December 2, 2021

Jake Janicek
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Historical Spill Investigation – Report of Work Completed

COGCC Location Name (ID)	FEDERAL-68S95W 7NW4 (334073)
Operator Location Name	7D
COGCC Remediation Project #	17169
Legal Description	NW4 Section 7, T8S-R95W
Coordinates (Lat/Long)	39.382277 / -108.043986
County	Garfield County, Colorado

Mr. Janicek,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil & Gas LLC (Caerus) to document recent investigation activities associated with a historical release of produced water at the 7D well pad (Location). The Location is 5.0 miles south of Parachute, Colorado, in Garfield County, as illustrated in the attached Topographic Location Map. Additional information on the Location and associated remediation project is provided in the title block above, the attached Site Diagrams, and laboratory analytical reports. This ROWC provides background on the Location, methods used to complete the remedial investigation, results of the investigation, and recommendations for how to proceed with this information.

Background

On April 13, 2010, 10 barrels (bbls) of produced water were released due to a failure of well control during workover operations. The release was confined to the working surface of the pad, and 5 bbls of released produced water were recovered via a vacuum truck. The release was reported in a Colorado Oil and Gas Conservation Commission (COGCC) Form 19 Document # 2606751.

Methodology

On July 22, 2021, Confluence coordinated and oversaw investigation activities associated with the historical produced water release at the Location. All activities were conducted in accordance with approved COGCC Form 27 Document # 402600230 and applicable Conditions of Approval (COAs) assigned by the COGCC. Three potholes were advanced within the spill investigation area. Investigation activities were directed by Confluence personnel who characterized the soil using visual and olfactory observations and field-screened soil samples for volatile organic compounds (VOC) using a photoionization detector (PID). Field-screening was conducted at each pothole location between 6 and 12 inches below ground surface (bgs)

and between 24 and 30 inches bgs. Field screening did not indicate impacts to soil, with PID measurements ranging from 1.9 to 5.7 parts per million (ppm). Soil samples were collected from the terminus of each pothole for laboratory analysis. All spill investigation and excavation soil samples were collected in laboratory prepared jars, immediately placed on ice, and shipped for laboratory analysis of soil constituents listed in COGCC Table 915-1. Additionally, background soil samples were collected from comparable, nearby, non-impacted native soil to establish background soil conditions including pH, electrical conductivity (EC), and sodium adsorption ratio (SAR) per Rule 915.e.(2).D.

On November 2, 2021, Confluence personnel returned to the Location for additional soil background characterization of pH, EC, SAR, and arsenic. All sample locations are illustrated in the attached Site Diagram.

Results

These results summarize observations from onsite investigation efforts and associated laboratory analytical results. For organizational and presentation purposes the results summary is divided between general observations of lithology and hydrogeology for the entire Location and investigation activities.

Collected spatial data are depicted in the attached Site Diagrams. Laboratory analytical reports are attached and summarized in the Laboratory Results Summary Table.

Lithology and Hydrogeology

Lithology at the Location is characterized by clayey loam with gravel throughout. Groundwater is expected to flow northwest along Pete and Bill Creek and ultimately into the Colorado River, located 3.0 miles northwest of the Location.

Investigation Results

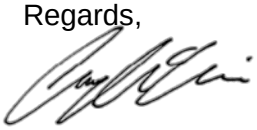
Laboratory results of spill investigation soil samples indicate compliance with COGCC Table 915-1 except for arsenic, pH, and SAR. Arsenic exceedances range from 12.1 milligrams per kilogram (mg/kg) in pothole location PH01 to 13.6 mg/kg in PH03. Values of pH exceeding COGCC Table 915-1 range from 8.93 in PH03 to 9.18 in PH01. Laboratory results indicate one SAR exceedance of 8.74 in PH02.

Analysis and Recommendations

Though spill investigation soil sample results were above standards for arsenic, pH, and SAR, background data suggests that the exceedances are within naturally occurring levels at the Location. Background samples collected at the Location indicate an arsenic concentration of 16.9 mg/kg, a pH value of 9.33, and an SAR value of 19.5, all of which are above the corresponding values from the spill investigation samples. Based on these results and analyses, Confluence recommends that Caerus request closure of COGCC Remediation Project Number 17169 and a no further action (NFA) determination.

Confluence is grateful for the opportunity to support you with this project. If you have any questions about the methods, results or recommendations presented here, please do not hesitate to contact me.

Regards,



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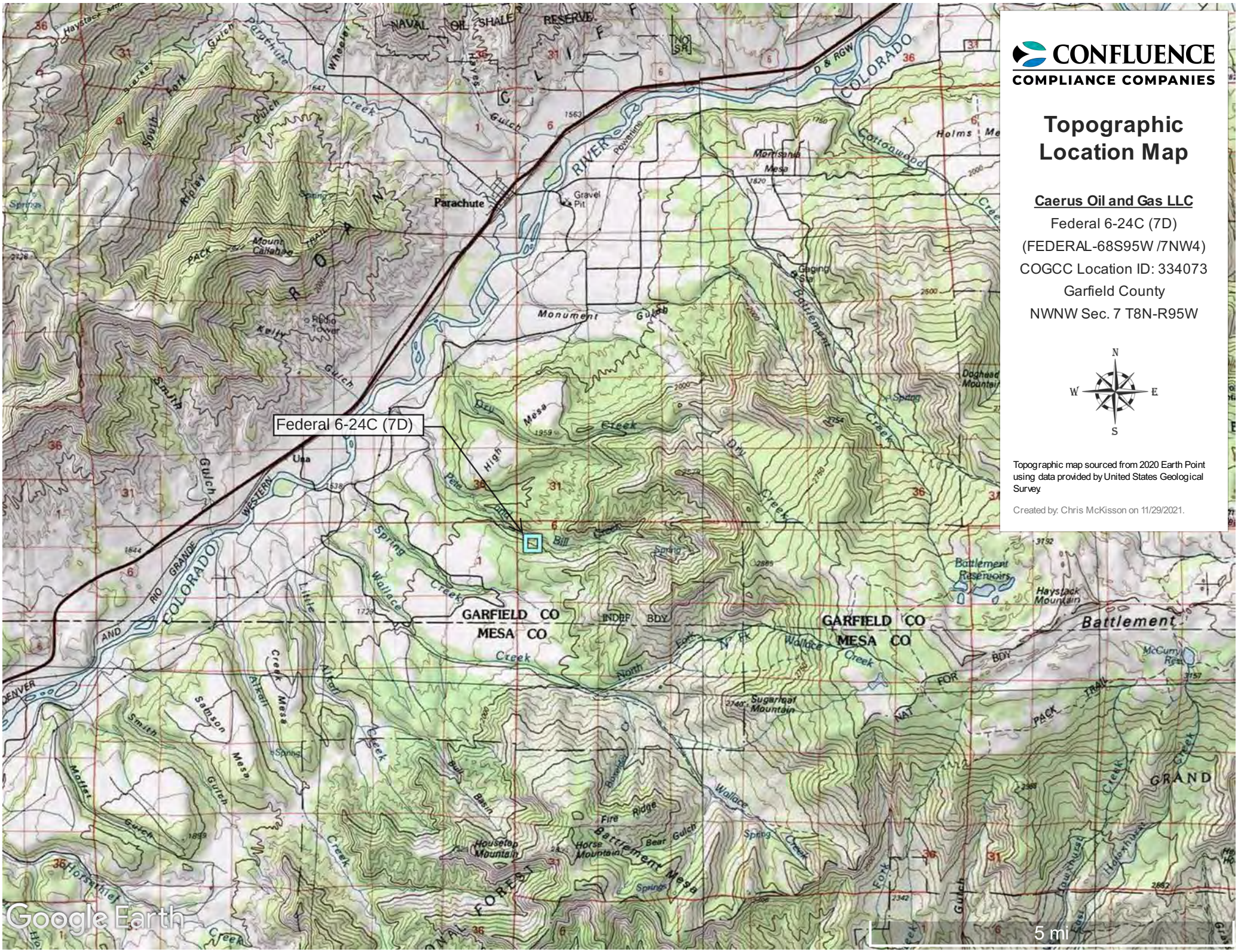
Attachments

