01/2024 22:33	WG2217765
Barium	239		2.50	5	02/01/2024 22:33	WG2217765
Cadmium	ND		1.00	5	02/01/2024 22:33	WG2217765
Copper	16.7		5.00	5	02/01/2024 22:33	WG2217765
Lead	12.2		2.00	5	02/01/2024 22:33	WG2217765
Nickel	15.8		2.50	5	02/01/2024 22:33	WG2217765
Selenium	ND		2.50	5	02/01/2024 22:33	WG2217765
Silver	ND		0.500	5	02/01/2024 22:33	WG2217765
Zinc	48.8		25.0	5	02/01/2024 22:33	WG2217765

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	1.71		0.100	1	02/02/2024 21:28	WG2218697
(S) a, a, a-Trifluorotoluene(FID)	89.6		77.0-120		02/02/2024 21:28	WG2218697

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	0.00532		0.00100	1	02/02/2024 23:21	WG2219137
Toluene	0.174		0.00500	1	02/02/2024 23:21	WG2219137
Ethylbenzene	0.0487		0.00250	1	02/02/2024 23:21	WG2219137
Xylenes, Total	0.750		0.00650	1	02/02/2024 23:21	WG2219137
1,2,4-Trimethylbenzene	0.120		0.00500	1	02/02/2024 23:21	WG2219137
1,3,5-Trimethylbenzene	0.145		0.00500	1	02/02/2024 23:21	WG2219137
(S) Toluene-d8	95.4		75.0-131		02/02/2024 23:21	WG2219137
(S) 4-Bromofluorobenzene	106		67.0-138		02/02/2024 23:21	WG2219137
(S) 1,2-Dichloroethane-d4	94.3		70.0-130		02/02/2024 23:21	WG2219137

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	23.8		4.00	1	02/02/2024 03:41	WG2217622
C28-C36 Motor Oil Range	83.3		4.00	1	02/02/2024 03:41	WG2217622
(S) o-Terphenyl	51.1		18.0-148		02/02/2024 03:41	WG2217622

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	02/03/2024 02:14	WG2218523
Anthracene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Benzo(a)anthracene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Benzo(b)fluoranthene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Benzo(k)fluoranthene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Benzo(a)pyrene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Chrysene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Dibenz(a,h)anthracene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Fluoranthene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Fluorene	ND		0.00600	1	02/03/2024 02:14	WG2218523
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	02/03/2024 02:14	WG2218523
1-Methylnaphthalene	ND		0.0200	1	02/03/2024 02:14	WG2218523
2-Methylnaphthalene	ND		0.0200	1	02/03/2024 02:14	WG2218523
Naphthalene	ND		0.0200	1	02/03/2024 02:14	WG2218523
Pyrene	ND		0.00600	1	02/03/2024 02:14	WG2218523
(S) p-Terphenyl-d14	74.0		23.0-120		02/03/2024 02:14	WG2218523
(S) Nitrobenzene-d5	75.2		14.0-149		02/03/2024 02:14	WG2218523
(S) 2-Fluorobiphenyl	68.2		34.0-125		02/03/2024 02:14	WG2218523

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	1.91		1	02/03/2024 13:03	WG2218612

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	02/05/2024 03:14	WG2217537

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.82	<u>T8</u>	1	02/02/2024 16:30	WG2217870

Sample Narrative:

L1700856-03 WG2217870: 7.82 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	393		10.0	1	02/06/2024 14:21	WG2219340

Sample Narrative:

L1700856-03 WG2219340: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.623		0.200	1	02/03/2024 22:00	WG2218616

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.71		1.00	5	02/01/2024 22:36	WG2217765
Barium	976		2.50	5	02/01/2024 22:36	WG2217765
Cadmium	ND		1.00	5	02/01/2024 22:36	WG2217765
Copper	17.7		5.00	5	02/01/2024 22:36	WG2217765
Lead	19.7		2.00	5	02/01/2024 22:36	WG2217765
Nickel	14.9		2.50	5	02/01/2024 22:36	WG2217765
Selenium	ND		2.50	5	02/01/2024 22:36	WG2217765
Silver	ND		0.500	5	02/01/2024 22:36	WG2217765
Zinc	55.1		25.0	5	02/01/2024 22:36	WG2217765

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.588		0.100	1	02/02/2024 21:53	WG2218697
(S) a, a, a-Trifluorotoluene(FID)	89.0		77.0-120		02/02/2024 21:53	WG2218697

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	0.00176		0.00100	1	02/02/2024 23:40	WG2219137
Toluene	0.0146		0.00500	1	02/02/2024 23:40	WG2219137
Ethylbenzene	0.00450		0.00250	1	02/02/2024 23:40	WG2219137
Xylenes, Total	0.0610		0.00650	1	02/02/2024 23:40	WG2219137
1,2,4-Trimethylbenzene	0.0164		0.00500	1	02/02/2024 23:40	WG2219137
1,3,5-Trimethylbenzene	0.0201		0.00500	1	02/02/2024 23:40	WG2219137
(S) Toluene-d8	95.1		75.0-131		02/02/2024 23:40	WG2219137
(S) 4-Bromofluorobenzene	106		67.0-138		02/02/2024 23:40	WG2219137
(S) 1,2-Dichloroethane-d4	93.0		70.0-130		02/02/2024 23:40	WG2219137

