September 14, 2022

Mr. Jake Janicek
EHS Specialist
Caerus Operating LLC
143 Diamond Ave.
Parachute, CO 81635

REPORT OF WORK COMPLETED

Project Name: Mesa 4 Partially Buried Vessel Removal Investigation
Facility Name: Puckett-67S96W 7SWSE
COGCC Location ID: 334691
Legal Description: SWSE Sec. 7, T7S-R96W Garfield County, CO
Location (Lat/Long): 39.446940, -108.148330

On behalf of Caerus Operating LLC (Caerus), Campos EPC (CEPC) has prepared this Report of Work Completed (ROWC) to document the recent partially buried vessel (PBV) removal assessment activities at the Puckett-67S96W 7SWSE Pad, also known as Mesa 4 (Site). This ROWC provides background and purpose of the assessment, methodology, summarized results, and recommendations for additional action. Attachments to this ROWC include field notes and photos, Site exhibit with sample locations, soil analytical data table, and laboratory reports.

BACKGROUND

The Site is approximately 5 miles west of Parachute, CO within the Grand Valley Field. Land use is primarily oil and gas operations and high mountain desert rangeland. Lithology consists mostly of organic silts and clays. The Site is situated on a mesa and topography at the site generally slopes to the east and northeast. The nearest watercourse is Riley Gulch approximately 0.6 miles southeast, which is a tributary to Parachute Creek approximately 3.1 miles northeast of the Site. According to local well construction data from the Division of Water Resources (DWR), the nearest water well (Receipt #9502666A) with a listed depth to groundwater is approximately 2.69 miles northwest of the Site and indicates a static water level of 234 feet (ft).

To the purpose of decommissioning a partially buried produced water tank per Colorado Oil and Gas Conservation Commission (COGCC) Rule 913.c.(9), a Proposed Sampling Plan (PSP) was submitted as part of an Initial Form 27 (Doc. #403056866).

METHODOLOGY

On May 26, 2022 CEPC personnel conducted the assessment in accordance with the PSP outlined in the associated Form 27. Following the removal of the partially buried vessel, CEPC completed visual inspection and field screening of the base and four sidewalls of the excavation. Field screening was conducted with a Photo Ionization Detector (PID) and hand tools with strict decontamination practices were used to collect soil samples. Soil samples were collected from the base of the tank excavation at nine ft below ground surface (bgs) and from the sidewalls of the excavation at seven ft bgs. All samples were collected in laboratory provided jars, immediately packed on ice, and submitted via courier to Pace Analytical for analysis of all constituents listed on COGCC Table 915-1. Additionally, four background soil samples were collected from nearby, undisturbed native areas and submitted for analysis of Electrical Conductivity (EC), Sodium Adsorption Ration (SAR), pH, Boron, and Arsenic. Soil samples and pertinent features onsite were surveyed using a Trimble RTX Data Collector with sub-inch accuracy. An aerial survey to gather updated imagery of the Site was conducted with an Autel Evo II drone.

As part of this investigation, a source sample was collected from a produced water tank onsite. The source sample was submitted for laboratory analysis of Arsenic and Hexavalent Chromium.

RESULTS

During the assessment, visual inspection of the Site indicated no staining or odors from the base or sidewalls of the PBV excavation. Results of field screening via PID ranged from 0.00 to 1.05 parts per million (ppm).

Laboratory results indicated compliance for all samples, as compared to COGCC Table 915-1 Residential Soil Screening Level (SSL) Concentrations, with exception to Hexavalent Chromium and Arsenic. Hexavalent Chromium was detected at a concentration of 1.21 milligrams per kilogram (mg/kg) in the sample obtained from the west sidewall of the excavation. Additional results indicated Arsenic concentrations exceeded COGCC Table 915-1 Residential SSL concentrations in all of the excavation samples, ranging from 4.59 to 14.6 mg/kg; and all four background samples, ranging from 3.91 to 5.82 mg/kg.

Source sample analysis indicated an Arsenic concentration of 0.00312 mg/L and a Hexavalent Chromium concentration below the reporting detection limit (RDL).

CONCLUSION

Based on laboratory results, elevated Arsenic concentrations are naturally occurring in background soils at the Site and source water analysis indicated that a release of produced water would not increase Arsenic or Hexavalent Chromium concentrations in the soil.

Based on these investigative results, CEPC concludes that historical impacts are not present at the Site and a no further action request is warranted. Additionally, based on laboratory results and background data, CEPC recommends using the stockpile material as backfill at the Site.

Thank you for the opportunity to support you on this project. Please reach out anytime with questions regarding this report and associated field work.

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Attachments

- Site Exhibit with sample locations
- Soil Analytical Table
- Laboratory Report
- Field Notes

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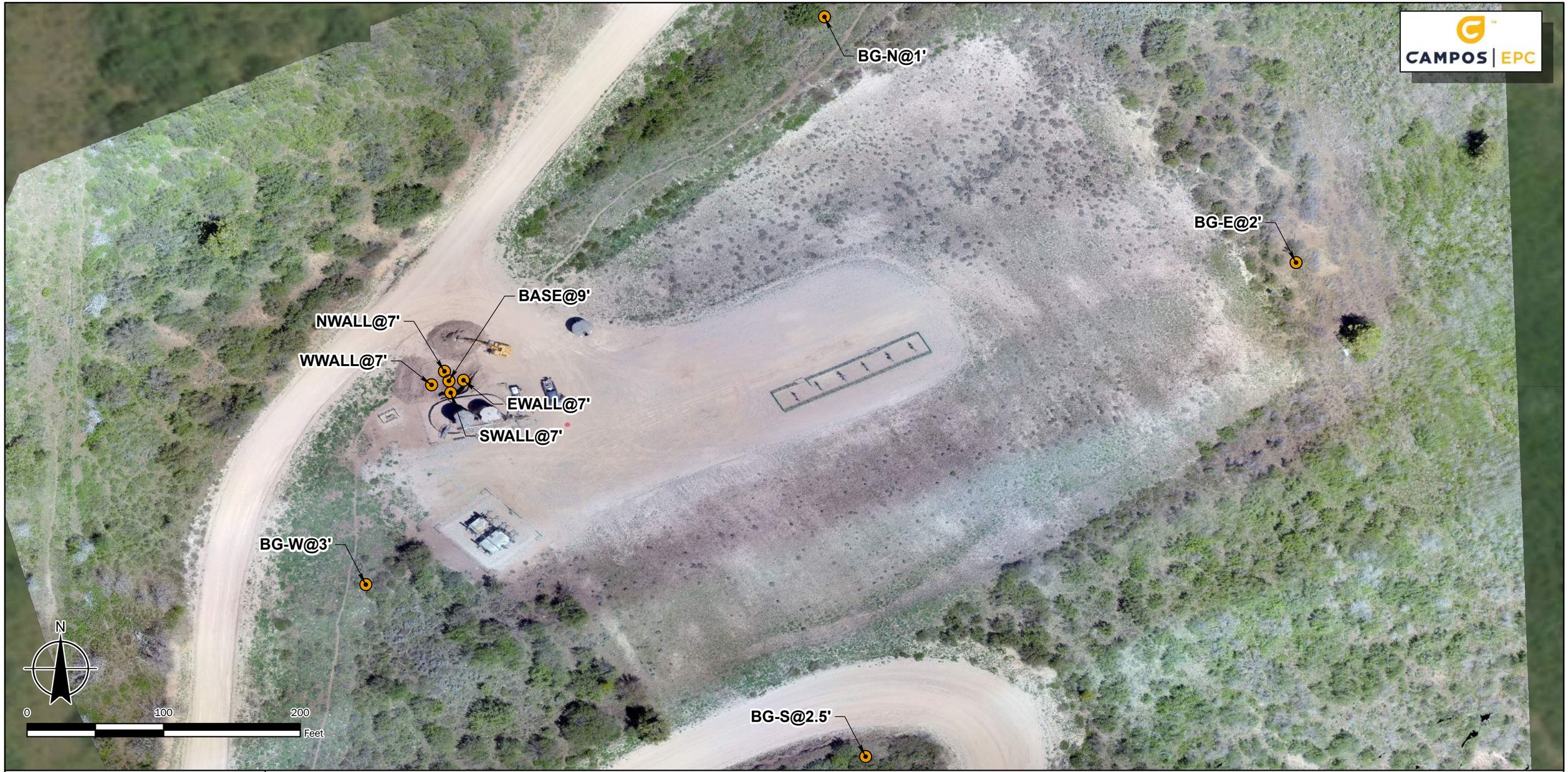

