May 26, 2023

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

REPORT OF WORK COMPLETED

Project Name: P4E P&A
COGCC Location Name (Location ID No.): DUNN-67S92W/4SESE (334855)
Legal Description: SESE Sec. 4, T7S-R92W, Garfield County
Location (Lat/Long): 39.46974, -107.66315

On behalf of Caerus Operating LLC (Caerus), Campos EPC (CEPC) has prepared this Report of Work Completed (ROWC) to document the recent assessment activities at the DUNN-67S92W /4SESE, also known as P4E (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, analytical data table, and laboratory reports.

BACKGROUND

The Site is located approximately 7.6 miles (mi) southeast of Rifle, CO within the Mamm Creek Field. Land use is primarily oil and gas operations and rangeland. Surrounding topography slopes generally to the northeast. Lithology consists of Potts loam, 6 to 12 percent slopes, and Olney loam, 6 to 12 percent slopes. The nearest surface water is Dry Hollow Creek, situated approximately 0.5 mi. east of the Site. Dry Hollow Creek is an ephemeral tributary to the Colorado River – ultimate receiving waters - approximately 4.8 mi north of the Site. According to local well construction data from the Division of Water Resources (DWR), the closest existing well with a listed depth to water (Permit #286196, 0.47 mi east-northeast) indicates depth to groundwater at 63 ft.

Decommissioning activities were completed for flowlines associated with two wells onsite, the Dunn 4-16 and Hill 10-4B, in accordance with COAs outlined in COGCC Form 27 #403337126 (Dunn 4-16) and Form 27 #403337130 (Hill 10-4B).

METHODOLOGY

On May 9, 2023, following the decommissioning of unused equipment onsite, CEPC personnel conducted a field assessment at the Site. Visual inspection and field screening at each sample location was completed. 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 each flowline excavation at four to five ft below ground

surface (bgs), and below the footprint of a removed separator at one ft bgs. All samples were collected in laboratory provided jars, immediately packed on ice, and submitted via courier to Pace Analytical for laboratory 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 laboratory analysis of Table 915-1 soil suitability parameters and metals. A Trimble RTX data collector was used to survey GPS locations of pertinent features.

RESULTS

During the assessment, visual inspection of the Site indicated no hydrocarbon staining or odors, with exception to soil at the removed dumpline connection behind the Dunn 4-16 separator. Field screening results indicated PID readings of 0.0 to 575 parts per million (ppm). Laboratory results indicated compliance for all samples, as compared to COGCC Table 915-1 Residential Soil Screening Level cleanup concentrations, with exception to Arsenic in all samples. Arsenic concentrations ranged from 4.28 to 4.95 milligrams per kilogram (mg/kg).

Four background samples indicated Arsenic concentrations ranging from 3.98 to 5.89 mg/kg.

CONCLUSION

Laboratory results indicate that Arsenic exceedances at the Site are within known background concentrations.

Based on DWR well record data listing a depth to water of 63 ft in the area, and the absence of surface water in the vicinity (>0.5 mi), CEPC concludes that a pathway to groundwater does not exist. CEPC recommends a request to the COGCC for using Table 915-1 Residential Soil Screening Level cleanup concentrations in reference to the Site.

Based on these investigative results, CEPC concludes historical impacts are not present at the Site and a no further action request to the COGCC is warranted.

ATTACHMENTS

- Site Exhibits
- Analytical Data Table
- Field Notes
- Laboratory Reports

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

Steve Sivigliano
Environmental Project Manager

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Project Scientist

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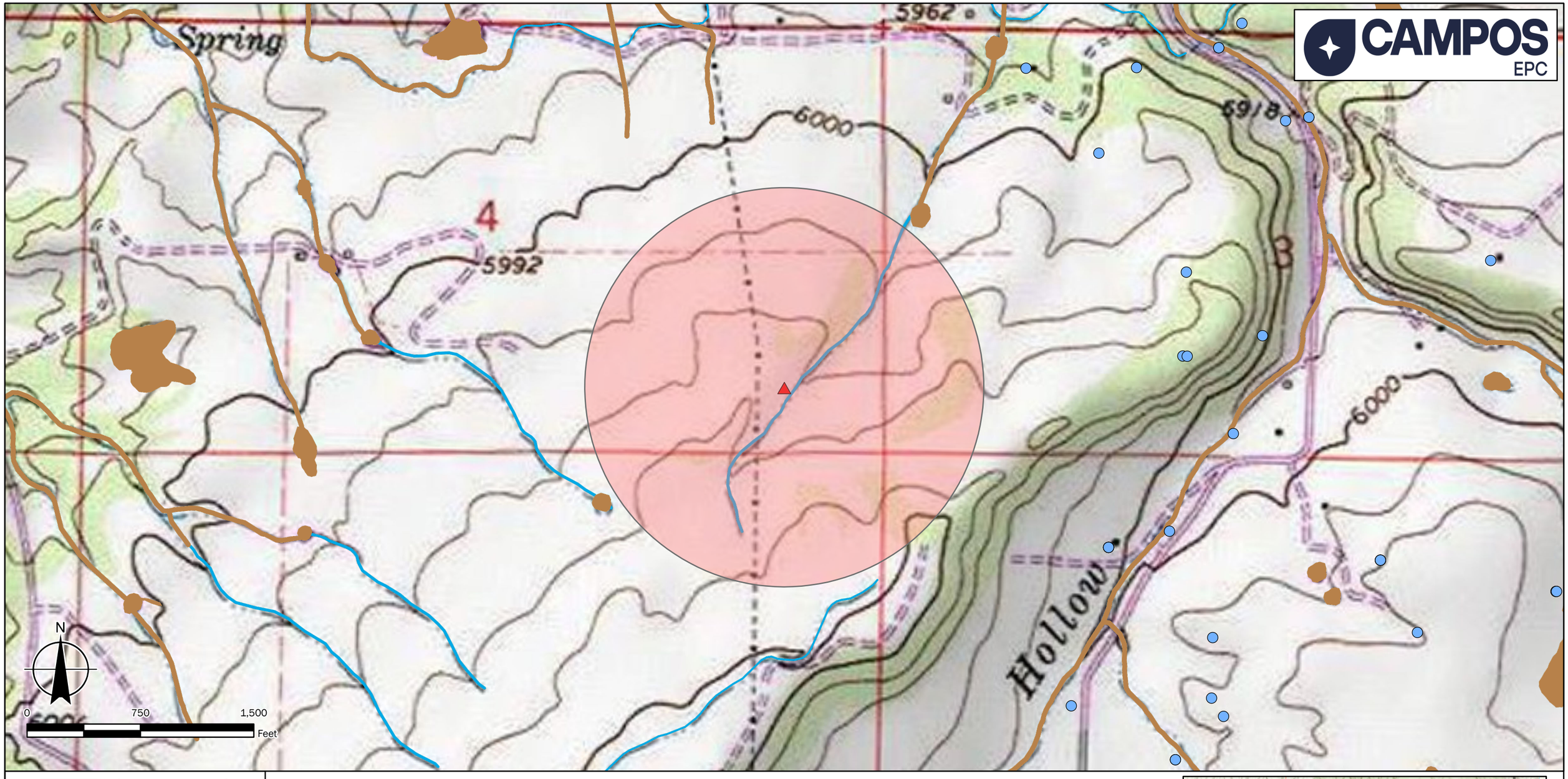


CAERUS OPERATING LLC

P4E
DUNN-67S92W / 4SESE
COGCC LOCATION ID: 334855
GARFIELD COUNTY, CO
SESE SEC. 4 T7S-R92W

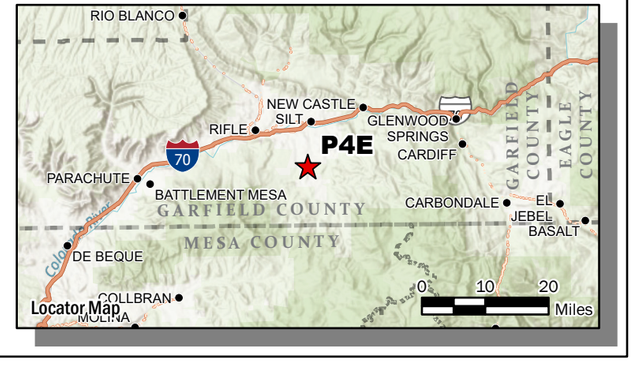
DRAFTER: AB | DATE: 5/10/2023

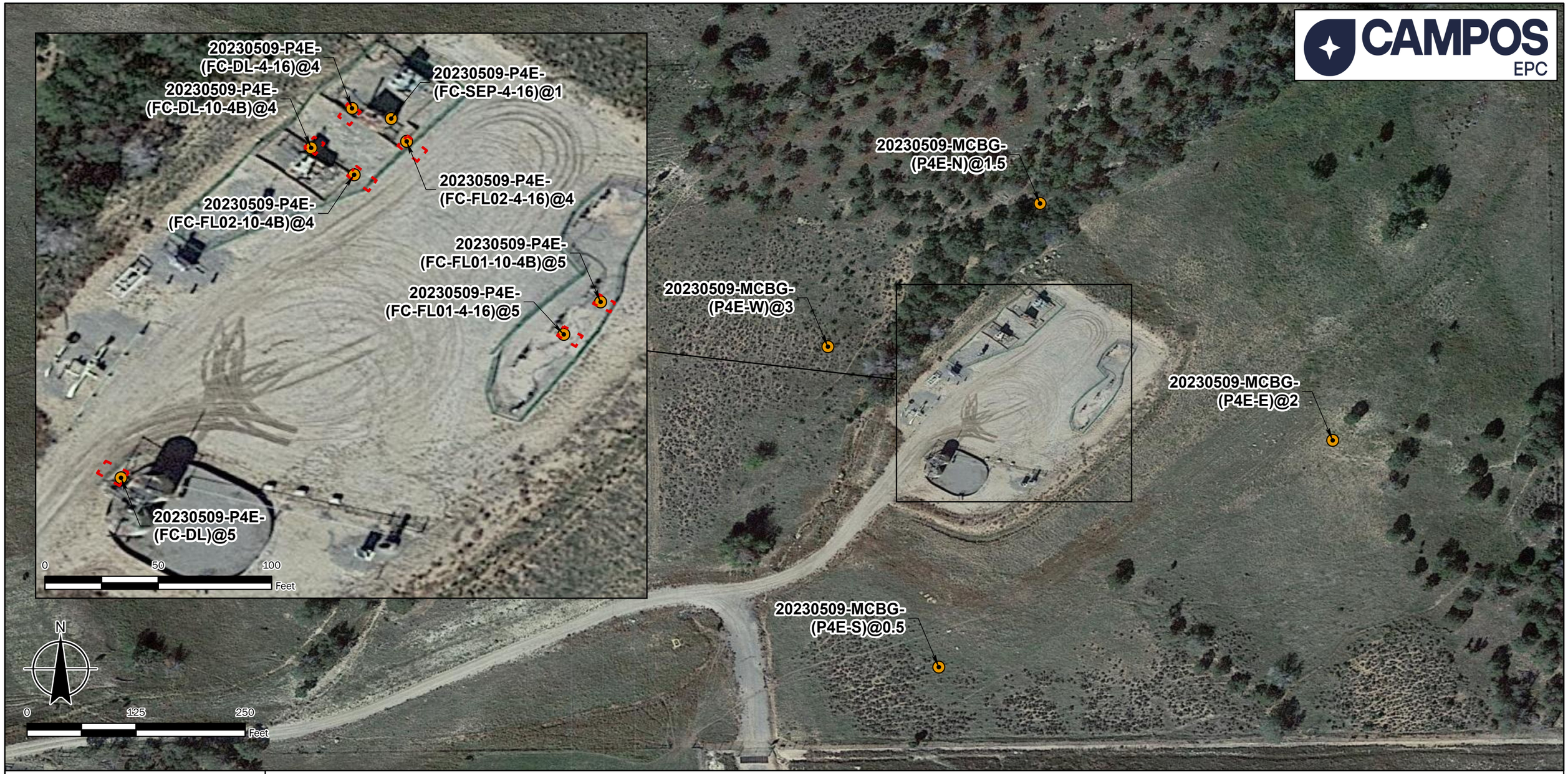
Legend
- Site
- 1/4 Mile Buffer
- Water Well Permit Location