- Topographic Location Map
- Site Diagram – Background Samples
- Site Diagram – Spill Investigation
- Laboratory Results Summary Table
- Laboratory Analytical Reports



CONFLUENCE
COMPLIANCE COMPANIES

Topographic Location Map

Caerus Oil and Gas LLC
Federal 6-24C (7D)
(FEDERAL-68S95W /7NW4)
COGCC Location ID: 334073
Garfield County
NWNW Sec. 7 T8N-R95W

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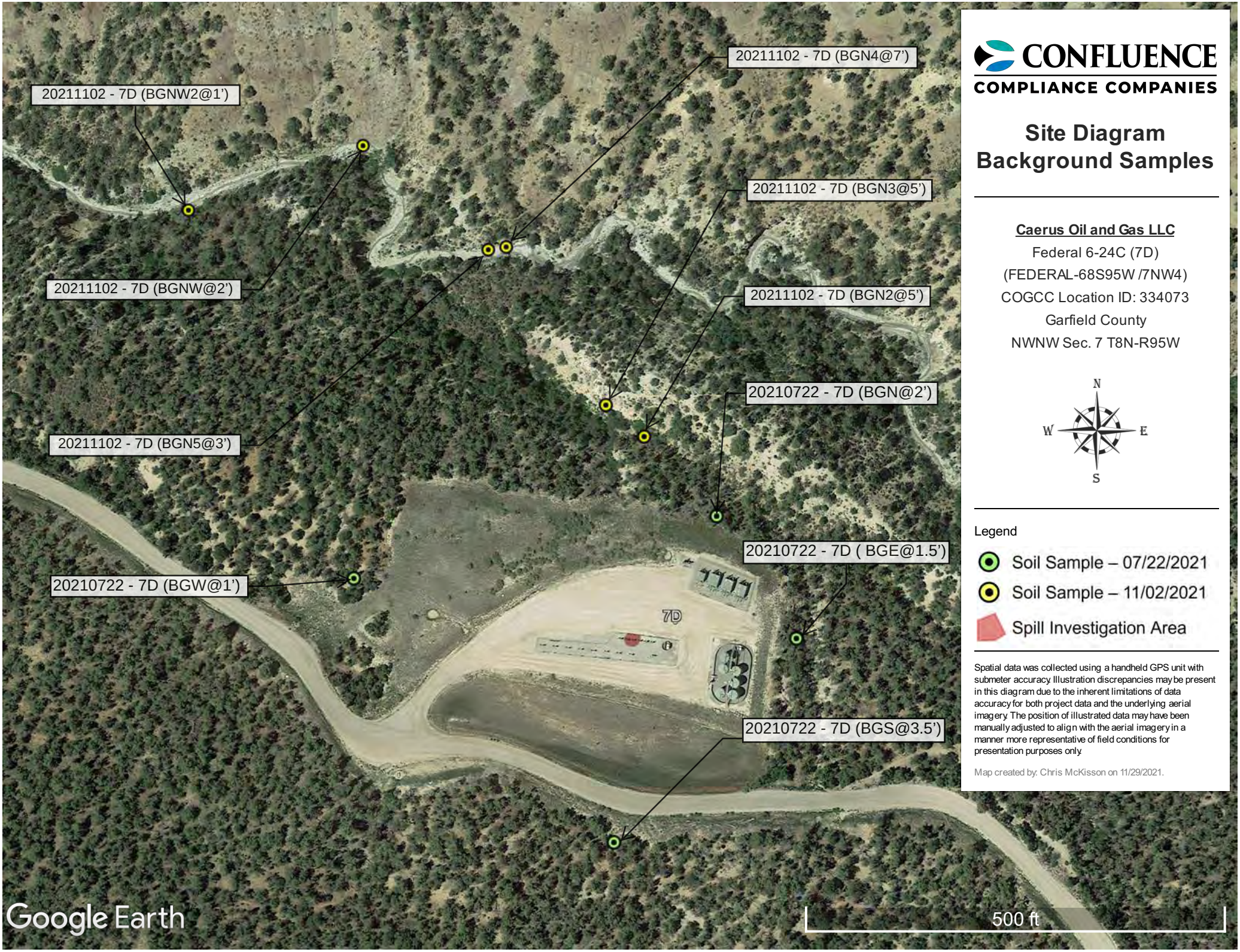
Topographic map sourced from 2020 Earth Point using data provided by United States Geological Survey.

Created by: Chris McKisson on 11/29/2021.



CONFLUENCE
COMPLIANCE COMPANIES

Site Diagram
Background Samples

Caerus Oil and Gas LLC
Federal 6-24C (7D)
(FEDERAL-68S95W /7NW4)
COGCC Location ID: 334073
Garfield County
NWNW Sec. 7 T8N-R95W