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CAERUS OPERATING LLC

MESA 4
PUCKETT-67S96W / 7SWSE
COGCC LOCATION ID: 334691
GARFIELD COUNTY, CO
SWSE SEC. 7 T7S-R96W

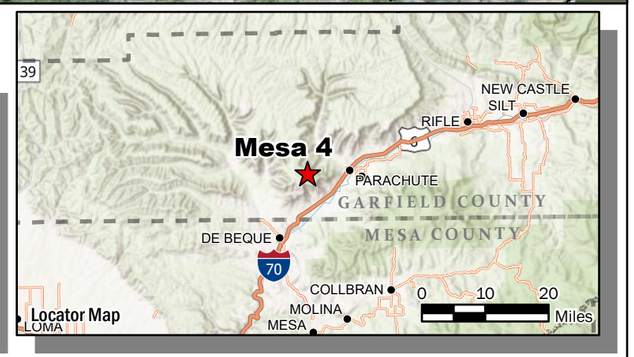
DRAFTER: LR | DATE: 6/1/2022

Legend

Soil Sample Location

COORDINATE SYSTEM
GCS NORTH AMERICAN 1983

Identifier	Latitude NAD83	Longitude NAD83	Elevation
BASE@9'	39.446953	-108.149107	8354.63 ft
NWALL@7'	39.446972	-108.149116	8355.29 ft
WWALL@7'	39.446945	-108.149141	8356.55 ft
SWALL@7'	39.446929	-108.149103	8354.67 ft
EWALL@7'	39.446954	-108.149077	8354.92 ft
BG-W@3'	39.446545	-108.149273	8367.63 ft
BG-S@2.5'	39.446200	-108.148271	8419.36 ft
BG-E@2'	39.447190	-108.147408	8347.71 ft
BG-N@1'	39.447682	-108.148354	8333.98 ft



SOIL ANALYTICAL RESULTS TABLE
CAERUS OIL AND GAS - MESA 4 PBV REMOVAL ASSESSMENT

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Sample Name	ORGANIC COMPOUNDS in mg/kg								SOIL SUITABILITY				METALS in mg/kg								
	GRO	DRO	ORO	TPH	Benzene	Toluene	Ethylbenzene	Total Xylenes	Electrical Conductivity (mmhos/cm)	Sodium Adsorption Ratio	pH (su)	Boron-hot water soluble (mg/L)	Arsenic	Barium	Cadmium	Chromium (VI)	Copper	Lead	Nickel	Selenium	Silver	Zinc
20220526-MESA 4 (N.WALL)@7'	<0.1	<4.0	4.09	4.09	<0.001	<0.005	<0.0025	<0.0065	0.203	0.442	7.31	0.265	**4.59**	195	<0.5	<1.0	13.4	11.6	20.1	<2.0	<1.0	47.4
20220526-MESA 4 (E.WALL)@7'	<0.1	39.6	108	147.6	<0.001	<0.005	<0.0025	<0.0065	0.147	0.352	8.07	<0.2	**14.6**	188	<0.5	<1.0	14.3	12.0	13.3	<2.0	<1.0	39.9
20220526-MESA 4 (S.WALL)@7'	<0.1	<4.0	8.36	8.36	<0.001	<0.005	<0.0025	<0.0065	0.687	0.136	7.52	<0.2	**5.88**	214	<0.5	<1.0	17.3	10.9	21.8	<2.0	<1.0	48.1
20220526-MESA 4 (W.WALL)@7'	0.299	16.5	7.89	24.689	<0.001	<0.005	<0.0025	<0.0065	0.198	0.432	7.81	<0.2	**5.48**	202	<0.5	**1.21**	16.3	11.9	20.6	<2.0	<1.0	46.7
20220526-MESA 4 (BASE)@9'	<0.1	6.50	9.61	16.11	<0.001	<0.005	<0.0025	<0.0065	0.105	0.312	7.61	<0.2	**5.73**	239	<0.5	<1.0	16.9	12.6	22.6	<2.0	<1.0	52.6
20220526-MESA 4 (BG-N)@1'	na	na	na	na	na	na	na	na	0.0901	0.135	7.61	0.438	**5.82**	na	na	na	na	na	na	na	na	na
20220526-MESA 4 (BG-E)@2'	na	na	na	na	na	na	na	na	0.0349	0.0822	6.81	0.213	**5.48**	na	na	na	na	na	na	na	na	na
20220526-MESA 4 (BG-S)@2.5'	na	na	na	na	na	na	na	na	0.0879	0.0733	6.77	0.307	**3.91**	na	na	na	na	na	na	na	na	na
20220526-MESA 4 (BG-W)@3'	na	na	na	na	na	na	na	na	0.105	0.148	6.9	0.395	**4.11**	na	na	na	na	na	na	na	na	na
PRODUCED WATER SAMPLE in mg/L																						
20220817-MESA 4(PW-01)	na	na	na	na	na	na	na	na	na	na	na	na	0.00312	na	na	<0.0005	na	na	na	na	na	na
COGCC TABLE 915-1 RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	500 mg/kg				1.2 mg/kg	490 mg/kg	5.8 mg/kg	58 mg/kg	<4.0 mmhos/cm	<6 unitless	6 - 8.3 su	2 mg/L	0.68 mg/kg	15,000 mg/kg	71 mg/kg	0.3 mg/kg	3,100 mg/kg	400 mg/kg	1,500 mg/kg	390 mg/kg	390 mg/kg	23,000 mg/kg
PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	500 mg/kg				0.0026 mg/kg	0.69 mg/kg	0.78 mg/kg	9.9 mg/kg	<4.0 mmhos/cm	<6 unitless	6 - 8.3 su	2 mg/L	0.29 mg/kg	82 mg/kg	0.38 mg/kg	0.00067 mg/kg	46 mg/kg	14 mg/kg	26 mg/kg	0.26 mg/kg	0.8 mg/kg	370 mg/kg

Notes:

Bold with yellow highlight - exceeds COGCC Table 915-1 residential soil screening level concentration

< - less than laboratory reporting detection limit (RDL)

COGCC - Colorado Oil and Gas Convservation Commission

TPH - Total Petroleum Hydrocarbons (volatile and extractable)

GRO - Gasoline Range Organics

DRO - Diesel Range Organics

ORO - Oil Range Organics

mg/kg - milligrams per kilogram

mg/L - milligrams per Liter

mmhos/cm - millimhos per centimeter

su - standard unit

na - not analyzed

SOIL ANALYTICAL RESULTS TABLE (continued)
CAERUS OIL AND GAS - MESA 4 PBV REMOVAL ASSESSMENT

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Sample Name	ORGANIC COMPOUNDS in mg/kg (continued)																
	1, 2, 4-trimethylbenzene	1, 3, 5-trimethylbenzene	Acenaphthene	Anthracene	Benz(a) anthracene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Benzo(a) pyrene	Chrysene	Dibenzo(a,h) anthracene	Fluoranthene	Fluorene	Indeno (1, 2, 3-cd) pyrene	1-methylnaphthalene	2-mehtylnaphthalene	Naphthalene	Pyrene
20220526-MESA 4 (N.WALL)@7'	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220526-MESA 4 (E.WALL)@7'	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220526-MESA 4 (S.WALL)@7'	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220526-MESA 4 (W.WALL)@7'	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
20220526-MESA 4 (BASE)@9'	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0438	<0.02	<0.02	<0.006
20220526-MESA 4 (BG-N)@1'	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
20220526-MESA 4 (BG-E)@2'	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
20220526-MESA 4 (BG-S)@2.5'	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
20220526-MESA 4 (BG-W)@3'	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
COGCC TABLE 915-1 RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	30 mg/kg	27 mg/kg	360 mg/kg	1800 mg/kg	1.1 mg/kg	1.1 mg/kg	11 mg/kg	0.11 mg/kg	110 mg/kg	0.11 mg/kg	240 mg/kg	240 mg/kg	1.1 mg/kg	18 mg/kg	24 mg/kg	2 mg/kg	180 mg/kg
PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	0.0081 mg/kg	0.0087 mg/kg	0.55 mg/kg	5.8 mg/kg	0.011 mg/kg	0.3 mg/kg	2.9 mg/kg	0.24 mg/kg	9 mg/kg	0.096 mg/kg	8.9 mg/kg	0.54 mg/kg	0.98 mg/kg	0.006 mg/kg	0.019 mg/kg	0.0038 mg/kg	1.3 mg/kg

Notes:

Bold with yellow highlight - exceeds COGCC Table 915-1 residential soil screening level concentration

< - less than laboratory reporting detection limit (RDL)

