VIA ELECTRONIC MAIL –

May 5, 2022

Jake Janicek
EH&S Specialist
Caerus Oil and Gas LLC
143 Diamond Avenue
Parachute, Colorado 81635

Subject: **Report of Work Completed**
Heater Treater Release (F14-397)
P14-397
Sulfur Creek Field
Rio Blanco County, Colorado

Dear Mr. Janicek:

WSP USA Inc. (WSP), on behalf of Caerus Oil and Gas LLC (Caerus), conducted initial point of release (POR) soil sampling associated with the December 13, 2021, produced water release discovered at the F14-397 Tank Battery (Facility ID:480144) on the Scandard Draw 3-14 (P14-397) (Location ID: 316323) pad location (Site). On December 13, 2021, a leak from a small hole formed in the manway attached to the tank was discovered, resulting in a release of an unknown volume of produced water. The release was confined to the earthen bermed tank battery secondary containment. Initial POR sampling activities were completed to determine if impacts associated with the manway release were present. All previous activities associated with this project can be referenced in Colorado Oil and Gas Conservation Commission (COGCC) Initial and Supplemental Form 19 Document Numbers 402897677 and 402907359 (Spill/Release Point ID 481306). This document serves as a report of work completed (ROWC) under Supplemental Form 27 Document Number 403038012 for the above-mentioned release. The Site is in the Sulfur Creek area of operation in Rio Blanco County, Colorado (Figure 1).

SOIL SAMPLING ACTIVITIES – P14-397 HEATER TREATER RELEASE

On April 14, 2022, WSP personnel visited the site to conduct a visual inspection of the release area and collect one soil sample. The POR confirmation soil sample [20220414-P14-397(POR)] was collected directly beneath the heater treater which is connected to the manway of the tank battery. The POR confirmation soil sample was collected at a depth range of 0.5 feet to 1-foot below ground surface (bgs) using a spade shovel. In order to collect a representative soil sample, approximately 0.5 feet of soil was removed from the surface of the sample location prior to sampling. The soil was characterized by visually inspecting the confirmation POR soil sample and field screening the soil head space using a photoionization detector (PID) to monitor for the presence or absence of volatile organic vapors. No staining of the soil or hydrocarbon odors were observed below the heater treater and manway area. The sample was collected in clean, laboratory prepared containers and submitted to Pace Analytical (Pace) of Mount Juliet, Tennessee for analysis of COGCC Table 915-1. A site map is included as Figure 2 which depicts the POR sampling location relative to the tank battery.

ANALYTICAL RESULTS – P14-397 HEATER TREATER RELEASE

Laboratory analytical results of the POR confirmation soil sample collected on April 14, 2022, indicate that confirmation soil sample 20220414-P14-397(POR) exceeded the COGCC Table 915-1 Cleanup Concentrations (CC) for pH and sodium adsorption ratio (SAR) with values of 8.70 and 14.5, respectively. The confirmation soil sample exceeded the COGCC Table 915-1 Protection of Groundwater Soil Screening Level Concentrations (PGSSLC) (M) for arsenic and barium with concentrations of 5.16 milligrams per kilogram (mg/kg) and 1400 mg/kg, respectively. The confirmation soil sample also exceeded COGCC Table 915-1 PGSSLC (R) for nickel and

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2-methynaphthalene with concentrations of 27.6 mg/kg and 0.0223 mg/kg, respectively. All other analytes were either below the laboratory detection limit or within COGCC Table 915-1 PGSSLCs. The laboratory analytical results are included in Enclosure A and summarized in Table 1.

CONCLUSIONS – P14-397 HEATER TREATER RELEASE

Based on the data provided, WSP recommends that Caerus request a "No Further Action" and closure of Initial Form 27 Document Number 402982928. This recommendation is based on the reasonings stated below.

- This project is currently held to the most stringent standards (PGSSLC). However, at no time during soil screening or sampling activities was groundwater or observations indicative of groundwater observed. Additionally, based on previous investigation assessments completed at this location there is not a defined path to groundwater. Therefore, this site should be assessed with the COGCC Table 915-1 Residential Soil Screening Level Concentrations (RSSLCs).

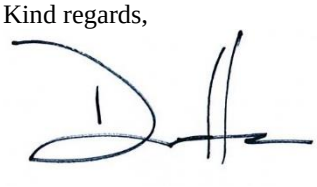
- Although concentrations of barium, nickel, and 2-methylbenzene were detected in concentrations above the PGSSLCs, these concentrations are not close to exceeding the RSSLCs.

- The negligible impacts of the inorganic exceedances, specifically SAR, and pH, should be considered by the Director per COGCC Rule 915.e.2(C). Per COGCC Rule 915.e.2(C), Caerus should request that the elevated values for SAR and pH in soil sample 20220414-P14-397(POR), which were collected directly beneath the POR on the working surface of the pad location, be evaluated and considered as naturally occurring. These elevated values appear to be natural and within range of adjacent undisturbed lands and not related to the manway heater treater release or general production operations. Though the POR sample exceeded the COGCC Table 915-1 CC for SAR (14.5) and pH (8.70), this sample is within pH background values collected at the Site and within the Willow Creek Draw (WCD) and within SAR background values collected within the WCD, which is in proximity to the Site (maximum SAR of 35.1 and pH of 9.00 in regional background soil sample 20211130-P14-397(BG-SB01)@2-2.5'). The confirmation soil sample results appear to be natural occurring and within range of adjacent undisturbed lands and not related to the manway heater release or general production operations. WSP recommends that Caerus request the Director for permission for the SAR and pH values at the Site to be evaluated as naturally occurring within the local area associated with the above-mentioned samples.

- Although arsenic concentrations exceeded the COGCC Table 915-1 Level Concentrations (LCs) for the POR confirmation soil sample, arsenic concentrations also exceeded the COGCC Table 915-1 LCs for the background soil samples collected at the Site and within the WCD. The arsenic concentration observed in the POR confirmation soil sample is less than the concentration (6.81 mg/kg) of the regional background soil sample 20211130-P14-397(BG-SB01)@4-4.5', collected within WCD and in proximity to the Site. WSP recommends that Caerus request the Director for permission for the arsenic concentrations at the Site to be evaluated as naturally occurring within the local area associated with the above-mentioned samples. All laboratory analytical results are included in Enclosure A and summarized in Table 1. A background and regional background map of the soil sample locations is included as Figure 3. The background analytical data of all soil sample locations is depicted and included as Figure 4.

Please contact us at (970) 618-4514 or (970) 658-7025 if you have any questions regarding this report or require additional information.

Kind regards,



Dustin Held
Sr. Consultant, Environmental Geologist

Parker Coit, P.G.
Sr. Consultant, Geologist

Encl.

FIGURES

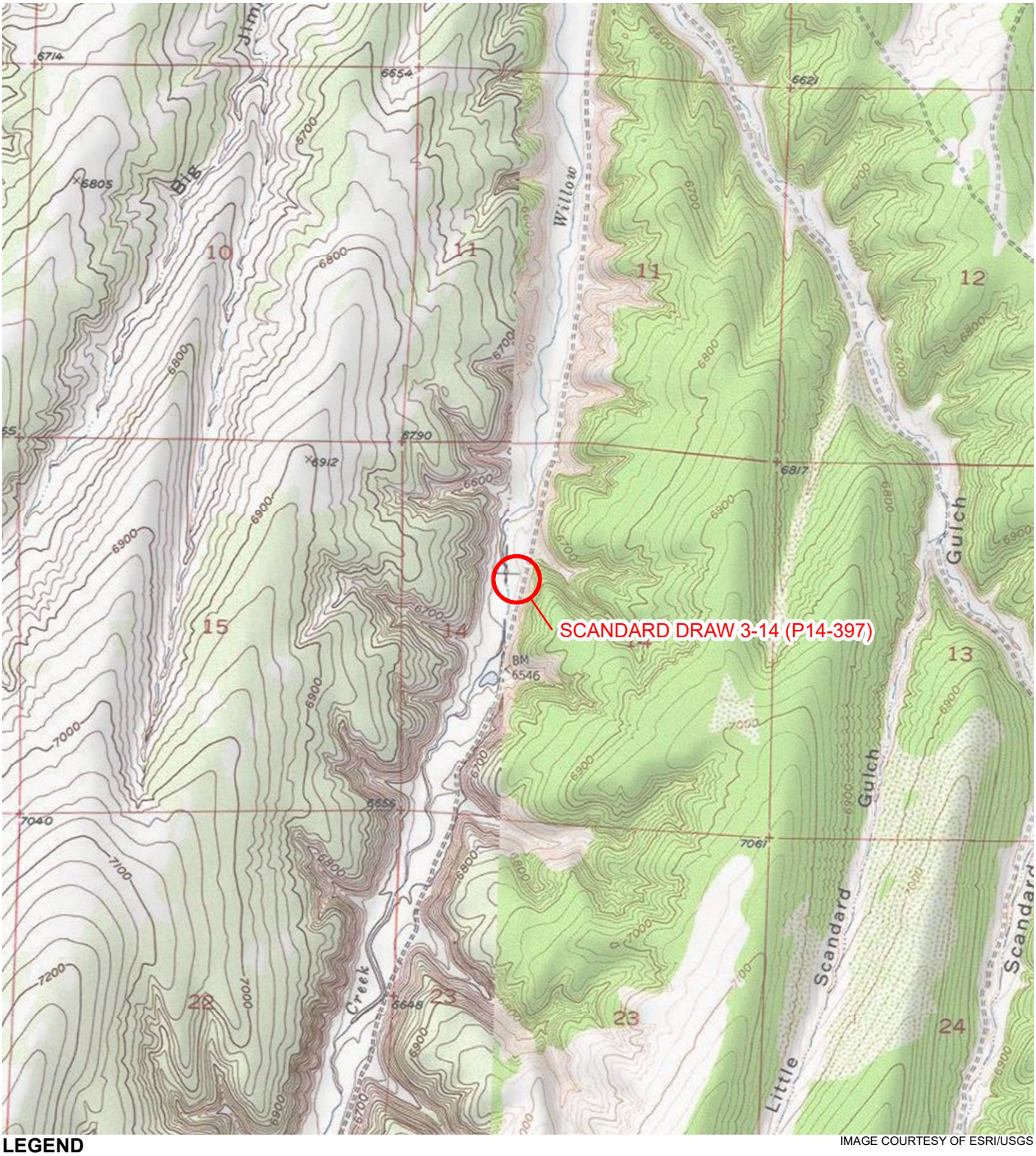


IMAGE COURTESY OF ESRI/USGS

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

COLORADO

FIGURE 1
SITE LOCATION MAP
SCANDARD DRAW 3-14 (P14-397)
SENW SEC 14-T3S-R97W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

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IMAGE COURTESY OF ESRI (MAXAR 11/4/2020)

LEGEND

- POINT OF RELEASE
- SOIL SAMPLE

0 60 120

Feet

N

FIGURE 2
SITE MAP
SCANDARD DRAW 3-14 (P14-397)
SENW SEC 14-T3S-R97W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS, LLC

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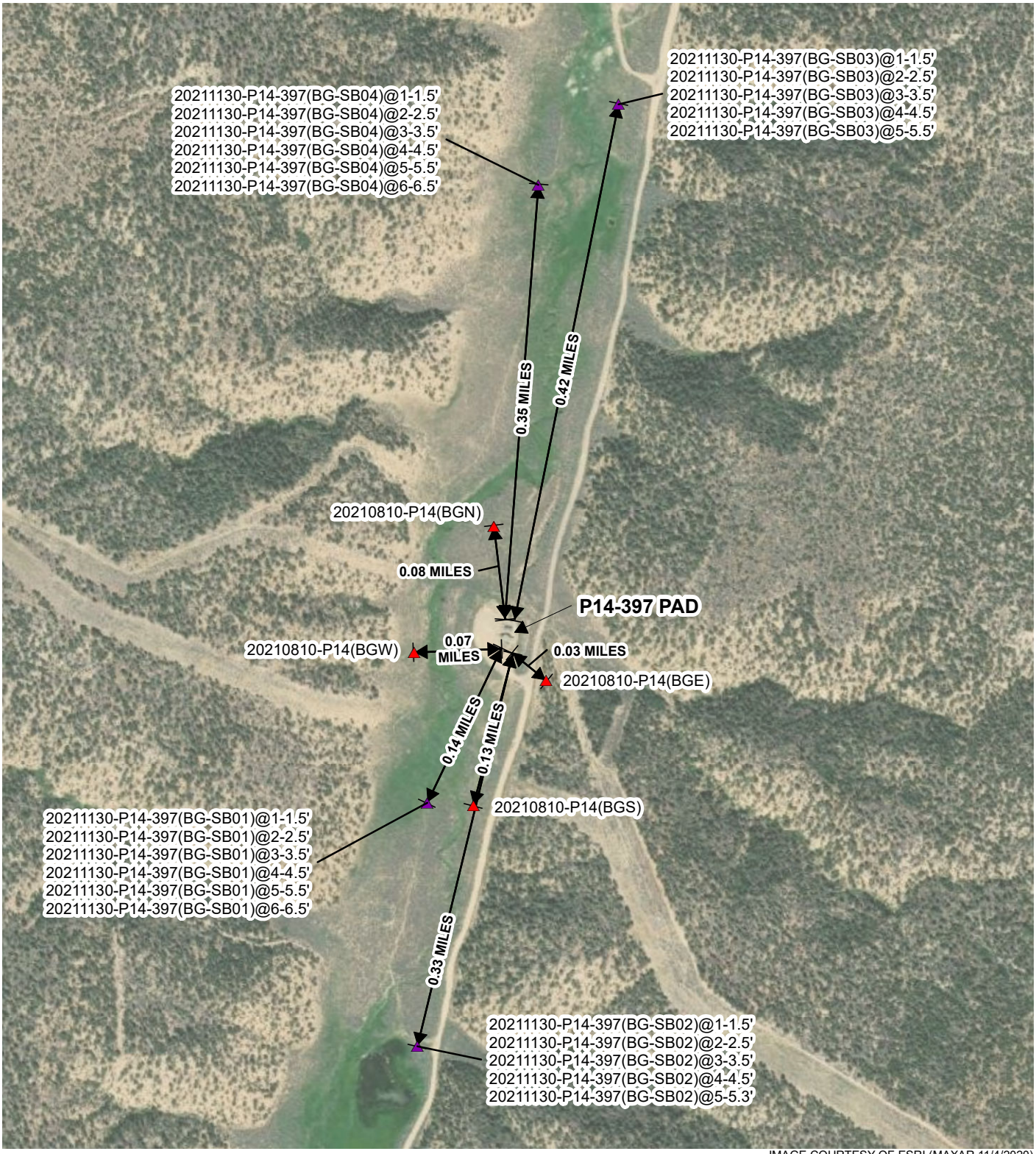