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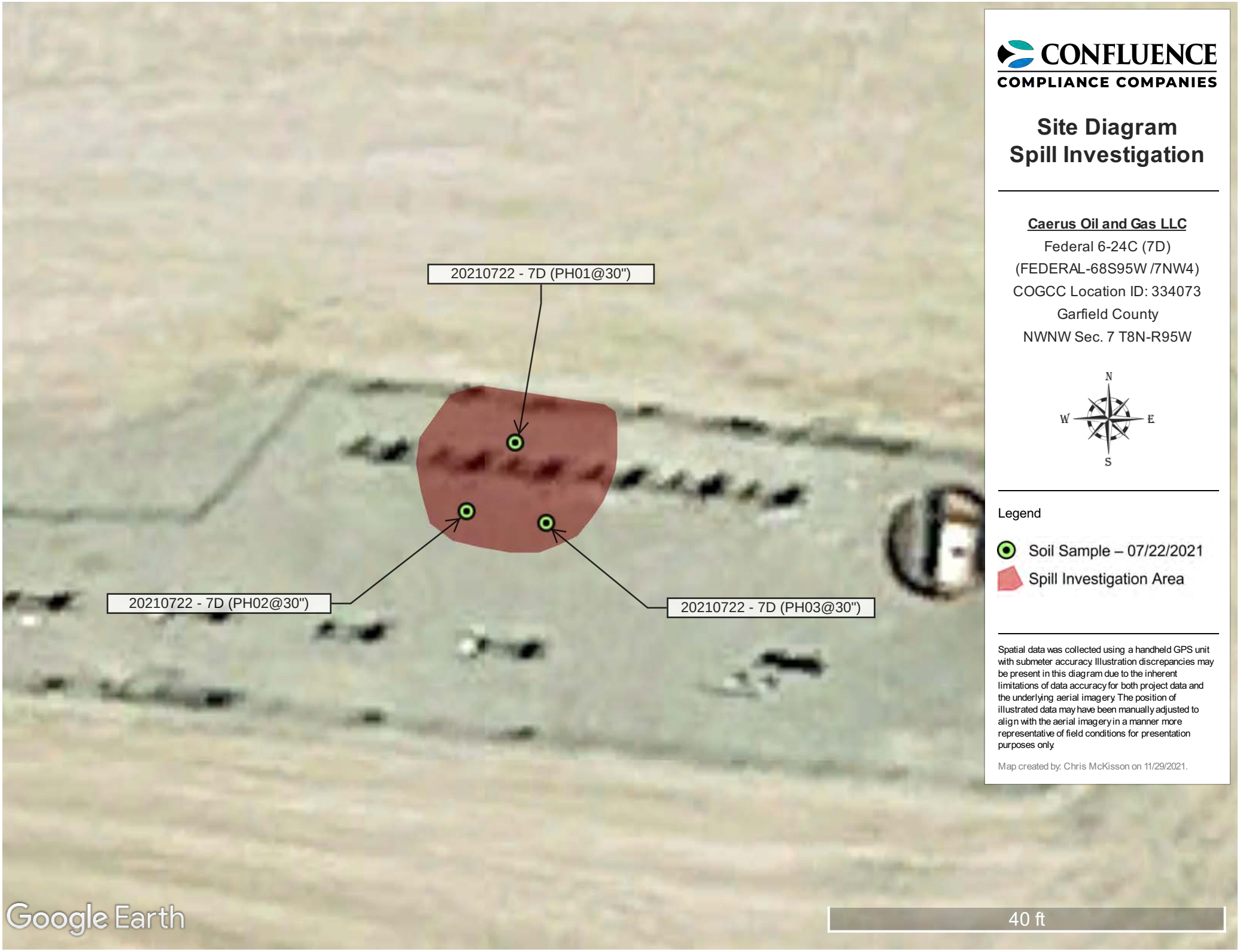
Legend

- Soil Sample – 07/22/2021
- Soil Sample – 11/02/2021
- Spill Investigation Area

Spatial data was collected using a handheld GPS unit with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. The position of illustrated data may have been manually adjusted to align with the aerial imagery in a manner more representative of field conditions for presentation purposes only.

Map created by: Chris McKisson on 11/29/2021.



CONFLUENCE
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Site Diagram
Spill Investigation

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Federal 6-24C (7D)
(FEDERAL-68S95W /7NW4)
COGCC Location ID: 334073
Garfield County
NWNW Sec. 7 T8N-R95W

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- Soil Sample – 07/22/2021
- Spill Investigation Area

Spatial data was collected using a handheld GPS unit with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. The position of illustrated data may have been manually adjusted to align with the aerial imagery in a manner more representative of field conditions for presentation purposes only.

Map created by: Chris McKisson on 11/29/2021.

Laboratory Results Summary Table - Soil
7D

12/1/2021

Soil Screening and Remediation Limits			Organic Compounds (mg/kg [ppm])																				
		COGCC Table 915-1 Residential -->	500	NA	NA	NA	1.2	490	5.8	58	30	27	360	1800	1.1	0.11	1.1	11	110	0.11	240	240	1.1
Sample Date	Solid/Soil Source (Equipment) [Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.]	Sample ID	TPH (total volatile and extractable petroleum hydrocarbons) (GRO+DRO+ORO)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C28) High Fraction	TPH-ORO (C28-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total (sum of o-, m-, p- isomers)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(A)pyrene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3,C,D)pyrene
7/22/2021	Wellhead	**20210722 - 7D (PH01@30")**	**20.0**	**0.0701**	**6.87**	**13.1**	*<0.00100*	*<0.00500*	*<0.00250*	*<0.00650*	*<0.00500*	*<0.00500*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*
7/22/2021	Wellhead	**20210722 - 7D (PH02@30")**	**57.9**	**0.129**	**19.2**	**38.6**	*<0.00100*	*<0.00500*	*<0.00250*	*<0.00650*	*<0.00500*	*<0.00500*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*
7/22/2021	Wellhead	**20210722 - 7D (PH03@30")**	**133.1**	**0.158**	**71.9**	**61.0**	*<0.00100*	*<0.00500*	*<0.00250*	**0.00160**	*<0.00500*	*<0.00500*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*
7/22/2021	Background	**20210722 - 7D (BGE@1.5')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7/22/2021	Background	**20210722 - 7D (BGN@2')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7/22/2021	Background	**20210722 - 7D (BGS@3.5')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7/22/2021	Background	**20210722 - 7D (BGW@1')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN2@5')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN2@5')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN2@5')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN3@5')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN3@5')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN3@5')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN4@7')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN4@7')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN4@7')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN5@3')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN5@3')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN5@3')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW@2')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW@2')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW@2')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW2@1')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW2@1')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW2@1')**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Confluence Compliance Companies, LLC
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Orange Fill = Exceedance
Dark Gray Italics = Below Reporting Detection Limit (RDL)
"NA" = Not Analyzed
mg/kg = milligrams per kilogram / parts per million