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	16.9		4.00	1	02/02/2024 10:59	WG2217622
C28-C36 Motor Oil Range	59.8		4.00	1	02/02/2024 10:59	WG2217622
(S) o-Terphenyl	29.7		18.0-148		02/02/2024 10:59	WG2217622

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	02/02/2024 22:38	WG2218523
Anthracene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Benzo(a)anthracene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Benzo(b)fluoranthene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Benzo(k)fluoranthene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Benzo(a)pyrene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Chrysene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Dibenz(a,h)anthracene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Fluoranthene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Fluorene	ND		0.00600	1	02/02/2024 22:38	WG2218523
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	02/02/2024 22:38	WG2218523
1-Methylnaphthalene	ND		0.0200	1	02/02/2024 22:38	WG2218523
2-Methylnaphthalene	ND		0.0200	1	02/02/2024 22:38	WG2218523
Naphthalene	ND		0.0200	1	02/02/2024 22:38	WG2218523
Pyrene	ND		0.00600	1	02/02/2024 22:38	WG2218523
(S) p-Terphenyl-d14	83.2		23.0-120		02/02/2024 22:38	WG2218523
(S) Nitrobenzene-d5	71.0		14.0-149		02/02/2024 22:38	WG2218523
(S) 2-Fluorobiphenyl	69.6		34.0-125		02/02/2024 22:38	WG2218523

9 Sc

Method Blank (MB)

(MB) R4029682-1 02/05/24 01:15

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1700858-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1700858-01 02/05/24 03:21 • (DUP) R4029682-11 02/05/24 03:27

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

L1700858-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1700858-03 02/05/24 03:52 • (DUP) R4029682-12 02/05/24 03:58

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) R4029682-2 02/05/24 01:23

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.8	108	80.0-120	

L1699591-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699591-01 02/05/24 01:29 • (MS) R4029682-4 02/05/24 01:42 • (MSD) R4029682-5 02/05/24 01:48

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	10.2	11.3	50.9	56.4	1	75.0-125	<u>J6</u>	<u>J6</u>	10.2	20

L1699591-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699591-02 02/05/24 02:00 • (MS) R4029682-8 02/05/24 02:13 • (MSD) R4029682-9 02/05/24 02:31

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	10.6	15.5	52.9	77.3	1	75.0-125	<u>J6</u>	<u>J3</u>	37.4	20

L1699591-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1699591-01 02/05/24 01:29 • (MS) R4029682-6 02/05/24 01:54

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Hexavalent Chromium	633	ND	562	88.7	50	75.0-125	

L1699591-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1699591-02 02/05/24 02:00 • (MS) R4029682-10 02/05/24 02:37

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	663	105	50	75.0-125	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1700658-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1700658-03 02/02/24 16:30 • (DUP) R4029356-2 02/02/24 16:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
su	su			%		%
pH	8.12	8.14	1	0.246		1

Sample Narrative:

OS: 8.12 at 21.7C
 DUP: 8.14 at 21.6C



L1700856-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1700856-01 02/02/24 16:30 • (DUP) R4029356-3 02/02/24 16:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.78	7.80	1	0.257		1

Sample Narrative:

OS: 7.78 at 21.6C
 DUP: 7.8 at 21.5C

Laboratory Control Sample (LCS)

(LCS) R4029356-1 02/02/24 16:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
su	su		%	%	
pH	10.0	9.98	99.8	99.0-101	

Sample Narrative:

LCS: 9.98 at 20.9C

L1700858-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1700858-03 02/02/24 16:30 • (DUP) R4029360-3 02/02/24 16:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.84	7.86	1	0.255		1

Sample Narrative:

OS: 7.84 at 21.3C
DUP: 7.86 at 21.3C

Laboratory Control Sample (LCS)

(LCS) R4029360-1 02/02/24 16:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 21.5C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4030392-1 02/06/24 14:21

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

L1700847-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1700847-02 02/06/24 14:21 • (DUP) R4030392-3 02/06/24 14:21

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	189	185	1	2.19		20

Sample Narrative:

OS: at 25C
DUP: at 25C

L1700871-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1700871-04 02/06/24 14:21 • (DUP) R4030392-4 02/06/24 14:21

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	106	102	1	4.14		20

Sample Narrative:

OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4030392-2 02/06/24 14:21

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	327	334	102	85.0-115	

Sample Narrative:

LCS: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4029547-1 02/03/24 21:48

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) R4029547-2 02/03/24 21:50 • (LCSD) R4029547-3 02/03/24 21:51

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	1.01	1.02	101	102	80.0-120			1.13	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4029010-1 02/01/24 21:04

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R4029010-2 02/01/24 21:07

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Arsenic	100	90.7	90.7	80.0-120	
Barium	100	84.7	84.7	80.0-120	
Cadmium	100	92.0	92.0	80.0-120	
Copper	100	88.6	88.6	80.0-120	
Lead	100	88.8	88.8	80.0-120	
Nickel	100	91.9	91.9	80.0-120	
Selenium	100	87.5	87.5	80.0-120	
Silver	20.0	18.3	91.5	80.0-120	
Zinc	100	89.4	89.4	80.0-120	