IMAGE COURTESY OF ESRI (MAXAR 11/4/2020)

LEGEND

- BACKGROUND SOIL SAMPLE
- BACKGROUND SOIL BORING

0 600 1,200
Feet

N

FIGURE 3
BACKGROUND SOIL SAMPLES AND BORINGS
SCANDARD DRAW 3-14 (P14-397)
SENW SEC 14-T3S-R97W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

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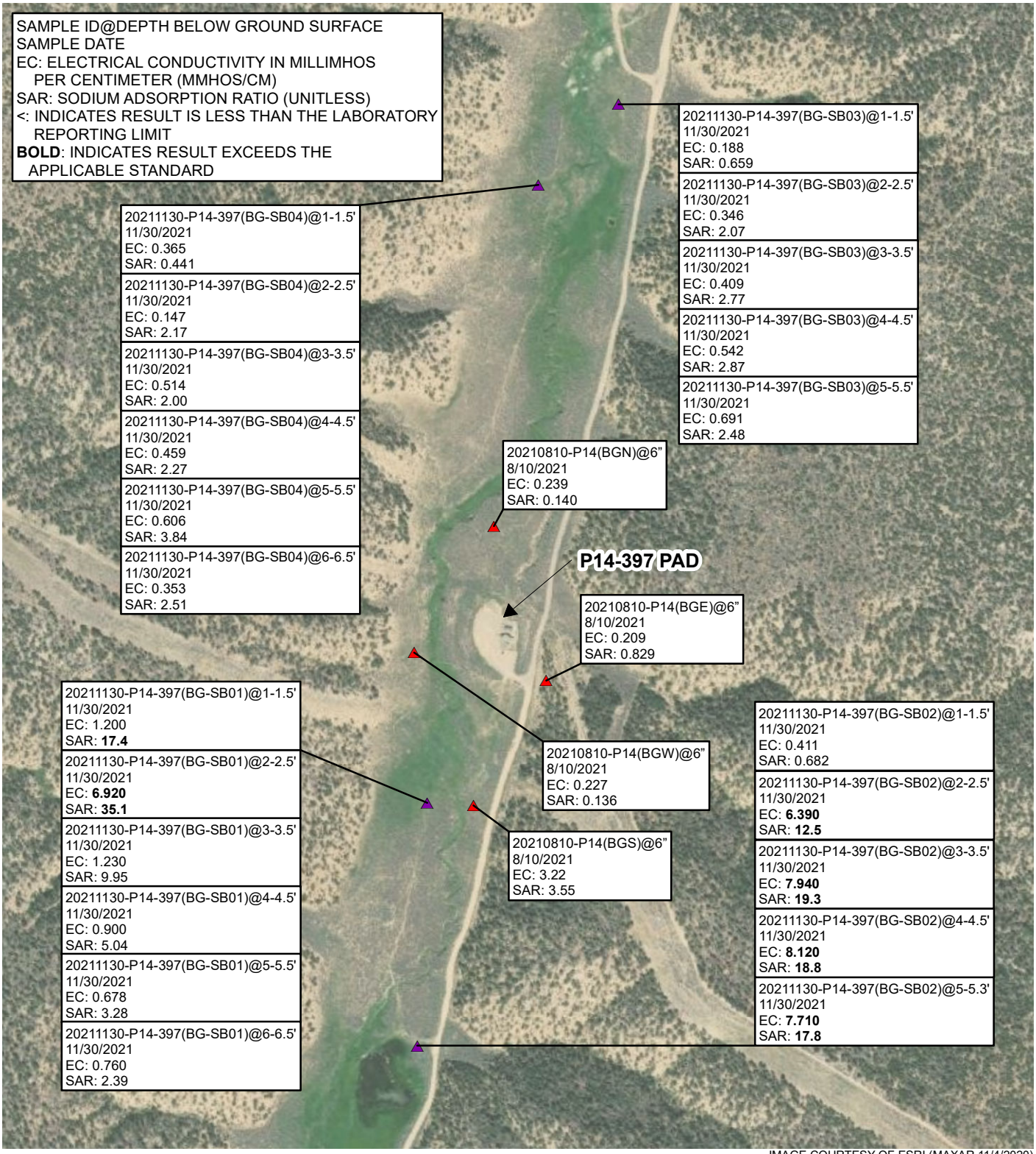

IMAGE COURTESY OF ESRI (MAXAR 11/4/2020)

LEGEND

- BACKGROUND SOIL SAMPLE
- BACKGROUND SOIL BORING

0 600 1,200
Feet

N

FIGURE 4
REGIONAL BACKGROUND ANALYTICAL MAP
SCANDARD DRAW 3-14 (P14-397)
SENW SEC 14-T3S-R97W
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

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TABLE

TABLE 1

SOIL ANALYTICAL RESULTS
P14-397
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	UNITS	CONFIRMATION SOIL SAMPLE	BACKGROUND SAMPLES			
				20220414-P14-397(POR)	20210810-P14(BGS)@6"	20210810-P14(BGE)@6"	20210810-P14(BGW)@6"	20210810-P14(BGN)@6"
Sample Date				4/14/2022	8/10/2021	8/10/2021	8/10/2021	8/10/2021
Sample Depth/Depth Range (feet				0.5	0.5	0.5	0.5	0.5
Sample Type				Confirmation	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	mg/kg	**5.16**	**3.06**	**3.22**	**3.63**	**3.68**
Barium	15,000	82 (M)	mg/kg	**1400**	231	806	345	234
Boron	2	2	mg/l	0.813	0.261	0.288	0.376	0.363
Cadmium	71	0.38 (M)	mg/kg	ND	ND	ND	ND	ND
Chromium (VI)	0.3	0.00067 (R)	mg/kg	ND	NA	NA	NA	NA
Copper	3,100	46 (M)	mg/kg	13.8	7.47	13.3	12.2	11.9
Lead	400	14 (M)	mg/kg	9.08	9.00	12.4	14.1	11.7
Nickel	1,500	26 (R)	mg/kg	**27.6**	14.1	22.4	21.0	18.7
Selenium	390	0.26 (M)	mg/kg	ND	1.00	2.14	1.06	2.13
Silver	390	0.8 (R)	mg/kg	ND	ND	ND	ND	ND
Zinc	23,000	370 (R)	mg/kg	84.7	36.0	52.0	53.9	47.5
EC	<4	<4	mmhos/cm	0.811	3.22	0.209	0.227	0.239
pH	6 - 8.3	6 - 8.3	SU	**8.70**	7.88	**8.92**	**8.54**	7.98
SAR	<6	<6	unitless	**14.5**	3.55	0.829	0.136	0.140
TPH-GRO			mg/kg	1.03	NA	NA	NA	NA
TPH-DRO			mg/kg	17.1	NA	NA	NA	NA
TPH-ORO			mg/kg	34.6	NA	NA	NA	NA
TPH	500	500	mg/kg	52.73	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	mg/kg	ND	ND	ND	ND	ND
Toluene	490	0.69 (M)	mg/kg	ND	ND	ND	ND	ND
Ethylbenzene	5.8	0.78 (M)	mg/kg	ND	ND	ND	ND	ND
Total Xylenes	58	9.9 (M)	mg/kg	ND	ND	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	mg/kg	ND	ND	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	mg/kg	ND	ND	ND	ND	ND
Acenaphthene	360	0.55 (R)	mg/kg	ND	ND	ND	ND	ND
Anthracene	1,800	5.8 (R)	mg/kg	ND	ND	ND	ND	ND
Benzo(A)anthracene	1.1	0.011 (R)	mg/kg	ND	ND	ND	ND	ND
Benzo(B)fluoranthene	1.1	0.3 (R)	mg/kg	ND	ND	ND	ND	ND
Benzo(K)fluoranthene	11	2.9 (R)	mg/kg	ND	ND	ND	ND	ND
Benzo(A)pyrene	0.11	0.24 (M)	mg/kg	ND	ND	ND	ND	ND
Chrysene	110	9 (R)	mg/kg	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	0.11	0.096 (R)	mg/kg	ND	ND	ND	ND	ND
Fluoranthene	240	8.9 (R)	mg/kg	0.00747	ND	ND	ND	ND
Fluorene	240	0.54 (R)	mg/kg	ND	ND	ND	ND	ND
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	mg/kg	ND	ND	ND	ND	ND
1-methylnaphthalene	18	0.006 (R)	mg/kg	ND	ND	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	mg/kg	**0.0223**	ND	ND	ND	ND
Naphthalene	2	0.0038 (R)	mg/kg	ND	ND	ND	ND	ND
Pyrene	180	1.3 (R)	mg/kg	0.0125	ND	ND	ND	ND

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentratio
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
mg/l - milligrams per liter
mg/kg - milligrams per kilogram
mmhos/cm - millimhos per centimeter
SAR - sodium adsorption ratio
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TPH-ORO - total petroleum hydrcarbons- oil range orgainc
TPH-GRO - total petroleum hydrocarbons-gasoline range organics
TPH-DRO - total petroleum hydrocarbons-diesel range organics
TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO
NA - analyte not analyzed
ND - analyte not detected
R - risk based
MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS
P14-397
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	BACKGROUND SAMPLES					
			20211130-P14-397(BG-SB01)@1-1.5'	20211130-P14-397(BG-SB01)@2-2.5'	20211130-P14-397(BG-SB01)@3-3.5'	20211130-P14-397(BG-SB01)@4-4.5'	20211130-P14-397(BG-SB01)@5-5.5'	20211130-P14-397(BG-SB01)@6-6.5'
Sample Date			11/30/2021	11/30/2021	11/30/2021	11/30/2021	11/30/2021	11/30/2021
Sample Depth/Depth Range (feet			1-1.5	2-2.5	3-3.5	4-4.5	5-5.5	6-6.5
Sample Type			Background	Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	**2.22**	**2.59**	**2.17**	**6.81**	**1.73**	**4.43**
Barium	15,000	82 (M)	NA	NA	NA	NA	NA	NA
Boron	2	2	NA	NA	NA	NA	NA	NA
Cadmium	71	0.38 (M)	NA	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	NA	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	NA	NA	NA	NA	NA	NA
Lead	400	14 (M)	NA	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	NA	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	NA	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	NA	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	NA	NA	NA	NA	NA	NA
EC	<4	<4	1.200	**6.920**	1.230	0.900	0.678	0.760
pH	6 - 8.3	6 - 8.3	7.98	**9.00**	**8.92**	8.29	8.20	8.28
SAR	<6	<6	**17.4**	**35.1**	**9.95**	5.04	3.28	2.39
TPH-GRO			NA	NA	NA	NA	NA	NA
TPH-DRO			NA	NA	NA	NA	NA	NA
TPH-ORO			NA	NA	NA	NA	NA	NA
TPH	500	500	NA	NA	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	NA	NA	NA	NA	NA	NA
Toluene	490	0.69 (M)	NA	NA	NA	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	NA	NA	NA	NA	NA	NA
Total Xylenes	58	9.9 (M)	NA	NA	NA	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	NA	NA	NA	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	NA	NA	NA	NA	NA	NA
Acenaphthene	360	0.55 (R)	NA	NA	NA	NA	NA	NA
Anthracene	1,800	5.8 (R)	NA	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	NA	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	NA	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	NA	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	NA	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	NA	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	NA	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	NA	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	NA	NA	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	NA	NA	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	NA	NA	NA	NA	NA	NA
Pyrene	180	1.3 (R)	NA	NA	NA	NA	NA	NA