CONFLUENCE

Laboratory Results Summary Table - Soil
7D

12/1/2021

Soil Screening and Remediation Limits							Soil Suitability for Reclamation				Metals (mg/kg [ppm])									
COGCC Table 915-1 Residential -->			18	24	2	180	4	6	6-8.3	2	0.68	15000	71	0.3	3100	400	1500	390	390	23000
Sample Date	Solid/Soil Source (Equipment) [Vault/Sump, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.]	Sample ID	1- Methylnaphthalene	2- Methylnaphthalene	Naphthalene	Pyrene	EC (Specific Conductance) (millimhos/centimeter) (by saturated paste method)	SAR (Sodium Adsorption Ratio) (calculation) (by saturated paste method)	pH (pH Units) (by saturated paste method)	Boron - Hot Water Soluble (mg/L)	Arsenic	Barium	Cadmium (mg/kg)	Chromium (VI)	Copper	Lead	Nickel	Selenium	Silver	Zinc
7/22/2021	Wellhead	**20210722 - 7D (PH01@30")**	*<0.0200*	*<0.0200*	*<0.0200*	*<0.00600*	**0.360**	**2.69**	**9.18**	**0.504**	**12.1**	**546**	**0.291**	*<1.00*	**18.1**	**17.9**	**15.6**	**0.981**	*<1.00*	**53.7**
7/22/2021	Wellhead	**20210722 - 7D (PH02@30")**	*<0.0200*	*<0.0200*	*<0.0200*	*<0.00600*	**0.651**	**8.74**	**9.04**	**0.562**	**13.1**	**326**	**0.202**	*<1.00*	**17.3**	**13.1**	**14.3**	**0.995**	*<1.00*	**40.0**
7/22/2021	Wellhead	**20210722 - 7D (PH03@30")**	*<0.0200*	**0.00516**	*<0.0200*	**0.00202**	**0.442**	**5.10**	**8.93**	**0.478**	**13.6**	**418**	**0.279**	*<1.00*	**20.9**	**12.5**	**17.6**	**1.33**	*<1.00*	**46.7**
7/22/2021	Background	**20210722 - 7D (BGE@1.5')**	*NA*	*NA*	*NA*	*NA*	**0.197**	**0.113**	**8.54**	*NA*	**6.03**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7/22/2021	Background	**20210722 - 7D (BGN@2')**	*NA*	*NA*	*NA*	*NA*	**0.352**	**0.269**	**7.94**	*NA*	**9.68**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7/22/2021	Background	**20210722 - 7D (BGS@3.5')**	*NA*	*NA*	*NA*	*NA*	**0.329**	**0.143**	**8.07**	*NA*	**3.09**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
7/22/2021	Background	**20210722 - 7D (BGW@1')**	*NA*	*NA*	*NA*	*NA*	**0.347**	**0.175**	**8.10**	*NA*	**10.4**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN2@5')**	*NA*	*NA*	*NA*	*NA*	**0.405**	**4.61**	**9.33**	*NA*	**15.3**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN2@5')**	*NA*	*NA*	*NA*	*NA*	**0.422**	**5.42**	**9.19**	*NA*	**16.9**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN2@5')**	*NA*	*NA*	*NA*	*NA*	**0.406**	**5.08**	**9.19**	*NA*	**14.2**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN3@5')**	*NA*	*NA*	*NA*	*NA*	**2.460**	**6.22**	**8.05**	*NA*	**11.1**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN3@5')**	*NA*	*NA*	*NA*	*NA*	**2.480**	**5.73**	**7.95**	*NA*	**14.3**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN3@5')**	*NA*	*NA*	*NA*	*NA*	**2.230**	**5.96**	**7.86**	*NA*	**15.2**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN4@7')**	*NA*	*NA*	*NA*	*NA*	**2.460**	**9.07**	**8.33**	*NA*	**6.92**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN4@7')**	*NA*	*NA*	*NA*	*NA*	**3.340**	**8.62**	**8.34**	*NA*	**5.66**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN4@7')**	*NA*	*NA*	*NA*	*NA*	**3.300**	**8.59**	**8.27**	*NA*	**5.30**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN5@3')**	*NA*	*NA*	*NA*	*NA*	**14.7**	**15.5**	**8.26**	*NA*	**7.21**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN5@3')**	*NA*	*NA*	*NA*	*NA*	**16.4**	**19.5**	**8.29**	*NA*	**6.18**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGN5@3')**	*NA*	*NA*	*NA*	*NA*	**18.2**	**17.3**	**8.31**	*NA*	**6.01**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW@2')**	*NA*	*NA*	*NA*	*NA*	**3.180**	**1.55**	**7.80**	*NA*	**0.642**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW@2')**	*NA*	*NA*	*NA*	*NA*	**3.060**	**1.63**	**7.72**	*NA*	**0.484**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW@2')**	*NA*	*NA*	*NA*	*NA*	**3.090**	**1.42**	**7.76**	*NA*	**0.478**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW2@1')**	*NA*	*NA*	*NA*	*NA*	**0.311**	**4.29**	**9.17**	*NA*	**0.399**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW2@1')**	*NA*	*NA*	*NA*	*NA*	**0.314**	**4.04**	**9.12**	*NA*	**0.468**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
11/2/2021	Background	**20211102 - 7D (BGNW2@1')**	*NA*	*NA*	*NA*	*NA*	**0.306**	**4.39**	**9.21**	*NA*	**0.292**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Orange Fill = Exceedance
Dark Gray Italics = Below Reporting Detection Limit (RDL)
"NA" = Not Analyzed
mg/kg = milligrams per kilogram / parts per million