COGCC - Colorado Oil and Gas Convservation Commission

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

su - standard unit

na - not analyzed

ANALYTICAL REPORT

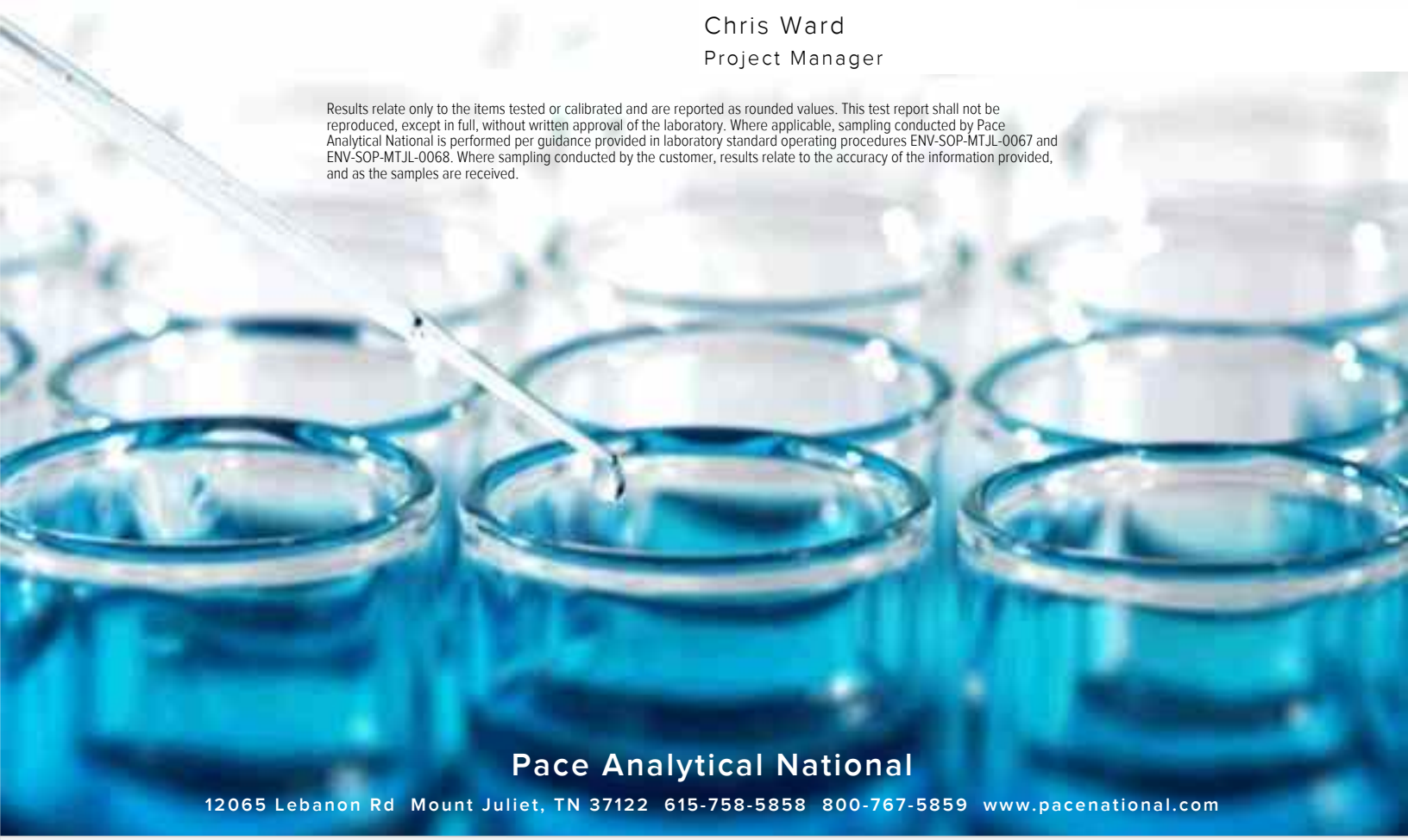
June 17, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1499058
Samples Received:	05/27/2022
Project Number:	MESA 4
Description:	Mesa 4
Site:	MESA 4
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



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

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20220526-MESA 4 (BG-N) @ 1' L1499058-01 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 11:00 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875464	1	06/16/22 20:41	06/16/22 20:41	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874042	1	06/03/22 16:00	06/03/22 19:13	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 20:33	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873336	5	06/06/22 11:39	06/08/22 16:56	JPD	Mt. Juliet, TN

20220526-MESA 4 (BG-S) @ 2.5' L1499058-02 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 11:10 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875464	1	06/16/22 20:44	06/16/22 20:44	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874042	1	06/03/22 16:00	06/03/22 19:13	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 20:35	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873336	5	06/06/22 11:39	06/08/22 16:59	JPD	Mt. Juliet, TN

20220526-MESA 4 (BG-E) @ 2' L1499058-03 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 11:20 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875464	1	06/16/22 20:47	06/16/22 20:47	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874042	1	06/03/22 16:00	06/03/22 19:13	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 20:38	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873336	5	06/06/22 11:39	06/08/22 17:10	SJM	Mt. Juliet, TN

20220526-MESA 4 (BG-W) @ 3' L1499058-04 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 11:30 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875464	1	06/16/22 20:49	06/16/22 20:49	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874042	1	06/03/22 16:00	06/03/22 19:13	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 20:41	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1873336	5	06/06/22 11:39	06/08/22 17:13	SJM	Mt. Juliet, TN

20220526-MESA 4 (N.WALL) @ 7' L1499058-05 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 11:40 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875464	1	06/16/22 20:52	06/16/22 20:52	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1874623	1	06/06/22 16:00	06/08/22 14:52	ERP	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874043	1	06/03/22 16:30	06/03/22 19:37	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1874713	1	06/06/22 14:27	06/09/22 21:01	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 20:44	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1874714	5	06/06/22 14:30	06/07/22 01:34	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1873578	1	06/01/22 13:39	06/02/22 21:59	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1874579	1	06/01/22 13:39	06/05/22 16:44	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875655	1	06/07/22 16:11	06/08/22 09:05	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1875985	1	06/08/22 02:47	06/08/22 12:56	AMG	Mt. Juliet, TN

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

20220526-MESA 4 (S.WALL) @ 7' L1499058-06 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 11:50 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875464	1	06/16/22 20:55	06/16/22 20:55	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1874623	1	06/06/22 16:00	06/08/22 14:57	ERP	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874043	1	06/03/22 16:30	06/03/22 19:37	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1874713	1	06/06/22 14:27	06/09/22 21:04	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 20:47	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1874714	5	06/06/22 14:30	06/07/22 01:37	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1873578	1	06/01/22 13:39	06/02/22 22:21	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1874579	1	06/01/22 13:39	06/05/22 17:03	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875655	1	06/07/22 16:11	06/08/22 09:30	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1875985	1	06/08/22 02:47	06/08/22 13:13	AMG	Mt. Juliet, TN

20220526-MESA 4 (E.WALL) @ 7' L1499058-07 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 12:00 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875464	1	06/16/22 20:58	06/16/22 20:58	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1874623	1	06/06/22 16:00	06/08/22 15:02	ERP	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874043	1	06/03/22 16:30	06/03/22 19:37	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1874713	1	06/06/22 14:27	06/09/22 21:07	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 20:55	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1874714	5	06/06/22 14:30	06/07/22 01:41	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1873578	1	06/01/22 13:39	06/02/22 22:42	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1874579	1	06/01/22 13:39	06/05/22 17:23	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875655	1	06/07/22 16:11	06/08/22 10:46	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1875985	1	06/08/22 02:47	06/08/22 14:40	AMG	Mt. Juliet, TN

20220526-MESA 4 (W.WALL) @ 7' L1499058-08 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 12:15 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875466	1	06/13/22 21:30	06/13/22 21:30	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1874623	1	06/06/22 16:00	06/08/22 15:39	ERP	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874043	1	06/03/22 16:30	06/03/22 19:37	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1874713	1	06/06/22 14:27	06/09/22 21:10	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 20:58	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1874714	5	06/06/22 14:30	06/07/22 01:44	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1873578	1	06/01/22 13:39	06/02/22 23:04	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1874579	1	06/01/22 13:39	06/05/22 17:42	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875655	1	06/07/22 16:11	06/08/22 09:43	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1875985	1	06/08/22 02:47	06/08/22 13:31	AMG	Mt. Juliet, TN

20220526-MESA 4 (BASE) @ 9' L1499058-09 Solid

Collected by: Evan Mason | Collected date/time: 05/26/22 12:30 | Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875466	1	06/13/22 21:33	06/13/22 21:33	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1874623	1	06/06/22 16:00	06/08/22 15:44	ERP	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1874353	1	06/04/22 15:00	06/04/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1874043	1	06/03/22 16:30	06/03/22 19:37	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1874713	1	06/06/22 14:27	06/09/22 21:18	ZSA	Mt. Juliet, TN

SAMPLE SUMMARY

20220526-MESA 4 (BASE) @ 9' L1499058-09 Solid

Collected by: Evan Mason
Collected date/time: 05/26/22 12:30
Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875458	1	06/08/22 13:14	06/13/22 21:01	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1874714	5	06/06/22 14:30	06/07/22 01:54	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1873578	1	06/01/22 13:39	06/02/22 23:25	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1874579	1	06/01/22 13:39	06/05/22 18:02	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875655	1	06/07/22 16:11	06/08/22 09:17	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1875985	1	06/08/22 02:47	06/08/22 13:48	AMG	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.135		1	06/16/2022 20:41	WG1875464

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.61	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:
L1499058-01 WG1874353: 7.61 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	90.1		10.0	1	06/03/2022 19:13	WG1874042

Sample Narrative:
L1499058-01 WG1874042: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.438		0.200	1	06/13/2022 20:33	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.82		1.00	5	06/08/2022 16:56	WG1873336

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0733		1	06/16/2022 20:44	WG1875464

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.77	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:
L1499058-02 WG1874353: 6.77 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	87.9		10.0	1	06/03/2022 19:13	WG1874042

Sample Narrative:
L1499058-02 WG1874042: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.307		0.200	1	06/13/2022 20:35	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	3.91		1.00	5	06/08/2022 16:59	WG1873336

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0822		1	06/16/2022 20:47	WG1875464

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.81	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:
L1499058-03 WG1874353: 6.81 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	34.9		10.0	1	06/03/2022 19:13	WG1874042

Sample Narrative:
L1499058-03 WG1874042: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.213		0.200	1	06/13/2022 20:38	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.48		1.00	5	06/08/2022 17:10	WG1873336

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.148		1	06/16/2022 20:49	WG1875464

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.90	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:
L1499058-04 WG1874353: 6.9 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	105		10.0	1	06/03/2022 19:13	WG1874042