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentratio
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
mg/l - milligrams per liter
mg/kg - milligrams per kilogram
mmhos/cm - millimhos per centimeter
SAR - sodium adsorption ratio
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TPH-ORO - total petroleum hydrcarbons- oil range orgainc
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ND - analyte not detected
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MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS
P14-397
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	BACKGROUND SAMPLES				
			20211130-P14-397(BG-SB02)@1-1.5'	20211130-P14-397(BG-SB02)@2-2.5'	20211130-P14-397(BG-SB02)@3-3.5'	20211130-P14-397(BG-SB02)@4-4.5'	20211130-P14-397(BG-SB02)@5-5.3'
Sample Date			11/30/2021	11/30/2021	11/30/2021	11/30/2021	11/30/2021
Sample Depth/Depth Range (feet			1-1.5'	2-2.5'	3-3.5'	4-4.5'	5-5.3'
Sample Type			Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	**1.87**	**2.97**	**2.26**	**2.26**	**1.86**
Barium	15,000	82 (M)	NA	NA	NA	NA	NA
Boron	2	2	NA	NA	NA	NA	NA
Cadmium	71	0.38 (M)	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	NA	NA	NA	NA	NA
Lead	400	14 (M)	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	NA	NA	NA	NA	NA
EC	<4	<4	0.411	**6.390**	**7.940**	**8.120**	**7.710**
pH	6 - 8.3	6 - 8.3	8.23	7.93	8.00	7.98	8.06
SAR	<6	<6	0.682	**12.5**	**19.3**	**18.8**	**17.8**
TPH-GRO			NA	NA	NA	NA	NA
TPH-DRO			NA	NA	NA	NA	NA
TPH-ORO			NA	NA	NA	NA	NA
TPH	500	500	NA	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	NA	NA	NA	NA	NA
Toluene	490	0.69 (M)	NA	NA	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	NA	NA	NA	NA	NA
Total Xylenes	58	9.9 (M)	NA	NA	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	NA	NA	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	NA	NA	NA	NA	NA
Acenaphthene	360	0.55 (R)	NA	NA	NA	NA	NA
Anthracene	1,800	5.8 (R)	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	NA	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	NA	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	NA	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	NA	NA	NA	NA	NA
Pyrene	180	1.3 (R)	NA	NA	NA	NA	NA

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentratior
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
mg/l - milligrams per liter
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P14-397
RIO BLANCO COUNTY, COLORADO
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PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	BACKGROUND SAMPLES				
			20211130-P14-397(BG-SB03)@1-1.5'	20211130-P14-397(BG-SB03)@2-2.5'	20211130-P14-397(BG-SB03)@3-3.5'	20211130-P14-397(BG-SB03)@4-4.5'	20211130-P14-397(BG-SB03)@5-5.5'
Sample Date			11/30/2021	11/30/2021	11/30/2021	11/30/2021	11/30/2021
Sample Depth/Depth Range (feet			1-1.5'	2-2.5'	3-3.5'	4-4.5'	5-5.5'
Sample Type			Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	**2.51**	**2.16**	**2.14**	**2.86**	**2.33**
Barium	15,000	82 (M)	NA	NA	NA	NA	NA
Boron	2	2	NA	NA	NA	NA	NA
Cadmium	71	0.38 (M)	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	NA	NA	NA	NA	NA
Lead	400	14 (M)	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	NA	NA	NA	NA	NA
EC	<4	<4	0.188	0.346	0.409	0.542	0.691
pH	6 - 8.3	6 - 8.3	8.28	**8.40**	**8.66**	**8.38**	8.22
SAR	<6	<6	0.659	2.07	2.77	2.87	2.48
TPH-GRO			NA	NA	NA	NA	NA
TPH-DRO			NA	NA	NA	NA	NA
TPH-ORO			NA	NA	NA	NA	NA
TPH	500	500	NA	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	NA	NA	NA	NA	NA
Toluene	490	0.69 (M)	NA	NA	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	NA	NA	NA	NA	NA
Total Xylenes	58	9.9 (M)	NA	NA	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	NA	NA	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	NA	NA	NA	NA	NA
Acenaphthene	360	0.55 (R)	NA	NA	NA	NA	NA
Anthracene	1,800	5.8 (R)	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	NA	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	NA	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	NA	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	NA	NA	NA	NA	NA
Pyrene	180	1.3 (R)	NA	NA	NA	NA	NA

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentratior
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
mg/l - milligrams per liter
mg/kg - milligrams per kilogram
mmhos/cm - millimhos per centimeter
SAR - sodium adsorption ratio
SU - standard unit
TPH-ORO - total petroleum hydrcarbons- oil range orgainc
TPH-GRO - total petroleum hydrocarbons-gasoline range organics
TPH-DRO - total petroleum hydrocarbons-diesel range organics
TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO
NA - analyte not analyzed
ND - analyte not detected
R - risk based
MCL - maxium containment level (M)

TABLE 1

SOIL ANALYTICAL RESULTS
P14-397
RIO BLANCO COUNTY, COLORADO
CAERUS OIL AND GAS LLC

PARAMETER	COGCC RESIDENTIAL SOIL SCREENING LEVEL CONCENTRATIONS	COGCC PROTECTION OF GROUNDWATER SOIL SCREENING LEVEL CONCENTRATIONS	BACKGROUND SAMPLES					
			20211130-P14-397(BG-SB04)@1-1.5'	20211130-P14-397(BG-SB04)@2-2.5'	20211130-P14-397(BG-SB04)@3-3.5.5'	20211130-P14-397(BG-SB04)@4-4.5'	20211130-P14-397(BG-SB04)@5-5.5'	20211130-P14-397(BG-SB04)@6-6.5'
Sample Date			11/30/2021	11/30/2021	11/30/2021	11/30/2021	11/30/2021	11/30/2021
Sample Depth/Depth Range (feet			1-1.5'	2-2.5'	3-3.5	4-4.5	5-5.5	6-6.5
Sample Type			Background	Background	Background	Background	Background	Background
Arsenic	0.68	0.29 (M)	**3.38**	**2.76**	**2.29**	**2.01**	**1.93**	**1.43**
Barium	15,000	82 (M)	NA	NA	NA	NA	NA	NA
Boron	2	2	NA	NA	NA	NA	NA	NA
Cadmium	71	0.38 (M)	NA	NA	NA	NA	NA	NA
Chromium (VI)	0.3	0.00067 (R)	NA	NA	NA	NA	NA	NA
Copper	3,100	46 (M)	NA	NA	NA	NA	NA	NA
Lead	400	14 (M)	NA	NA	NA	NA	NA	NA
Nickel	1,500	26 (R)	NA	NA	NA	NA	NA	NA
Selenium	390	0.26 (M)	NA	NA	NA	NA	NA	NA
Silver	390	0.8 (R)	NA	NA	NA	NA	NA	NA
Zinc	23,000	370 (R)	NA	NA	NA	NA	NA	NA
EC	<4	<4	0.365	0.147	0.514	0.459	0.606	0.353
pH	6 - 8.3	6 - 8.3	8.07	8.29	**8.42**	**8.47**	**8.43**	**8.58**
SAR	<6	<6	0.441	2.17	2.00	2.27	3.84	2.51
TPH-GRO			NA	NA	NA	NA	NA	NA
TPH-DRO			NA	NA	NA	NA	NA	NA
TPH-ORO			NA	NA	NA	NA	NA	NA
TPH	500	500	NA	NA	NA	NA	NA	NA
Benzene	1.2	0.0026 (M)	NA	NA	NA	NA	NA	NA
Toluene	490	0.69 (M)	NA	NA	NA	NA	NA	NA
Ethylbenzene	5.8	0.78 (M)	NA	NA	NA	NA	NA	NA
Total Xylenes	58	9.9 (M)	NA	NA	NA	NA	NA	NA
1,2,4-trimethylbenzene	30	0.0081 (R)	NA	NA	NA	NA	NA	NA
1,3,5-trimethylbenzene	27	0.0087 (R)	NA	NA	NA	NA	NA	NA
Acenaphthene	360	0.55 (R)	NA	NA	NA	NA	NA	NA
Anthracene	1,800	5.8 (R)	NA	NA	NA	NA	NA	NA
Benzo(A)anthracene	1.1	0.011 (R)	NA	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	1.1	0.3 (R)	NA	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	11	2.9 (R)	NA	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.11	0.24 (M)	NA	NA	NA	NA	NA	NA
Chrysene	110	9 (R)	NA	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.11	0.096 (R)	NA	NA	NA	NA	NA	NA
Fluoranthene	240	8.9 (R)	NA	NA	NA	NA	NA	NA
Fluorene	240	0.54 (R)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3,c-d)pyrene	1.1	0.98 (R)	NA	NA	NA	NA	NA	NA
1-methylnaphthalene	18	0.006 (R)	NA	NA	NA	NA	NA	NA
2-methylnaphthalene	24	0.019 (R)	NA	NA	NA	NA	NA	NA
Naphthalene	2	0.0038 (R)	NA	NA	NA	NA	NA	NA
Pyrene	180	1.3 (R)	NA	NA	NA	NA	NA	NA

NOTES:
BOLD - indicates result exceeds the COGCC residential soil screening level concentratio
COGCC - Colorado Oil and Gas Conservation Commission
EC- electrical conductivity
mg/l - milligrams per liter
mg/kg - milligrams per kilogram
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TPH-DRO - total petroleum hydrocarbons-diesel range organics
TPH - combination of TPH-GRO, TPH-DRO, and TPH-ORO
NA - analyte not analyzed
ND - analyte not detected
R - risk based
MCL - maxium containment level (M)

ENCLOSURE A – LABORATORY ANALYTICAL REPORTS

ANALYTICAL REPORT

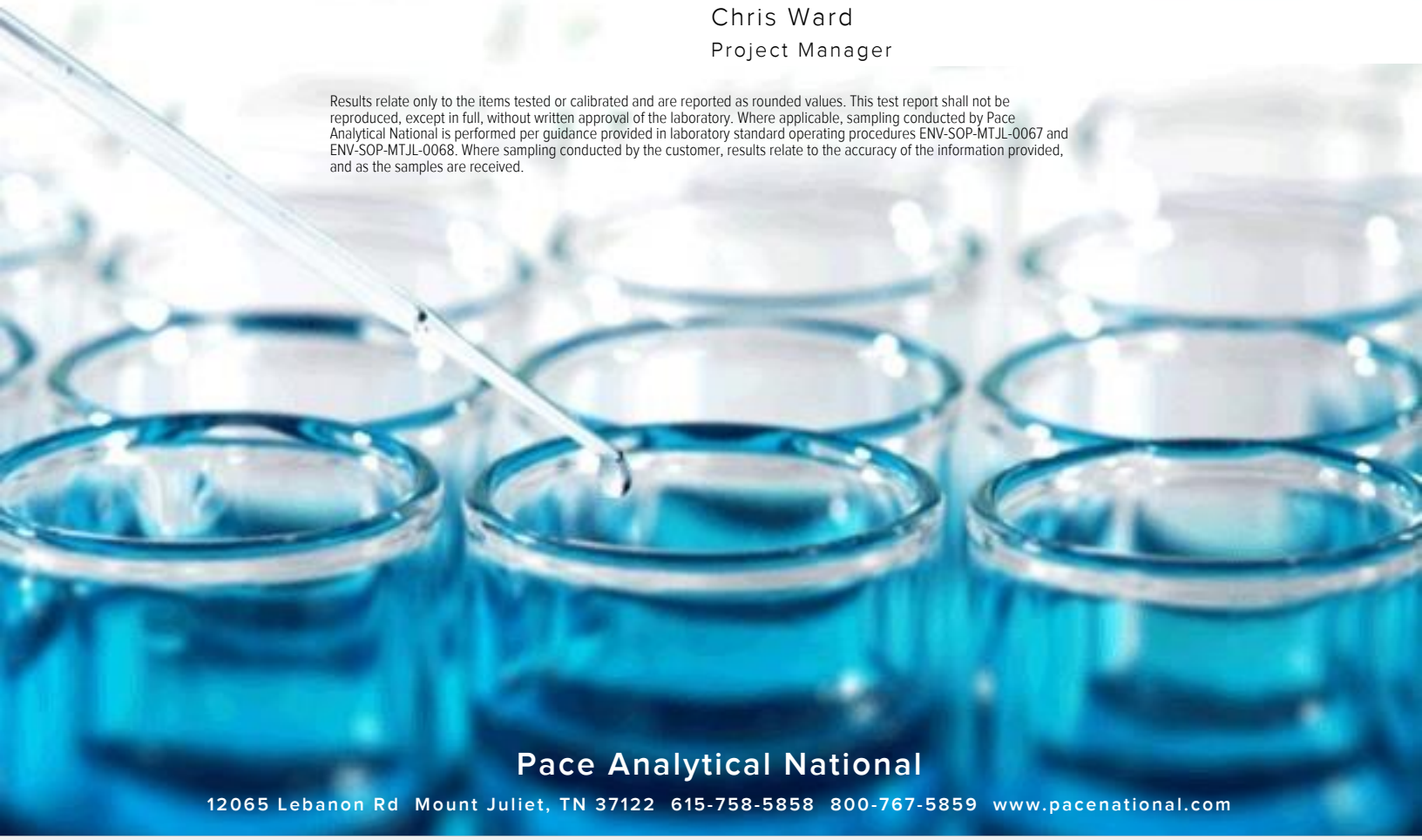
August 19, 2021

Caerus Oil and Gas

Sample Delivery Group:	L1389909
Samples Received:	08/12/2021
Project Number:	P14
Description:	Scandard Draw 3-14 (P14)
Site:	P14
Report To:	Jake Janicek 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



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

TABLE OF CONTENTS

P14(BGS) L1389909-01 Solid

Collected by: K. Moreland | Collected date/time: 08/10/21 13:45 | Received date/time: 08/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1723243	1	08/18/21 13:20	08/18/21 13:20	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1722741	1	08/13/21 11:54	08/13/21 19:06	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1724291	1	08/17/21 06:31	08/17/21 12:42	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1722613	1	08/13/21 16:14	08/14/21 14:30	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1723241	1	08/14/21 15:03	08/18/21 17:55	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1722544	5	08/13/21 16:09	08/14/21 21:57	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1723920	1	08/14/21 19:08	08/17/21 00:42	JAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1724616	1	08/17/21 15:45	08/17/21 22:52	LEA	Mt. Juliet, TN