USA Wetlands
- Marine
- Estuarine
- Palustrine
- Riverine
- Lacustrine

COORDINATE SYSTEM
GCS NORTH AMERICAN 1983

Source: USFWS, Esri, Maxar, Microsoft, Copyright:© 2013 National Geographic Society, i-cubed, Esri, USGS, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS





CAMPOS EPC

CAERUS OPERATING LLC

P4E

DUNN-67S92W / 4SESE

COGCC LOCATION ID: 334855

GARFIELD COUNTY, CO

SESE SEC. 4 T7S-R92W

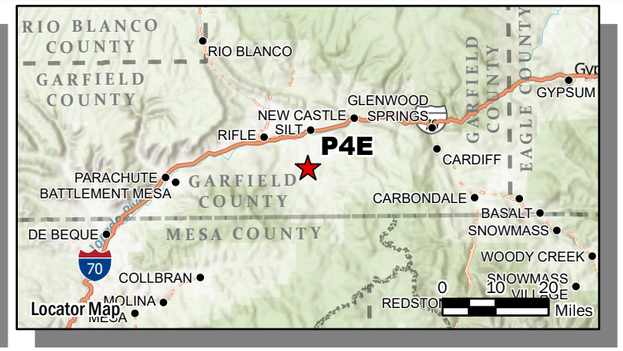
DRAFTER: AB | DATE: 5/12/2023

Legend

- Soil Sample Location
- Excavation Extent

COORDINATE SYSTEM
GCS NORTH AMERICAN 1983

Identifier	Latitude_NAD83	Longitude_NAD83	Elevation
20230509-P4E-(FC-DL)@5	39.469513	-107.663738	6084.800781
20230509-P4E-(FC-FL01-10-4B)@5	39.469726	-107.663159	6083.900879
20230509-P4E-(FC-FL01-4-16)@5	39.469686	-107.663203	6085.147949
20230509-P4E-(FC-FL02-4-16)@4	39.469919	-107.663393	6084.321777
20230509-P4E-(FC-FL02-10-4B)@4	39.469879	-107.663457	6084.296875
20230509-P4E-(FC-DL-10-4B)@4	39.469912	-107.663508	6081.65918
20230509-P4E-(FC-DL-4-16)@4	39.469959	-107.663459	6081.021973
20230509-P4E-(FC-SEP-4-16)@1	39.469947	-107.663412	6085.414063
20230509-MCBG-(P4E-N)@1.5	39.470305	-107.663391	
20230509-MCBG-(P4E-E)@2	39.469561	-107.662472	
20230509-MCBG-(P4E-S)@0.5	39.468849	-107.663708	
20230509-MCBG-(P4E-W)@3	39.469855	-107.664057	



SOIL ANALYTICAL RESULTS TABLE
P4E

CAMPOS EPC

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
20230509-P4E-(FC-FL01-10-4B)@5	0.189	14.5	21.2	35.889	<0.001	0.00258	0.00245	0.00568	0.253	0.278	8.00	0.282	**4.95**	166	0.210	<0.255	9.50	8.87	11.1	0.446	<0.5	36.4
20230509-P4E-(FC-FL02-10-4B)@4	0.0308	32.2	71.0	103.2308	<0.001	0.00230	0.00319	0.00495	0.173	0.422	7.90	0.295	**4.65**	667	0.208	<0.255	9.71	9.46	11.3	0.380	<0.5	41.0
20230509-P4E-(FC-DL-10-4B)@4	0.0341	<4.0	1.04	1.0741	<0.001	0.00255	0.00358	0.00633	0.214	0.194	8.12	0.318	**4.28**	251	0.234	<0.255	12.0	10.4	12.9	0.390	<0.5	50.1
20230509-P4E-(FC-FL01-4-16)@5	0.0556	<4.0	0.722	0.7776	<0.001	0.00265	0.00300	0.00483	0.191	0.537	8.27	0.328	**4.71**	210	0.196	<0.255	9.57	8.74	11.2	0.368	<0.5	38.1
20230509-P4E-(FC-FL02-4-16)@4	<0.1	2.41	3.36	5.77	<0.001	0.00143	0.00120	0.00363	0.278	1.01	7.93	0.330	**4.88**	240	0.223	<0.255	10.5	10.6	12.2	0.426	<0.5	42.0
20230509-P4E-(FC-DL-4-16)@4	65.9	154	62.4	282.3	0.00614	0.242	0.102	1.89	0.276	0.595	8.11	1.00	**4.42**	1530	0.252	<0.255	11.0	10.3	10.8	0.360	<0.5	42.2
20230509-P4E-(FC-SEP-4-16)@1	0.0513	75.2	83.9	159.1513	<0.001	<0.005	<0.0025	<0.0065	0.145	0.121	8.14	0.314	**4.69**	885	0.376	<0.255	10.8	10.2	12.2	0.395	<0.5	55.6
20230509-P4E-(FC-DL)@5	<0.1	<4.0	2.64	2.64	<0.001	0.00265	0.00350	0.00630	0.178	0.273	8.18	0.476	**4.71**	153	0.206	<0.255	9.98	9.10	11.9	0.480	<0.5	41.6
20230509-MCBG-(P4E-N)@1.5	na	na	na	na	na	na	na	na	0.201	0.172	7.89	0.297	**3.98**	200	0.208	**0.441**	10.4	9.34	11.3	0.395	<0.5	43.5
20230509-MCBG-(P4E-E)@2	na	na	na	na	na	na	na	na	0.176	0.160	7.47	0.311	**5.89**	283	0.230	<0.255	11.0	9.97	12.0	0.404	<0.5	42.1
20230509-MCBG-(P4E-S)@0.5	na	na	na	na	na	na	na	na	0.119	0.123	7.74	0.325	**4.09**	153	0.185	<0.255	11.4	10.2	12.8	0.397	<0.5	44.7
20230509-MCBG-(P4E-W)@3	na	na	na	na	na	na	na	na	0.170	0.389	7.78	0.181	**4.52**	181	0.248	<0.255	11.7	10.2	14.0	0.376	<0.5	46.0
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 applicable COGCC Table 915-1 residential soil screening level concentration

< - less than laboratory reporting detection limit (RDL)

COGCC - Colorado Oil and Gas Conservation 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
P4E

CAMPOS EPC

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
20230509-P4E-(FC-FL01-10-4B)@5	<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
20230509-P4E-(FC-FL02-10-4B)@4	<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
20230509-P4E-(FC-DL-10-4B)@4	<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
20230509-P4E-(FC-FL01-4-16)@5	<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
20230509-P4E-(FC-FL02-4-16)@4	<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
20230509-P4E-(FC-DL-4-16)@4	0.767	0.458	<0.006	0.0599	0.00945	0.00504	<0.006	<0.006	0.00694	<0.006	0.0104	0.177	<0.006	0.899	1.40	0.111	0.0196
20230509-P4E-(FC-SEP-4-16)@1	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.00443	<0.006	<0.006	<0.006	<0.006	<0.02	0.00747	<0.02	0.00338
20230509-P4E-(FC-DL)@5	<0.005	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.00482	<0.006	<0.006	<0.006	<0.006	<0.02	<0.02	<0.02	<0.006
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 applicable 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

Caerus Oil and Gas

P4E P+A

5/9/23

S. Sivigliano

Sunny, 50's

08:45 - Onsite for P+A sampling
- Review JSA, SOW, and talk to contractors
- Multiple excavations are open
08:50 - Prep supplies/equip, begin sampling

Location/ID	Time	PID	Stain/Odor
(FC-DL) @ 5 - TB	08:55	0.8	No/No
(FC-FL01-10-4B) @ 5 - Well	09:00	35.7	No/No
(FC-FL01-4-16) @ 5 - Well	09:05	0.0	No/No
(FC-FL02-10-4B) @ 4 - Sep	09:10	223	No/No
(FC-FL02-4-16) @ 4 - Sep	09:15	0.0	No/No
(FC-DL-10-4B) @ 4 - Sep	09:20	0.0	No/No
(FC-DL-4-16) @ 4 - Sep	09:25	575	Y/Y
(FC-SEP-4-16) @ 1 - Sep	09:30	0.0	No/No
BG-N @ 1.5	09:35	-	-
BG-E @ 2	09:40	-	-
W @ 3	09:45	-	-
S @ 0.5	09:50	-	-

10:00 - label and pack samples on ice
11:00 - OFF SITE

SS

Rite in the Rain.