Sample Narrative:
L1499058-04 WG1874042: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.395		0.200	1	06/13/2022 20:41	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	4.11		1.00	5	06/08/2022 17:13	WG1873336

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.442		1	06/16/2022 20:52	WG1875464

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	06/08/2022 14:52	WG1874623

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	7.31	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:

L1499058-05 WG1874353: 7.31 at 21C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	203		10.0	1	06/03/2022 19:37	WG1874043

Sample Narrative:

L1499058-05 WG1874043: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	195		0.500	1	06/09/2022 21:01	WG1874713
Cadmium	ND		0.500	1	06/09/2022 21:01	WG1874713
Copper	13.4		2.00	1	06/09/2022 21:01	WG1874713
Lead	11.6		0.500	1	06/09/2022 21:01	WG1874713
Nickel	20.1		2.00	1	06/09/2022 21:01	WG1874713
Selenium	ND		2.00	1	06/09/2022 21:01	WG1874713
Silver	ND		1.00	1	06/09/2022 21:01	WG1874713
Zinc	47.4		5.00	1	06/09/2022 21:01	WG1874713

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.265		0.200	1	06/13/2022 20:44	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	4.59		1.00	5	06/07/2022 01:34	WG1874714

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	06/02/2022 21:59	WG1873578
(S) a,a,a-Trifluorotoluene(FID)	*111*		*77.0-120*		*06/02/2022 21:59*	WG1873578

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	06/05/2022 16:44	WG1874579
Toluene	ND		0.00500	1	06/05/2022 16:44	WG1874579
Ethylbenzene	ND		0.00250	1	06/05/2022 16:44	WG1874579
Xylenes, Total	ND		0.00650	1	06/05/2022 16:44	WG1874579
1,2,4-Trimethylbenzene	ND		0.00500	1	06/05/2022 16:44	WG1874579
1,3,5-Trimethylbenzene	ND		0.00500	1	06/05/2022 16:44	WG1874579
(S) Toluene-d8	*110*		*75.0-131*		*06/05/2022 16:44*	WG1874579
(S) 4-Bromofluorobenzene	*90.5*		*67.0-138*		*06/05/2022 16:44*	WG1874579
(S) 1,2-Dichloroethane-d4	*98.1*		*70.0-130*		*06/05/2022 16:44*	WG1874579

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	06/08/2022 09:05	WG1875655
C28-C36 Motor Oil Range	4.09	B	4.00	1	06/08/2022 09:05	WG1875655
(S) o-Terphenyl	*53.1*		*18.0-148*		*06/08/2022 09:05*	WG1875655

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	06/08/2022 12:56	WG1875985
Anthracene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Benzo(a)anthracene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Benzo(b)fluoranthene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Benzo(k)fluoranthene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Benzo(a)pyrene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Chrysene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Dibenz(a,h)anthracene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Fluoranthene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Fluorene	ND		0.00600	1	06/08/2022 12:56	WG1875985
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/08/2022 12:56	WG1875985
1-Methylnaphthalene	ND		0.0200	1	06/08/2022 12:56	WG1875985
2-Methylnaphthalene	ND		0.0200	1	06/08/2022 12:56	WG1875985
Naphthalene	ND		0.0200	1	06/08/2022 12:56	WG1875985
Pyrene	ND		0.00600	1	06/08/2022 12:56	WG1875985
(S) p-Terphenyl-d14	*81.9*		*23.0-120*		*06/08/2022 12:56*	WG1875985
(S) Nitrobenzene-d5	*67.8*		*14.0-149*		*06/08/2022 12:56*	WG1875985
(S) 2-Fluorobiphenyl	*69.7*		*34.0-125*		*06/08/2022 12:56*	WG1875985

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.136		1	06/16/2022 20:55	WG1875464

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	06/08/2022 14:57	WG1874623

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	7.52	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:

L1499058-06 WG1874353: 7.52 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	68.7		10.0	1	06/03/2022 19:37	WG1874043

Sample Narrative:

L1499058-06 WG1874043: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	214		0.500	1	06/09/2022 21:04	WG1874713
Cadmium	ND		0.500	1	06/09/2022 21:04	WG1874713
Copper	17.3		2.00	1	06/09/2022 21:04	WG1874713
Lead	10.9		0.500	1	06/09/2022 21:04	WG1874713
Nickel	21.8		2.00	1	06/09/2022 21:04	WG1874713
Selenium	ND		2.00	1	06/09/2022 21:04	WG1874713
Silver	ND		1.00	1	06/09/2022 21:04	WG1874713
Zinc	48.1		5.00	1	06/09/2022 21:04	WG1874713

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/13/2022 20:47	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.88		1.00	5	06/07/2022 01:37	WG1874714

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	06/02/2022 22:21	WG1873578
(S) a,a,a-Trifluorotoluene(FID)	*112*		*77.0-120*		*06/02/2022 22:21*	WG1873578

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	06/05/2022 17:03	WG1874579
Toluene	ND		0.00500	1	06/05/2022 17:03	WG1874579
Ethylbenzene	ND		0.00250	1	06/05/2022 17:03	WG1874579
Xylenes, Total	ND		0.00650	1	06/05/2022 17:03	WG1874579
1,2,4-Trimethylbenzene	ND		0.00500	1	06/05/2022 17:03	WG1874579
1,3,5-Trimethylbenzene	ND		0.00500	1	06/05/2022 17:03	WG1874579
(S) Toluene-d8	*104*		*75.0-131*		*06/05/2022 17:03*	WG1874579
(S) 4-Bromofluorobenzene	*85.9*		*67.0-138*		*06/05/2022 17:03*	WG1874579
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*06/05/2022 17:03*	WG1874579

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	06/08/2022 09:30	WG1875655
C28-C36 Motor Oil Range	8.36		4.00	1	06/08/2022 09:30	WG1875655
(S) o-Terphenyl	*63.7*		*18.0-148*		*06/08/2022 09:30*	WG1875655

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	06/08/2022 13:13	WG1875985
Anthracene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Benzo(a)anthracene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Benzo(b)fluoranthene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Benzo(k)fluoranthene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Benzo(a)pyrene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Chrysene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Dibenz(a,h)anthracene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Fluoranthene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Fluorene	ND		0.00600	1	06/08/2022 13:13	WG1875985
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/08/2022 13:13	WG1875985
1-Methylnaphthalene	ND		0.0200	1	06/08/2022 13:13	WG1875985
2-Methylnaphthalene	ND		0.0200	1	06/08/2022 13:13	WG1875985
Naphthalene	ND		0.0200	1	06/08/2022 13:13	WG1875985
Pyrene	ND		0.00600	1	06/08/2022 13:13	WG1875985
(S) p-Terphenyl-d14	*77.6*		*23.0-120*		*06/08/2022 13:13*	WG1875985
(S) Nitrobenzene-d5	*63.5*		*14.0-149*		*06/08/2022 13:13*	WG1875985
(S) 2-Fluorobiphenyl	*64.9*		*34.0-125*		*06/08/2022 13:13*	WG1875985

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.352		1	06/16/2022 20:58	WG1875464

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	06/08/2022 15:02	WG1874623

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.07	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:

L1499058-07 WG1874353: 8.07 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	147		10.0	1	06/03/2022 19:37	WG1874043

Sample Narrative:

L1499058-07 WG1874043: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	188		0.500	1	06/09/2022 21:07	WG1874713
Cadmium	ND		0.500	1	06/09/2022 21:07	WG1874713
Copper	14.3		2.00	1	06/09/2022 21:07	WG1874713
Lead	12.0		0.500	1	06/09/2022 21:07	WG1874713
Nickel	13.3		2.00	1	06/09/2022 21:07	WG1874713
Selenium	ND		2.00	1	06/09/2022 21:07	WG1874713
Silver	ND		1.00	1	06/09/2022 21:07	WG1874713
Zinc	39.9		5.00	1	06/09/2022 21:07	WG1874713

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/13/2022 20:55	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	14.6		1.00	5	06/07/2022 01:41	WG1874714

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	06/02/2022 22:42	WG1873578
(S) a,a,a-Trifluorotoluene(FID)	*107*		*77.0-120*		*06/02/2022 22:42*	WG1873578

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	06/05/2022 17:23	WG1874579
Toluene	ND		0.00500	1	06/05/2022 17:23	WG1874579
Ethylbenzene	ND		0.00250	1	06/05/2022 17:23	WG1874579
Xylenes, Total	ND		0.00650	1	06/05/2022 17:23	WG1874579
1,2,4-Trimethylbenzene	ND		0.00500	1	06/05/2022 17:23	WG1874579
1,3,5-Trimethylbenzene	ND		0.00500	1	06/05/2022 17:23	WG1874579
(S) Toluene-d8	*104*		*75.0-131*		*06/05/2022 17:23*	WG1874579
(S) 4-Bromofluorobenzene	*90.4*		*67.0-138*		*06/05/2022 17:23*	WG1874579
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*06/05/2022 17:23*	WG1874579

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	39.6		4.00	1	06/08/2022 10:46	WG1875655
C28-C36 Motor Oil Range	108		4.00	1	06/08/2022 10:46	WG1875655
(S) o-Terphenyl	*48.1*		*18.0-148*		*06/08/2022 10:46*	WG1875655