P14(BBE) L1389909-02 Solid

Collected by: K. Moreland | Collected date/time: 08/10/21 14:00 | Received date/time: 08/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1723243	1	08/18/21 13:22	08/18/21 13:22	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1722741	1	08/13/21 11:54	08/13/21 19:06	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1724291	1	08/17/21 06:31	08/17/21 12:42	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1722613	1	08/13/21 16:14	08/14/21 14:34	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1723241	1	08/14/21 15:03	08/18/21 17:58	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1722544	5	08/13/21 16:09	08/14/21 22:00	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1723920	1	08/14/21 19:08	08/17/21 01:01	JAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1724616	1	08/17/21 15:45	08/18/21 06:31	AAT	Mt. Juliet, TN

P14(BGW) L1389909-03 Solid

Collected by: K. Moreland | Collected date/time: 08/10/21 14:40 | Received date/time: 08/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1723243	1	08/18/21 13:25	08/18/21 13:25	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1722741	1	08/13/21 11:54	08/13/21 19:06	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1724291	1	08/17/21 06:31	08/17/21 12:42	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1722613	1	08/13/21 16:14	08/14/21 14:37	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1723241	1	08/14/21 15:03	08/18/21 18:01	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1722544	5	08/13/21 16:09	08/14/21 22:04	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1723920	1	08/14/21 19:08	08/17/21 01:20	JAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1724616	1	08/17/21 15:45	08/18/21 06:51	AAT	Mt. Juliet, TN

P14(BGN) L1389909-04 Solid

Collected by: K. Moreland | Collected date/time: 08/10/21 15:15 | Received date/time: 08/12/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1723243	1	08/18/21 13:28	08/18/21 13:28	KMG	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1722741	1	08/13/21 11:54	08/13/21 19:06	BJD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1724291	1	08/17/21 06:31	08/17/21 12:42	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1722613	1	08/13/21 16:14	08/14/21 14:40	EL	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1723241	1	08/14/21 15:03	08/18/21 17:26	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1722544	5	08/13/21 16:09	08/14/21 22:07	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1723920	1	08/14/21 19:08	08/17/21 01:39	JAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1724616	1	08/17/21 15:45	08/18/21 07:11	AAT	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.55		1	08/18/2021 13:20	WG1723243

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.88	T8	1	08/13/2021 19:06	WG1722741

Sample Narrative:

L1389909-01 WG1722741: 7.88 at 23.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3220		10.0	1	08/17/2021 12:42	WG1724291

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	231		0.0852	0.500	1	08/14/2021 14:30	WG1722613
Cadmium	U		0.0471	0.500	1	08/14/2021 14:30	WG1722613
Copper	7.47		0.400	2.00	1	08/14/2021 14:30	WG1722613
Lead	9.00		0.208	0.500	1	08/14/2021 14:30	WG1722613
Nickel	14.1		0.132	2.00	1	08/14/2021 14:30	WG1722613
Selenium	1.00	J	0.764	2.00	1	08/14/2021 14:30	WG1722613
Silver	U		0.127	1.00	1	08/14/2021 14:30	WG1722613
Zinc	36.0		0.832	5.00	1	08/14/2021 14:30	WG1722613

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	0.261		0.0167	0.200	1	08/18/2021 17:55	WG1723241

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.06		0.100	1.00	5	08/14/2021 21:57	WG1722544

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/17/2021 00:42	WG1723920
Toluene	U		0.00130	0.00500	1	08/17/2021 00:42	WG1723920
Ethylbenzene	U		0.000737	0.00250	1	08/17/2021 00:42	WG1723920
Xylenes, Total	U		0.000880	0.00650	1	08/17/2021 00:42	WG1723920
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/17/2021 00:42	WG1723920
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/17/2021 00:42	WG1723920
(S) Toluene-d8	*92.4*			*75.0-131*		*08/17/2021 00:42*	WG1723920
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*08/17/2021 00:42*	WG1723920
(S) 1,2-Dichloroethane-d4	*103*			*70.0-130*		*08/17/2021 00:42*	WG1723920

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Anthracene	U		0.00230	0.00600	1	08/17/2021 22:52	WG1724616
Acenaphthene	U		0.00209	0.00600	1	08/17/2021 22:52	WG1724616
Acenaphthylene	U		0.00216	0.00600	1	08/17/2021 22:52	WG1724616
Benzo(a)anthracene	U		0.00173	0.00600	1	08/17/2021 22:52	WG1724616
Benzo(a)pyrene	U		0.00179	0.00600	1	08/17/2021 22:52	WG1724616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/17/2021 22:52	WG1724616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/17/2021 22:52	WG1724616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/17/2021 22:52	WG1724616
Chrysene	U		0.00232	0.00600	1	08/17/2021 22:52	WG1724616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/17/2021 22:52	WG1724616
Fluoranthene	U		0.00227	0.00600	1	08/17/2021 22:52	WG1724616
Fluorene	U		0.00205	0.00600	1	08/17/2021 22:52	WG1724616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/17/2021 22:52	WG1724616
Naphthalene	U		0.00408	0.0200	1	08/17/2021 22:52	WG1724616
Phenanthrene	U		0.00231	0.00600	1	08/17/2021 22:52	WG1724616
Pyrene	U		0.00200	0.00600	1	08/17/2021 22:52	WG1724616
1-Methylnaphthalene	U		0.00449	0.0200	1	08/17/2021 22:52	WG1724616
2-Methylnaphthalene	U		0.00427	0.0200	1	08/17/2021 22:52	WG1724616
2-Chloronaphthalene	U		0.00466	0.0200	1	08/17/2021 22:52	WG1724616
(S) p-Terphenyl-d14	*65.2*			*23.0-120*		*08/17/2021 22:52*	WG1724616
(S) Nitrobenzene-d5	*52.3*			*14.0-149*		*08/17/2021 22:52*	WG1724616
(S) 2-Fluorobiphenyl	*55.3*			*34.0-125*		*08/17/2021 22:52*	WG1724616

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.829		1	08/18/2021 13:22	WG1723243

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.92	T8	1	08/13/2021 19:06	WG1722741

Sample Narrative:

L1389909-02 WG1722741: 8.92 at 23.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	209		10.0	1	08/17/2021 12:42	WG1724291

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	806		0.0852	0.500	1	08/14/2021 14:34	WG1722613
Cadmium	U		0.0471	0.500	1	08/14/2021 14:34	WG1722613
Copper	13.3		0.400	2.00	1	08/14/2021 14:34	WG1722613
Lead	12.4		0.208	0.500	1	08/14/2021 14:34	WG1722613
Nickel	22.4		0.132	2.00	1	08/14/2021 14:34	WG1722613
Selenium	2.14		0.764	2.00	1	08/14/2021 14:34	WG1722613
Silver	U		0.127	1.00	1	08/14/2021 14:34	WG1722613
Zinc	52.0		0.832	5.00	1	08/14/2021 14:34	WG1722613

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	0.288		0.0167	0.200	1	08/18/2021 17:58	WG1723241

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.22		0.100	1.00	5	08/14/2021 22:00	WG1722544

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/17/2021 01:01	WG1723920
Toluene	U		0.00130	0.00500	1	08/17/2021 01:01	WG1723920
Ethylbenzene	U		0.000737	0.00250	1	08/17/2021 01:01	WG1723920
Xylenes, Total	U		0.000880	0.00650	1	08/17/2021 01:01	WG1723920
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/17/2021 01:01	WG1723920
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/17/2021 01:01	WG1723920
(S) Toluene-d8	*94.3*			*75.0-131*		*08/17/2021 01:01*	WG1723920
(S) 4-Bromofluorobenzene	*102*			*67.0-138*		*08/17/2021 01:01*	WG1723920
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*08/17/2021 01:01*	WG1723920

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/18/2021 06:31	WG1724616
Acenaphthene	U		0.00209	0.00600	1	08/18/2021 06:31	WG1724616
Acenaphthylene	U		0.00216	0.00600	1	08/18/2021 06:31	WG1724616
Benzo(a)anthracene	U		0.00173	0.00600	1	08/18/2021 06:31	WG1724616
Benzo(a)pyrene	U		0.00179	0.00600	1	08/18/2021 06:31	WG1724616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/18/2021 06:31	WG1724616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/18/2021 06:31	WG1724616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/18/2021 06:31	WG1724616
Chrysene	U		0.00232	0.00600	1	08/18/2021 06:31	WG1724616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/18/2021 06:31	WG1724616
Fluoranthene	U		0.00227	0.00600	1	08/18/2021 06:31	WG1724616
Fluorene	U		0.00205	0.00600	1	08/18/2021 06:31	WG1724616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/18/2021 06:31	WG1724616
Naphthalene	U		0.00408	0.0200	1	08/18/2021 06:31	WG1724616
Phenanthrene	U		0.00231	0.00600	1	08/18/2021 06:31	WG1724616
Pyrene	U		0.00200	0.00600	1	08/18/2021 06:31	WG1724616
1-Methylnaphthalene	U		0.00449	0.0200	1	08/18/2021 06:31	WG1724616
2-Methylnaphthalene	U		0.00427	0.0200	1	08/18/2021 06:31	WG1724616
2-Chloronaphthalene	U		0.00466	0.0200	1	08/18/2021 06:31	WG1724616
(S) p-Terphenyl-d14	*70.5*			*23.0-120*		*08/18/2021 06:31*	WG1724616
(S) Nitrobenzene-d5	*46.6*			*14.0-149*		*08/18/2021 06:31*	WG1724616
(S) 2-Fluorobiphenyl	*58.6*			*34.0-125*		*08/18/2021 06:31*	WG1724616

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.136		1	08/18/2021 13:25	WG1723243

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.54	T8	1	08/13/2021 19:06	WG1722741

Sample Narrative:

L1389909-03 WG1722741: 8.54 at 23.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	227		10.0	1	08/17/2021 12:42	WG1724291

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	345		0.0852	0.500	1	08/14/2021 14:37	WG1722613
Cadmium	U		0.0471	0.500	1	08/14/2021 14:37	WG1722613
Copper	12.2		0.400	2.00	1	08/14/2021 14:37	WG1722613
Lead	14.1		0.208	0.500	1	08/14/2021 14:37	WG1722613
Nickel	21.0		0.132	2.00	1	08/14/2021 14:37	WG1722613
Selenium	1.06	J	0.764	2.00	1	08/14/2021 14:37	WG1722613
Silver	U		0.127	1.00	1	08/14/2021 14:37	WG1722613
Zinc	53.9		0.832	5.00	1	08/14/2021 14:37	WG1722613

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	0.376		0.0167	0.200	1	08/18/2021 18:01	WG1723241

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.63		0.100	1.00	5	08/14/2021 22:04	WG1722544

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/17/2021 01:20	WG1723920
Toluene	U		0.00130	0.00500	1	08/17/2021 01:20	WG1723920
Ethylbenzene	U		0.000737	0.00250	1	08/17/2021 01:20	WG1723920
Xylenes, Total	U		0.000880	0.00650	1	08/17/2021 01:20	WG1723920
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/17/2021 01:20	WG1723920
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/17/2021 01:20	WG1723920
(S) Toluene-d8	*96.3*			*75.0-131*		*08/17/2021 01:20*	WG1723920
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*08/17/2021 01:20*	WG1723920
(S) 1,2-Dichloroethane-d4	*103*			*70.0-130*		*08/17/2021 01:20*	WG1723920

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/18/2021 06:51	WG1724616
Acenaphthene	U		0.00209	0.00600	1	08/18/2021 06:51	WG1724616
Acenaphthylene	U		0.00216	0.00600	1	08/18/2021 06:51	WG1724616
Benzo(a)anthracene	U		0.00173	0.00600	1	08/18/2021 06:51	WG1724616
Benzo(a)pyrene	U		0.00179	0.00600	1	08/18/2021 06:51	WG1724616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/18/2021 06:51	WG1724616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/18/2021 06:51	WG1724616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/18/2021 06:51	WG1724616
Chrysene	U		0.00232	0.00600	1	08/18/2021 06:51	WG1724616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/18/2021 06:51	WG1724616
Fluoranthene	U		0.00227	0.00600	1	08/18/2021 06:51	WG1724616
Fluorene	U		0.00205	0.00600	1	08/18/2021 06:51	WG1724616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/18/2021 06:51	WG1724616
Naphthalene	U		0.00408	0.0200	1	08/18/2021 06:51	WG1724616
Phenanthrene	U		0.00231	0.00600	1	08/18/2021 06:51	WG1724616
Pyrene	U		0.00200	0.00600	1	08/18/2021 06:51	WG1724616
1-Methylnaphthalene	U		0.00449	0.0200	1	08/18/2021 06:51	WG1724616
2-Methylnaphthalene	U		0.00427	0.0200	1	08/18/2021 06:51	WG1724616
2-Chloronaphthalene	U		0.00466	0.0200	1	08/18/2021 06:51	WG1724616
(S) p-Terphenyl-d14	*71.2*			*23.0-120*		*08/18/2021 06:51*	WG1724616
(S) Nitrobenzene-d5	*49.8*			*14.0-149*		*08/18/2021 06:51*	WG1724616
(S) 2-Fluorobiphenyl	*62.7*			*34.0-125*		*08/18/2021 06:51*	WG1724616