Confluence Compliance Companies, LLC
info@confluence-cc.com

ANALYTICAL REPORT

August 02, 2021

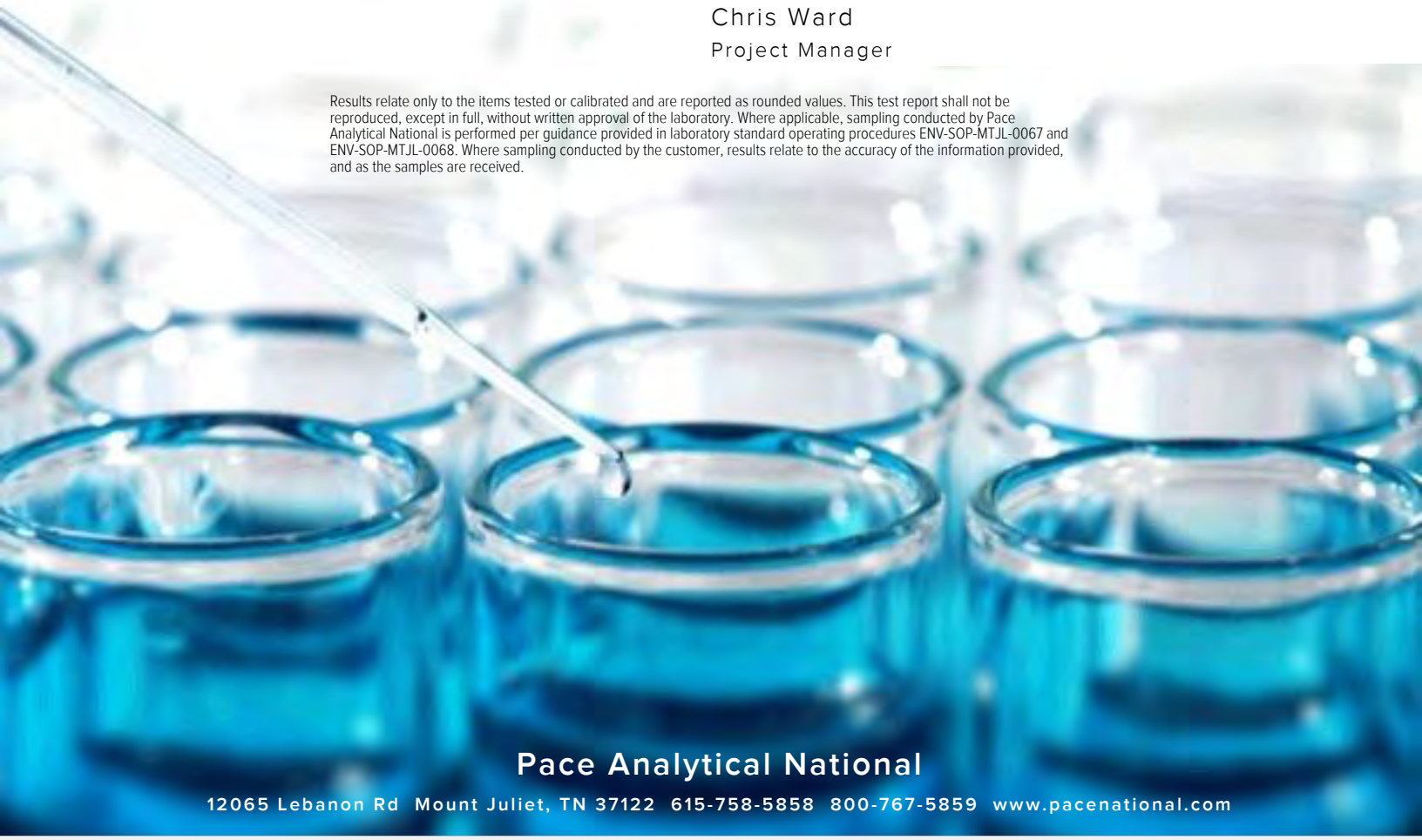
Caerus Oil and Gas

Sample Delivery Group:	L1382278
Samples Received:	07/23/2021
Project Number:	
Description:	7D HISTORICAL

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

20210722-7D (PH01@30") L1382278-01 Solid

Collected by: Andrew Smith | Collected date/time: 07/22/21 08:15 | Received date/time: 07/23/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1711375	1	07/29/21 23:51	07/29/21 23:51	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1711302	1	07/28/21 15:00	07/29/21 16:24	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1712655	1	07/27/21 10:00	07/28/21 12:00	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1712729	1	07/28/21 14:00	07/28/21 16:00	BMD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1712963	1	07/28/21 09:17	07/30/21 07:25	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1711372	5	07/27/21 11:14	07/30/21 06:34	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1712958	5	07/28/21 09:19	07/29/21 12:25	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1714241	1	07/26/21 13:31	07/29/21 16:34	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1712071	1	07/26/21 13:31	07/27/21 06:42	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1712447	1	07/27/21 15:20	07/29/21 09:21	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1713327	1	07/28/21 14:39	07/29/21 00:06	AAT	Mt. Juliet, TN

20210722-7D (PH02@30") L1382278-02 Solid

Collected by: Andrew Smith | Collected date/time: 07/22/21 08:20 | Received date/time: 07/23/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1711375	1	07/29/21 23:54	07/29/21 23:54	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1711302	1	07/28/21 15:00	07/29/21 16:30	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1712655	1	07/27/21 10:00	07/28/21 12:00	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1712729	1	07/28/21 14:00	07/28/21 16:00	BMD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1712963	1	07/28/21 09:17	07/30/21 07:33	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1711372	5	07/27/21 11:14	07/30/21 06:36	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1712958	5	07/28/21 09:19	07/29/21 12:28	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1712083	1	07/26/21 13:31	07/27/21 10:28	AV	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1712071	1	07/26/21 13:31	07/27/21 07:03	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1712448	1	07/27/21 18:17	07/30/21 00:30	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1713327	1	07/28/21 14:39	07/29/21 00:24	AAT	Mt. Juliet, TN

20210722-7D (PH03@30") L1382278-03 Solid

Collected by: Andrew Smith | Collected date/time: 07/22/21 08:25 | Received date/time: 07/23/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1711375	1	07/29/21 23:56	07/29/21 23:56	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1711302	1	07/28/21 15:00	07/29/21 16:35	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1712655	1	07/27/21 10:00	07/28/21 12:00	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1712729	1	07/28/21 14:00	07/28/21 16:00	BMD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1712963	1	07/28/21 09:17	07/30/21 07:36	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1711372	5	07/27/21 11:14	07/30/21 06:39	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1712958	5	07/28/21 09:19	07/29/21 12:32	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1712083	1	07/26/21 13:31	07/27/21 11:27	AV	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1712071	1	07/26/21 13:31	07/27/21 07:24	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1712448	1	07/27/21 18:17	07/30/21 00:16	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1713327	1	07/28/21 14:39	07/29/21 00:42	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	2.69		1	07/29/2021 23:51	WG1711375

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/29/2021 16:24	WG1711302

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.18	T8	1	07/28/2021 12:00	WG1712655

Sample Narrative:

L1382278-01 WG1712655: 9.18 at 23.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	360		10.0	1	07/28/2021 16:00	WG1712729

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	546		0.0852	0.500	1	07/30/2021 07:25	WG1712963
Cadmium	0.291	J	0.0471	0.500	1	07/30/2021 07:25	WG1712963
Copper	18.1		0.400	2.00	1	07/30/2021 07:25	WG1712963
Lead	17.9		0.208	0.500	1	07/30/2021 07:25	WG1712963
Nickel	15.6		0.132	2.00	1	07/30/2021 07:25	WG1712963
Selenium	0.981	J	0.764	2.00	1	07/30/2021 07:25	WG1712963
Silver	U		0.127	1.00	1	07/30/2021 07:25	WG1712963
Zinc	53.7		0.832	5.00	1	07/30/2021 07:25	WG1712963

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	0.504	J	0.0835	1.00	5	07/30/2021 06:34	WG1711372

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	12.1		0.100	1.00	5	07/29/2021 12:25	WG1712958

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.0701	J	0.0217	0.100	1	07/29/2021 16:34	WG1714241
(S) a,a,a-Trifluorotoluene(FID)	*98.6*			*77.0-120*		*07/29/2021 16:34*	WG1714241

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	07/27/2021 06:42	WG1712071
Toluene	U		0.00130	0.00500	1	07/27/2021 06:42	WG1712071
Ethylbenzene	U		0.000737	0.00250	1	07/27/2021 06:42	WG1712071
Xylenes, Total	U		0.000880	0.00650	1	07/27/2021 06:42	WG1712071
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/27/2021 06:42	WG1712071
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/27/2021 06:42	WG1712071
(S) Toluene-d8	*97.5*			*75.0-131*		*07/27/2021 06:42*	WG1712071
(S) 4-Bromofluorobenzene	*84.7*			*67.0-138*		*07/27/2021 06:42*	WG1712071
(S) 1,2-Dichloroethane-d4	*89.3*			*70.0-130*		*07/27/2021 06:42*	WG1712071

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	6.87		1.61	4.00	1	07/29/2021 09:21	WG1712447
C28-C36 Motor Oil Range	13.1		0.274	4.00	1	07/29/2021 09:21	WG1712447
(S) o-Terphenyl	*58.3*			*18.0-148*		*07/29/2021 09:21*	WG1712447