ANALYTICAL REPORT

May 19, 2023

Caerus Oil and Gas

Sample Delivery Group:	L1614573
Samples Received:	05/10/2023
Project Number:	
Description:	P4E
Site:	P4E
Report To:	Brett M. , Jake J. , Blair R. 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

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

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

TABLE OF CONTENTS

20230509-P4E-(FC-FL01-10-4B)@5 L1614573-01 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:00 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057987	1	05/17/23 12:19	05/17/23 12:19	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057948	1	05/12/23 10:28	05/15/23 23:37	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2062149	1	05/18/23 09:21	05/18/23 20:12	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 13:35	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059385	1	05/11/23 17:46	05/13/23 13:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2060108	1	05/11/23 17:46	05/15/23 15:02	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059883	1	05/15/23 15:56	05/16/23 03:38	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2062100	1	05/18/23 11:40	05/18/23 19:17	JRM	Mt. Juliet, TN

20230509-P4E-(FC-FL01-4-16)@5 L1614573-02 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:05 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057987	1	05/17/23 12:21	05/17/23 12:21	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057948	1	05/12/23 10:28	05/15/23 23:42	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2062149	1	05/18/23 09:21	05/18/23 20:20	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 13:39	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059385	1	05/11/23 17:46	05/13/23 14:13	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2060108	1	05/11/23 17:46	05/15/23 15:21	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059883	1	05/15/23 15:56	05/16/23 02:11	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2060521	1	05/17/23 07:58	05/17/23 14:58	JRM	Mt. Juliet, TN

20230509-P4E-(FC-DL-10-4B)@4 L1614573-03 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:20 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057987	1	05/17/23 12:24	05/17/23 12:24	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057948	1	05/12/23 10:28	05/15/23 23:47	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2062149	1	05/18/23 09:21	05/18/23 20:23	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 13:56	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059385	1	05/11/23 17:46	05/13/23 14:33	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2060108	1	05/11/23 17:46	05/15/23 15:39	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059883	1	05/15/23 15:56	05/16/23 01:46	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2060521	1	05/17/23 07:58	05/17/23 15:18	JRM	Mt. Juliet, TN

20230509-P4E-(FC-DL-4-16)@4 L1614573-04 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:25 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057987	1	05/17/23 12:27	05/17/23 12:27	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057948	1	05/12/23 10:28	05/15/23 23:52	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2062149	1	05/18/23 09:21	05/18/23 20:26	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 13:19	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059723	100	05/11/23 17:46	05/14/23 21:03	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2060108	8	05/11/23 17:46	05/15/23 17:51	KSD	Mt. Juliet, TN

20230509-P4E-(FC-DL-4-16)@4 L1614573-04 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:25 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059883	1	05/15/23 15:56	05/16/23 03:13	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2062100	1	05/18/23 11:40	05/18/23 19:36	JRM	Mt. Juliet, TN

20230509-P4E-(FC-SEP-4-16)@1 L1614573-05 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:30 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057987	1	05/17/23 12:30	05/17/23 12:30	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057948	1	05/12/23 10:28	05/15/23 23:57	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2062149	1	05/18/23 09:21	05/18/23 20:29	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 13:59	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059385	1	05/11/23 17:46	05/13/23 14:54	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2060108	1	05/11/23 17:46	05/15/23 15:58	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059883	5	05/15/23 15:56	05/16/23 03:50	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2062100	1	05/18/23 11:40	05/18/23 21:35	JRM	Mt. Juliet, TN

20230509-P4E-(FC-DL)@5 L1614573-06 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 08:55 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057987	1	05/17/23 12:33	05/17/23 12:33	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057948	1	05/12/23 10:28	05/16/23 00:03	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2057827	1	05/11/23 12:35	05/11/23 17:39	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2062149	1	05/18/23 09:21	05/18/23 20:32	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 14:06	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059385	1	05/11/23 17:46	05/13/23 15:14	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2060108	1	05/11/23 17:46	05/15/23 16:17	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059883	1	05/15/23 15:56	05/16/23 03:00	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2060521	1	05/17/23 07:58	05/17/23 16:16	JRM	Mt. Juliet, TN

20230509-P4E-(FC-FL02-10-4B)@4 L1614573-07 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:10 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057987	1	05/17/23 12:36	05/17/23 12:36	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057948	1	05/12/23 10:28	05/16/23 00:08	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2058472	1	05/13/23 09:34	05/13/23 19:12	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2062149	1	05/18/23 09:21	05/18/23 20:35	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 14:09	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059385	1	05/11/23 17:46	05/13/23 15:35	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2060108	1	05/11/23 17:46	05/15/23 16:36	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059883	1	05/15/23 15:56	05/16/23 02:23	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2060521	1	05/17/23 07:58	05/17/23 16:55	JRM	Mt. Juliet, TN

SAMPLE SUMMARY

20230509-P4E-(FC-FL02-4-16)@4 L1614573-08 Solid

Collected by: S. Sivigliano
Collected date/time: 05/09/23 09:15
Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057987	1	05/17/23 12:45	05/17/23 12:45	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057948	1	05/12/23 10:28	05/16/23 00:13	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2058472	1	05/13/23 09:34	05/13/23 19:12	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2062149	1	05/18/23 09:21	05/18/23 20:37	SPL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 14:12	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2059556	1	05/11/23 17:46	05/14/23 06:47	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2060108	1	05/11/23 17:46	05/15/23 16:55	KSD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2059883	1	05/15/23 15:56	05/16/23 03:13	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2060521	1	05/17/23 07:58	05/17/23 16:36	JRM	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
	SAR				
Sodium Adsorption Ratio	0.278		1	05/17/2023 12:19	WG2057987

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 23:37	WG2057948

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	T8	1	05/11/2023 17:39	WG2057827

Sample Narrative:

L1614573-01 WG2057827: 8 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	253		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614573-01 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.282		0.0167	0.200	1	05/18/2023 20:12	WG2062149

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.95		0.100	1.00	5	05/12/2023 13:35	WG2057983
Barium	166		0.152	2.50	5	05/12/2023 13:35	WG2057983
Cadmium	0.210	J	0.0855	1.00	5	05/12/2023 13:35	WG2057983
Copper	9.50		0.132	5.00	5	05/12/2023 13:35	WG2057983
Lead	8.87		0.0990	2.00	5	05/12/2023 13:35	WG2057983
Nickel	11.1		0.197	2.50	5	05/12/2023 13:35	WG2057983
Selenium	0.446	J	0.180	2.50	5	05/12/2023 13:35	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 13:35	WG2057983
Zinc	36.4		0.740	25.0	5	05/12/2023 13:35	WG2057983

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.189		0.0217	0.100	1	05/13/2023 13:52	WG2059385
(S) a,a,a-Trifluorotoluene(FID)	*96.0*			*77.0-120*		*05/13/2023 13:52*	WG2059385

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	05/15/2023 15:02	WG2060108
Toluene	0.00258	J	0.00130	0.00500	1	05/15/2023 15:02	WG2060108
Ethylbenzene	0.00245	J	0.000737	0.00250	1	05/15/2023 15:02	WG2060108
Xylenes, Total	0.00568	J	0.000880	0.00650	1	05/15/2023 15:02	WG2060108
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	05/15/2023 15:02	WG2060108
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	05/15/2023 15:02	WG2060108
(S) Toluene-d8	*110*			*75.0-131*		*05/15/2023 15:02*	WG2060108
(S) 4-Bromofluorobenzene	*106*			*67.0-138*		*05/15/2023 15:02*	WG2060108
(S) 1,2-Dichloroethane-d4	*80.2*			*70.0-130*		*05/15/2023 15:02*	WG2060108

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	14.5		1.61	4.00	1	05/16/2023 03:38	WG2059883
C28-C36 Motor Oil Range	21.2		0.274	4.00	1	05/16/2023 03:38	WG2059883
(S) o-Terphenyl	*40.0*			*18.0-148*		*05/16/2023 03:38*	WG2059883

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	05/18/2023 19:17	WG2062100
Anthracene	U		0.00230	0.00600	1	05/18/2023 19:17	WG2062100
Benzo(a)anthracene	U		0.00173	0.00600	1	05/18/2023 19:17	WG2062100
Benzo(b)fluoranthene	U		0.00153	0.00600	1	05/18/2023 19:17	WG2062100
Benzo(k)fluoranthene	U		0.00215	0.00600	1	05/18/2023 19:17	WG2062100
Benzo(a)pyrene	U		0.00179	0.00600	1	05/18/2023 19:17	WG2062100
Chrysene	U		0.00232	0.00600	1	05/18/2023 19:17	WG2062100
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	05/18/2023 19:17	WG2062100
Fluoranthene	U		0.00227	0.00600	1	05/18/2023 19:17	WG2062100
Fluorene	U		0.00205	0.00600	1	05/18/2023 19:17	WG2062100
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	05/18/2023 19:17	WG2062100
1-Methylnaphthalene	U		0.00449	0.0200	1	05/18/2023 19:17	WG2062100
2-Methylnaphthalene	U		0.00427	0.0200	1	05/18/2023 19:17	WG2062100
Naphthalene	U		0.00408	0.0200	1	05/18/2023 19:17	WG2062100
Pyrene	U		0.00200	0.00600	1	05/18/2023 19:17	WG2062100
(S) p-Terphenyl-d14	*80.6*			*23.0-120*		*05/18/2023 19:17*	WG2062100
(S) Nitrobenzene-d5	*83.8*			*14.0-149*		*05/18/2023 19:17*	WG2062100
(S) 2-Fluorobiphenyl	*63.3*			*34.0-125*		*05/18/2023 19:17*	WG2062100

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.537		1	05/17/2023 12:21	WG2057987

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 23:42	WG2057948

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.27	T8	1	05/11/2023 17:39	WG2057827

Sample Narrative:

L1614573-02 WG2057827: 8.27 at 20.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	191		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614573-02 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.328		0.0167	0.200	1	05/18/2023 20:20	WG2062149

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.71		0.100	1.00	5	05/12/2023 13:39	WG2057983
Barium	210		0.152	2.50	5	05/12/2023 13:39	WG2057983
Cadmium	0.196	J	0.0855	1.00	5	05/12/2023 13:39	WG2057983
Copper	9.57		0.132	5.00	5	05/12/2023 13:39	WG2057983
Lead	8.74		0.0990	2.00	5	05/12/2023 13:39	WG2057983
Nickel	11.2		0.197	2.50	5	05/12/2023 13:39	WG2057983
Selenium	0.368	J	0.180	2.50	5	05/12/2023 13:39	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 13:39	WG2057983
Zinc	38.1		0.740	25.0	5	05/12/2023 13:39	WG2057983

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0556	J	0.0217	0.100	1	05/13/2023 14:13	WG2059385
(S) a,a,a-Trifluorotoluene(FID)	*94.7*			*77.0-120*		*05/13/2023 14:13*	WG2059385

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	05/15/2023 15:21	WG2060108
Toluene	0.00265	J	0.00130	0.00500	1	05/15/2023 15:21	WG2060108
Ethylbenzene	0.00300		0.000737	0.00250	1	05/15/2023 15:21	WG2060108
Xylenes, Total	0.00483	J	0.000880	0.00650	1	05/15/2023 15:21	WG2060108
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	05/15/2023 15:21	WG2060108
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	05/15/2023 15:21	WG2060108
(S) Toluene-d8	*112*			*75.0-131*		*05/15/2023 15:21*	WG2060108
(S) 4-Bromofluorobenzene	*105*			*67.0-138*		*05/15/2023 15:21*	WG2060108
(S) 1,2-Dichloroethane-d4	*79.5*			*70.0-130*		*05/15/2023 15:21*	WG2060108

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.61	4.00	1	05/16/2023 02:11	WG2059883
C28-C36 Motor Oil Range	0.722	B J	0.274	4.00	1	05/16/2023 02:11	WG2059883
(S) o-Terphenyl	*39.4*			*18.0-148*		*05/16/2023 02:11*	WG2059883