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.140		1	08/18/2021 13:28	WG1723243

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.98	T8	1	08/13/2021 19:06	WG1722741

Sample Narrative:

L1389909-04 WG1722741: 7.98 at 23.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	239		10.0	1	08/17/2021 12:42	WG1724291

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	234		0.0852	0.500	1	08/14/2021 14:40	WG1722613
Cadmium	U		0.0471	0.500	1	08/14/2021 14:40	WG1722613
Copper	11.9		0.400	2.00	1	08/14/2021 14:40	WG1722613
Lead	11.7		0.208	0.500	1	08/14/2021 14:40	WG1722613
Nickel	18.7		0.132	2.00	1	08/14/2021 14:40	WG1722613
Selenium	2.13		0.764	2.00	1	08/14/2021 14:40	WG1722613
Silver	U		0.127	1.00	1	08/14/2021 14:40	WG1722613
Zinc	47.5		0.832	5.00	1	08/14/2021 14:40	WG1722613

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	0.363		0.0167	0.200	1	08/18/2021 17:26	WG1723241

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.68		0.100	1.00	5	08/14/2021 22:07	WG1722544

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/17/2021 01:39	WG1723920
Toluene	U		0.00130	0.00500	1	08/17/2021 01:39	WG1723920
Ethylbenzene	U		0.000737	0.00250	1	08/17/2021 01:39	WG1723920
Xylenes, Total	U		0.000880	0.00650	1	08/17/2021 01:39	WG1723920
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/17/2021 01:39	WG1723920
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/17/2021 01:39	WG1723920
(S) Toluene-d8	*95.3*			*75.0-131*		*08/17/2021 01:39*	WG1723920
(S) 4-Bromofluorobenzene	*103*			*67.0-138*		*08/17/2021 01:39*	WG1723920
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*		*08/17/2021 01:39*	WG1723920

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/18/2021 07:11	WG1724616
Acenaphthene	U		0.00209	0.00600	1	08/18/2021 07:11	WG1724616
Acenaphthylene	U		0.00216	0.00600	1	08/18/2021 07:11	WG1724616
Benzo(a)anthracene	U		0.00173	0.00600	1	08/18/2021 07:11	WG1724616
Benzo(a)pyrene	U		0.00179	0.00600	1	08/18/2021 07:11	WG1724616
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/18/2021 07:11	WG1724616
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/18/2021 07:11	WG1724616
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/18/2021 07:11	WG1724616
Chrysene	U		0.00232	0.00600	1	08/18/2021 07:11	WG1724616
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/18/2021 07:11	WG1724616
Fluoranthene	U		0.00227	0.00600	1	08/18/2021 07:11	WG1724616
Fluorene	U		0.00205	0.00600	1	08/18/2021 07:11	WG1724616
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/18/2021 07:11	WG1724616
Naphthalene	U		0.00408	0.0200	1	08/18/2021 07:11	WG1724616
Phenanthrene	U		0.00231	0.00600	1	08/18/2021 07:11	WG1724616
Pyrene	U		0.00200	0.00600	1	08/18/2021 07:11	WG1724616
1-Methylnaphthalene	U		0.00449	0.0200	1	08/18/2021 07:11	WG1724616
2-Methylnaphthalene	U		0.00427	0.0200	1	08/18/2021 07:11	WG1724616
2-Chloronaphthalene	U		0.00466	0.0200	1	08/18/2021 07:11	WG1724616
(S) p-Terphenyl-d14	*64.4*			*23.0-120*		*08/18/2021 07:11*	WG1724616
(S) Nitrobenzene-d5	*44.1*			*14.0-149*		*08/18/2021 07:11*	WG1724616
(S) 2-Fluorobiphenyl	*56.4*			*34.0-125*		*08/18/2021 07:11*	WG1724616

L1389950-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1389950-02 08/13/21 19:06 • (DUP) R3691895-2 08/13/21 19:06

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	8.57	8.58	1	0.117		1

Sample Narrative:

OS: 8.57 at 23.9C

DUP: 8.58 at 23.7C

L1389960-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1389960-03 08/13/21 19:06 • (DUP) R3691895-3 08/13/21 19:06

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	7.85	7.86	1	0.127		1

Sample Narrative:

OS: 7.85 at 23.5C

DUP: 7.86 at 23.6C

Laboratory Control Sample (LCS)

(LCS) R3691895-1 08/13/21 19:06

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

Sample Narrative:

LCS: 10.04 at 22.3C

Method Blank (MB)

(MB) R3692835-1 08/17/21 12:42

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

L1389909-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1389909-01 08/17/21 12:42 • (DUP) R3692835-3 08/17/21 12:42

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	3220	2850	1	12.1		20

Laboratory Control Sample (LCS)

(LCS) R3692835-2 08/17/21 12:42

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	899	912	101	85.0-115	

Method Blank (MB)

(MB) R3692258-1 08/14/21 13:43

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

Laboratory Control Sample (LCS)

(LCS) R3692258-2 08/14/21 13:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.4	97.4	80.0-120	
Cadmium	100	95.3	95.3	80.0-120	
Copper	100	94.2	94.2	80.0-120	
Lead	100	98.8	98.8	80.0-120	
Nickel	100	98.9	98.9	80.0-120	
Selenium	100	97.0	97.0	80.0-120	
Silver	20.0	16.7	83.7	80.0-120	
Zinc	100	98.2	98.2	80.0-120	

L1389205-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1389205-01 08/14/21 13:49 • (MS) R3692258-5 08/14/21 13:58 • (MSD) R3692258-6 08/14/21 14:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	384	614	570	230	186	1	75.0-125	J5	J5	7.49	20
Cadmium	100	0.237	89.4	92.5	89.2	92.3	1	75.0-125			3.47	20
Copper	100	9.90	102	103	91.7	93.4	1	75.0-125			1.65	20
Lead	100	31.5	122	134	90.5	102	1	75.0-125			9.01	20
Nickel	100	10.7	106	107	94.9	96.6	1	75.0-125			1.61	20
Selenium	100	U	90.4	93.2	90.4	93.2	1	75.0-125			3.04	20
Silver	20.0	U	16.3	16.7	81.4	83.4	1	75.0-125			2.45	20
Zinc	100	101	156	191	55.6	90.1	1	75.0-125	J6		19.9	20

Method Blank (MB)

(MB) R3693751-1 08/18/21 17:35

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) R3693751-2 08/18/21 17:37 • (LCSD) R3693751-3 08/18/21 17:40

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.01	1.02	101	102	80.0-120			1.04	20

Method Blank (MB)

(MB) R3692062-1 08/14/21 21:01

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

Laboratory Control Sample (LCS)

(LCS) R3692062-2 08/14/21 21:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.5	93.5	80.0-120	

L1389205-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1389205-01 08/14/21 21:08 • (MS) R3692062-5 08/14/21 21:19 • (MSD) R3692062-6 08/14/21 21:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	3.04	83.6	88.0	80.5	85.0	5	75.0-125			5.21	20

Method Blank (MB)

(MB) R3693851-2 08/16/21 21:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	*94.1*			*75.0-131*
(S) 4-Bromofluorobenzene	*96.9*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*94.3*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3693851-1 08/16/21 20:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.129	103	70.0-123	
Ethylbenzene	0.125	0.115	92.0	74.0-126	
Toluene	0.125	0.113	90.4	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.118	94.4	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.123	98.4	73.0-127	
Xylenes, Total	0.375	0.347	92.5	72.0-127	
(S) Toluene-d8			*93.0*	*75.0-131*	
(S) 4-Bromofluorobenzene			*105*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*102*	*70.0-130*	

L1389418-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1389418-13 08/17/21 04:11 • (MS) R3693851-3 08/17/21 05:08 • (MSD) R3693851-4 08/17/21 05:27

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.112	0.0425	0.129	0.192	88.7	153	1	10.0-149		J3 J5	39.3	37
Ethylbenzene	0.112	0.0963	0.177	0.227	82.8	134	1	10.0-160			24.8	38
Toluene	0.112	0.100	0.189	0.238	91.3	142	1	10.0-156			23.0	38
1,2,4-Trimethylbenzene	0.112	0.183	0.280	0.335	99.5	156	1	10.0-160			17.9	36
1,3,5-Trimethylbenzene	0.112	0.114	0.195	0.246	83.1	135	1	10.0-160			23.1	38
Xylenes, Total	0.337	0.392	0.638	0.792	84.0	137	1	10.0-160			21.5	38
(S) Toluene-d8					*91.8*	*90.8*		*75.0-131*				
(S) 4-Bromofluorobenzene					*95.4*	*97.1*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*97.1*	*102*		*70.0-130*				

Method Blank (MB)

(MB) R3693148-2 08/17/21 19:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.00230	0.00600
Acenaphthene	U		0.00209	0.00600
Acenaphthylene	U		0.00216	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(g,h,i)perylene	U		0.00177	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
Naphthalene	U		0.00408	0.0200
Phenanthrene	U		0.00231	0.00600
Pyrene	U		0.00200	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
2-Chloronaphthalene	U		0.00466	0.0200
(S) Nitrobenzene-d5	*86.0*			*14.0-149*
(S) 2-Fluorobiphenyl	*79.9*			*34.0-125*
(S) p-Terphenyl-d14	*95.3*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3693148-1 08/17/21 18:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0760	95.0	50.0-126	
Acenaphthene	0.0800	0.0724	90.5	50.0-120	
Acenaphthylene	0.0800	0.0794	99.3	50.0-120	
Benzo(a)anthracene	0.0800	0.0784	98.0	45.0-120	
Benzo(a)pyrene	0.0800	0.0702	87.8	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0754	94.3	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0706	88.3	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0742	92.8	49.0-125	
Chrysene	0.0800	0.0768	96.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0727	90.9	47.0-125	
Fluoranthene	0.0800	0.0751	93.9	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3693148-1 08/17/21 18:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0732	91.5	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0742	92.8	46.0-125	
Naphthalene	0.0800	0.0721	90.1	50.0-120	
Phenanthrene	0.0800	0.0749	93.6	47.0-120	
Pyrene	0.0800	0.0754	94.3	43.0-123	
1-Methylnaphthalene	0.0800	0.0712	89.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0693	86.6	50.0-120	
2-Chloronaphthalene	0.0800	0.0716	89.5	50.0-120	
(S) Nitrobenzene-d5			*98.2*	*14.0-149*	
(S) 2-Fluorobiphenyl			*88.2*	*34.0-125*	
(S) p-Terphenyl-d14			*106*	*23.0-120*	

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

Caerus Oil & Gas LLC
143 Diamond Avenue
Parachute, CO 81635
970-285-9606

Billing Information: **Same as above**

Report to: **jjanicek@caerusoilandgas.com**

Email To: **jjanicek@caerusoilandgas.com**

Project Description: **Scandard Draw 3-14 (P14)**

City/State Collected: **Piceance Crk, CO**

Phone:
Fax:

Client Project # **P14**

Lab Project # **P14**

Collected by (print): K. MORELAND

Site/Facility ID # **P14**

P.O. # **P14**

Collected by (signature): Sign to be

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard TAT**

Pace Analytical® National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Chain of Custody Page 1 of 1

C054

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH-GRO,DRO,ORO	BTEX	TABLE 915-1-PAH's	SAR, EC, pH, Boron	TABLE 915-1-Metals	chromium (VI)	EC, SAR	Remarks	Sample # (lab only)
20210810-P14(BGS)	GRAB	SS	6"	8/10/21	1345	3		X	X	X	X				-01
20210810-P14(BBE)					1400										-02
20210810-P14(BGW)					1440										-03
20210810-P14(BGN)					1515										-04

Analysis / Container / Preservative

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 5016 1832 1738

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
K. Moreland	8/11/21	1200	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	8/11/21	1700	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			K. Holen

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: °C Bottles Received:
1.0+1=1.1 12