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	06/08/2022 14:40	WG1875985
Anthracene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Benzo(a)anthracene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Benzo(b)fluoranthene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Benzo(k)fluoranthene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Benzo(a)pyrene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Chrysene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Dibenz(a,h)anthracene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Fluoranthene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Fluorene	ND		0.00600	1	06/08/2022 14:40	WG1875985
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/08/2022 14:40	WG1875985
1-Methylnaphthalene	ND		0.0200	1	06/08/2022 14:40	WG1875985
2-Methylnaphthalene	ND		0.0200	1	06/08/2022 14:40	WG1875985
Naphthalene	ND		0.0200	1	06/08/2022 14:40	WG1875985
Pyrene	ND		0.00600	1	06/08/2022 14:40	WG1875985
(S) p-Terphenyl-d14	*96.7*		*23.0-120*		*06/08/2022 14:40*	WG1875985
(S) Nitrobenzene-d5	*83.5*		*14.0-149*		*06/08/2022 14:40*	WG1875985
(S) 2-Fluorobiphenyl	*80.0*		*34.0-125*		*06/08/2022 14:40*	WG1875985

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.432		1	06/13/2022 21:30	WG1875466

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	1.21		1.00	1	06/08/2022 15:39	WG1874623

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	7.81	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:

L1499058-08 WG1874353: 7.81 at 21.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	198		10.0	1	06/03/2022 19:37	WG1874043

Sample Narrative:

L1499058-08 WG1874043: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	202		0.500	1	06/09/2022 21:10	WG1874713
Cadmium	ND		0.500	1	06/09/2022 21:10	WG1874713
Copper	16.3		2.00	1	06/09/2022 21:10	WG1874713
Lead	11.9		0.500	1	06/09/2022 21:10	WG1874713
Nickel	20.6		2.00	1	06/09/2022 21:10	WG1874713
Selenium	ND		2.00	1	06/09/2022 21:10	WG1874713
Silver	ND		1.00	1	06/09/2022 21:10	WG1874713
Zinc	46.7		5.00	1	06/09/2022 21:10	WG1874713

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/13/2022 20:58	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.48		1.00	5	06/07/2022 01:44	WG1874714

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	0.299		0.100	1	06/02/2022 23:04	WG1873578
(S) a,a,a-Trifluorotoluene(FID)	*111*		*77.0-120*		*06/02/2022 23:04*	WG1873578

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	06/05/2022 17:42	WG1874579
Toluene	ND		0.00500	1	06/05/2022 17:42	WG1874579
Ethylbenzene	ND		0.00250	1	06/05/2022 17:42	WG1874579
Xylenes, Total	ND		0.00650	1	06/05/2022 17:42	WG1874579
1,2,4-Trimethylbenzene	ND		0.00500	1	06/05/2022 17:42	WG1874579
1,3,5-Trimethylbenzene	ND		0.00500	1	06/05/2022 17:42	WG1874579
(S) Toluene-d8	*101*		*75.0-131*		*06/05/2022 17:42*	WG1874579
(S) 4-Bromofluorobenzene	*89.6*		*67.0-138*		*06/05/2022 17:42*	WG1874579
(S) 1,2-Dichloroethane-d4	*103*		*70.0-130*		*06/05/2022 17:42*	WG1874579

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	16.5		4.00	1	06/08/2022 09:43	WG1875655
C28-C36 Motor Oil Range	7.89		4.00	1	06/08/2022 09:43	WG1875655
(S) o-Terphenyl	*42.7*		*18.0-148*		*06/08/2022 09:43*	WG1875655

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	06/08/2022 13:31	WG1875985
Anthracene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Benzo(a)anthracene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Benzo(b)fluoranthene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Benzo(k)fluoranthene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Benzo(a)pyrene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Chrysene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Dibenz(a,h)anthracene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Fluoranthene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Fluorene	ND		0.00600	1	06/08/2022 13:31	WG1875985
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/08/2022 13:31	WG1875985
1-Methylnaphthalene	ND		0.0200	1	06/08/2022 13:31	WG1875985
2-Methylnaphthalene	ND		0.0200	1	06/08/2022 13:31	WG1875985
Naphthalene	ND		0.0200	1	06/08/2022 13:31	WG1875985
Pyrene	ND		0.00600	1	06/08/2022 13:31	WG1875985
(S) p-Terphenyl-d14	*75.4*		*23.0-120*		*06/08/2022 13:31*	WG1875985
(S) Nitrobenzene-d5	*65.2*		*14.0-149*		*06/08/2022 13:31*	WG1875985
(S) 2-Fluorobiphenyl	*62.6*		*34.0-125*		*06/08/2022 13:31*	WG1875985

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.312		1	06/13/2022 21:33	WG1875466

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	06/08/2022 15:44	WG1874623

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	7.61	T8	1	06/04/2022 17:00	WG1874353

Sample Narrative:

L1499058-09 WG1874353: 7.61 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	105		10.0	1	06/03/2022 19:37	WG1874043

Sample Narrative:

L1499058-09 WG1874043: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	239		0.500	1	06/09/2022 21:18	WG1874713
Cadmium	ND		0.500	1	06/09/2022 21:18	WG1874713
Copper	16.9		2.00	1	06/09/2022 21:18	WG1874713
Lead	12.6		0.500	1	06/09/2022 21:18	WG1874713
Nickel	22.6		2.00	1	06/09/2022 21:18	WG1874713
Selenium	ND		2.00	1	06/09/2022 21:18	WG1874713
Silver	ND		1.00	1	06/09/2022 21:18	WG1874713
Zinc	52.6		5.00	1	06/09/2022 21:18	WG1874713

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	ND		0.200	1	06/13/2022 21:01	WG1875458

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.73		1.00	5	06/07/2022 01:54	WG1874714

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	ND		0.100	1	06/02/2022 23:25	WG1873578
(S) a,a,a-Trifluorotoluene(FID)	*111*		*77.0-120*		*06/02/2022 23:25*	WG1873578

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	06/05/2022 18:02	WG1874579
Toluene	ND		0.00500	1	06/05/2022 18:02	WG1874579
Ethylbenzene	ND		0.00250	1	06/05/2022 18:02	WG1874579
Xylenes, Total	ND		0.00650	1	06/05/2022 18:02	WG1874579
1,2,4-Trimethylbenzene	ND		0.00500	1	06/05/2022 18:02	WG1874579
1,3,5-Trimethylbenzene	ND		0.00500	1	06/05/2022 18:02	WG1874579
(S) Toluene-d8	*102*		*75.0-131*		*06/05/2022 18:02*	WG1874579
(S) 4-Bromofluorobenzene	*89.8*		*67.0-138*		*06/05/2022 18:02*	WG1874579
(S) 1,2-Dichloroethane-d4	*103*		*70.0-130*		*06/05/2022 18:02*	WG1874579

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	6.50		4.00	1	06/08/2022 09:17	WG1875655
C28-C36 Motor Oil Range	9.61		4.00	1	06/08/2022 09:17	WG1875655
(S) o-Terphenyl	*43.3*		*18.0-148*		*06/08/2022 09:17*	WG1875655

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	06/08/2022 13:48	WG1875985
Anthracene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Benzo(a)anthracene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Benzo(b)fluoranthene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Benzo(k)fluoranthene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Benzo(a)pyrene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Chrysene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Dibenz(a,h)anthracene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Fluoranthene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Fluorene	ND		0.00600	1	06/08/2022 13:48	WG1875985
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	06/08/2022 13:48	WG1875985
1-Methylnaphthalene	0.0438		0.0200	1	06/08/2022 13:48	WG1875985
2-Methylnaphthalene	ND		0.0200	1	06/08/2022 13:48	WG1875985
Naphthalene	ND		0.0200	1	06/08/2022 13:48	WG1875985
Pyrene	ND		0.00600	1	06/08/2022 13:48	WG1875985
(S) p-Terphenyl-d14	*101*		*23.0-120*		*06/08/2022 13:48*	WG1875985
(S) Nitrobenzene-d5	*94.1*		*14.0-149*		*06/08/2022 13:48*	WG1875985
(S) 2-Fluorobiphenyl	*81.3*		*34.0-125*		*06/08/2022 13:48*	WG1875985

Method Blank (MB)

(MB) R3801200-1 06/08/22 13:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L1499059-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1499059-06 06/08/22 15:54 • (DUP) R3801200-7 06/08/22 15:59

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	2.90		20

L1498947-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1498947-02 06/08/22 14:05 • (DUP) R3801200-8 06/08/22 14:21

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	ND	1	8.17		20

Laboratory Control Sample (LCS)

(LCS) R3801200-2 06/08/22 13:24

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

L1499058-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499058-07 06/08/22 15:02 • (MS) R3801200-4 06/08/22 15:23 • (MSD) R3801200-5 06/08/22 15:28

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 %
Hexavalent Chromium	20.0	ND	19.9	19.9	95.8	95.9	1	75.0-125			0.0737	20

L1499058-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1499058-07 06/08/22 15:02 • (MS) R3801200-6 06/08/22 15:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	693	ND	621	89.6	50	75.0-125	

L1498929-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1498929-04 06/04/22 17:00 • (DUP) R3799449-2 06/04/22 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.53	8.55	1	0.234		1

Sample Narrative:

OS: 8.53 at 22.1C

DUP: 8.55 at 21.5C

L1499058-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1499058-06 06/04/22 17:00 • (DUP) R3799449-3 06/04/22 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.52	7.50	1	0.266		1