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	07/29/2021 00:06	WG1713327
Acenaphthene	U		0.00209	0.00600	1	07/29/2021 00:06	WG1713327
Acenaphthylene	U		0.00216	0.00600	1	07/29/2021 00:06	WG1713327
Benzo(a)anthracene	U		0.00173	0.00600	1	07/29/2021 00:06	WG1713327
Benzo(a)pyrene	U		0.00179	0.00600	1	07/29/2021 00:06	WG1713327
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/29/2021 00:06	WG1713327
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	07/29/2021 00:06	WG1713327
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/29/2021 00:06	WG1713327
Chrysene	U		0.00232	0.00600	1	07/29/2021 00:06	WG1713327
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/29/2021 00:06	WG1713327
Fluoranthene	U		0.00227	0.00600	1	07/29/2021 00:06	WG1713327
Fluorene	U		0.00205	0.00600	1	07/29/2021 00:06	WG1713327
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/29/2021 00:06	WG1713327
Naphthalene	U		0.00408	0.0200	1	07/29/2021 00:06	WG1713327
Phenanthrene	U		0.00231	0.00600	1	07/29/2021 00:06	WG1713327
Pyrene	U		0.00200	0.00600	1	07/29/2021 00:06	WG1713327
1-Methylnaphthalene	U		0.00449	0.0200	1	07/29/2021 00:06	WG1713327
2-Methylnaphthalene	U		0.00427	0.0200	1	07/29/2021 00:06	WG1713327
2-Chloronaphthalene	U		0.00466	0.0200	1	07/29/2021 00:06	WG1713327
(S) p-Terphenyl-d14	*81.8*			*23.0-120*		*07/29/2021 00:06*	WG1713327
(S) Nitrobenzene-d5	*62.1*			*14.0-149*		*07/29/2021 00:06*	WG1713327
(S) 2-Fluorobiphenyl	*56.5*			*34.0-125*		*07/29/2021 00:06*	WG1713327

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.74		1	07/29/2021 23:54	WG1711375

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/29/2021 16:30	WG1711302

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.04	T8	1	07/28/2021 12:00	WG1712655

Sample Narrative:

L1382278-02 WG1712655: 9.04 at 23.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	651		10.0	1	07/28/2021 16:00	WG1712729

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	326		0.0852	0.500	1	07/30/2021 07:33	WG1712963
Cadmium	0.202	J	0.0471	0.500	1	07/30/2021 07:33	WG1712963
Copper	17.3		0.400	2.00	1	07/30/2021 07:33	WG1712963
Lead	13.1		0.208	0.500	1	07/30/2021 07:33	WG1712963
Nickel	14.3		0.132	2.00	1	07/30/2021 07:33	WG1712963
Selenium	0.995	J	0.764	2.00	1	07/30/2021 07:33	WG1712963
Silver	U		0.127	1.00	1	07/30/2021 07:33	WG1712963
Zinc	40.0		0.832	5.00	1	07/30/2021 07:33	WG1712963

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	0.562	J	0.0835	1.00	5	07/30/2021 06:36	WG1711372

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	13.1		0.100	1.00	5	07/29/2021 12:28	WG1712958

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.129		0.0217	0.100	1	07/27/2021 10:28	WG1712083
(S) a,a,a-Trifluorotoluene(FID)	*97.6*			*77.0-120*		*07/27/2021 10:28*	WG1712083

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	07/27/2021 07:03	WG1712071
Toluene	U		0.00130	0.00500	1	07/27/2021 07:03	WG1712071
Ethylbenzene	U		0.000737	0.00250	1	07/27/2021 07:03	WG1712071
Xylenes, Total	U		0.000880	0.00650	1	07/27/2021 07:03	WG1712071
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/27/2021 07:03	WG1712071
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/27/2021 07:03	WG1712071
(S) Toluene-d8	*101*			*75.0-131*		*07/27/2021 07:03*	WG1712071
(S) 4-Bromofluorobenzene	*85.5*			*67.0-138*		*07/27/2021 07:03*	WG1712071
(S) 1,2-Dichloroethane-d4	*92.6*			*70.0-130*		*07/27/2021 07:03*	WG1712071

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	19.2		1.61	4.00	1	07/30/2021 00:30	WG1712448
C28-C36 Motor Oil Range	38.6		0.274	4.00	1	07/30/2021 00:30	WG1712448
(S) o-Terphenyl	*51.9*			*18.0-148*		*07/30/2021 00:30*	WG1712448

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	07/29/2021 00:24	WG1713327
Acenaphthene	U		0.00209	0.00600	1	07/29/2021 00:24	WG1713327
Acenaphthylene	U		0.00216	0.00600	1	07/29/2021 00:24	WG1713327
Benzo(a)anthracene	U		0.00173	0.00600	1	07/29/2021 00:24	WG1713327
Benzo(a)pyrene	U		0.00179	0.00600	1	07/29/2021 00:24	WG1713327
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/29/2021 00:24	WG1713327
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	07/29/2021 00:24	WG1713327
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/29/2021 00:24	WG1713327
Chrysene	U		0.00232	0.00600	1	07/29/2021 00:24	WG1713327
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/29/2021 00:24	WG1713327
Fluoranthene	U		0.00227	0.00600	1	07/29/2021 00:24	WG1713327
Fluorene	U		0.00205	0.00600	1	07/29/2021 00:24	WG1713327
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/29/2021 00:24	WG1713327
Naphthalene	U		0.00408	0.0200	1	07/29/2021 00:24	WG1713327
Phenanthrene	U		0.00231	0.00600	1	07/29/2021 00:24	WG1713327
Pyrene	U		0.00200	0.00600	1	07/29/2021 00:24	WG1713327
1-Methylnaphthalene	U		0.00449	0.0200	1	07/29/2021 00:24	WG1713327
2-Methylnaphthalene	U		0.00427	0.0200	1	07/29/2021 00:24	WG1713327
2-Chloronaphthalene	U		0.00466	0.0200	1	07/29/2021 00:24	WG1713327
(S) p-Terphenyl-d14	*90.6*			*23.0-120*		*07/29/2021 00:24*	WG1713327
(S) Nitrobenzene-d5	*62.7*			*14.0-149*		*07/29/2021 00:24*	WG1713327
(S) 2-Fluorobiphenyl	*65.2*			*34.0-125*		*07/29/2021 00:24*	WG1713327

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.10		1	07/29/2021 23:56	WG1711375

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	07/29/2021 16:35	WG1711302

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.93	T8	1	07/28/2021 12:00	WG1712655

Sample Narrative:

L1382278-03 WG1712655: 8.93 at 23.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	442		10.0	1	07/28/2021 16:00	WG1712729

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	418		0.0852	0.500	1	07/30/2021 07:36	WG1712963
Cadmium	0.279	J	0.0471	0.500	1	07/30/2021 07:36	WG1712963
Copper	20.9		0.400	2.00	1	07/30/2021 07:36	WG1712963
Lead	12.5		0.208	0.500	1	07/30/2021 07:36	WG1712963
Nickel	17.6		0.132	2.00	1	07/30/2021 07:36	WG1712963
Selenium	1.33	J	0.764	2.00	1	07/30/2021 07:36	WG1712963
Silver	U		0.127	1.00	1	07/30/2021 07:36	WG1712963
Zinc	46.7		0.832	5.00	1	07/30/2021 07:36	WG1712963

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	0.478	J	0.0835	1.00	5	07/30/2021 06:39	WG1711372

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	13.6		0.100	1.00	5	07/29/2021 12:32	WG1712958