Date: 8/12/21 Time: 9:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

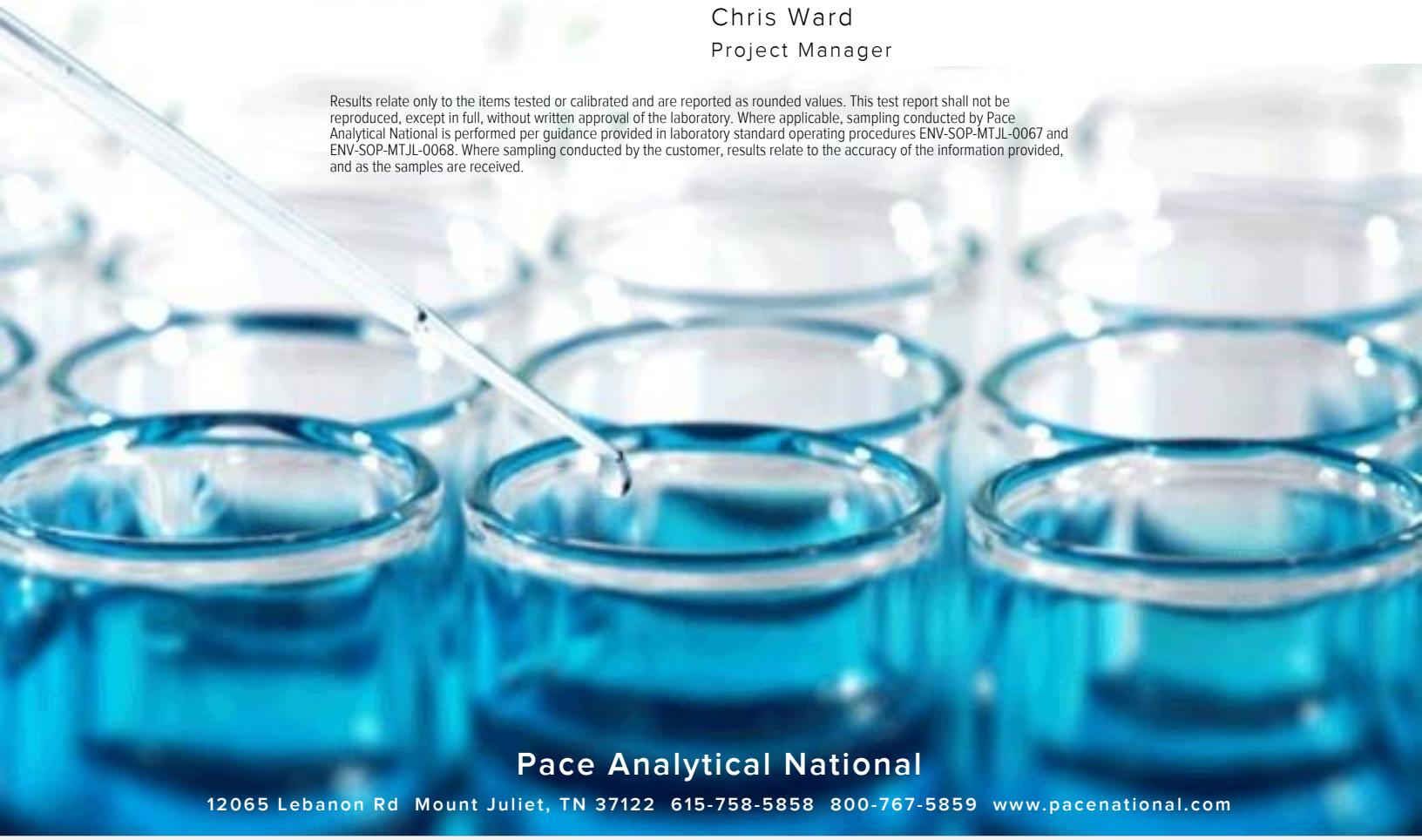
December 09, 2021

Caerus Oil and Gas

Sample Delivery Group:	L1437294
Samples Received:	12/02/2021
Project Number:	P14-397
Description:	P14-397
Site:	P14-397
Report To:	Jake Janicek 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



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

TABLE OF CONTENTS

20211130-P14-397(BG-SB01)@1-1.5' L1437294-01 Solid

Collected by: DH | Collected date/time: 11/30/21 10:15 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 21:40	12/08/21 21:40	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 10:58	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB01)@2-2.5' L1437294-02 Solid

Collected by: DH | Collected date/time: 11/30/21 10:20 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 21:42	12/08/21 21:42	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:01	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB01)@3-3.5' L1437294-03 Solid

Collected by: DH | Collected date/time: 11/30/21 10:35 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 21:45	12/08/21 21:45	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:04	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB01)@4-4.5' L1437294-04 Solid

Collected by: DH | Collected date/time: 11/30/21 10:40 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 21:48	12/08/21 21:48	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:08	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB01)@5-5.5' L1437294-05 Solid

Collected by: DH | Collected date/time: 11/30/21 10:45 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 21:51	12/08/21 21:51	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:11	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB01)@6-6.5' L1437294-06 Solid

Collected by: DH | Collected date/time: 11/30/21 10:55 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 21:54	12/08/21 21:54	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:21	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB02)@1-1.5' L1437294-07 Solid

Collected by: DH | Collected date/time: 11/30/21 11:35 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 21:56	12/08/21 21:56	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:24	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB02)@2-2.5' L1437294-08 Solid

Collected by: DH | Collected date/time: 11/30/21 11:45 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 21:59	12/08/21 21:59	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:28	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB02)@3-3.5' L1437294-09 Solid

Collected by: DH | Collected date/time: 11/30/21 11:50 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:02	12/08/21 22:02	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:31	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB02)@4-4.5' L1437294-10 Solid

Collected by: DH | Collected date/time: 11/30/21 12:00 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:10	12/08/21 22:10	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:34	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB02)@5-5.3' L1437294-11 Solid

Collected by: DH | Collected date/time: 11/30/21 12:05 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:13	12/08/21 22:13	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784353	1	12/06/21 09:00	12/06/21 10:53	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784547	1	12/06/21 02:16	12/06/21 07:43	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:38	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB03)@1-1.5' L1437294-12 Solid

Collected by: DH | Collected date/time: 11/30/21 12:30 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:16	12/08/21 22:16	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:41	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB03)@2-2.5' L1437294-13 Solid

Collected by: DH | Collected date/time: 11/30/21 13:00 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:19	12/08/21 22:19	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:44	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB03)@3-3.5' L1437294-14 Solid

Collected by: DH | Collected date/time: 11/30/21 13:15 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:22	12/08/21 22:22	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784444	5	12/06/21 07:41	12/06/21 11:47	JDG	Mt. Juliet, TN

20211130-P14-397(BG-SB03)@4-4.5' L1437294-15 Solid

Collected by: DH | Collected date/time: 11/30/21 14:00 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:24	12/08/21 22:24	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784907	5	12/07/21 16:32	12/08/21 01:38	JPD	Mt. Juliet, TN

20211130-P14-397(BG-SB03)@5-5.5' L1437294-16 Solid

Collected by: DH | Collected date/time: 11/30/21 14:10 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:27	12/08/21 22:27	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784907	5	12/07/21 16:32	12/08/21 01:41	JPD	Mt. Juliet, TN

20211130-P14-397(BG-SB04)@1-1.5' L1437294-17 Solid

Collected by: DH | Collected date/time: 11/30/21 13:25 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:30	12/08/21 22:30	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784907	5	12/07/21 16:32	12/08/21 01:51	JPD	Mt. Juliet, TN

20211130-P14-397(BG-SB04)@2-2.5' L1437294-18 Solid

Collected by: DH | Collected date/time: 11/30/21 13:30 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:33	12/08/21 22:33	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784907	5	12/07/21 16:32	12/08/21 01:54	JPD	Mt. Juliet, TN

20211130-P14-397(BG-SB04)@3-3.5' L1437294-19 Solid

Collected by: DH | Collected date/time: 11/30/21 13:35 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:36	12/08/21 22:36	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784907	5	12/07/21 16:32	12/08/21 01:21	JPD	Mt. Juliet, TN

20211130-P14-397(BG-SB04)@4-4.5' L1437294-20 Solid

Collected by: DH | Collected date/time: 11/30/21 13:40 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784359	1	12/08/21 22:44	12/08/21 22:44	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784907	5	12/07/21 16:32	12/08/21 01:58	JPD	Mt. Juliet, TN

20211130-P14-397(BG-SB04)@5-5.5' L1437294-21 Solid

Collected by: DH | Collected date/time: 11/30/21 13:45 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784363	1	12/09/21 00:50	12/09/21 00:50	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784907	5	12/07/21 16:32	12/08/21 02:01	JPD	Mt. Juliet, TN

20211130-P14-397(BG-SB04)@6-6.5' L1437294-22 Solid

Collected by: DH | Collected date/time: 11/30/21 13:50 | Received date/time: 12/02/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1784363	1	12/09/21 00:53	12/09/21 00:53	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1784375	1	12/06/21 14:00	12/06/21 15:17	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1784565	1	12/07/21 00:44	12/07/21 03:10	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1784907	5	12/07/21 16:32	12/08/21 02:04	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
Sodium Adsorption Ratio	17.4		1	12/08/2021 21:40	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.98	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-01 WG1784353: 7.98 at 19.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	1200		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-01 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.22		0.100	1.00	5	12/06/2021 10:58	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	35.1		1	12/08/2021 21:42	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.00	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-02 WG1784353: 9 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	6920		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-02 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.59		0.100	1.00	5	12/06/2021 11:01	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.95		1	12/08/2021 21:45	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.92	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-03 WG1784353: 8.92 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1230		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-03 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.17		0.100	1.00	5	12/06/2021 11:04	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.04		1	12/08/2021 21:48	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.29	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-04 WG1784353: 8.29 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	900		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-04 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	6.81		0.100	1.00	5	12/06/2021 11:08	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.28		1	12/08/2021 21:51	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.20	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:
L1437294-05 WG1784353: 8.2 at 19.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	678		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:
L1437294-05 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.73		0.100	1.00	5	12/06/2021 11:11	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.39		1	12/08/2021 21:54	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.28	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-06 WG1784353: 8.28 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	760		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-06 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	4.43		0.100	1.00	5	12/06/2021 11:21	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.682		1	12/08/2021 21:56	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.23	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-07 WG1784353: 8.23 at 19.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	411		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-07 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	1.87		0.100	1.00	5	12/06/2021 11:24	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	12.5		1	12/08/2021 21:59	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.93	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-08 WG1784353: 7.93 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	6390		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-08 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.97		0.100	1.00	5	12/06/2021 11:28	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	19.3		1	12/08/2021 22:02	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-09 WG1784353: 8 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	7940		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-09 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.26		0.100	1.00	5	12/06/2021 11:31	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	18.8		1	12/08/2021 22:10	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.98	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-10 WG1784353: 7.98 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	8120		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-10 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.26		0.100	1.00	5	12/06/2021 11:34	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	17.8		1	12/08/2021 22:13	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.06	T8	1	12/06/2021 10:53	WG1784353

Sample Narrative:

L1437294-11 WG1784353: 8.06 at 19.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	7710		10.0	1	12/06/2021 07:43	WG1784547

Sample Narrative:

L1437294-11 WG1784547: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	1.86		0.100	1.00	5	12/06/2021 11:38	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.659		1	12/08/2021 22:16	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.28	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-12 WG1784375: 8.28 at 18.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	188		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-12 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.51		0.100	1.00	5	12/06/2021 11:41	WG1784444

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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.07		1	12/08/2021 22:19	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.40	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-13 WG1784375: 8.4 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	346		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-13 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.16		0.100	1.00	5	12/06/2021 11:44	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.77		1	12/08/2021 22:22	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.66	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-14 WG1784375: 8.66 at 18.5C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	409		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-14 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.14		0.100	1.00	5	12/06/2021 11:47	WG1784444

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.87		1	12/08/2021 22:24	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.36	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-15 WG1784375: 8.36 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	542		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-15 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.86		0.100	1.00	5	12/08/2021 01:38	WG1784907

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.48		1	12/08/2021 22:27	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-16 WG1784375: 8.22 at 18.6C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	691		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-16 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.33		0.100	1.00	5	12/08/2021 01:41	WG1784907

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.441		1	12/08/2021 22:30	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.07	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-17 WG1784375: 8.07 at 18.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	365		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-17 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	3.38		0.100	1.00	5	12/08/2021 01:51	WG1784907

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.17		1	12/08/2021 22:33	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.29	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-18 WG1784375: 8.29 at 18.1C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	416		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-18 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.76		0.100	1.00	5	12/08/2021 01:54	WG1784907

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.00		1	12/08/2021 22:36	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.42	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-19 WG1784375: 8.42 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	514		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-19 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.29		0.100	1.00	5	12/08/2021 01:21	WG1784907

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.27		1	12/08/2021 22:44	WG1784359

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.47	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-20 WG1784375: 8.47 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	459		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-20 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	2.01		0.100	1.00	5	12/08/2021 01:58	WG1784907

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.84		1	12/09/2021 00:50	WG1784363

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.43	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-21 WG1784375: 8.43 at 18.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	606		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-21 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	1.93		0.100	1.00	5	12/08/2021 02:01	WG1784907

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.51		1	12/09/2021 00:53	WG1784363

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.58	T8	1	12/06/2021 15:17	WG1784375

Sample Narrative:

L1437294-22 WG1784375: 8.58 at 18.2C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	353		10.0	1	12/07/2021 03:10	WG1784565

Sample Narrative:

L1437294-22 WG1784565: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	1.43		0.100	1.00	5	12/08/2021 02:04	WG1784907

L1437294-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1437294-03 12/06/21 10:53 • (DUP) R3737353-2 12/06/21 10:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.92	8.92	1	0.000		1

Sample Narrative:

OS: 8.92 at 19.3C

DUP: 8.92 at 19.6C

L1437306-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1437306-01 12/06/21 10:53 • (DUP) R3737353-3 12/06/21 10:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.66	7.71	1	0.651		1

Sample Narrative:

OS: 7.66 at 19.2C

DUP: 7.71 at 19.2C

Laboratory Control Sample (LCS)

(LCS) R3737353-1 12/06/21 10:53

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 19.1C

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

L1437294-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1437294-12 12/06/21 15:17 • (DUP) R3737512-2 12/06/21 15:17

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.28	8.30	1	0.241		1

Sample Narrative:

OS: 8.28 at 18.6C

DUP: 8.3 at 18.4C

L1437294-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1437294-21 12/06/21 15:17 • (DUP) R3737512-3 12/06/21 15:17

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	pH	su		%		%
pH	8.43	8.47	1	0.473		1

Sample Narrative:

OS: 8.43 at 18.4C

DUP: 8.47 at 18.7C

Laboratory Control Sample (LCS)

(LCS) R3737512-1 12/06/21 15:17

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

Sample Narrative:

LCS: 9.98 at 18.2C

Method Blank (MB)