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	05/17/2023 14:58	WG2060521
Anthracene	U		0.00230	0.00600	1	05/17/2023 14:58	WG2060521
Benzo(a)anthracene	U		0.00173	0.00600	1	05/17/2023 14:58	WG2060521
Benzo(b)fluoranthene	U	J4	0.00153	0.00600	1	05/17/2023 14:58	WG2060521
Benzo(k)fluoranthene	U		0.00215	0.00600	1	05/17/2023 14:58	WG2060521
Benzo(a)pyrene	U		0.00179	0.00600	1	05/17/2023 14:58	WG2060521
Chrysene	U	J4	0.00232	0.00600	1	05/17/2023 14:58	WG2060521
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	05/17/2023 14:58	WG2060521
Fluoranthene	U		0.00227	0.00600	1	05/17/2023 14:58	WG2060521
Fluorene	U	J4	0.00205	0.00600	1	05/17/2023 14:58	WG2060521
Indeno(1,2,3-cd)pyrene	U	J4	0.00181	0.00600	1	05/17/2023 14:58	WG2060521
1-Methylnaphthalene	U		0.00449	0.0200	1	05/17/2023 14:58	WG2060521
2-Methylnaphthalene	U		0.00427	0.0200	1	05/17/2023 14:58	WG2060521
Naphthalene	U		0.00408	0.0200	1	05/17/2023 14:58	WG2060521
Pyrene	U	J4	0.00200	0.00600	1	05/17/2023 14:58	WG2060521
(S) p-Terphenyl-d14	*99.4*			*23.0-120*		*05/17/2023 14:58*	WG2060521
(S) Nitrobenzene-d5	*95.3*			*14.0-149*		*05/17/2023 14:58*	WG2060521
(S) 2-Fluorobiphenyl	*104*			*34.0-125*		*05/17/2023 14:58*	WG2060521

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.194		1	05/17/2023 12:24	WG2057987

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 23:47	WG2057948

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.12	T8	1	05/11/2023 17:39	WG2057827

Sample Narrative:

L1614573-03 WG2057827: 8.12 at 19.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	214		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614573-03 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.318		0.0167	0.200	1	05/18/2023 20:23	WG2062149

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.28		0.100	1.00	5	05/12/2023 13:56	WG2057983
Barium	251		0.152	2.50	5	05/12/2023 13:56	WG2057983
Cadmium	0.234	J	0.0855	1.00	5	05/12/2023 13:56	WG2057983
Copper	12.0		0.132	5.00	5	05/12/2023 13:56	WG2057983
Lead	10.4		0.0990	2.00	5	05/12/2023 13:56	WG2057983
Nickel	12.9		0.197	2.50	5	05/12/2023 13:56	WG2057983
Selenium	0.390	J	0.180	2.50	5	05/12/2023 13:56	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 13:56	WG2057983
Zinc	50.1		0.740	25.0	5	05/12/2023 13:56	WG2057983

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0341	J	0.0217	0.100	1	05/13/2023 14:33	WG2059385
(S) a,a,a-Trifluorotoluene(FID)	*97.3*			*77.0-120*		*05/13/2023 14:33*	WG2059385

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	05/15/2023 15:39	WG2060108
Toluene	0.00255	J	0.00130	0.00500	1	05/15/2023 15:39	WG2060108
Ethylbenzene	0.00358		0.000737	0.00250	1	05/15/2023 15:39	WG2060108
Xylenes, Total	0.00633	J	0.000880	0.00650	1	05/15/2023 15:39	WG2060108
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	05/15/2023 15:39	WG2060108
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	05/15/2023 15:39	WG2060108
(S) Toluene-d8	*111*			*75.0-131*		*05/15/2023 15:39*	WG2060108
(S) 4-Bromofluorobenzene	*104*			*67.0-138*		*05/15/2023 15:39*	WG2060108
(S) 1,2-Dichloroethane-d4	*83.3*			*70.0-130*		*05/15/2023 15:39*	WG2060108

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U	J3 J6	1.61	4.00	1	05/16/2023 01:46	WG2059883
C28-C36 Motor Oil Range	1.04	B J	0.274	4.00	1	05/16/2023 01:46	WG2059883
(S) o-Terphenyl	*46.4*			*18.0-148*		*05/16/2023 01:46*	WG2059883

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	05/17/2023 15:18	WG2060521
Anthracene	U		0.00230	0.00600	1	05/17/2023 15:18	WG2060521
Benzo(a)anthracene	U		0.00173	0.00600	1	05/17/2023 15:18	WG2060521
Benzo(b)fluoranthene	U	J4	0.00153	0.00600	1	05/17/2023 15:18	WG2060521
Benzo(k)fluoranthene	U		0.00215	0.00600	1	05/17/2023 15:18	WG2060521
Benzo(a)pyrene	U		0.00179	0.00600	1	05/17/2023 15:18	WG2060521
Chrysene	U	J4	0.00232	0.00600	1	05/17/2023 15:18	WG2060521
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	05/17/2023 15:18	WG2060521
Fluoranthene	U		0.00227	0.00600	1	05/17/2023 15:18	WG2060521
Fluorene	U	J4	0.00205	0.00600	1	05/17/2023 15:18	WG2060521
Indeno(1,2,3-cd)pyrene	U	J4	0.00181	0.00600	1	05/17/2023 15:18	WG2060521
1-Methylnaphthalene	U		0.00449	0.0200	1	05/17/2023 15:18	WG2060521
2-Methylnaphthalene	U		0.00427	0.0200	1	05/17/2023 15:18	WG2060521
Naphthalene	U		0.00408	0.0200	1	05/17/2023 15:18	WG2060521
Pyrene	U	J4	0.00200	0.00600	1	05/17/2023 15:18	WG2060521
(S) p-Terphenyl-d14	*87.4*			*23.0-120*		*05/17/2023 15:18*	WG2060521
(S) Nitrobenzene-d5	*107*			*14.0-149*		*05/17/2023 15:18*	WG2060521
(S) 2-Fluorobiphenyl	*67.3*			*34.0-125*		*05/17/2023 15:18*	WG2060521

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.595		1	05/17/2023 12:27	WG2057987

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 23:52	WG2057948

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.11	T8	1	05/11/2023 17:39	WG2057827

Sample Narrative:

L1614573-04 WG2057827: 8.11 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	276		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614573-04 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.00		0.0167	0.200	1	05/18/2023 20:26	WG2062149

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.42		0.100	1.00	5	05/12/2023 13:19	WG2057983
Barium	1530	O1 V	0.152	2.50	5	05/12/2023 13:19	WG2057983
Cadmium	0.252	J	0.0855	1.00	5	05/12/2023 13:19	WG2057983
Copper	11.0		0.132	5.00	5	05/12/2023 13:19	WG2057983
Lead	10.3		0.0990	2.00	5	05/12/2023 13:19	WG2057983
Nickel	10.8		0.197	2.50	5	05/12/2023 13:19	WG2057983
Selenium	0.360	J	0.180	2.50	5	05/12/2023 13:19	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 13:19	WG2057983
Zinc	42.2		0.740	25.0	5	05/12/2023 13:19	WG2057983

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	65.9		2.17	10.0	100	05/14/2023 21:03	WG2059723
(S) a,a,a-Trifluorotoluene(FID)	*97.6*			*77.0-120*		*05/14/2023 21:03*	WG2059723

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.00614	J	0.00374	0.00800	8	05/15/2023 17:51	WG2060108
Toluene	0.242		0.0104	0.0400	8	05/15/2023 17:51	WG2060108
Ethylbenzene	0.102		0.00590	0.0200	8	05/15/2023 17:51	WG2060108
Xylenes, Total	1.89		0.00704	0.0520	8	05/15/2023 17:51	WG2060108
1,2,4-Trimethylbenzene	0.767		0.0126	0.0400	8	05/15/2023 17:51	WG2060108
1,3,5-Trimethylbenzene	0.458		0.0160	0.0400	8	05/15/2023 17:51	WG2060108
(S) Toluene-d8	*109*			*75.0-131*		*05/15/2023 17:51*	WG2060108
(S) 4-Bromofluorobenzene	*104*			*67.0-138*		*05/15/2023 17:51*	WG2060108
(S) 1,2-Dichloroethane-d4	*84.6*			*70.0-130*		*05/15/2023 17:51*	WG2060108

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	154		1.61	4.00	1	05/16/2023 03:13	WG2059883
C28-C36 Motor Oil Range	62.4		0.274	4.00	1	05/16/2023 03:13	WG2059883
(S) o-Terphenyl	*59.6*			*18.0-148*		*05/16/2023 03:13*	WG2059883

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U	J5	0.00209	0.00600	1	05/18/2023 19:36	WG2062100
Anthracene	0.0599	J6	0.00230	0.00600	1	05/18/2023 19:36	WG2062100
Benzo(a)anthracene	0.00945		0.00173	0.00600	1	05/18/2023 19:36	WG2062100
Benzo(b)fluoranthene	0.00504	J	0.00153	0.00600	1	05/18/2023 19:36	WG2062100
Benzo(k)fluoranthene	U		0.00215	0.00600	1	05/18/2023 19:36	WG2062100
Benzo(a)pyrene	U		0.00179	0.00600	1	05/18/2023 19:36	WG2062100
Chrysene	0.00694		0.00232	0.00600	1	05/18/2023 19:36	WG2062100
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	05/18/2023 19:36	WG2062100
Fluoranthene	0.0104		0.00227	0.00600	1	05/18/2023 19:36	WG2062100
Fluorene	0.177	J5	0.00205	0.00600	1	05/18/2023 19:36	WG2062100
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	05/18/2023 19:36	WG2062100
1-Methylnaphthalene	0.899	V	0.00449	0.0200	1	05/18/2023 19:36	WG2062100
2-Methylnaphthalene	1.40	V	0.00427	0.0200	1	05/18/2023 19:36	WG2062100
Naphthalene	0.111	J5	0.00408	0.0200	1	05/18/2023 19:36	WG2062100
Pyrene	0.0196		0.00200	0.00600	1	05/18/2023 19:36	WG2062100
(S) p-Terphenyl-d14	*79.2*			*23.0-120*		*05/18/2023 19:36*	WG2062100
(S) Nitrobenzene-d5	*0.000*	J2		*14.0-149*		*05/18/2023 19:36*	WG2062100
(S) 2-Fluorobiphenyl	*71.6*			*34.0-125*		*05/18/2023 19:36*	WG2062100

Sample Narrative:

L1614573-04 WG2062100: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.121		1	05/17/2023 12:30	WG2057987

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/15/2023 23:57	WG2057948

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.14	T8	1	05/11/2023 17:39	WG2057827

Sample Narrative:

L1614573-05 WG2057827: 8.14 at 19.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	145		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614573-05 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.314		0.0167	0.200	1	05/18/2023 20:29	WG2062149

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.69		0.100	1.00	5	05/12/2023 13:59	WG2057983
Barium	885		0.152	2.50	5	05/12/2023 13:59	WG2057983
Cadmium	0.376	J	0.0855	1.00	5	05/12/2023 13:59	WG2057983
Copper	10.8		0.132	5.00	5	05/12/2023 13:59	WG2057983
Lead	10.2		0.0990	2.00	5	05/12/2023 13:59	WG2057983
Nickel	12.2		0.197	2.50	5	05/12/2023 13:59	WG2057983
Selenium	0.395	J	0.180	2.50	5	05/12/2023 13:59	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 13:59	WG2057983
Zinc	55.6		0.740	25.0	5	05/12/2023 13:59	WG2057983