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.158		0.0217	0.100	1	07/27/2021 11:27	WG1712083
(S) a,a,a-Trifluorotoluene(FID)	*97.6*			*77.0-120*		*07/27/2021 11:27*	WG1712083

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	07/27/2021 07:24	WG1712071
Toluene	U		0.00130	0.00500	1	07/27/2021 07:24	WG1712071
Ethylbenzene	U		0.000737	0.00250	1	07/27/2021 07:24	WG1712071
Xylenes, Total	0.00160	J	0.000880	0.00650	1	07/27/2021 07:24	WG1712071
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	07/27/2021 07:24	WG1712071
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	07/27/2021 07:24	WG1712071
(S) Toluene-d8	*103*			*75.0-131*		*07/27/2021 07:24*	WG1712071
(S) 4-Bromofluorobenzene	*84.4*			*67.0-138*		*07/27/2021 07:24*	WG1712071
(S) 1,2-Dichloroethane-d4	*91.7*			*70.0-130*		*07/27/2021 07:24*	WG1712071

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	71.9		1.61	4.00	1	07/30/2021 00:16	WG1712448
C28-C36 Motor Oil Range	61.0		0.274	4.00	1	07/30/2021 00:16	WG1712448
(S) o-Terphenyl	*57.5*			*18.0-148*		*07/30/2021 00:16*	WG1712448

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	07/29/2021 00:42	WG1713327
Acenaphthene	U		0.00209	0.00600	1	07/29/2021 00:42	WG1713327
Acenaphthylene	U		0.00216	0.00600	1	07/29/2021 00:42	WG1713327
Benzo(a)anthracene	U		0.00173	0.00600	1	07/29/2021 00:42	WG1713327
Benzo(a)pyrene	U		0.00179	0.00600	1	07/29/2021 00:42	WG1713327
Benzo(b)fluoranthene	U		0.00153	0.00600	1	07/29/2021 00:42	WG1713327
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	07/29/2021 00:42	WG1713327
Benzo(k)fluoranthene	U		0.00215	0.00600	1	07/29/2021 00:42	WG1713327
Chrysene	U		0.00232	0.00600	1	07/29/2021 00:42	WG1713327
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	07/29/2021 00:42	WG1713327
Fluoranthene	U		0.00227	0.00600	1	07/29/2021 00:42	WG1713327
Fluorene	U		0.00205	0.00600	1	07/29/2021 00:42	WG1713327
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	07/29/2021 00:42	WG1713327
Naphthalene	U		0.00408	0.0200	1	07/29/2021 00:42	WG1713327
Phenanthrene	U		0.00231	0.00600	1	07/29/2021 00:42	WG1713327
Pyrene	0.00202	J	0.00200	0.00600	1	07/29/2021 00:42	WG1713327
1-Methylnaphthalene	U		0.00449	0.0200	1	07/29/2021 00:42	WG1713327
2-Methylnaphthalene	0.00516	J	0.00427	0.0200	1	07/29/2021 00:42	WG1713327
2-Chloronaphthalene	U		0.00466	0.0200	1	07/29/2021 00:42	WG1713327
(S) p-Terphenyl-d14	*86.3*			*23.0-120*		*07/29/2021 00:42*	WG1713327
(S) Nitrobenzene-d5	*63.6*			*14.0-149*		*07/29/2021 00:42*	WG1713327
(S) 2-Fluorobiphenyl	*61.0*			*34.0-125*		*07/29/2021 00:42*	WG1713327

Method Blank (MB)

(MB) R3685933-1 07/29/21 13:55

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

L1382195-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1382195-01 07/29/21 14:12 • (DUP) R3685933-3 07/29/21 14:20

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

L1382551-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1382551-01 07/29/21 16:40 • (DUP) R3685933-8 07/29/21 16:45

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.321	0.270	1	17.1	J	20

Laboratory Control Sample (LCS)

(LCS) R3685933-2 07/29/21 14:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.73	97.3	80.0-120	

L1382195-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382195-02 07/29/21 14:25 • (MS) R3685933-4 07/29/21 14:30 • (MSD) R3685933-5 07/29/21 14:35

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	U	18.0	18.0	89.8	90.2	1	75.0-125			0.427	20

L1382195-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1382195-02 07/29/21 14:25 • (MS) R3685933-6 07/29/21 14:41

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	639	U	640	100	50	75.0-125	

L1382275-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1382275-03 07/28/21 12:00 • (DUP) R3684819-2 07/28/21 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.05	8.01	1	0.498		1

Sample Narrative:

OS: 8.05 at 22.4C

DUP: 8.01 at 23.3C

L1382286-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1382286-11 07/28/21 12:00 • (DUP) R3684819-3 07/28/21 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.22	7.25	1	0.415		1

Sample Narrative:

OS: 7.22 at 23.2C

DUP: 7.25 at 23.1C

Laboratory Control Sample (LCS)

(LCS) R3684819-1 07/28/21 12:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.1	101	99.0-101	

Sample Narrative:

LCS: 10.05 at 22C

Method Blank (MB)

(MB) R3684943-1 07/28/21 16:00

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

L1382276-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1382276-03 07/28/21 16:00 • (DUP) R3684943-3 07/28/21 16:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	165	147	1	11.4		20

L1382278-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1382278-03 07/28/21 16:00 • (DUP) R3684943-4 07/28/21 16:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	442	446	1	0.901		20

Laboratory Control Sample (LCS)

(LCS) R3684943-2 07/28/21 16:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	899	892	99.2	85.0-115	

Method Blank (MB)

(MB) R3685665-1 07/29/21 20:21

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) R3685665-2 07/29/21 20:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	103	103	80.0-120	
Cadmium	100	100	100	80.0-120	
Copper	100	99.3	99.3	80.0-120	
Lead	100	102	102	80.0-120	
Nickel	100	103	103	80.0-120	
Selenium	100	100	100	80.0-120	
Silver	20.0	20.4	102	80.0-120	
Zinc	100	100	100	80.0-120	

L1382274-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382274-01 07/29/21 20:26 • (MS) R3685665-5 07/29/21 20:34 • (MSD) R3685665-6 07/29/21 20:37

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	489	708	683	219	194	1	75.0-125	V	V	3.63	20
Cadmium	100	0.316	97.8	95.3	97.4	94.9	1	75.0-125			2.59	20
Copper	100	21.4	115	119	93.1	97.3	1	75.0-125			3.54	20
Lead	100	15.7	122	112	106	96.6	1	75.0-125			8.42	20
Nickel	100	18.6	117	114	97.9	95.3	1	75.0-125			2.26	20
Selenium	100	1.15	98.4	96.0	97.2	94.8	1	75.0-125			2.50	20
Silver	20.0	U	20.0	19.5	99.9	97.4	1	75.0-125			2.53	20
Zinc	100	52.2	139	132	86.7	79.7	1	75.0-125			5.22	20

Method Blank (MB)

(MB) R3685657-1 07/30/21 05:38

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) R3685657-2 07/30/21 05:41 • (LCSD) R3685657-3 07/30/21 05:44

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	0.971	0.984	97.1	98.4	80.0-120			1.33	20