(MB) R3737265-1 12/06/21 07:43

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

L1436781-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1436781-13 12/06/21 07:43 • (DUP) R3737265-3 12/06/21 07:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1390	1340	1	3.58		20

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

L1437178-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1437178-03 12/06/21 07:43 • (DUP) R3737265-4 12/06/21 07:43

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	982	1060	1	7.55		20

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

Laboratory Control Sample (LCS)

(LCS) R3737265-2 12/06/21 07:43

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	265	99.0	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3737683-1 12/07/21 03:10

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

L1437294-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1437294-16 12/07/21 03:10 • (DUP) R3737683-3 12/07/21 03:10

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	691	728	1	5.21		20

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

L1437298-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1437298-06 12/07/21 03:10 • (DUP) R3737683-4 12/07/21 03:10

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	7920	8120	1	2.49		20

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

Laboratory Control Sample (LCS)

(LCS) R3737683-2 12/07/21 03:10

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	262	97.6	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3737475-1 12/06/21 10:11

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

Laboratory Control Sample (LCS)

(LCS) R3737475-2 12/06/21 10:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Arsenic	100	92.8	92.8	80.0-120	

L1436821-41 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1436821-41 12/06/21 10:18 • (MS) R3737475-5 12/06/21 10:28 • (MSD) R3737475-6 12/06/21 10:31

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Arsenic	99.7	15.7	90.2	89.4	74.6	73.7	5	75.0-125	J6	J6	0.943	20

Method Blank (MB)

(MB) R3738305-1 12/08/21 01:13

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

Laboratory Control Sample (LCS)

(LCS) R3738305-2 12/08/21 01:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	90.1	90.1	80.0-120	

L1437294-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1437294-19 12/08/21 01:21 • (MS) R3738305-5 12/08/21 01:31 • (MSD) R3738305-6 12/08/21 01:34

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	2.29	82.5	85.1	80.2	82.8	5	75.0-125			3.07	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
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

Caerus Oil & Gas LLC
143 Diamond Avenue
Parachute, CO 81635
970-285-9606

Billing Information: **Same as above**

Report to: **jjanicek@caerusoilandgas.com**

Email To: **jjanicek@caerusoilandgas.com**

Project Description: **P14-397**

City/State Collected: **Piceance Crk, CO**

Phone:
Fax:

Client Project # **P14-397**

Lab Project # **P14-397**

Collected by (print):

Site/Facility ID # **P14-397**

P.O. # **P14-397**

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard TAT**

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH- GRO,DRO,ORO	BTEX	TABLE 915-1- PAH's	SAR , EC, pH, Boron	TABLE 915-1- Metals	chromium (VI)	EC, SAR, PH, Arsenic				Remarks	Sample # (lab only)
20211130-P14-397(BG-SB01)@	1-1.5'	Grab	SS	NA	11/30/21	1015	2						X					-01
20211130-P14-397(BG-SB01)@	2-2.5'					1020												-02
20211130-P14-397(BG-SB01)@	3-3.5'					1035												-03
20211130-P14-397(BG-SB01)@	4-4.5'					1040												-04
20211130-P14-397(BG-SB01)@	5-5.5'					1045												-05
20211130-P14-397(BG-SB01)@	6-6.5'					1055												-06
20211130-P14-397(BG-SB02)@	1-1.5'					1135												-07
20211130-P14-397(BG-SB02)@	2-2.5'					1145												-08
20211130-P14-397(BG-SB02)@	3-3.5'					1150												-09
20211130-P14-397(BG-SB02)@	4-4.5'					1200												-10

Chain of Custody Page 1 of 3

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # 1437294
B250

Acctnum:
Template:
Prelogin:
TSR:
PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 5016 1231 9989 / 1232 0191

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	12/1/21	1000		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: BA ATC Bottles Received:
	12/1/21	1501		0.7+0.7=0.7 43
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				12/2/21 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Caerus Oil & Gas LLC
143 Diamond Avenue
Parachute, CO 81635
970-285-9606

Billing Information: **Same as above**

Pres Chk

Report to: **jjanicek@caerusoilandgas.com**

Email To: **jjanicek@caerusoilandgas.com**

Project Description: **P14-397**

City/State Collected: **Piceance Crk, CO**

Phone:
Fax:

Client Project # **P14-397**

Lab Project # **P14-397**

Collected by (print):

Site/Facility ID # **P14-397**

P.O. # **P14-397**

Collected by (signature):

Immediately Packed on Ice N ____ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH- GRO,DRO,ORO	BTEX	TABLE 915-1- PAH's	SAR , EC, pH, Boron	TABLE 915-1- Metals	chromium (VI)	EC, SAR, PH, Arsenic	Remarks	Sample # (lab only)
20211130-P14-397 (BG-SB02) @ 5-5.3'	Grab	SS	0.4	11/30/21	1205	1							X		-11
20211130-P14-397 (BG-SB03) @ 1-1.5'					1230	2									-12
20211130-P14-397 (BG-SB03) @ 2-2.5'					1300										-13
20211130-P14-397 (BG-SB03) @ 3-3.5'					1315										-14
20211130-P14-397 (BG-SB03) @ 4-4.5'					1400										-15
20211130-P14-397 (BG-SB03) @ 5-5.5'					1410										-16
20211130-P14-397 (BG-SB04) @ 1-1.5'					1325										-17
20211130-P14-397 (BG-SB04) @ 2-2.5'					1330										-18
20211130-P14-397 (BG-SB04) @ 3-3.5'					1335										-19
20211130-P14-397 (BG-SB04) @ 4-4.5'	↓	↓	↓	↓	1340	↓							↓		-20

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	12/1/21	1000		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.7+0=0.7 °C Bottles Received: 43
	12/1/21	1500		
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/2/21 Time: 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 2 of 3

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # 143794 12/2

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Caerus Oil & Gas LLC
143 Diamond Avenue
Parachute, CO 81635
970-285-9606

Billing Information:
Same as above

Report to:
jjanicek@caerusoilandgas.com

Email To:
jjanicek@caerusoilandgas.com

Project Description: **P14-397**

City/State Collected: **Piceance Crk, CO**

Phone:
Fax:

Client Project #: **P14-397**

Lab Project #: **P14-397**

Collected by (print):

Site/Facility ID #: **P14-397**

P.O. #: **P14-397**

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard TAT**

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH-GRO,DRO,ORO	BTEX	TABLE 915-1-PAH's	SAR, EC, pH, Boron	TABLE 915-1-Metals	chromium (VI)	EC, SAR, PH, Arsenic				Remarks	Sample # (lab only)
20211130-P14-397 (BH-SB04) @5-5.5'	Grab	SS	NA	11/30/21	1345	2							X					-21
20211130-P14-397 (BH-SB04) @5-5.5'	Grab	SS	NA	11/30/21	1350	2							X					-22

Chain of Custody Page 3 of 3

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # 1437294 12/2

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

	Date:	Time:	
Relinquished by : (Signature)	12/1/21	1000	Received by: (Signature)
Relinquished by : (Signature)	12/1/21	1500	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp: 0.4 °C Bottles Received: 43
0.7 to -0.7

Date: 12/2/21 Time: 900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

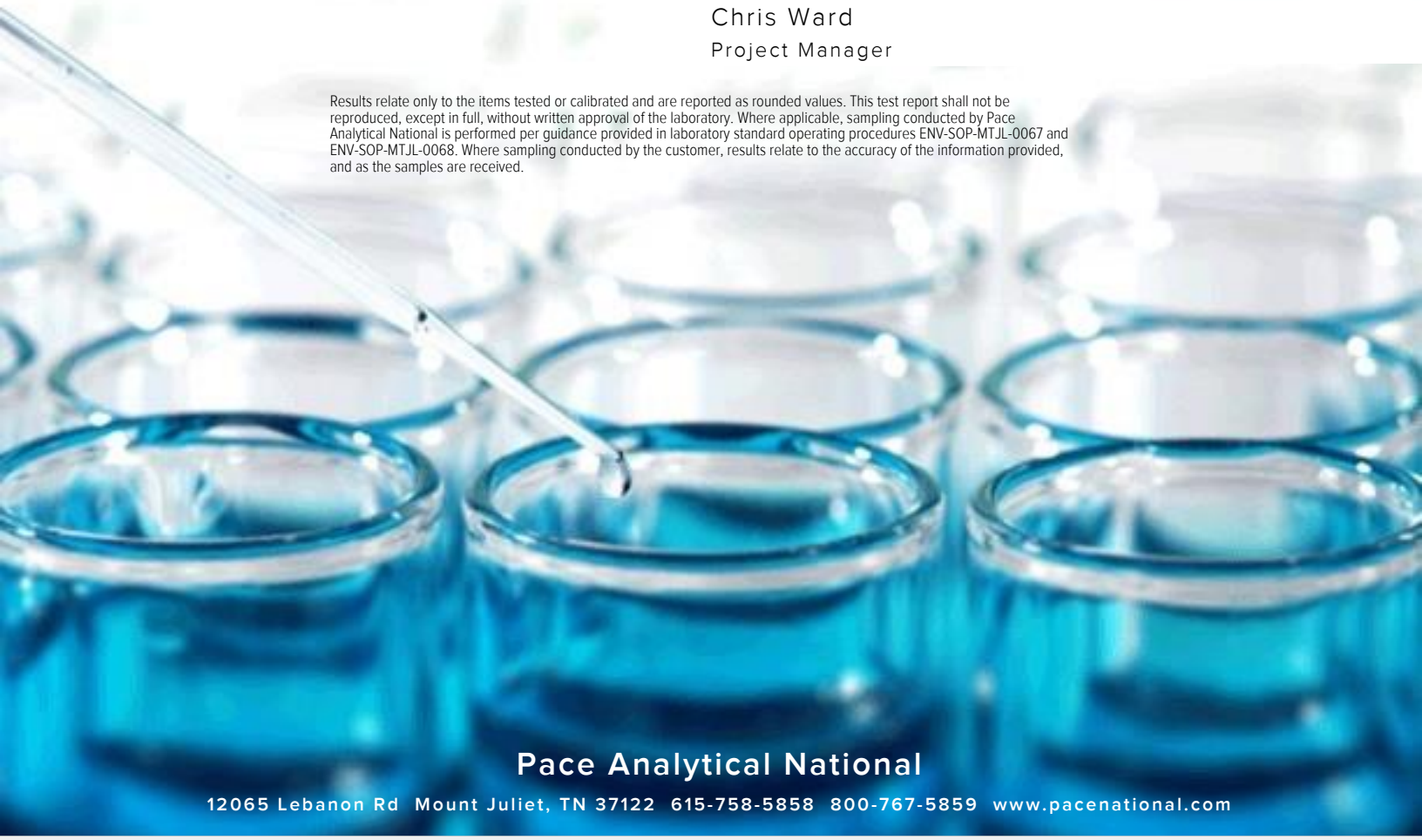
April 28, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1483402
Samples Received:	04/16/2022
Project Number:	P14-397
Description:	P14-397 Heater Release
Site:	P14-397
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager



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

TABLE OF CONTENTS

SAMPLE SUMMARY

20220414-P14-397 (POR) L1483402-01 Solid

Collected by: Kevin Fletcher
Collected date/time: 04/14/22 11:15
Received date/time: 04/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1850055	1	04/27/22 14:08	04/27/22 14:08	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1851193	1	04/20/22 17:00	04/22/22 14:51	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1852086	1	04/21/22 12:00	04/21/22 14:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1851215	1	04/20/22 02:50	04/20/22 07:08	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1852144	1	04/24/22 06:26	04/25/22 13:41	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1850056	1	04/20/22 23:29	04/27/22 13:43	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1852145	5	04/24/22 06:19	04/24/22 17:02	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1851220	1	04/16/22 19:08	04/21/22 12:28	CAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1849702	1	04/16/22 19:08	04/17/22 07:47	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1852292	1	04/21/22 17:43	04/22/22 05:29	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1852326	1	04/22/22 18:33	04/23/22 16:42	AMG	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	14.5		1	04/27/2022 14:08	WG1850055

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Hexavalent Chromium	ND		1.00	1	04/22/2022 14:51	WG1851193

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	pH				
pH	8.70	T8	1	04/21/2022 14:00	WG1852086

Sample Narrative:

L1483402-01 WG1852086: 8.7 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	811		10.0	1	04/20/2022 07:08	WG1851215

Sample Narrative:

L1483402-01 WG1851215: at 25C

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Barium	1400		0.500	1	04/25/2022 13:41	WG1852144
Cadmium	ND		0.500	1	04/25/2022 13:41	WG1852144
Copper	13.8		2.00	1	04/25/2022 13:41	WG1852144
Lead	9.08		0.500	1	04/25/2022 13:41	WG1852144
Nickel	27.6		2.00	1	04/25/2022 13:41	WG1852144
Selenium	ND		2.00	1	04/25/2022 13:41	WG1852144
Silver	ND		1.00	1	04/25/2022 13:41	WG1852144
Zinc	84.7		5.00	1	04/25/2022 13:41	WG1852144

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Hot Water Sol. Boron	0.813		0.200	1	04/27/2022 13:43	WG1850056

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
Arsenic	5.16		1.00	5	04/24/2022 17:02	WG1852145

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg			
TPH (GC/FID) Low Fraction	1.03		0.100	1	04/21/2022 12:28	WG1851220
(S) a,a,a-Trifluorotoluene(FID)	*92.6*		*77.0-120*		*04/21/2022 12:28*	WG1851220