⁷Gl

⁸Al

⁹Sc

L1700858-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1700858-01 02/01/24 21:10 • (MS) R4029010-5 02/01/24 21:20 • (MSD) R4029010-6 02/01/24 21:23

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	%	%		%			%	%
Arsenic	100	3.77	114	108	110	104	5	75.0-125			5.08	20
Barium	100	195	396	304	201	109	5	75.0-125	E J5	E J3	26.3	20
Cadmium	100	ND	115	108	114	108	5	75.0-125			5.75	20
Copper	100	15.3	121	115	106	99.6	5	75.0-125			5.09	20
Lead	100	11.2	117	114	105	103	5	75.0-125			2.30	20
Nickel	100	13.0	121	117	108	104	5	75.0-125			2.68	20
Selenium	100	ND	108	103	108	102	5	75.0-125			4.80	20
Silver	20.0	ND	22.7	21.3	113	107	5	75.0-125			6.25	20
Zinc	100	50.1	153	160	103	110	5	75.0-125			4.50	20

Method Blank (MB)

(MB) R4030254-2 02/02/24 14:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0290	↓	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	97.6			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4030254-1 02/02/24 13:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.15	93.6	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	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) R4029640-2 02/02/24 18:44

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	0.00110	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	96.8			75.0-131
(S) 4-Bromofluorobenzene	100			67.0-138
(S) 1,2-Dichloroethane-d4	92.6			70.0-130

Laboratory Control Sample (LCS)

(LCS) R4029640-1 02/02/24 17:28

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Benzene	0.125	0.126	101	70.0-123	
Toluene	0.125	0.112	89.6	75.0-121	
Ethylbenzene	0.125	0.115	92.0	74.0-126	
Xylenes, Total	0.375	0.351	93.6	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.118	94.4	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.119	95.2	73.0-127	
(S) Toluene-d8			94.8	75.0-131	
(S) 4-Bromofluorobenzene			98.7	67.0-138	
(S) 1,2-Dichloroethane-d4			95.4	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) R4029202-2 02/02/24 02:27

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	1.48	J	0.274	4.00
(S) o-Terphenyl	53.8			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4029202-1 02/02/24 02:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
C10-C28 Diesel Range	50.0	38.0	76.0	50.0-150	
(S) o-Terphenyl			61.1	18.0-148	

L1700469-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1700469-01 02/02/24 13:40 • (MS) R4029202-3 02/02/24 13:53 • (MSD) R4029202-4 02/02/24 14:05

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	50.0	4670	6140	5420	2940	1500	100	50.0-150	V	V	12.5	20
(S) o-Terphenyl					0.000	0.000		18.0-148	J7	J7		

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4029943-2 02/02/24 22:02

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	85.0			23.0-120
(S) Nitrobenzene-d5	61.9			14.0-149
(S) 2-Fluorobiphenyl	77.1			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4029943-1 02/02/24 21:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0681	85.1	50.0-120	
Anthracene	0.0800	0.0718	89.8	50.0-126	
Benzo(a)anthracene	0.0800	0.0724	90.5	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0764	95.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0694	86.8	49.0-125	
Benzo(a)pyrene	0.0800	0.0695	86.9	42.0-120	
Chrysene	0.0800	0.0760	95.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0811	101	47.0-125	
Fluoranthene	0.0800	0.0812	102	49.0-129	
Fluorene	0.0800	0.0784	98.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0882	110	46.0-125	
1-Methylnaphthalene	0.0800	0.0718	89.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0733	91.6	50.0-120	
Naphthalene	0.0800	0.0670	83.8	50.0-120	
Pyrene	0.0800	0.0721	90.1	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4029943-1 02/02/24 21:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			89.6	23.0-120	
(S) Nitrobenzene-d5			75.7	14.0-149	
(S) 2-Fluorobiphenyl			87.1	34.0-125	

L1700845-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1700845-01 02/03/24 02:10 • (MS) R4029943-3 02/03/24 02:28 • (MSD) R4029943-4 02/03/24 02:45