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0513	J	0.0217	0.100	1	05/13/2023 14:54	WG2059385
(S) a,a,a-Trifluorotoluene(FID)	*96.1*			*77.0-120*		*05/13/2023 14:54*	WG2059385

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	05/15/2023 15:58	WG2060108
Toluene	0.00245	J	0.00130	0.00500	1	05/15/2023 15:58	WG2060108
Ethylbenzene	0.00342		0.000737	0.00250	1	05/15/2023 15:58	WG2060108
Xylenes, Total	0.00688		0.000880	0.00650	1	05/15/2023 15:58	WG2060108
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	05/15/2023 15:58	WG2060108
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	05/15/2023 15:58	WG2060108
(S) Toluene-d8	*110*			*75.0-131*		*05/15/2023 15:58*	WG2060108
(S) 4-Bromofluorobenzene	*103*			*67.0-138*		*05/15/2023 15:58*	WG2060108
(S) 1,2-Dichloroethane-d4	*79.8*			*70.0-130*		*05/15/2023 15:58*	WG2060108

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	75.2		8.05	20.0	5	05/16/2023 03:50	WG2059883
C28-C36 Motor Oil Range	83.9		1.37	20.0	5	05/16/2023 03:50	WG2059883
(S) o-Terphenyl	*41.4*			*18.0-148*		*05/16/2023 03:50*	WG2059883

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	05/18/2023 21:35	WG2062100
Anthracene	U		0.00230	0.00600	1	05/18/2023 21:35	WG2062100
Benzo(a)anthracene	U		0.00173	0.00600	1	05/18/2023 21:35	WG2062100
Benzo(b)fluoranthene	U		0.00153	0.00600	1	05/18/2023 21:35	WG2062100
Benzo(k)fluoranthene	U		0.00215	0.00600	1	05/18/2023 21:35	WG2062100
Benzo(a)pyrene	U		0.00179	0.00600	1	05/18/2023 21:35	WG2062100
Chrysene	0.00443	J	0.00232	0.00600	1	05/18/2023 21:35	WG2062100
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	05/18/2023 21:35	WG2062100
Fluoranthene	U		0.00227	0.00600	1	05/18/2023 21:35	WG2062100
Fluorene	U		0.00205	0.00600	1	05/18/2023 21:35	WG2062100
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	05/18/2023 21:35	WG2062100
1-Methylnaphthalene	U		0.00449	0.0200	1	05/18/2023 21:35	WG2062100
2-Methylnaphthalene	0.00747	J	0.00427	0.0200	1	05/18/2023 21:35	WG2062100
Naphthalene	U		0.00408	0.0200	1	05/18/2023 21:35	WG2062100
Pyrene	0.00338	J	0.00200	0.00600	1	05/18/2023 21:35	WG2062100
(S) p-Terphenyl-d14	*78.8*			*23.0-120*		*05/18/2023 21:35*	WG2062100
(S) Nitrobenzene-d5	*76.9*			*14.0-149*		*05/18/2023 21:35*	WG2062100
(S) 2-Fluorobiphenyl	*66.4*			*34.0-125*		*05/18/2023 21:35*	WG2062100

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.273		1	05/17/2023 12:33	WG2057987

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/16/2023 00:03	WG2057948

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.18	T8	1	05/11/2023 17:39	WG2057827

Sample Narrative:

L1614573-06 WG2057827: 8.18 at 19.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	178		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614573-06 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.476		0.0167	0.200	1	05/18/2023 20:32	WG2062149

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.71		0.100	1.00	5	05/12/2023 14:06	WG2057983
Barium	153		0.152	2.50	5	05/12/2023 14:06	WG2057983
Cadmium	0.206	J	0.0855	1.00	5	05/12/2023 14:06	WG2057983
Copper	9.98		0.132	5.00	5	05/12/2023 14:06	WG2057983
Lead	9.10		0.0990	2.00	5	05/12/2023 14:06	WG2057983
Nickel	11.9		0.197	2.50	5	05/12/2023 14:06	WG2057983
Selenium	0.480	J	0.180	2.50	5	05/12/2023 14:06	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 14:06	WG2057983
Zinc	41.6		0.740	25.0	5	05/12/2023 14:06	WG2057983

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	05/13/2023 15:14	WG2059385
(S) a,a,a-Trifluorotoluene(FID)	*96.8*			*77.0-120*		*05/13/2023 15:14*	WG2059385

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	05/15/2023 16:17	WG2060108
Toluene	0.00265	J	0.00130	0.00500	1	05/15/2023 16:17	WG2060108
Ethylbenzene	0.00350		0.000737	0.00250	1	05/15/2023 16:17	WG2060108
Xylenes, Total	0.00630	J	0.000880	0.00650	1	05/15/2023 16:17	WG2060108
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	05/15/2023 16:17	WG2060108
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	05/15/2023 16:17	WG2060108
(S) Toluene-d8	*111*			*75.0-131*		*05/15/2023 16:17*	WG2060108
(S) 4-Bromofluorobenzene	*105*			*67.0-138*		*05/15/2023 16:17*	WG2060108
(S) 1,2-Dichloroethane-d4	*81.0*			*70.0-130*		*05/15/2023 16:17*	WG2060108

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.61	4.00	1	05/16/2023 03:00	WG2059883
C28-C36 Motor Oil Range	2.64	B J	0.274	4.00	1	05/16/2023 03:00	WG2059883
(S) o-Terphenyl	*42.7*			*18.0-148*		*05/16/2023 03:00*	WG2059883

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	05/17/2023 16:16	WG2060521
Anthracene	U		0.00230	0.00600	1	05/17/2023 16:16	WG2060521
Benzo(a)anthracene	U		0.00173	0.00600	1	05/17/2023 16:16	WG2060521
Benzo(b)fluoranthene	U	J4	0.00153	0.00600	1	05/17/2023 16:16	WG2060521
Benzo(k)fluoranthene	U		0.00215	0.00600	1	05/17/2023 16:16	WG2060521
Benzo(a)pyrene	U		0.00179	0.00600	1	05/17/2023 16:16	WG2060521
Chrysene	0.00482	J J4	0.00232	0.00600	1	05/17/2023 16:16	WG2060521
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	05/17/2023 16:16	WG2060521
Fluoranthene	U		0.00227	0.00600	1	05/17/2023 16:16	WG2060521
Fluorene	U	J4	0.00205	0.00600	1	05/17/2023 16:16	WG2060521
Indeno(1,2,3-cd)pyrene	U	J4	0.00181	0.00600	1	05/17/2023 16:16	WG2060521
1-Methylnaphthalene	U		0.00449	0.0200	1	05/17/2023 16:16	WG2060521
2-Methylnaphthalene	U		0.00427	0.0200	1	05/17/2023 16:16	WG2060521
Naphthalene	U		0.00408	0.0200	1	05/17/2023 16:16	WG2060521
Pyrene	U	J4	0.00200	0.00600	1	05/17/2023 16:16	WG2060521
(S) p-Terphenyl-d14	*117*			*23.0-120*		*05/17/2023 16:16*	WG2060521
(S) Nitrobenzene-d5	*130*			*14.0-149*		*05/17/2023 16:16*	WG2060521
(S) 2-Fluorobiphenyl	*117*			*34.0-125*		*05/17/2023 16:16*	WG2060521

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.422		1	05/17/2023 12:36	WG2057987

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/16/2023 00:08	WG2057948

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	7.90	T8	1	05/13/2023 19:12	WG2058472

Sample Narrative:

L1614573-07 WG2058472: 7.9 at 21.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	173		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614573-07 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.295		0.0167	0.200	1	05/18/2023 20:35	WG2062149

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.65		0.100	1.00	5	05/12/2023 14:09	WG2057983
Barium	667		0.152	2.50	5	05/12/2023 14:09	WG2057983
Cadmium	0.208	J	0.0855	1.00	5	05/12/2023 14:09	WG2057983
Copper	9.71		0.132	5.00	5	05/12/2023 14:09	WG2057983
Lead	9.46		0.0990	2.00	5	05/12/2023 14:09	WG2057983
Nickel	11.3		0.197	2.50	5	05/12/2023 14:09	WG2057983
Selenium	0.380	J	0.180	2.50	5	05/12/2023 14:09	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 14:09	WG2057983
Zinc	41.0		0.740	25.0	5	05/12/2023 14:09	WG2057983

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0308	J	0.0217	0.100	1	05/13/2023 15:35	WG2059385
(S) a,a,a-Trifluorotoluene(FID)	*95.9*			*77.0-120*		*05/13/2023 15:35*	WG2059385

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	05/15/2023 16:36	WG2060108
Toluene	0.00230	J	0.00130	0.00500	1	05/15/2023 16:36	WG2060108
Ethylbenzene	0.00319		0.000737	0.00250	1	05/15/2023 16:36	WG2060108
Xylenes, Total	0.00495	J	0.000880	0.00650	1	05/15/2023 16:36	WG2060108
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	05/15/2023 16:36	WG2060108
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	05/15/2023 16:36	WG2060108
(S) Toluene-d8	*111*			*75.0-131*		*05/15/2023 16:36*	WG2060108
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*05/15/2023 16:36*	WG2060108
(S) 1,2-Dichloroethane-d4	*83.3*			*70.0-130*		*05/15/2023 16:36*	WG2060108

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	32.2		1.61	4.00	1	05/16/2023 02:23	WG2059883
C28-C36 Motor Oil Range	71.0		0.274	4.00	1	05/16/2023 02:23	WG2059883
(S) o-Terphenyl	*38.1*			*18.0-148*		*05/16/2023 02:23*	WG2059883

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	05/17/2023 16:55	WG2060521
Anthracene	U		0.00230	0.00600	1	05/17/2023 16:55	WG2060521
Benzo(a)anthracene	U		0.00173	0.00600	1	05/17/2023 16:55	WG2060521
Benzo(b)fluoranthene	U	J4	0.00153	0.00600	1	05/17/2023 16:55	WG2060521
Benzo(k)fluoranthene	U		0.00215	0.00600	1	05/17/2023 16:55	WG2060521
Benzo(a)pyrene	U		0.00179	0.00600	1	05/17/2023 16:55	WG2060521
Chrysene	U	J4	0.00232	0.00600	1	05/17/2023 16:55	WG2060521
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	05/17/2023 16:55	WG2060521
Fluoranthene	U		0.00227	0.00600	1	05/17/2023 16:55	WG2060521
Fluorene	U	J4	0.00205	0.00600	1	05/17/2023 16:55	WG2060521
Indeno(1,2,3-cd)pyrene	U	J4	0.00181	0.00600	1	05/17/2023 16:55	WG2060521
1-Methylnaphthalene	U		0.00449	0.0200	1	05/17/2023 16:55	WG2060521
2-Methylnaphthalene	U		0.00427	0.0200	1	05/17/2023 16:55	WG2060521
Naphthalene	U		0.00408	0.0200	1	05/17/2023 16:55	WG2060521
Pyrene	U	J4	0.00200	0.00600	1	05/17/2023 16:55	WG2060521
(S) p-Terphenyl-d14	*94.1*			*23.0-120*		*05/17/2023 16:55*	WG2060521
(S) Nitrobenzene-d5	*104*			*14.0-149*		*05/17/2023 16:55*	WG2060521
(S) 2-Fluorobiphenyl	*88.5*			*34.0-125*		*05/17/2023 16:55*	WG2060521