Sample Narrative:

OS: 7.52 at 21.1C

DUP: 7.5 at 21.1C

Laboratory Control Sample (LCS)

(LCS) R3799449-1 06/04/22 17:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.91	99.1	99.0-101	

Sample Narrative:

LCS: 9.91 at 20C

Method Blank (MB)

(MB) R3799349-1 06/03/22 19:13

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

L1498955-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1498955-01 06/03/22 19:13 • (DUP) R3799349-3 06/03/22 19:13

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	114	118	1	3.10		20

Sample Narrative:
OS: at 25C
DUP: at 25C

L1499058-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1499058-01 06/03/22 19:13 • (DUP) R3799349-4 06/03/22 19:13

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	90.1	98.2	1	8.60		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3799349-2 06/03/22 19:13

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	287	107	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3799350-1 06/03/22 19:37

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

L1499059-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1499059-01 06/03/22 19:37 • (DUP) R3799350-3 06/03/22 19:37

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	129	115	1	11.7		20

Sample Narrative:
OS: at 25C
DUP: at 25C

L1499059-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1499059-06 06/03/22 19:37 • (DUP) R3799350-4 06/03/22 19:37

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	163	169	1	3.73		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3799350-2 06/03/22 19:37

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	282	105	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3801625-1 06/09/22 20:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	0.183	J	0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3801625-2 06/09/22 20:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	96.4	96.4	80.0-120	
Cadmium	100	92.9	92.9	80.0-120	
Copper	100	95.1	95.1	80.0-120	
Lead	100	94.2	94.2	80.0-120	
Nickel	100	94.6	94.6	80.0-120	
Selenium	100	94.4	94.4	80.0-120	
Silver	20.0	17.6	88.2	80.0-120	
Zinc	100	93.6	93.6	80.0-120	

L1498904-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498904-02 06/09/22 20:14 • (MS) R3801625-5 06/09/22 20:24 • (MSD) R3801625-6 06/09/22 20:27

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 %
Barium	100	261	338	333	76.6	71.7	1	75.0-125		J6	1.47	20
Cadmium	100	1.07	96.8	97.3	95.7	96.2	1	75.0-125			0.479	20
Copper	100	21.2	114	118	93.2	96.6	1	75.0-125			2.94	20
Lead	100	12.3	105	107	92.8	95.0	1	75.0-125			2.04	20
Nickel	100	18.3	110	112	91.7	93.7	1	75.0-125			1.77	20
Selenium	100	ND	97.1	97.9	97.1	97.9	1	75.0-125			0.846	20
Silver	20.0	ND	18.8	19.0	94.1	94.8	1	75.0-125			0.683	20
Zinc	100	56.5	128	129	71.4	72.8	1	75.0-125	J6	J6	1.10	20

L1499100-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499100-01 06/09/22 20:29 • (MS) R3801625-7 06/09/22 20:32 • (MSD) R3801625-8 06/09/22 20:35

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 %
Barium	100	120	165	188	45.5	68.2	1	75.0-125	J6	J6	12.8	20
Cadmium	100	ND	93.9	90.0	93.8	89.9	1	75.0-125			4.18	20
Copper	100	17.5	122	112	105	94.8	1	75.0-125			8.26	20
Lead	100	ND	94.3	90.5	94.3	90.5	1	75.0-125			4.07	20
Nickel	100	10.2	103	100	93.1	90.0	1	75.0-125			3.05	20
Selenium	100	2.40	99.9	95.8	97.5	93.4	1	75.0-125			4.14	20
Silver	20.0	ND	16.0	15.5	80.1	77.5	1	75.0-125			3.25	20
Zinc	100	10.4	99.7	96.7	89.3	86.3	1	75.0-125			3.07	20

Method Blank (MB)

(MB) R3802745-1 06/13/22 20:22

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) R3802745-2 06/13/22 20:24 • (LCSD) R3802745-3 06/13/22 20:27

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	1.03	1.04	103	104	80.0-120			0.444	20

Method Blank (MB)

(MB) R3800969-1 06/08/22 15:49

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

Laboratory Control Sample (LCS)

(LCS) R3800969-2 06/08/22 15:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	96.1	96.1	80.0-120	

L1499059-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499059-04 06/08/22 15:55 • (MS) R3800969-5 06/08/22 16:05 • (MSD) R3800969-6 06/08/22 16:09

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	3.72	98.3	103	94.5	99.3	5	75.0-125			4.71	20

Method Blank (MB)

(MB) R3800489-9 06/07/22 00:32

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

Laboratory Control Sample (LCS)

(LCS) R3800489-10 06/07/22 00:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	91.5	91.5	80.0-120	

L1498904-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498904-02 06/07/22 00:39 • (MS) R3800489-13 06/07/22 00:48 • (MSD) R3800489-14 06/07/22 00:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	10.3	94.6	99.4	84.3	89.2	5	75.0-125			5.04	20

L1499100-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499100-01 06/07/22 00:55 • (MS) R3800489-15 06/07/22 00:58 • (MSD) R3800489-16 06/07/22 01:01

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.78	91.1	89.7	86.4	84.9	5	75.0-125			1.63	20

Method Blank (MB)

(MB) R3798940-3 06/02/22 21:02

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)	*110*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3798940-2 06/02/22 20:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.16	93.8	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*103*	*77.0-120*	

Method Blank (MB)

(MB) R3799654-2 06/05/22 12:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL 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	*107*			*75.0-131*
(S) 4-Bromofluorobenzene	*91.1*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*98.6*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3799654-1 06/05/22 11:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.126	101	70.0-123	
Toluene	0.125	0.118	94.4	75.0-121	
Ethylbenzene	0.125	0.117	93.6	74.0-126	
Xylenes, Total	0.375	0.363	96.8	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.120	96.0	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.119	95.2	73.0-127	
(S) Toluene-d8			*97.1*	*75.0-131*	
(S) 4-Bromofluorobenzene			*89.8*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*110*	*70.0-130*	

Method Blank (MB)

(MB) R3800804-1 06/08/22 09:06

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	0.534	J	0.274	4.00
(S) o-Terphenyl	*90.8*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3800804-2 06/08/22 09:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	45.0	90.0	50.0-150	
(S) o-Terphenyl			*106*	*18.0-148*	

L1499257-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499257-02 06/08/22 12:15 • (MS) R3800815-1 06/08/22 12:42 • (MSD) R3800815-2 06/08/22 12:55

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	49.0	25.4	35.8	38.3	21.2	26.3	1	50.0-150	J6	J6	6.75	20
(S) o-Terphenyl					*49.8*	*40.2*		*18.0-148*				

Method Blank (MB)

(MB) R3800808-2 06/08/22 09:45

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	*89.6*			*23.0-120*
(S) Nitrobenzene-d5	*74.1*			*14.0-149*
(S) 2-Fluorobiphenyl	*75.1*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3800808-1 06/08/22 09:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0651	81.4	50.0-120	
Anthracene	0.0800	0.0650	81.3	50.0-126	
Benzo(a)anthracene	0.0800	0.0674	84.3	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0667	83.4	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0658	82.3	49.0-125	
Benzo(a)pyrene	0.0800	0.0619	77.4	42.0-120	
Chrysene	0.0800	0.0667	83.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0644	80.5	47.0-125	
Fluoranthene	0.0800	0.0657	82.1	49.0-129	
Fluorene	0.0800	0.0685	85.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0646	80.7	46.0-125	
1-Methylnaphthalene	0.0800	0.0657	82.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0646	80.7	50.0-120	
Naphthalene	0.0800	0.0654	81.8	50.0-120	
Pyrene	0.0800	0.0645	80.6	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3800808-1 06/08/22 09:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*97.4*	*23.0-120*	
(S) Nitrobenzene-d5			*85.0*	*14.0-149*	
(S) 2-Fluorobiphenyl			*83.6*	*34.0-125*	

L1499059-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1499059-06 06/08/22 15:15 • (MS) R3800808-3 06/08/22 15:33 • (MSD) R3800808-4 06/08/22 15:50

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	0.0602	0.0619	75.3	77.4	1	14.0-127			2.78	27
Anthracene	0.0800	ND	0.0617	0.0651	77.1	81.4	1	10.0-145			5.36	30
Benzo(a)anthracene	0.0800	ND	0.0634	0.0656	79.3	82.0	1	10.0-139			3.41	30
Benzo(b)fluoranthene	0.0800	ND	0.0575	0.0583	71.9	72.9	1	10.0-140			1.38	36
Benzo(k)fluoranthene	0.0800	ND	0.0566	0.0575	70.8	71.9	1	10.0-137			1.58	31
Benzo(a)pyrene	0.0800	ND	0.0589	0.0598	73.6	74.8	1	10.0-141			1.52	31
Chrysene	0.0800	ND	0.0635	0.0633	79.4	79.1	1	10.0-145			0.315	30
Dibenz(a,h)anthracene	0.0800	ND	0.0581	0.0587	72.6	73.4	1	10.0-132			1.03	31
Fluoranthene	0.0800	ND	0.0615	0.0632	76.9	79.0	1	10.0-153			2.73	33
Fluorene	0.0800	0.00776	0.0702	0.0714	78.1	79.5	1	11.0-130			1.69	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0590	0.0603	73.8	75.4	1	10.0-137			2.18	32
1-Methylnaphthalene	0.0800	0.0587	0.129	0.120	87.9	76.6	1	10.0-142			7.23	28
2-Methylnaphthalene	0.0800	0.0968	0.175	0.152	97.8	69.0	1	10.0-137			14.1	28
Naphthalene	0.0800	0.0277	0.0903	0.0879	78.3	75.3	1	10.0-135			2.69	27
Pyrene	0.0800	ND	0.0626	0.0621	78.3	77.6	1	10.0-148			0.802	35
(S) p-Terphenyl-d14					*88.7*	*92.7*		*23.0-120*				
(S) Nitrobenzene-d5					*90.9*	*96.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*74.8*	*78.5*		*34.0-125*				

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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

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	LAO000356
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.