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	0.0800	ND	0.0669	0.0680	83.6	86.3	1	14.0-127			1.63	27
Anthracene	0.0800	ND	0.0797	0.0742	99.6	94.2	1	10.0-145			7.15	30
Benzo(a)anthracene	0.0800	ND	0.0691	0.0710	86.4	90.1	1	10.0-139			2.71	30
Benzo(b)fluoranthene	0.0800	ND	0.0713	0.0723	89.1	91.8	1	10.0-140			1.39	36
Benzo(k)fluoranthene	0.0800	ND	0.0777	0.0791	97.1	100	1	10.0-137			1.79	31
Benzo(a)pyrene	0.0800	ND	0.0782	0.0770	97.8	97.7	1	10.0-141			1.55	31
Chrysene	0.0800	ND	0.0831	0.0753	104	95.6	1	10.0-145			9.85	30
Dibenz(a,h)anthracene	0.0800	ND	0.0827	0.0806	103	102	1	10.0-132			2.57	31
Fluoranthene	0.0800	ND	0.0834	0.0835	104	106	1	10.0-153			0.120	33
Fluorene	0.0800	ND	0.0743	0.0740	92.9	93.9	1	11.0-130			0.405	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0833	0.0790	104	100	1	10.0-137			5.30	32
1-Methylnaphthalene	0.0800	ND	0.0778	0.0770	97.3	97.7	1	10.0-142			1.03	28
2-Methylnaphthalene	0.0800	ND	0.0785	0.0707	98.1	89.7	1	10.0-137			10.5	28
Naphthalene	0.0800	ND	0.0674	0.0659	84.3	83.6	1	10.0-135			2.25	27
Pyrene	0.0800	ND	0.0732	0.0729	91.5	92.5	1	10.0-148			0.411	35
(S) p-Terphenyl-d14					78.8	91.5		23.0-120				
(S) Nitrobenzene-d5					56.1	64.1		14.0-149				
(S) 2-Fluorobiphenyl					74.7	83.1		34.0-125				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4030391-2 02/02/24 22:19

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	95.3			23.0-120
(S) Nitrobenzene-d5	81.8			14.0-149
(S) 2-Fluorobiphenyl	82.4			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4030391-1 02/02/24 21:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0718	89.8	50.0-120	
Anthracene	0.0800	0.0788	98.5	50.0-126	
Benzo(a)anthracene	0.0800	0.0843	105	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0825	103	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0806	101	49.0-125	
Benzo(a)pyrene	0.0800	0.0748	93.5	42.0-120	
Chrysene	0.0800	0.0841	105	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0817	102	47.0-125	
Fluoranthene	0.0800	0.0816	102	49.0-129	
Fluorene	0.0800	0.0845	106	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0901	113	46.0-125	
1-Methylnaphthalene	0.0800	0.0779	97.4	51.0-121	
2-Methylnaphthalene	0.0800	0.0822	103	50.0-120	
Naphthalene	0.0800	0.0734	91.8	50.0-120	
Pyrene	0.0800	0.0825	103	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4030391-1 02/02/24 21:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			97.4	23.0-120	
(S) Nitrobenzene-d5			100	14.0-149	
(S) 2-Fluorobiphenyl			88.0	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
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
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.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
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

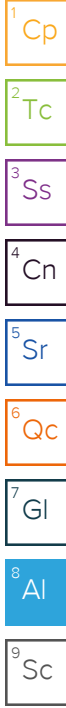
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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 ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	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 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ 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.

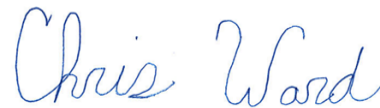


Caerus Oil and Gas

Sample Delivery Group: L1700854
Samples Received: 01/31/2024
Project Number:
Description: NPR Backgrounds I25A 596

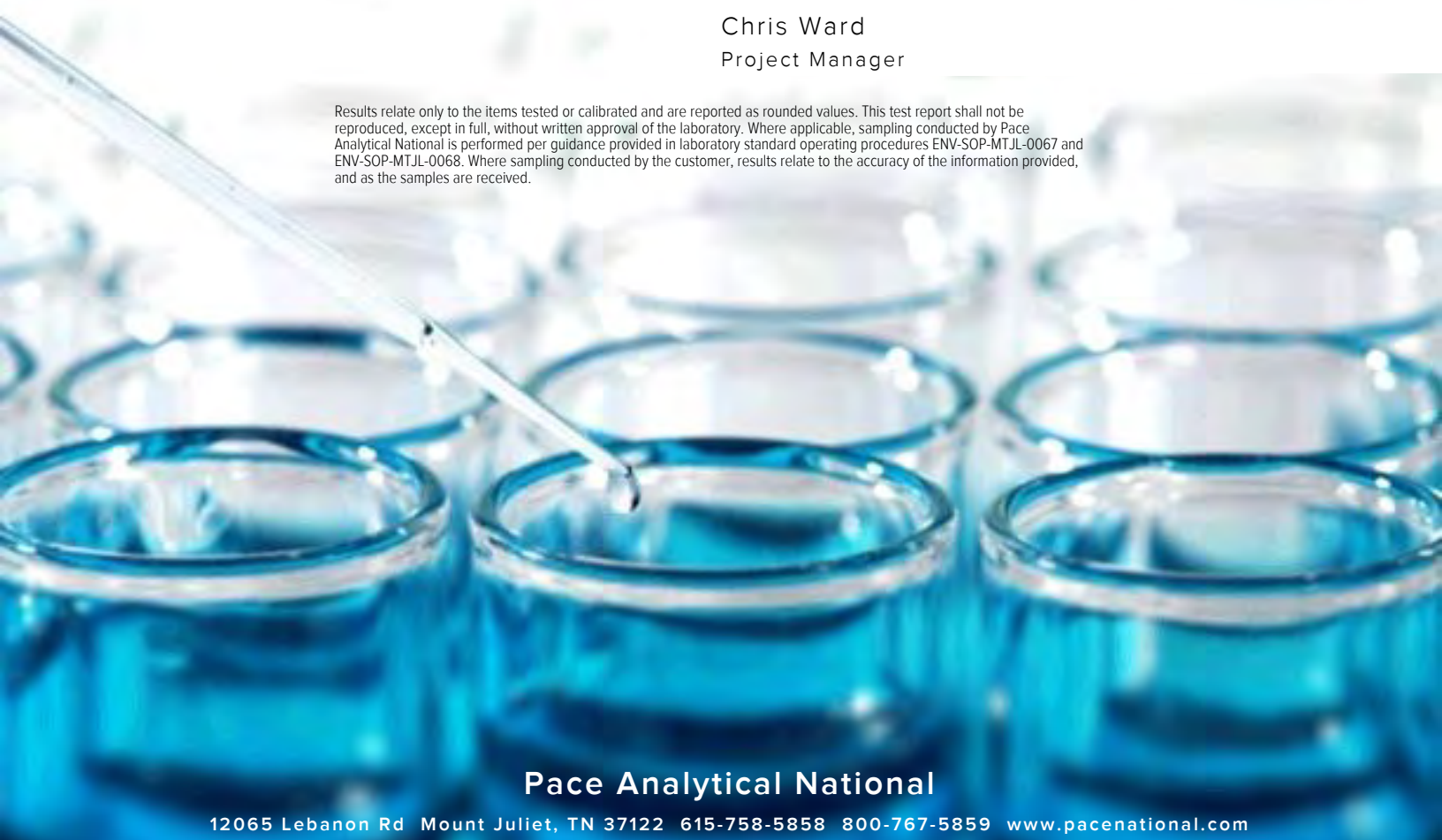
Report To: Blair Rollins
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