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	1.01		1	05/17/2023 12:45	WG2057987

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/16/2023 00:13	WG2057948

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	7.93	T8	1	05/13/2023 19:12	WG2058472

Sample Narrative:

L1614573-08 WG2058472: 7.93 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	278		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614573-08 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.330		0.0167	0.200	1	05/18/2023 20:37	WG2062149

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.88		0.100	1.00	5	05/12/2023 14:12	WG2057983
Barium	240		0.152	2.50	5	05/12/2023 14:12	WG2057983
Cadmium	0.223	J	0.0855	1.00	5	05/12/2023 14:12	WG2057983
Copper	10.5		0.132	5.00	5	05/12/2023 14:12	WG2057983
Lead	10.6		0.0990	2.00	5	05/12/2023 14:12	WG2057983
Nickel	12.2		0.197	2.50	5	05/12/2023 14:12	WG2057983
Selenium	0.426	J	0.180	2.50	5	05/12/2023 14:12	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 14:12	WG2057983
Zinc	42.0		0.740	25.0	5	05/12/2023 14:12	WG2057983

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	05/14/2023 06:47	WG2059556
(S) a,a,a-Trifluorotoluene(FID)	*92.2*			*77.0-120*		*05/14/2023 06:47*	WG2059556

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	05/15/2023 16:55	WG2060108
Toluene	0.00143	J	0.00130	0.00500	1	05/15/2023 16:55	WG2060108
Ethylbenzene	0.00120	J	0.000737	0.00250	1	05/15/2023 16:55	WG2060108
Xylenes, Total	0.00363	J	0.000880	0.00650	1	05/15/2023 16:55	WG2060108
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	05/15/2023 16:55	WG2060108
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	05/15/2023 16:55	WG2060108
(S) Toluene-d8	*110*			*75.0-131*		*05/15/2023 16:55*	WG2060108
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*05/15/2023 16:55*	WG2060108
(S) 1,2-Dichloroethane-d4	*82.3*			*70.0-130*		*05/15/2023 16:55*	WG2060108

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	2.41	J	1.61	4.00	1	05/16/2023 03:13	WG2059883
C28-C36 Motor Oil Range	3.36	J	0.274	4.00	1	05/16/2023 03:13	WG2059883
(S) o-Terphenyl	*41.0*			*18.0-148*		*05/16/2023 03:13*	WG2059883

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	05/17/2023 16:36	WG2060521
Anthracene	U		0.00230	0.00600	1	05/17/2023 16:36	WG2060521
Benzo(a)anthracene	U		0.00173	0.00600	1	05/17/2023 16:36	WG2060521
Benzo(b)fluoranthene	U	J4	0.00153	0.00600	1	05/17/2023 16:36	WG2060521
Benzo(k)fluoranthene	U		0.00215	0.00600	1	05/17/2023 16:36	WG2060521
Benzo(a)pyrene	U		0.00179	0.00600	1	05/17/2023 16:36	WG2060521
Chrysene	U	J4	0.00232	0.00600	1	05/17/2023 16:36	WG2060521
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	05/17/2023 16:36	WG2060521
Fluoranthene	U		0.00227	0.00600	1	05/17/2023 16:36	WG2060521
Fluorene	U	J4	0.00205	0.00600	1	05/17/2023 16:36	WG2060521
Indeno(1,2,3-cd)pyrene	U	J4	0.00181	0.00600	1	05/17/2023 16:36	WG2060521
1-Methylnaphthalene	U		0.00449	0.0200	1	05/17/2023 16:36	WG2060521
2-Methylnaphthalene	U		0.00427	0.0200	1	05/17/2023 16:36	WG2060521
Naphthalene	U		0.00408	0.0200	1	05/17/2023 16:36	WG2060521
Pyrene	U	J4	0.00200	0.00600	1	05/17/2023 16:36	WG2060521
(S) p-Terphenyl-d14	*89.2*			*23.0-120*		*05/17/2023 16:36*	WG2060521
(S) Nitrobenzene-d5	*96.5*			*14.0-149*		*05/17/2023 16:36*	WG2060521
(S) 2-Fluorobiphenyl	*90.0*			*34.0-125*		*05/17/2023 16:36*	WG2060521

Method Blank (MB)

(MB) R3925160-1 05/15/23 23:24

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

L1614580-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1614580-01 05/16/23 00:28 • (DUP) R3925160-3 05/16/23 00:34

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

L1614580-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1614580-06 05/16/23 01:00 • (DUP) R3925160-4 05/16/23 01:05

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

Laboratory Control Sample (LCS)

(LCS) R3925160-2 05/15/23 23:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.37	93.7	80.0-120	

L1614220-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1614220-03 05/11/23 17:39 • (DUP) R3923806-2 05/11/23 17:39

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.96	8.95	1	0.112		1

Sample Narrative:

OS: 8.96 at 20.5C

DUP: 8.95 at 20.5C

L1614573-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1614573-02 05/11/23 17:39 • (DUP) R3923806-3 05/11/23 17:39

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.27	8.34	1	0.843		1

Sample Narrative:

OS: 8.27 at 20.6C

DUP: 8.34 at 20.1C

Laboratory Control Sample (LCS)

(LCS) R3923806-1 05/11/23 17:39

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

Sample Narrative:

LCS: 10 at 20.6C

L1614588-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1614588-03 05/13/23 19:12 • (DUP) R3924553-2 05/13/23 19:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.82	7.85	1	0.383		1

Sample Narrative:

OS: 7.82 at 21.7C

DUP: 7.85 at 21.7C

L1614731-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1614731-04 05/13/23 19:12 • (DUP) R3924553-3 05/13/23 19:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.10	8.03	1	0.868		1

Sample Narrative:

OS: 8.1 at 22C

DUP: 8.03 at 22.9C

Laboratory Control Sample (LCS)

(LCS) R3924553-1 05/13/23 19:12

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

Sample Narrative:

LCS: 10 at 21.5C

Method Blank (MB)

(MB) R3925327-1 05/16/23 11:43

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

L1614223-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1614223-04 05/16/23 11:43 • (DUP) R3925327-3 05/16/23 11:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	224	232	1	3.65		20

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

L1614573-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1614573-05 05/16/23 11:43 • (DUP) R3925327-4 05/16/23 11:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	145	140	1	3.02		20

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

Laboratory Control Sample (LCS)

(LCS) R3925327-2 05/16/23 11:43

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1070	95.5	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3926777-1 05/18/23 19:46

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) R3926777-2 05/18/23 19:49 • (LCSD) R3926777-3 05/18/23 19:52

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	1.02	1.03	102	103	80.0-120			1.44	20

Method Blank (MB)

(MB) R3924156-1 05/12/23 13:13

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

Laboratory Control Sample (LCS)

(LCS) R3924156-7 05/12/23 14:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.6	92.6	80.0-120	
Barium	100	93.0	93.0	80.0-120	
Cadmium	100	97.6	97.6	80.0-120	
Copper	100	91.8	91.8	80.0-120	
Lead	100	93.8	93.8	80.0-120	
Nickel	100	95.3	95.3	80.0-120	
Selenium	100	97.7	97.7	80.0-120	
Silver	20.0	19.0	95.2	80.0-120	
Zinc	100	92.2	92.2	80.0-120	

L1614573-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614573-04 05/12/23 13:19 • (MS) R3924156-5 05/12/23 13:29 • (MSD) R3924156-6 05/12/23 13:32

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.42	90.2	89.8	85.8	85.3	5	75.0-125			0.547	20
Barium	100	1530	1120	1330	0.000	0.000	5	75.0-125	V	V	17.0	20
Cadmium	100	0.252	97.6	94.5	97.4	94.3	5	75.0-125			3.22	20
Copper	100	11.0	96.7	90.4	85.7	79.4	5	75.0-125			6.74	20
Lead	100	10.3	100	94.3	90.1	84.0	5	75.0-125			6.22	20
Nickel	100	10.8	98.0	97.6	87.1	86.7	5	75.0-125			0.427	20
Selenium	100	0.360	98.4	96.2	98.1	95.8	5	75.0-125			2.30	20
Silver	20.0	U	18.3	17.6	91.5	87.8	5	75.0-125			4.15	20
Zinc	100	42.2	126	128	83.9	86.1	5	75.0-125			1.75	20

Method Blank (MB)

(MB) R3924601-2 05/13/23 08:56

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)	*96.9*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3924601-1 05/13/23 08:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.78	105	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*109*	*77.0-120*	

L1614573-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614573-02 05/13/23 14:13 • (MS) R3924601-3 05/13/23 16:16 • (MSD) R3924601-4 05/13/23 16:36

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	0.0556	4.20	5.25	75.4	94.4	1	10.0-151			22.2	28
(S) a,a,a-Trifluorotoluene(FID)					*106*	*109*		*77.0-120*				

Method Blank (MB)

(MB) R3924720-2 05/14/23 01:52

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)	*95.5*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3924720-1 05/14/23 00:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.18	76.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*101*	*77.0-120*	

Method Blank (MB)

(MB) R3925388-2 05/14/23 11:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	1.33	J	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	*97.4*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3925388-1 05/14/23 10:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.11	111	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*77.0-120*	

Method Blank (MB)

(MB) R3925833-2 05/15/23 11:35

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	*111*			*75.0-131*
(S) 4-Bromofluorobenzene	*98.8*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*85.6*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3925833-1 05/15/23 10:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.105	84.0	70.0-123	
Toluene	0.125	0.113	90.4	75.0-121	
Ethylbenzene	0.125	0.123	98.4	74.0-126	
Xylenes, Total	0.375	0.352	93.9	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.0999	79.9	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.101	80.8	73.0-127	
(S) Toluene-d8			*105*	*75.0-131*	
(S) 4-Bromofluorobenzene			*99.2*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*87.6*	*70.0-130*	

L1614573-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614573-01 05/15/23 15:02 • (MS) R3925833-3 05/15/23 18:28 • (MSD) R3925833-4 05/15/23 18:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	U	0.134	0.142	107	114	1	10.0-149			5.80	37
Toluene	0.125	0.00258	0.148	0.155	116	122	1	10.0-156			4.62	38
Ethylbenzene	0.125	0.00245	0.159	0.168	125	132	1	10.0-160			5.50	38
Xylenes, Total	0.375	0.00568	0.461	0.483	121	127	1	10.0-160			4.66	38
1,2,4-Trimethylbenzene	0.125	U	0.121	0.123	96.8	98.4	1	10.0-160			1.64	36
1,3,5-Trimethylbenzene	0.125	U	0.120	0.127	96.0	102	1	10.0-160			5.67	38
(S) Toluene-d8					*107*	*108*		*75.0-131*				
(S) 4-Bromofluorobenzene					*104*	*105*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*86.0*	*85.4*		*70.0-130*				

Method Blank (MB)