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

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

ALL SHADED AREAS are for LAB USE ONLY

Company: Campos EPC	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Brett Middleton	Email To: bmiddleton@caerusoilandgas.com
Copy To: Jake Janicek - jjanicek@caerusoilandgas.com	Site Collection Info/Address:
Customer Project Name/Number: Mesa 4	State: CO / County/City: Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-619-0600 Email: same as above	Site/Facility ID #: Mesa 4
Collected By (print): Evan Mason	Purchase Order #: Quote #:
Collected By (signature):	Turnaround Date Required: standard
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [ ] Yes [ ] No

DW PWS ID #: DW Location Code:

Immediately Packed on Ice: [✓] Yes [ ] No

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: _____

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

Container Preservative Type **

Lab Project Manager:

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

Analyses

Lab Profile/Line:

Lab Sample Receipt Checklist:

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

LAB USE ONLY:
Lab Sample # / Comments:

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	COGCC Table 915-1	EC, SAR, pH, Boron (hot water sol.), Arsenic	Lab Sample # / Comments
20220526-Mesa 4(BG-N)@1'	sl		5/26/22	11:00	-	-	-	1		X	L1499058-01
20220526-Mesa 4(BG-S)@2.5'	sl		5/26/22	11:10	-	-	-	1		X	-02
20220526-Mesa 4(BG-E)@2'	sl		5/26/22	11:20	-	-	-	1		X	-03
20220526-Mesa 4(BG-W)@3'	sl		5/26/22	11:30	-	-	-	1		X	-04
20220526-Mesa 4(N.Wall)@7'	sl		5/26/22	11:40	-	-	-	1	X		-05
20220526-Mesa 4(S.Wall)@7'	sl		5/26/22	11:50	-	-	-	2	X		-06
20220526-Mesa 4(E.Wall)@7'	sl		5/26/22	12:00	-	-	-	2	X		-07
20220526-Mesa 4(W.Wall)@7'	sl		5/26/22	12:15				2	X		-08
20220526-Mesa 4(Base)@9'	sl		5/26/22	12:30				2	X		-09

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

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

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

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: _____
Cooler 1 Temp Upon Receipt: _____oC
Cooler 1 Therm Corr. Factor: _____oC
Cooler 1 Corrected Temp: 1.5 oC
Comments:

	Date/Time:		Date/Time:
Relinquished by/Company: (Signature)	5/26/22 1600	Received by/Company: (Signature)	5/26 1600
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	5/27/22 0815
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:

1233

Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: _____ of: _____

5/28-NCF-L1499058 CAERUSPCO

R5

Time estimate: oh **Time spent:** oh

Members

HM Hailey Melson (responsible) Chris Ward

Due on *1 June 2022 8:00 AM* for target *Done*

- [ ] Parameter(s) past holding time
- [ ] Temperature not in range
- [ ] Improper container type
- [ ] pH not in range
- [ ] Insufficient sample volume
- [ ] Sample is biphasic
- [ ] Vials received with headspace
- [x] Broken container
- [ ] Sufficient sample remains
- [ ] If broken container: Insufficient packing material around container
- [ ] If broken container: Insufficient packing material inside cooler
- [ ] If broken container: Improper handling by carrier:_____
- [ ] If broken container: Sample was frozen
- [ ] If broken container: Container lid not intact
- [ ] Client informed by Call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [ ] PM initials:_____
- [ ] Client Contact:_____

Comments

Hailey Melson *28 May 2022 11:22 AM*

1 8oz jar received broken for ID: Mesa 4 (N.Wall) @ 7. Split of 2 oz for VOC tests.

Chris Ward *31 May 2022 8:41 AM*

Please proceed with remaining volume

Matthew Shacklock *31 May 2022 8:47 AM*

Done

ANALYTICAL REPORT

July 25, 2022

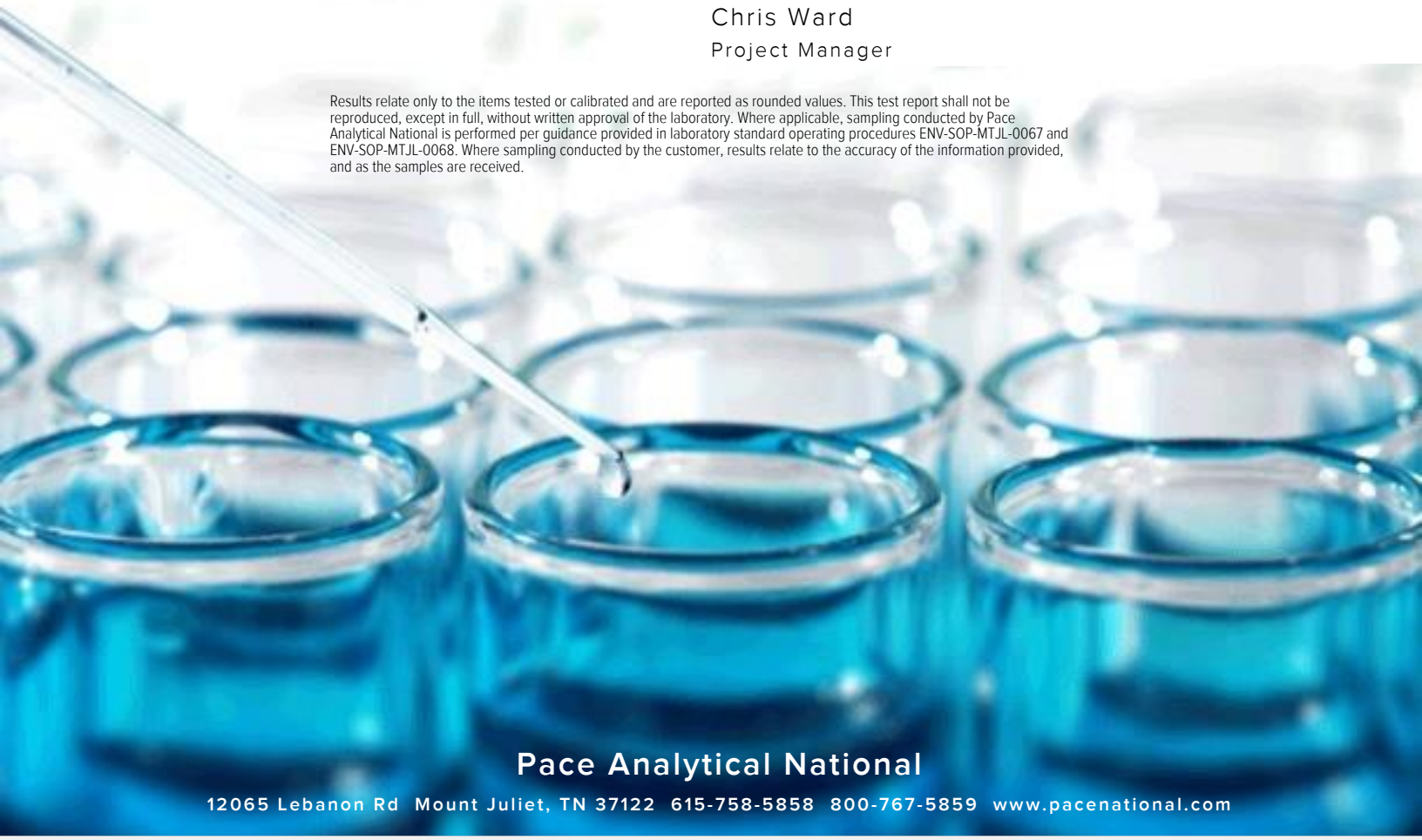
Caerus Oil and Gas

Sample Delivery Group:	L1510324
Samples Received:	06/30/2022
Project Number:	
Description:	

Report To: Brett Middleton
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



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

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SAMPLE SUMMARY

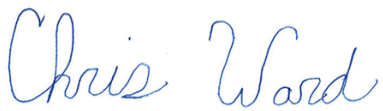
20220628-MESA3(PW) L1510324-01 Solid

Collected by: Evan Mason
Collected date/time: 06/28/22 11:20
Received date/time: 06/30/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1891660	1	07/08/22 10:00	07/08/22 12:00	GI	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1899084	5	07/21/22 21:15	07/22/22 11:10	JPD	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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	pH			date / time	
pH	7.04	T8	1	07/08/2022 12:00	WG1891660

Sample Narrative:

L1510324-01 WG1891660: 7.04 at 24.3C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	U		0.100	1.00	5	07/22/2022 11:10	WG1899084

L1511269-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1511269-02 07/08/22 12:00 • (DUP) R3812426-2 07/08/22 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.28	8.31	1	0.362		1

Sample Narrative:

OS: 8.28 at 24.1C

DUP: 8.31 at 24.1C

Laboratory Control Sample (LCS)

(LCS) R3812426-1 07/08/22 12:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.90	99.0	99.0-101	

Sample Narrative:

LCS: 9.9 at 23.5C

Method Blank (MB)

(MB) R3818113-1 07/22/22 10:46

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

Laboratory Control Sample (LCS)

(LCS) R3818113-2 07/22/22 10:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	87.3	87.3	80.0-120	

L1510845-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1510845-12 07/22/22 10:53 • (MS) R3818113-5 07/22/22 11:03 • (MSD) R3818113-6 07/22/22 11:06

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	12.4	107	116	94.2	103	5	75.0-125			8.04	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.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

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

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	LAO000356
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.