Chris Ward
Project Manager










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Pace Analytical National

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SAMPLE SUMMARY

20240130-NPR BG-(I25A 596-N)@1.5 L1700854-01 Solid

Collected by: B. Abeyta
 Collected date/time: 01/30/24 10:30
 Received date/time: 01/31/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2218612	1	02/03/24 12:52	02/03/24 12:52	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2219927	1	02/06/24 01:07	02/06/24 13:51	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2217870	1	02/01/24 10:36	02/02/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2219340	1	02/03/24 10:13	02/06/24 14:21	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2218616	1	02/03/24 10:32	02/03/24 21:53	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2217765	5	02/01/24 17:00	02/01/24 22:23	LD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

20240130-NPR BG-(I25A 596-NE)@1 L1700854-02 Solid

Collected by: B. Abeyta
 Collected date/time: 01/30/24 10:40
 Received date/time: 01/31/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2218612	1	02/03/24 12:55	02/03/24 12:55	JTM	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2219927	1	02/06/24 01:07	02/06/24 13:57	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2217870	1	02/01/24 10:36	02/02/24 16:30	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2219340	1	02/03/24 10:13	02/06/24 14:21	BJM	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2218616	1	02/03/24 10:32	02/03/24 21:55	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2217765	5	02/01/24 17:00	02/01/24 22:26	LD	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

⁹Sc

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	0.426		1	02/03/2024 12:52	WG2218612

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	02/06/2024 13:51	WG2219927

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.70	T8	1	02/02/2024 16:30	WG2217870

Sample Narrative:

L1700854-01 WG2217870: 7.7 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	298		10.0	1	02/06/2024 14:21	WG2219340

Sample Narrative:

L1700854-01 WG2219340: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.597		0.200	1	02/03/2024 21:53	WG2218616

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	10.7		1.00	5	02/01/2024 22:23	WG2217765
Barium	955		2.50	5	02/01/2024 22:23	WG2217765
Cadmium	ND		1.00	5	02/01/2024 22:23	WG2217765
Copper	17.2		5.00	5	02/01/2024 22:23	WG2217765
Lead	14.3		2.00	5	02/01/2024 22:23	WG2217765
Nickel	15.2		2.50	5	02/01/2024 22:23	WG2217765
Selenium	ND		2.50	5	02/01/2024 22:23	WG2217765
Silver	ND		0.500	5	02/01/2024 22:23	WG2217765
Zinc	52.4		25.0	5	02/01/2024 22:23	WG2217765

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	0.359		1	02/03/2024 12:55	WG2218612

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	02/06/2024 13:57	WG2219927

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.60	T8	1	02/02/2024 16:30	WG2217870

Sample Narrative:

L1700854-02 WG2217870: 7.6 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	464		10.0	1	02/06/2024 14:21	WG2219340

Sample Narrative:

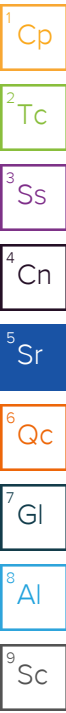
L1700854-02 WG2219340: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.504		0.200	1	02/03/2024 21:55	WG2218616