(MB) R3925216-1 05/16/23 01:46

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	0.333	J	0.274	4.00
(S) o-Terphenyl	*75.7*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3925216-2 05/16/23 01:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	25.3	50.6	50.0-150	
(S) o-Terphenyl			*53.3*	*18.0-148*	

L1614573-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614573-03 05/16/23 01:46 • (MS) R3925216-3 05/16/23 01:58 • (MSD) R3925216-4 05/16/23 02:11

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	47.8	U	19.9	26.2	41.6	55.4	1	50.0-150	J6	J3	27.3	20
(S) o-Terphenyl					*38.9*	*50.8*		*18.0-148*				

Method Blank (MB)

(MB) R3926171-2 05/17/23 14:19

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	*125*	J1		*23.0-120*
(S) Nitrobenzene-d5	*112*			*14.0-149*
(S) 2-Fluorobiphenyl	*121*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3926171-1 05/17/23 13:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0869	109	50.0-120	
Anthracene	0.0800	0.0840	105	50.0-126	
Benzo(a)anthracene	0.0800	0.0878	110	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0989	124	42.0-121	J4
Benzo(k)fluoranthene	0.0800	0.0939	117	49.0-125	
Benzo(a)pyrene	0.0800	0.0904	113	42.0-120	
Chrysene	0.0800	0.104	130	49.0-122	J4
Dibenz(a,h)anthracene	0.0800	0.0984	123	47.0-125	
Fluoranthene	0.0800	0.0957	120	49.0-129	
Fluorene	0.0800	0.0968	121	49.0-120	J4
Indeno(1,2,3-cd)pyrene	0.0800	0.104	130	46.0-125	J4
1-Methylnaphthalene	0.0800	0.0950	119	51.0-121	
2-Methylnaphthalene	0.0800	0.0913	114	50.0-120	
Naphthalene	0.0800	0.0920	115	50.0-120	
Pyrene	0.0800	0.107	134	43.0-123	J4

Laboratory Control Sample (LCS)

(LCS) R3926171-1 05/17/23 13:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*127*	*23.0-120*	J1
(S) Nitrobenzene-d5			*120*	*14.0-149*	
(S) 2-Fluorobiphenyl			*125*	*34.0-125*	

L1614804-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614804-02 05/17/23 17:35 • (MS) R3926171-3 05/17/23 17:54 • (MSD) R3926171-4 05/17/23 18:14

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	0.0796	U	0.0703	0.0564	88.3	71.6	1	14.0-127			21.9	27
Anthracene	0.0796	U	0.0729	0.0577	91.6	73.2	1	10.0-145			23.3	30
Benzo(a)anthracene	0.0796	U	0.0705	0.0596	88.6	75.6	1	10.0-139			16.8	30
Benzo(b)fluoranthene	0.0796	U	0.0745	0.0657	93.6	83.4	1	10.0-140			12.6	36
Benzo(k)fluoranthene	0.0796	U	0.0722	0.0630	90.7	79.9	1	10.0-137			13.6	31
Benzo(a)pyrene	0.0796	U	0.0750	0.0660	94.2	83.8	1	10.0-141			12.8	31
Chrysene	0.0796	U	0.0814	0.0678	102	86.0	1	10.0-145			18.2	30
Dibenz(a,h)anthracene	0.0796	U	0.0699	0.0665	87.8	84.4	1	10.0-132			4.99	31
Fluoranthene	0.0796	U	0.0806	0.0636	101	80.7	1	10.0-153			23.6	33
Fluorene	0.0796	U	0.0788	0.0619	99.0	78.6	1	11.0-130			24.0	29
Indeno(1,2,3-cd)pyrene	0.0796	U	0.0744	0.0689	93.5	87.4	1	10.0-137			7.68	32
1-Methylnaphthalene	0.0796	U	0.0797	0.0628	100	79.7	1	10.0-142			23.7	28
2-Methylnaphthalene	0.0796	U	0.0742	0.0597	93.2	75.8	1	10.0-137			21.7	28
Naphthalene	0.0796	U	0.0733	0.0588	92.1	74.6	1	10.0-135			22.0	27
Pyrene	0.0796	U	0.0830	0.0683	104	86.7	1	10.0-148			19.4	35
(S) p-Terphenyl-d14					*91.7*	*88.1*		*23.0-120*				
(S) Nitrobenzene-d5					*97.8*	*86.6*		*14.0-149*				
(S) 2-Fluorobiphenyl					*95.5*	*86.8*		*34.0-125*				

Method Blank (MB)

(MB) R3926683-2 05/18/23 18:57

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	*97.6*			*23.0-120*
(S) Nitrobenzene-d5	*64.1*			*14.0-149*
(S) 2-Fluorobiphenyl	*68.3*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3926683-1 05/18/23 18:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0760	95.0	50.0-120	
Anthracene	0.0800	0.0785	98.1	50.0-126	
Benzo(a)anthracene	0.0800	0.0779	97.4	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0855	107	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0845	106	49.0-125	
Benzo(a)pyrene	0.0800	0.0802	100	42.0-120	
Chrysene	0.0800	0.0831	104	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0840	105	47.0-125	
Fluoranthene	0.0800	0.0867	108	49.0-129	
Fluorene	0.0800	0.0771	96.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0902	113	46.0-125	
1-Methylnaphthalene	0.0800	0.0784	98.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0775	96.9	50.0-120	
Naphthalene	0.0800	0.0759	94.9	50.0-120	
Pyrene	0.0800	0.0818	102	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3926683-1 05/18/23 18:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*85.4*	*23.0-120*	
(S) Nitrobenzene-d5			*70.9*	*14.0-149*	
(S) 2-Fluorobiphenyl			*68.9*	*34.0-125*	

L1614573-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614573-04 05/18/23 19:36 • (MS) R3926683-3 05/18/23 19:56 • (MSD) R3926683-4 05/18/23 20:16

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0792	U	0.147	0.165	186	207	1	14.0-127	J5	J5	11.5	27
Anthracene	0.0792	0.0599	0.0548	0.0577	0.000	0.000	1	10.0-145	J6	J6	5.16	30
Benzo(a)anthracene	0.0792	0.00945	0.0788	0.0846	87.6	94.4	1	10.0-139			7.10	30
Benzo(b)fluoranthene	0.0792	0.00504	0.0718	0.0778	84.3	91.4	1	10.0-140			8.02	36
Benzo(k)fluoranthene	0.0792	U	0.0696	0.0709	87.9	89.1	1	10.0-137			1.85	31
Benzo(a)pyrene	0.0792	U	0.0775	0.0808	97.9	102	1	10.0-141			4.17	31
Chrysene	0.0792	0.00694	0.0847	0.0921	98.2	107	1	10.0-145			8.37	30
Dibenz(a,h)anthracene	0.0792	U	0.0760	0.0726	96.0	91.2	1	10.0-132			4.58	31
Fluoranthene	0.0792	0.0104	0.0854	0.0915	94.7	102	1	10.0-153			6.90	33
Fluorene	0.0792	0.177	0.307	0.353	164	221	1	11.0-130	J5	J5	13.9	29
Indeno(1,2,3-cd)pyrene	0.0792	U	0.0777	0.0813	98.1	102	1	10.0-137			4.53	32
1-Methylnaphthalene	0.0792	0.899	1.10	1.25	254	441	1	10.0-142	V	V	12.8	28
2-Methylnaphthalene	0.0792	1.40	1.88	2.19	606	992	1	10.0-137	V	V	15.2	28
Naphthalene	0.0792	0.111	0.237	0.258	159	185	1	10.0-135	J5	J5	8.48	27
Pyrene	0.0792	0.0196	0.0916	0.0983	90.9	98.9	1	10.0-148			7.06	35
(S) p-Terphenyl-d14					*78.2*	*81.0*		*23.0-120*				
(S) Nitrobenzene-d5					*0.000*	*0.000*		*14.0-149*	J2	J2		
(S) 2-Fluorobiphenyl					*77.4*	*80.4*		*34.0-125*				

Sample Narrative:

OS: Surrogate failure due to matrix interference

MS: Surrogate failure due to matrix interference

MSD: Surrogate failure due to matrix interference

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

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 Numbr
MTJL Log-In Number Here: B103

ALL SHADED AREAS are for LAB L 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: P4E	State: CO / County/City: Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-778-2514 Email: same as above	Site/Facility ID #: P4E; Compliance Monitoring? [ ] Yes [ ] No
Collected By (print): S. Sivigliano	Purchase Order #: Quote #: DW PWS ID #: DW Location Code:
Collected By (signature): S. Sivigliano	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: _____

** 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: COGCC TABLE 915-1 (FULL LIST)	EC, SAR, pH, Boron (hot water sol.)	Metals list from COGCC Table 915-1	Lab Profile/Line: Lab Sample # / Comments:
20230509-P4E-(FC-FL01-10-48)@5	SS		5/9/23	09:00				2	X	X	X	LL[illegible]573 -01
20230509-P4E-(FC-FL01-4-16)@5	SS			09:05				2	X	X	X	-02
20230509-P4E-(FC-DL-10-48)@4	SS			09:20				2	X	X	X	-03
20230509-P4E-(FC-DL-4-16)@4	SS			09:25				2	X	X	X	-04
20230509-P4E-(FC-SEP-4-16)@1	SS			09:30				2	X	X	X	-05
~~20230509-P4E-(FC-SEP-~~	~~SS~~							~~2~~				
20230509-P4E-(FC-DL)@5	SS			08:55				2	X	X	X	-06
20230509-P4E-(FC-FL02-10-48)@4	SS			09:10				2	X	X	X	-07
20230509-P4E-(FC-FL02-4-16)@4	SS		↓	09:15				2	X	X	X	-08

Sample Receipt Checklist

COC Seal Present/Intact:	Y N	If Applicable	
COC Signed/Accurate:	Y N	VOA Zero Headspace:	Y N
Bottles arrive intact:	Y N	Pres.Correct/Check:	Y N
Correct bottles used:	Y N		
Sufficient volume sent:	Y N		
RAD Screen: <0.5 mR/hr:	Y N		

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:

LL[illegible]573 -01 -02 -03 -04 -05 -06 -07 -08

Vet Blue Dry None

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

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

tened (<500 cpm): Y N NA

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:
S. Sivigliano	5/9/23 1215		
	5/9/23 1500		5/10/23 0810

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: _____

Ud4573

Tracking Numbers	[redacted]	Temperature
61266537 5798		NSA7 4.240=4.2
61266537 5824		NSA7 3.440=3.4

ANALYTICAL REPORT

May 18, 2023

Caerus Oil and Gas

Sample Delivery Group:	L1614576
Samples Received:	05/10/2023
Project Number:	
Description:	P4E
Site:	P4E
Report To:	Brett M. , Jake J. , Blair R. 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward
Project Manager

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

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

TABLE OF CONTENTS

SAMPLE SUMMARY

20230509-MCBG-(P4E-N)@1.5 L1614576-01 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:35 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057989	1	05/17/23 15:33	05/17/23 15:33	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057052	1	05/11/23 08:06	05/13/23 15:26	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2058472	1	05/13/23 09:34	05/13/23 19:12	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057994	1	05/16/23 17:36	05/17/23 14:51	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 14:15	JPD	Mt. Juliet, TN