Pace Analytical®

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

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

ALL SHADED AREAS are for LAB USE ONLY

J073

Company: Campos EPC	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Brett Middleton	Email To: bmiddleton@caerusoilandgas.com
Copy To: Jake.Janicek@caerusoilandgas.com	Site Collection Info/Address:
Customer Project Name/Number:	State: CO / County/City: Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET

Phone: 970-619-0600 Email: same as above	Site/Facility ID #:	Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): Evan Mason	Purchase Order #: Quote #:	DW PWS ID #: DW Location Code:
Collected By (signature):	Turnaround Date Required: standard	Immediately Packed on Ice: [✓] Yes [ ] No
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: ______ [ ] Hold: ______	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply)	Field Filtered (if applicable): [ ] Yes [ ] No Analysis: ______

Container Preservative Type ** | Lab Project Manager:

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

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

Analyses:

Customer Sample ID	Matrix *	Comp / Grab	Collected Date	Collected Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	COGCC Table 915-1	EC, SAR, pH, Boron (hot water sol.), Arsenic	pH	Arsenic	Lab Sample # / Comments
20220628-Mesa 3 (PW)	P		6/28/22	1120	-	-	-	2			X	X	L1510324 -01
				O E 6/30	-	-	-						

Lab Profile/Line:

Lab Sample Receipt Checklist:

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

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

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

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

Lab Tracking #: 5755-8084-9885

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: ______
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
[signature]	6/29/22 - 1538	[signature]	6/29 1530
[signature]	6/29/22 1630	Toby Jaekus	6/30/22 09:30

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: ______ of: ______

Location Mesa 4 / Mesa 3 Date 5/26/22

Project / Client Cactus

Sunny. 80°F. Mild wind

1000: Arrive on site to conduct wall sampling, background sampling & drone flight

- Review & Sign JSA
- Review Scope of work
- Calibrate PID
- Prepare equipment for sampling

Sample / Screen ID	Time:	PID:
20220526-Mesa 4 (BG-N) @1'	1100	0.00
" (BG-S) @2.5'	1110	0.00
" (BG-E) @ 2'	1120	0.00
" (BG-W) @2.5'	1130	0.00
" (NWALL) @7'	1140	0.00
" (SWALL) @7'	1150	0.00
" (EWALL) @7'	1200	.25
" (WWALL) @7'	1215	0.00
" (BASE) @9'	1230	1.05
20220526-Mesa 3 (BG-N) @1'	1300	—
" (BG-S) @2.5'	1310	—
" (BG-E) @2'	1320	—
" (BG-W) @3'	1330	—
" (NWALL) @6'	1345	308.5
" (SWALL) @6'	1400	127.3
" (EWALL) @6'	1415	105.5
" (WWALL) @6'	1430	150.5
" (BASE) @8'	1445	25.5

Rain

Location Mesa 3/4 Date 5/26/22

Project / Client Caerus

Sunny. 90°F. Mild wind

* Contd.

- Conduct drone flight at both sites

1500: All sampling & drone flights complete

- Load equipment

1530: off site

5/26/22

ANALYTICAL REPORT

September 06, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1527929
Samples Received:	08/19/2022
Project Number:	
Description:	Mesa 4
Site:	MESA 4
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

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

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SAMPLE SUMMARY

20220817-MESA 4(PW-01) L1527929-01 GW

Collected by: Chad Dodge
Collected date/time: 08/17/22 12:20
Received date/time: 08/19/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1920536	1	09/02/22 14:41	09/02/22 14:41	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1917199	10	08/28/22 22:16	08/29/22 12:33	SJM	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

Wet Chemistry by Method 7199

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U	T8	0.000150	0.000500	1	09/02/2022 14:41	WG1920536

Metals (ICPMS) by Method 6020

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Arsenic	0.00312	J	0.00180	0.0200	10	08/29/2022 12:33	WG1917199

QUALITY CONTROL SUMMARY

L1527929-01

Method Blank (MB)

(MB) R3833702-1 09/02/22 13:30

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexavalent Chromium	U		0.000150	0.000500

L1527556-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1527556-01 09/02/22 14:26 • (DUP) R3833702-5 09/02/22 14:33

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.00124	0.00124	1	0.226		20

Laboratory Control Sample (LCS)

(LCS) R3833702-2 09/02/22 13:40

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	0.00200	0.00209	105	90.0-110	

L1526457-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1526457-01 09/02/22 13:47 • (MS) R3833702-3 09/02/22 13:55 • (MSD) R3833702-4 09/02/22 14:03

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	0.0500	U	0.0517	0.0527	103	105	1	90.0-110			1.91	20

Method Blank (MB)

(MB) R3831490-1 08/29/22 11:02

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.000180	0.00200

Laboratory Control Sample (LCS)

(LCS) R3831490-2 08/29/22 11:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	0.0500	0.0469	93.9	80.0-120	

L1527645-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1527645-11 08/29/22 11:08 • (MS) R3831490-4 08/29/22 11:15 • (MSD) R3831490-5 08/29/22 11:18

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	0.0500	0.000563	0.0483	0.0491	95.5	97.0	1	75.0-125			1.47	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.
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
J	The identification of the analyte is acceptable; the reported value is an estimate.
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	LAO000356
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.

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: D060

AREAS are for LAB USE ONLY

Company: Campos EPC	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Brett Middleton	Email To: bmiddleton@caerusoilandgas.com
Copy To: jjanicek@caerusoilandgas.com	Site Collection Info/Address:
Customer Project Name/Number: Mesa 4	State: CO / County/City: Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-615-2600 Email: same as above	Site/Facility ID #: Mesa 4
Collected By (print): Chad Dodge	Purchase Order #: Quote #:
Collected By (signature): Chad Dodge	Turnaround Date Required: standard
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply)
	Compliance Monitoring? [ ] Yes [ ] No
	DW PWS ID #: DW Location Code:
	Immediately Packed on Ice: [✓] Yes [ ] No
	Field Filtered (if applicable): [ ] Yes [ ] No Analysis:

Container Preservative Type **

Lab Project Manager:

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

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Analyses: X Arsenic, Hexavalent Chromium	Lab Profile/Line:
20220817-Mesa 4(PW-01)	P		8/17/22	1220	-	-	2 kd	5	X	-01
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			
					-	-	-			

Lab Sample Receipt Checklist:

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

LAB USE ONLY - Lab Sample # / Comments: L1527929

Customer Remarks / Special Conditions / Possible Hazards:	Type of Ice Used: (Wet) Blue Dry None Packing Material Used: Radchem sample(s) screened (<500 cpm): Y N (NA)	SHORT HOLDS PRESENT (<72 hours)? [Y] N N/A Lab Tracking #: Samples received via: (FEDEX) UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y (N) NA
Therm ID#:
Cooler 1 Temp Upon Receipt: ____oC
Cooler 1 Therm Corr. Factor: ____oC
Cooler 1 Corrected Temp: ____oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Chad Dodge	8/18/22 1200		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	8/18 1500		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
		D. Barnhey	08/19 0900

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y (N) NA
HCL MeOH TSP Other

Non Conformance(s): (YES) / NO

Page: ____ of: ____

US27929

Tracking Numbers	Temperature
5755 8084 9451	NSA 6 2.7+0= 2-7
5755 8084 9234	NSA 6 4.0+0= 4.0

8/19-NCF-L1527929 CAERUSPCO

R5

Time estimate: 0h **Time spent:** 0h

Members

HM Hailey Melson (responsible) Chris Ward

Due on *23 August 2022 8:00 AM* for target *Done*

- [x] Parameter(s) past holding time
- [ ] Temperature not in range
- [ ] Improper container type
- [ ] pH not in range
- [ ] Insufficient sample volume
- [ ] Sample is biphasic
- [ ] Vials received with headspace
- [ ] Broken container
- [ ] Sufficient sample remains
- [ ] If broken container: Insufficient packing material around container
- [ ] If broken container: Insufficient packing material inside cooler
- [ ] If broken container: Improper handling by carrier:_____
- [ ] If broken container: Sample was frozen
- [ ] If broken container: Container lid not intact
- [ ] Client informed by Call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [ ] PM initials:_____
- [ ] Client Contact:_____

Comments

Hailey Melson *19 August 2022 7:49 PM*

Cr6 received out of hold. We also received 3 vials. Would you like these sent to VOCs without any tests?

Chris Ward *22 August 2022 10:37 AM*

Please proceed OOH with note to get processed as quickly as possible. Send on to VOCs as long as volume not needed elsewhere.

Troy Dunlap *22 August 2022 3:42 PM*

Done.