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	14.6		1.00	5	02/01/2024 22:26	WG2217765
Barium	2440		2.50	5	02/01/2024 22:26	WG2217765
Cadmium	ND		1.00	5	02/01/2024 22:26	WG2217765
Copper	18.4		5.00	5	02/01/2024 22:26	WG2217765
Lead	17.2		2.00	5	02/01/2024 22:26	WG2217765
Nickel	14.3		2.50	5	02/01/2024 22:26	WG2217765
Selenium	ND		2.50	5	02/01/2024 22:26	WG2217765
Silver	ND		0.500	5	02/01/2024 22:26	WG2217765
Zinc	50.3		25.0	5	02/01/2024 22:26	WG2217765



Method Blank (MB)

(MB) R4030508-1 02/06/24 13:36

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

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1701865-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1701865-07 02/06/24 14:16 • (DUP) R4030508-3 02/06/24 14:22

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

L1701866-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1701866-08 02/06/24 16:57 • (DUP) R4030508-9 02/06/24 17:03

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) R4030508-2 02/06/24 13:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.7	107	80.0-120	

L1701866-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1701866-03 02/06/24 15:49 • (MS) R4030508-5 02/06/24 16:07 • (MSD) R4030508-6 02/06/24 16:13

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	19.1	21.6	95.7	108	1	75.0-125			12.2	20

L1701866-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1701866-03 02/06/24 15:49 • (MS) R4030508-7 02/06/24 16:20

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Hexavalent Chromium	654	ND	799	122	50	75.0-125	

L1700858-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1700858-03 02/02/24 16:30 • (DUP) R4029360-3 02/02/24 16:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.84	7.86	1	0.255		1

Sample Narrative:

OS: 7.84 at 21.3C
DUP: 7.86 at 21.3C

Laboratory Control Sample (LCS)

(LCS) R4029360-1 02/02/24 16:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
pH	10.0	9.99	99.9	99.0-101	

Sample Narrative:

LCS: 9.99 at 21.5C

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

Method Blank (MB)

(MB) R4030392-1 02/06/24 14:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1700847-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1700847-02 02/06/24 14:21 • (DUP) R4030392-3 02/06/24 14:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	189	185	1	2.19		20

Sample Narrative:

OS: at 25C
DUP: at 25C

L1700871-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1700871-04 02/06/24 14:21 • (DUP) R4030392-4 02/06/24 14:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	106	102	1	4.14		20

Sample Narrative:

OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4030392-2 02/06/24 14:21

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	327	334	102	85.0-115	

Sample Narrative:

LCS: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4029547-1 02/03/24 21:48

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) R4029547-2 02/03/24 21:50 • (LCSD) R4029547-3 02/03/24 21:51

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	1.01	1.02	101	102	80.0-120			1.13	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4029010-1 02/01/24 21:04

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

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R4029010-2 02/01/24 21:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	90.7	90.7	80.0-120	
Barium	100	84.7	84.7	80.0-120	
Cadmium	100	92.0	92.0	80.0-120	
Copper	100	88.6	88.6	80.0-120	
Lead	100	88.8	88.8	80.0-120	
Nickel	100	91.9	91.9	80.0-120	
Selenium	100	87.5	87.5	80.0-120	
Silver	20.0	18.3	91.5	80.0-120	
Zinc	100	89.4	89.4	80.0-120	

L1700858-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1700858-01 02/01/24 21:10 • (MS) R4029010-5 02/01/24 21:20 • (MSD) R4029010-6 02/01/24 21:23

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	3.77	114	108	110	104	5	75.0-125			5.08	20
Barium	100	195	396	304	201	109	5	75.0-125	E J5	E J3	26.3	20
Cadmium	100	ND	115	108	114	108	5	75.0-125			5.75	20
Copper	100	15.3	121	115	106	99.6	5	75.0-125			5.09	20
Lead	100	11.2	117	114	105	103	5	75.0-125			2.30	20
Nickel	100	13.0	121	117	108	104	5	75.0-125			2.68	20
Selenium	100	ND	108	103	108	102	5	75.0-125			4.80	20
Silver	20.0	ND	22.7	21.3	113	107	5	75.0-125			6.25	20
Zinc	100	50.1	153	160	103	110	5	75.0-125			4.50	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

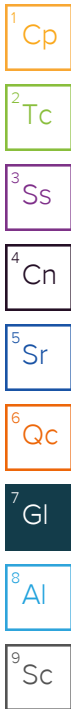
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
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.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

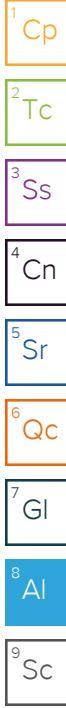
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122


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 ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	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 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ 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.



Company Name/Address: Caerus Oil & Gas 143 Diamond Ave Parachute, CO 81635		Billing Information: Same as left.		Pres Chk		Analysis / Container / Preservative					Chain of Custody Page ___ of ___	
Report to: Blair Rollins		Email To: brollins@caerusoilandgas.com									 PEOPLE ADVANCING SCIENCE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Alt: 800-767-5859 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubs/pas-standard-terms.pdf	
Project Description: NPR Backgrounds I25A 596		City/State Collected: CO		Please Circle: PT MT CT ET							SDG # 1700854 H178	
Phone: (970) 640-6919		Client Project #		Lab Project #							Acctnum: Template: Prelogin: PM: PB:	
Collected by (print): B. Abeyta		Site/Facility ID #		P.O. #							Shipped Via: Remarks Sample # (lab only)	
Collected by (signature): <i>BA</i>		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input checked="" type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #								
Immediately Packed on Ice N ___ Y <input checked="" type="checkbox"/>				Date Results Needed								
Sample ID		Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	TABLE 915 GRO/DRO/ORO	TABLE 915 Metals	TABLE 915 VOCs	TABLE 915 pH, SPCON, SAR	TABLE 915 PAHS
20240130-NPR BG-(I25A 596-N)@1.5		Grab	SS	1.5	2024-01-30	1030	2		X		X	
20240130-NPR BG-(I25A 596-NE)@1		Grab	SS	1	2024-01-30	1040	2		X		X	

* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks:		pH _____ Temp _____ Flow _____ Other _____		Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> NP <input type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier		Tracking # 6193-3527-1750		Trip Blank Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Relinquished by: (Signature) <i>BA</i>		Date: 1/30/24	Time: 1730	Received by: (Signature) <i>[Signature]</i>		HCL / MeOH TBR Temp: DRAB °C Bottles Received: 4	
Relinquished by: (Signature) <i>[Signature]</i>		Date: 1/30/24	Time: 1800	Received by: (Signature)		If preservation required by Login: Date/Time 0.41020.4 930	
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>		Date: 1/31/24	Hold: Condition: <input checked="" type="checkbox"/> OK <input type="checkbox"/> NCF

SOLVAY OBSERVATION WELL ANALYTICAL RESULTS

TABLE 1
SOLVAY OBSERVATION WELL #1
GROUNDWATER ANALYTICAL RESULTS
CAERUS OIL AND GAS LLC
GARFIELD COUNTY, COLORADO

Table 915-1 Cleanup Concentration (mg/L)					Organic Compounds (mg/L)							Inorganic Compounds		
					0.005	0.56	0.7	1.4	0.14	0.067	0.067	mg/L	mg/L	mg/L
Location	Lab Report #	Sample Date:	Sample ID	Product Thickness (ft)	Benzene	Toluene	Ethylbenzene	Xylenes - total	Naphthalene	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	TDS (1.25 x Background)	Chlorides (250 mg/L, or 1.25 x Background)	Sulfates (250 mg/L, or 1.25 x Background)
NPRWP	L1699082	1/25/2024	20240125-NPRWP-(OBS W1)	NA	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00100	<0.00100	NT	NT	NT
NPRWP	L1699083	1/25/2024	20240125-NPRWP-(OBS W1)	NA	NT	NT	NT	NT	NT	NT	NT	617	29.5	157

Notes:

mg/L - milligrams per liter

"<" indicates result is below the laboratory minimum reporting limit (RDL)

Grey indicates analyte detected

Blue indicates result is above the applicable Table 915-1 allowable concentration

Caerus Oil and Gas

Sample Delivery Group: L1699082
Samples Received: 01/26/2024
Project Number:
Description: I25A-Solvay Well Sampling

Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:














Shane Gambill
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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Qc: Quality Control Summary	6	
Volatile Organic Compounds (GC/MS) by Method 8260B	6	
Gl: Glossary of Terms	7	
Al: Accreditations & Locations	8	
Sc: Sample Chain of Custody	9	

SAMPLE SUMMARY

20240125-NPRWP-(OBS W1) L1699082-01 GW

Collected by: Byron Abeyta
Collected date/time: 01/25/24 15:15
Received date/time: 01/26/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2213944	1	01/26/24 12:38	01/26/24 12:38	JHH	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

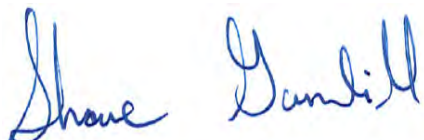
⁷Gl

⁸Al

⁹Sc

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.



Shane Gambill
Project Manager

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	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Benzene	ND		0.00100	1	01/26/2024 12:38	WG2213944
Toluene	ND		0.00100	1	01/26/2024 12:38	WG2213944
Ethylbenzene	ND		0.00100	1	01/26/2024 12:38	WG2213944
Xylenes, Total	ND		0.00300	1	01/26/2024 12:38	WG2213944
Naphthalene	ND		0.00500	1	01/26/2024 12:38	WG2213944
1,2,4-Trimethylbenzene	ND		0.00100	1	01/26/2024 12:38	WG2213944
1,3,5-Trimethylbenzene	ND		0.00100	1	01/26/2024 12:38	WG2213944
(S) Toluene-d8	118		80.0-120		01/26/2024 12:38	WG2213944
(S) 4-Bromofluorobenzene	105		77.0-126		01/26/2024 12:38	WG2213944
(S) 1,2-Dichloroethane-d4	108		70.0-130		01/26/2024 12:38	WG2213944

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

Method Blank (MB)

(MB) R4026617-4 01/26/24 10:39

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Benzene	U		0.0000941	0.00100
Toluene	U		0.000278	0.00100
Ethylbenzene	U		0.000137	0.00100
Xylenes, Total	U		0.000174	0.00300
Naphthalene	U		0.00100	0.00500
1,2,4-Trimethylbenzene	U		0.000322	0.00100
1,3,5-Trimethylbenzene	U		0.000104	0.00100
(S) Toluene-d8	118			80.0-120
(S) 4-Bromofluorobenzene	106			77.0-126
(S) 1,2-Dichloroethane-d4	108			70.0-130