20230509-MCBG-(P4E-E)@2 L1614576-02 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:40 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057989	1	05/17/23 15:35	05/17/23 15:35	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057052	1	05/11/23 08:06	05/13/23 15:31	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2058472	1	05/13/23 09:34	05/13/23 19:12	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057994	1	05/16/23 17:36	05/17/23 14:53	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 14:19	JPD	Mt. Juliet, TN

20230509-MCBG-(P4E-S)@0.5 L1614576-03 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:50 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057989	1	05/17/23 15:38	05/17/23 15:38	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057052	1	05/11/23 08:06	05/13/23 15:41	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2058472	1	05/13/23 09:34	05/13/23 19:12	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057994	1	05/16/23 17:36	05/17/23 14:56	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 14:22	JPD	Mt. Juliet, TN

20230509-MCBG-(P4E-W)@3 L1614576-04 Solid

Collected by: S. Sivigliano | Collected date/time: 05/09/23 09:45 | Received date/time: 05/10/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2057989	1	05/17/23 15:41	05/17/23 15:41	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2057052	1	05/11/23 08:06	05/13/23 15:47	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2058472	1	05/13/23 09:34	05/13/23 19:12	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2059904	1	05/15/23 10:13	05/16/23 11:43	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2057994	1	05/16/23 17:36	05/17/23 14:59	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2057983	5	05/11/23 11:50	05/12/23 14:32	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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.172		1	05/17/2023 15:33	WG2057989

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.441	J	0.255	1.00	1	05/13/2023 15:26	WG2057052

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	7.89	T8	1	05/13/2023 19:12	WG2058472

Sample Narrative:

L1614576-01 WG2058472: 7.89 at 21.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	201		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614576-01 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.297		0.0167	0.200	1	05/17/2023 14:51	WG2057994

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.98		0.100	1.00	5	05/12/2023 14:15	WG2057983
Barium	200		0.152	2.50	5	05/12/2023 14:15	WG2057983
Cadmium	0.208	J	0.0855	1.00	5	05/12/2023 14:15	WG2057983
Copper	10.4		0.132	5.00	5	05/12/2023 14:15	WG2057983
Lead	9.34		0.0990	2.00	5	05/12/2023 14:15	WG2057983
Nickel	11.3		0.197	2.50	5	05/12/2023 14:15	WG2057983
Selenium	0.395	J	0.180	2.50	5	05/12/2023 14:15	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 14:15	WG2057983
Zinc	43.5		0.740	25.0	5	05/12/2023 14:15	WG2057983

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.160		1	05/17/2023 15:35	WG2057989

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/13/2023 15:31	WG2057052

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	7.47	T8	1	05/13/2023 19:12	WG2058472

Sample Narrative:

L1614576-02 WG2058472: 7.47 at 22.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	176		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614576-02 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.311		0.0167	0.200	1	05/17/2023 14:53	WG2057994

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.89		0.100	1.00	5	05/12/2023 14:19	WG2057983
Barium	283		0.152	2.50	5	05/12/2023 14:19	WG2057983
Cadmium	0.230	J	0.0855	1.00	5	05/12/2023 14:19	WG2057983
Copper	11.0		0.132	5.00	5	05/12/2023 14:19	WG2057983
Lead	9.97		0.0990	2.00	5	05/12/2023 14:19	WG2057983
Nickel	12.0		0.197	2.50	5	05/12/2023 14:19	WG2057983
Selenium	0.404	J	0.180	2.50	5	05/12/2023 14:19	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 14:19	WG2057983
Zinc	42.1		0.740	25.0	5	05/12/2023 14:19	WG2057983

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.123		1	05/17/2023 15:38	WG2057989

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/13/2023 15:41	WG2057052

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	7.74	T8	1	05/13/2023 19:12	WG2058472

Sample Narrative:

L1614576-03 WG2058472: 7.74 at 21.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	119		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614576-03 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.325		0.0167	0.200	1	05/17/2023 14:56	WG2057994

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.09		0.100	1.00	5	05/12/2023 14:22	WG2057983
Barium	153		0.152	2.50	5	05/12/2023 14:22	WG2057983
Cadmium	0.185	J	0.0855	1.00	5	05/12/2023 14:22	WG2057983
Copper	11.4		0.132	5.00	5	05/12/2023 14:22	WG2057983
Lead	10.2		0.0990	2.00	5	05/12/2023 14:22	WG2057983
Nickel	12.8		0.197	2.50	5	05/12/2023 14:22	WG2057983
Selenium	0.397	J	0.180	2.50	5	05/12/2023 14:22	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 14:22	WG2057983
Zinc	44.7		0.740	25.0	5	05/12/2023 14:22	WG2057983

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.389		1	05/17/2023 15:41	WG2057989

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	05/13/2023 15:47	WG2057052

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	7.78	T8	1	05/13/2023 19:12	WG2058472

Sample Narrative:

L1614576-04 WG2058472: 7.78 at 22.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	170		10.0	1	05/16/2023 11:43	WG2059904

Sample Narrative:

L1614576-04 WG2059904: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.181	J	0.0167	0.200	1	05/17/2023 14:59	WG2057994

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.52		0.100	1.00	5	05/12/2023 14:32	WG2057983
Barium	181		0.152	2.50	5	05/12/2023 14:32	WG2057983
Cadmium	0.248	J	0.0855	1.00	5	05/12/2023 14:32	WG2057983
Copper	11.7		0.132	5.00	5	05/12/2023 14:32	WG2057983
Lead	10.2		0.0990	2.00	5	05/12/2023 14:32	WG2057983
Nickel	14.0		0.197	2.50	5	05/12/2023 14:32	WG2057983
Selenium	0.376	J	0.180	2.50	5	05/12/2023 14:32	WG2057983
Silver	U		0.0865	0.500	5	05/12/2023 14:32	WG2057983
Zinc	46.0		0.740	25.0	5	05/12/2023 14:32	WG2057983

Method Blank (MB)

(MB) R3924698-1 05/13/23 13:21

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

L1614576-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1614576-02 05/13/23 15:31 • (DUP) R3924698-7 05/13/23 15:36

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

L1613016-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1613016-02 05/13/23 16:02 • (DUP) R3924698-8 05/13/23 16:07

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	1610	1370	100	16.2		20

Laboratory Control Sample (LCS)

(LCS) R3924698-2 05/13/23 13:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.5	105	80.0-120	

L1613016-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1613016-01 05/13/23 13:32 • (MS) R3924698-3 05/13/23 13:37 • (MSD) R3924698-4 05/13/23 13:42

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	4.93	26.6	26.2	108	106	1	75.0-125			1.53	20

L1613016-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1613016-01 05/13/23 13:32 • (MS) R3924698-5 05/13/23 13:47

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	646	4.93	776	120	50	75.0-125	

L1614588-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1614588-03 05/13/23 19:12 • (DUP) R3924553-2 05/13/23 19:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.82	7.85	1	0.383		1

Sample Narrative:

OS: 7.82 at 21.7C

DUP: 7.85 at 21.7C

L1614731-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1614731-04 05/13/23 19:12 • (DUP) R3924553-3 05/13/23 19:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.10	8.03	1	0.868		1

Sample Narrative:

OS: 8.1 at 22C

DUP: 8.03 at 22.9C

Laboratory Control Sample (LCS)

(LCS) R3924553-1 05/13/23 19:12

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

Sample Narrative:

LCS: 10 at 21.5C

Method Blank (MB)

(MB) R3925327-1 05/16/23 11:43

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

L1614223-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1614223-04 05/16/23 11:43 • (DUP) R3925327-3 05/16/23 11:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	224	232	1	3.65		20

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

L1614573-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1614573-05 05/16/23 11:43 • (DUP) R3925327-4 05/16/23 11:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	145	140	1	3.02		20

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

Laboratory Control Sample (LCS)

(LCS) R3925327-2 05/16/23 11:43

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1070	95.5	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3925993-1 05/17/23 14:43

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) R3925993-2 05/17/23 14:45 • (LCSD) R3925993-3 05/17/23 14:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.11	1.13	111	113	80.0-120			1.81	20

Method Blank (MB)

(MB) R3924156-1 05/12/23 13:13

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

Laboratory Control Sample (LCS)

(LCS) R3924156-7 05/12/23 14:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.6	92.6	80.0-120	
Barium	100	93.0	93.0	80.0-120	
Cadmium	100	97.6	97.6	80.0-120	
Copper	100	91.8	91.8	80.0-120	
Lead	100	93.8	93.8	80.0-120	
Nickel	100	95.3	95.3	80.0-120	
Selenium	100	97.7	97.7	80.0-120	
Silver	20.0	19.0	95.2	80.0-120	
Zinc	100	92.2	92.2	80.0-120	

L1614573-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1614573-04 05/12/23 13:19 • (MS) R3924156-5 05/12/23 13:29 • (MSD) R3924156-6 05/12/23 13:32

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.42	90.2	89.8	85.8	85.3	5	75.0-125			0.547	20
Barium	100	1530	1120	1330	0.000	0.000	5	75.0-125	V	V	17.0	20
Cadmium	100	0.252	97.6	94.5	97.4	94.3	5	75.0-125			3.22	20
Copper	100	11.0	96.7	90.4	85.7	79.4	5	75.0-125			6.74	20
Lead	100	10.3	100	94.3	90.1	84.0	5	75.0-125			6.22	20
Nickel	100	10.8	98.0	97.6	87.1	86.7	5	75.0-125			0.427	20
Selenium	100	0.360	98.4	96.2	98.1	95.8	5	75.0-125			2.30	20
Silver	20.0	U	18.3	17.6	91.5	87.8	5	75.0-125			4.15	20
Zinc	100	42.2	126	128	83.9	86.1	5	75.0-125			1.75	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.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [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 Here

MTJL Log-in Number Here B104

ALL SHADED AREAS are for LAB USE

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: P4E	State: CO / County/City: / Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-778-2914 Email: same as above	Site/Facility ID #: P4E
Collected By (print): S. Sivigliano	Purchase Order #: Quote #:
Collected By (signature): S. Sivigliano	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	COGCC TABLE 915-1 (FULL LIST)	EC, SAR, pH, Boron (hot water sol.)	Metals list from COGCC Table 915-1	Lab Sample # / Comments
20230509-MCBG-(P4E-N)@1.5'	SS		5/9/23	09:35				1		X	X	LL9145716 -01
20230509-MCBG-(P4E-E)@2	SS		"	09:40				1		X	X	-02
20230509-MCBG-(P4E-S)@0.5	SS		"	09:50				1		X	X	-03
20230509-MCBG-(P4E-W)@3	SS		"	09:45				1		X	X	-04

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:

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: 5/9/23-1215	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time: 5/9/23 1506	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 5.10.23 9:10

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: _____

U1d4576

Tracking Numbers		Temperature
6126 6537 5778		NSA7 4240=4.2
61266537 5824		NSA73.440=3.4