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	04/17/2022 07:47	WG1849702
Toluene	ND		0.00500	1	04/17/2022 07:47	WG1849702
Ethylbenzene	ND		0.00250	1	04/17/2022 07:47	WG1849702
Xylenes, Total	ND		0.00650	1	04/17/2022 07:47	WG1849702
1,2,4-Trimethylbenzene	ND		0.00500	1	04/17/2022 07:47	WG1849702
1,3,5-Trimethylbenzene	ND		0.00500	1	04/17/2022 07:47	WG1849702
(S) Toluene-d8	*99.7*		*75.0-131*		*04/17/2022 07:47*	WG1849702
(S) 4-Bromofluorobenzene	*89.3*		*67.0-138*		*04/17/2022 07:47*	WG1849702
(S) 1,2-Dichloroethane-d4	*111*		*70.0-130*		*04/17/2022 07:47*	WG1849702

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	17.1		4.00	1	04/22/2022 05:29	WG1852292
C28-C36 Motor Oil Range	34.6		4.00	1	04/22/2022 05:29	WG1852292
(S) o-Terphenyl	*50.3*		*18.0-148*		*04/22/2022 05:29*	WG1852292

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Anthracene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Benzo(a)anthracene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Benzo(b)fluoranthene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Benzo(k)fluoranthene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Benzo(a)pyrene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Chrysene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Dibenz(a,h)anthracene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Fluoranthene	0.00747		0.00600	1	04/23/2022 16:42	WG1852326
Fluorene	ND		0.00600	1	04/23/2022 16:42	WG1852326
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	04/23/2022 16:42	WG1852326
1-Methylnaphthalene	ND		0.0200	1	04/23/2022 16:42	WG1852326
2-Methylnaphthalene	0.0223		0.0200	1	04/23/2022 16:42	WG1852326
Naphthalene	ND		0.0200	1	04/23/2022 16:42	WG1852326
Pyrene	0.0125		0.00600	1	04/23/2022 16:42	WG1852326
(S) p-Terphenyl-d14	*93.9*		*23.0-120*		*04/23/2022 16:42*	WG1852326
(S) Nitrobenzene-d5	*76.0*		*14.0-149*		*04/23/2022 16:42*	WG1852326
(S) 2-Fluorobiphenyl	*83.5*		*34.0-125*		*04/23/2022 16:42*	WG1852326

QUALITY CONTROL SUMMARY

L1483402-01

Method Blank (MB)

(MB) R3784254-1 04/22/22 14:12

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

L1483399-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1483399-02 04/22/22 14:30 • (DUP) R3784254-3 04/22/22 14:35

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

L1484013-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1484013-08 04/22/22 15:58 • (DUP) R3784254-4 04/22/22 16:04

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	2.76	2.86	1	3.42		20

Laboratory Control Sample (LCS)

(LCS) R3784254-2 04/22/22 14:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.21	92.1	80.0-120	

L1484013-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1484013-11 04/22/22 16:29 • (MS) R3784254-5 04/22/22 16:35 • (MSD) R3784254-6 04/22/22 16:40

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	1.22	19.1	18.9	89.2	88.3	1	75.0-125			0.897	20

L1484013-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1484013-11 04/22/22 16:29 • (MS) R3784254-9 04/22/22 16:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	636	1.22	710	112	25.5	75.0-125	

L1483405-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1483405-02 04/21/22 14:00 • (DUP) R3783668-2 04/21/22 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.08	7.08	1	0.000		1

Sample Narrative:

OS: 7.08 at 20C

DUP: 7.08 at 20.1C

L1484439-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1484439-02 04/21/22 14:00 • (DUP) R3783668-3 04/21/22 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.90	8.93	1	0.337		1

Sample Narrative:

OS: 8.9 at 20.2C

DUP: 8.93 at 20.6C

Laboratory Control Sample (LCS)

(LCS) R3783668-1 04/21/22 14:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.94	99.4	99.0-101	

Sample Narrative:

LCS: 9.94 at 19.6C

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

Method Blank (MB)

(MB) R3782921-1 04/20/22 07:08

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

L1483399-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1483399-03 04/20/22 07:08 • (DUP) R3782921-3 04/20/22 07:08

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	5950	6190	1	3.95		20

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

L1483434-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1483434-02 04/20/22 07:08 • (DUP) R3782921-4 04/20/22 07:08

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	145	155	1	6.80		20

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

Laboratory Control Sample (LCS)

(LCS) R3782921-2 04/20/22 07:08

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	285	106	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3784837-1 04/25/22 13:17

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

Laboratory Control Sample (LCS)

(LCS) R3784837-2 04/25/22 13:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	103	103	80.0-120	
Cadmium	100	98.2	98.2	80.0-120	
Copper	100	102	102	80.0-120	
Lead	100	99.2	99.2	80.0-120	
Nickel	100	99.9	99.9	80.0-120	
Selenium	100	96.4	96.4	80.0-120	
Silver	20.0	18.8	94.2	80.0-120	
Zinc	100	94.6	94.6	80.0-120	

L1484571-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1484571-01 04/25/22 13:22 • (MS) R3784837-5 04/25/22 13:33 • (MSD) R3784837-6 04/25/22 13:36

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 %
Barium	100	148	259	255	111	107	1	75.0-125			1.42	20
Cadmium	100	ND	103	103	102	103	1	75.0-125			0.193	20
Copper	100	8.65	118	116	109	108	1	75.0-125			1.08	20
Lead	100	8.65	115	112	106	104	1	75.0-125			2.12	20
Nickel	100	13.0	121	118	108	105	1	75.0-125			1.82	20
Selenium	100	ND	94.6	94.5	94.6	94.5	1	75.0-125			0.131	20
Silver	20.0	ND	19.7	19.8	98.5	98.8	1	75.0-125			0.333	20
Zinc	100	43.5	143	136	99.7	92.8	1	75.0-125			4.94	20

Method Blank (MB)

(MB) R3785695-1 04/27/22 13:18

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) R3785695-2 04/27/22 13:21 • (LCSD) R3785695-3 04/27/22 13:23

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	0.949	0.948	94.9	94.8	80.0-120			0.105	20

Method Blank (MB)

(MB) R3784533-1 04/24/22 16:36

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

Laboratory Control Sample (LCS)

(LCS) R3784533-2 04/24/22 16:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.5	92.5	80.0-120	

L1484571-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1484571-01 04/24/22 16:42 • (MS) R3784533-5 04/24/22 16:52 • (MSD) R3784533-6 04/24/22 16:56

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	2.95	88.4	90.3	85.4	87.3	5	75.0-125			2.12	20

Method Blank (MB)

(MB) R3783576-3 04/21/22 07:54

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)	*111*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3783576-2 04/21/22 07:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.87	88.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*96.7*	*77.0-120*	

Method Blank (MB)

(MB) R3783100-2 04/17/22 02:16

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	*98.8*			*75.0-131*
(S) 4-Bromofluorobenzene	*89.9*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*109*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3783100-1 04/17/22 01:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.118	94.4	70.0-123	
Toluene	0.125	0.116	92.8	75.0-121	
Ethylbenzene	0.125	0.103	82.4	74.0-126	
Xylenes, Total	0.375	0.315	84.0	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.108	86.4	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.113	90.4	73.0-127	
(S) Toluene-d8			*97.1*	*75.0-131*	
(S) 4-Bromofluorobenzene			*91.0*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*114*	*70.0-130*	

L1483169-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1483169-01 04/17/22 08:26 • (MS) R3783100-3 04/17/22 09:05 • (MSD) R3783100-4 04/17/22 09:25

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	1.00	0.211	0.899	1.15	68.8	93.9	8	10.0-149			24.5	37
Toluene	1.00	5.08	6.82	7.34	174	226	8	10.0-156	V	V	7.34	38
Ethylbenzene	1.00	1.06	1.88	2.12	82.0	106	8	10.0-160			12.0	38
Xylenes, Total	3.00	17.7	23.0	24.9	177	240	8	10.0-160	V	V	7.93	38
1,2,4-Trimethylbenzene	1.00	4.75	6.10	6.60	135	185	8	10.0-160		V	7.87	36
1,3,5-Trimethylbenzene	1.00	4.09	5.37	6.01	128	192	8	10.0-160		V	11.2	38
(S) Toluene-d8					*92.8*	*91.6*		*75.0-131*				
(S) 4-Bromofluorobenzene					*92.5*	*98.2*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*111*	*115*		*70.0-130*				

Method Blank (MB)

(MB) R3783897-1 04/21/22 23:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	*51.1*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3783897-2 04/21/22 23:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	29.9	59.8	50.0-150	
(S) o-Terphenyl			*65.8*	*18.0-148*	

L1483398-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1483398-01 04/22/22 05:42 • (MS) R3783897-3 04/22/22 05:55 • (MSD) R3783897-4 04/22/22 06:08

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	47.6	57.0	102	104	94.5	98.5	1	50.0-150			1.94	20
(S) o-Terphenyl					*69.9*	*77.0*		*18.0-148*				

Method Blank (MB)

(MB) R3784525-2 04/23/22 09:28

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	*126*	J1		*23.0-120*
(S) Nitrobenzene-d5	*76.4*			*14.0-149*
(S) 2-Fluorobiphenyl	*97.6*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3784525-1 04/23/22 09:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0691	86.4	50.0-120	
Anthracene	0.0800	0.0716	89.5	50.0-126	
Benzo(a)anthracene	0.0800	0.0745	93.1	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0743	92.9	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0728	91.0	49.0-125	
Benzo(a)pyrene	0.0800	0.0616	77.0	42.0-120	
Chrysene	0.0800	0.0739	92.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0723	90.4	47.0-125	
Fluoranthene	0.0800	0.0724	90.5	49.0-129	
Fluorene	0.0800	0.0749	93.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0724	90.5	46.0-125	
1-Methylnaphthalene	0.0800	0.0688	86.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0681	85.1	50.0-120	
Naphthalene	0.0800	0.0651	81.4	50.0-120	
Pyrene	0.0800	0.0746	93.3	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3784525-1 04/23/22 09:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*120*	*23.0-120*	
(S) Nitrobenzene-d5			*87.5*	*14.0-149*	
(S) 2-Fluorobiphenyl			*96.4*	*34.0-125*	

L1482898-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1482898-13 04/23/22 11:46 • (MS) R3784525-3 04/23/22 12:06 • (MSD) R3784525-4 04/23/22 12:26

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0800	ND	0.0496	0.0422	62.0	52.8	1	14.0-127			16.1	27
Anthracene	0.0800	ND	0.0475	0.0485	59.4	60.6	1	10.0-145			2.08	30
Benzo(a)anthracene	0.0800	ND	0.0484	0.0485	60.5	60.6	1	10.0-139			0.206	30
Benzo(b)fluoranthene	0.0800	ND	0.0504	0.0511	63.0	63.9	1	10.0-140			1.38	36
Benzo(k)fluoranthene	0.0800	ND	0.0500	0.0508	62.5	63.5	1	10.0-137			1.59	31
Benzo(a)pyrene	0.0800	ND	0.0471	0.0480	58.9	60.0	1	10.0-141			1.89	31
Chrysene	0.0800	ND	0.0516	0.0532	64.5	66.5	1	10.0-145			3.05	30
Dibenz(a,h)anthracene	0.0800	ND	0.0505	0.0515	63.1	64.4	1	10.0-132			1.96	31
Fluoranthene	0.0800	ND	0.0490	0.0481	61.3	60.1	1	10.0-153			1.85	33
Fluorene	0.0800	ND	0.0529	0.0486	66.1	60.8	1	11.0-130			8.47	29
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0488	0.0491	61.0	61.4	1	10.0-137			0.613	32
1-Methylnaphthalene	0.0800	ND	0.0506	0.0414	63.3	51.8	1	10.0-142			20.0	28
2-Methylnaphthalene	0.0800	ND	0.0490	0.0409	61.3	51.1	1	10.0-137			18.0	28
Naphthalene	0.0800	ND	0.0474	0.0388	59.3	48.5	1	10.0-135			20.0	27
Pyrene	0.0800	ND	0.0535	0.0524	66.9	65.5	1	10.0-148			2.08	35
(S) p-Terphenyl-d14					*96.0*	*85.6*		*23.0-120*				
(S) Nitrobenzene-d5					*60.7*	*57.9*		*14.0-149*				
(S) 2-Fluorobiphenyl					*79.1*	*62.7*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
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.

Caerus Oil & Gas LLC
143 Diamond Avenue
Parachute, CO 81635
970-285-9606

Billing Information: **Same as above**

Report to: **bmiddleton@caerusoilandgas.com**

Email To: **bmiddleton@caerusoilandgas.com**

Project Description: **P14-397 Heater Release**

City/State Collected: **Willow Crk., CO**

Phone:
Fax:

Client Project # **P14-397**

Lab Project # **P14-397**

Collected by (print): Kevin Fletcher

Site/Facility ID # **P14-397**

P.O. # **P14-397**

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH-GRO,DRO,ORO	BTEX	TABLE 915-1-PAH's	SAR, EC, pH, Boron	TABLE 915-1-Metals	Remarks	Sample # (lab only)
20220414-P14-397(POR)	Grab	SS		4/14/22	1115	3	X	X	X	X	X		-01

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # L483402
A118

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 5433 8386 0822

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	4/15/22	1300		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: DR#7 °C Bottles Received: 2.5+0=2.5
	4/15/22	1700		If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4/16/22 Time: 0900
				Hold: Condition: NCF / OK