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

(LCS) R4026617-1 01/26/24 09:13 • (LCSD) R4026617-2 01/26/24 09:34

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Benzene	0.00500	0.00481	0.00473	96.2	94.6	70.0-123			1.68	20
Toluene	0.00500	0.00519	0.00505	104	101	79.0-120			2.73	20
Ethylbenzene	0.00500	0.00517	0.00508	103	102	79.0-123			1.76	20
Xylenes, Total	0.0150	0.0155	0.0152	103	101	79.0-123			1.95	20
Naphthalene	0.00500	0.00323	0.00366	64.6	73.2	54.0-135			12.5	20
1,2,4-Trimethylbenzene	0.00500	0.00411	0.00410	82.2	82.0	76.0-121			0.244	20
1,3,5-Trimethylbenzene	0.00500	0.00422	0.00419	84.4	83.8	76.0-122			0.713	20
(S) Toluene-d8				114	113	80.0-120				
(S) 4-Bromofluorobenzene				105	104	77.0-126				
(S) 1,2-Dichloroethane-d4				109	103	70.0-130				

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.

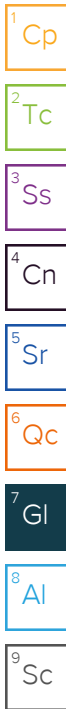
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

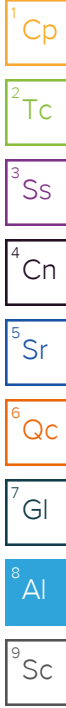
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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 ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	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 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ 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.

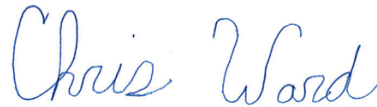


Caerus Oil and Gas

Sample Delivery Group: L1699083
Samples Received: 01/26/2024
Project Number:
Description: I25A-Solvay Well Sampling

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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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Qc: Quality Control Summary	6	
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SAMPLE SUMMARY

20240125-NPRWP-(OBS W1) L1699083-01 GW

Collected by: Byron Abeyta
 Collected date/time: 01/25/24 15:15
 Received date/time: 01/26/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG2214454	1	01/27/24 08:11	01/27/24 14:03	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2213892	1	01/26/24 17:20	01/26/24 17:20	GEB	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

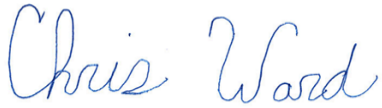
⁷Gl

⁸Al

⁹Sc

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

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	617		13.3	1	01/27/2024 14:03	WG2214454

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	29.5		1.00	1	01/26/2024 17:20	WG2213892
Sulfate	157		5.00	1	01/26/2024 17:20	WG2213892

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

Method Blank (MB)

(MB) R4027423-1 01/27/24 14:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10.0	10.0

¹Cp

²Tc

³Ss

L1698725-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1698725-01 01/27/24 14:03 • (DUP) R4027423-3 01/27/24 14:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	534	544	1	1.86		10

⁴Cn

⁵Sr

L1698727-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1698727-01 01/27/24 14:03 • (DUP) R4027423-4 01/27/24 14:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	2760	2970	1	7.51		10

⁶Qc

⁷Gl

⁸Al

Laboratory Control Sample (LCS)

(LCS) R4027423-2 01/27/24 14:03

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800	8870	101	85.0-115	

⁹Sc

Method Blank (MB)

(MB) R4027204-1 01/26/24 08:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		0.379	1.00
Sulfate	U		0.594	5.00

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1699085-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1699085-02 01/26/24 18:01 • (DUP) R4027204-3 01/26/24 18:15

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	5.88	5.94	1	0.985		15
Sulfate	28.0	28.2	1	0.635		15

L1699085-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1699085-08 01/26/24 21:25 • (DUP) R4027204-6 01/26/24 21:39

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	76.9	76.6	1	0.380		15
Sulfate	20.9	21.0	1	0.0229		15

Laboratory Control Sample (LCS)

(LCS) R4027204-2 01/26/24 09:12

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40.0	39.0	97.4	80.0-120	
Sulfate	40.0	37.0	92.6	80.0-120	

L1699085-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699085-02 01/26/24 18:01 • (MS) R4027204-4 01/26/24 18:28 • (MSD) R4027204-5 01/26/24 18:42

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	40.0	5.88	44.9	44.7	97.5	97.1	1	80.0-120			0.351	15
Sulfate	40.0	28.0	61.6	61.2	84.0	83.0	1	80.0-120			0.629	15

L1699085-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1699085-08 01/26/24 21:25 • (MS) R4027204-7 01/26/24 21:52

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	40.0	76.9	102	62.9	1	80.0-120	J6
Sulfate	40.0	20.9	55.9	87.5	1	80.0-120	

Sample Narrative:

MS: Cl spike failed due to sample matrix

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

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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.
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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

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

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 ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	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 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