Method Blank (MB)

(MB) R3685324-1 07/29/21 10:57

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) R3685324-2 07/29/21 11:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.7	97.7	80.0-120	

L1382274-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382274-01 07/29/21 11:04 • (MS) R3685324-5 07/29/21 11:14 • (MSD) R3685324-6 07/29/21 11:17

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	14.1	102	99.8	88.0	85.7	5	75.0-125			2.22	20

Method Blank (MB)

(MB) R3685475-4 07/27/21 04:33

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)	*106*			*77.0-120*

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

(LCS) R3685475-2 07/27/21 03:28 • (LCSD) R3685475-3 07/27/21 03:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.40	5.51	98.2	100	72.0-127			2.02	20
(S) a,a,a-Trifluorotoluene(FID)				*95.8*	*96.1*	*77.0-120*				

L1381933-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1381933-01 07/27/21 11:48 • (MS) R3685475-5 07/27/21 14:19 • (MSD) R3685475-6 07/27/21 14:41

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	138	59.5	165	166	76.4	77.2	25	10.0-151			0.604	28
(S) a,a,a-Trifluorotoluene(FID)					*96.3*	*98.0*		*77.0-120*				

Method Blank (MB)

(MB) R3686090-3 07/29/21 11:43

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)	*107*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3686090-2 07/29/21 10:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.28	96.0	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*96.4*	*77.0-120*	

Method Blank (MB)

(MB) R3685965-2 07/26/21 23:33

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	*96.6*			*75.0-131*
(S) 4-Bromofluorobenzene	*83.7*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*88.5*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3685965-1 07/26/21 22:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.124	99.2	70.0-123	
Ethylbenzene	0.125	0.111	88.8	74.0-126	
Toluene	0.125	0.115	92.0	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.122	97.6	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.119	95.2	73.0-127	
Xylenes, Total	0.375	0.327	87.2	72.0-127	
(S) Toluene-d8			*94.1*	*75.0-131*	
(S) 4-Bromofluorobenzene			*85.0*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*110*	*70.0-130*	

L1382274-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382274-01 07/27/21 02:01 • (MS) R3685965-3 07/27/21 08:06 • (MSD) R3685965-4 07/27/21 08:27

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	0.125	U	0.134	0.136	107	109	1	10.0-149			1.48	37
Ethylbenzene	0.125	U	0.123	0.129	98.4	103	1	10.0-160			4.76	38
Toluene	0.125	U	0.131	0.137	105	110	1	10.0-156			4.48	38
1,2,4-Trimethylbenzene	0.125	U	0.135	0.137	108	110	1	10.0-160			1.47	36
1,3,5-Trimethylbenzene	0.125	U	0.131	0.136	105	109	1	10.0-160			3.75	38
Xylenes, Total	0.375	U	0.366	0.385	97.6	103	1	10.0-160			5.06	38
(S) Toluene-d8					*96.5*	*97.4*		*75.0-131*				
(S) 4-Bromofluorobenzene					*86.1*	*82.3*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*89.9*	*88.4*		*70.0-130*				

Method Blank (MB)

(MB) R3685151-1 07/29/21 07:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	0.768	J	0.274	4.00
(S) o-Terphenyl	*72.5*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3685151-2 07/29/21 07:36

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	38.8	77.6	50.0-150	
(S) o-Terphenyl			*86.5*	*18.0-148*	

L1381110-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1381110-01 07/29/21 16:42 • (MS) R3685151-3 07/29/21 16:56 • (MSD) R3685151-4 07/29/21 17:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	47.8	39.4	67.4	59.6	58.6	42.1	1	50.0-150		J6	12.3	20
(S) o-Terphenyl					*70.2*	*75.5*		*18.0-148*				

Method Blank (MB)

(MB) R3685734-1 07/29/21 21:24

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	*70.4*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3685734-2 07/29/21 21:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	41.7	83.4	50.0-150	
(S) o-Terphenyl			*93.4*	*18.0-148*	

L1382391-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382391-13 07/29/21 21:51 • (MS) R3685734-3 07/29/21 22:04 • (MSD) R3685734-4 07/29/21 22:17

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	50.0	U	37.5	36.9	75.0	74.1	1	50.0-150			1.61	20
(S) o-Terphenyl					*78.4*	*81.5*		*18.0-148*				

Method Blank (MB)

(MB) R3685128-2 07/28/21 17:51

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	*66.1*			*14.0-149*
(S) 2-Fluorobiphenyl	*83.7*			*34.0-125*
(S) p-Terphenyl-d14	*115*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3685128-1 07/28/21 17:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0671	83.9	50.0-126	
Acenaphthene	0.0800	0.0669	83.6	50.0-120	
Acenaphthylene	0.0800	0.0703	87.9	50.0-120	
Benzo(a)anthracene	0.0800	0.0663	82.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0574	71.8	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0699	87.4	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0641	80.1	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0696	87.0	49.0-125	
Chrysene	0.0800	0.0688	86.0	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0627	78.4	47.0-125	
Fluoranthene	0.0800	0.0671	83.9	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3685128-1 07/28/21 17:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0680	85.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0619	77.4	46.0-125	
Naphthalene	0.0800	0.0628	78.5	50.0-120	
Phenanthrene	0.0800	0.0670	83.8	47.0-120	
Pyrene	0.0800	0.0740	92.5	43.0-123	
1-Methylnaphthalene	0.0800	0.0658	82.3	51.0-121	
2-Methylnaphthalene	0.0800	0.0637	79.6	50.0-120	
2-Chloronaphthalene	0.0800	0.0662	82.8	50.0-120	
(S) Nitrobenzene-d5			*80.3*	*14.0-149*	
(S) 2-Fluorobiphenyl			*88.5*	*34.0-125*	
(S) p-Terphenyl-d14			*114*	*23.0-120*	

L1382222-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382222-07 07/28/21 18:09 • (MS) R3685128-3 07/28/21 18:27 • (MSD) R3685128-4 07/28/21 18:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0776	U	0.0604	0.0614	77.8	79.1	1	10.0-145			1.64	30
Acenaphthene	0.0776	U	0.0614	0.0639	79.1	82.3	1	14.0-127			3.99	27
Benzo(a)anthracene	0.0776	0.00362	0.0634	0.0651	77.0	79.2	1	10.0-139			2.65	30
Acenaphthylene	0.0776	U	0.0637	0.0658	82.1	84.8	1	21.0-124			3.24	25
Benzo(a)pyrene	0.0776	0.00568	0.0643	0.0669	75.5	78.9	1	10.0-141			3.96	31
Benzo(b)fluoranthene	0.0776	0.00659	0.0671	0.0720	78.0	84.3	1	10.0-140			7.05	36
Benzo(g,h,i)perylene	0.0776	0.00486	0.0631	0.0665	75.1	79.4	1	10.0-140			5.25	33
Benzo(k)fluoranthene	0.0776	0.00273	0.0661	0.0668	81.7	82.6	1	10.0-137			1.05	31
Chrysene	0.0776	0.00512	0.0666	0.0701	79.2	83.7	1	10.0-145			5.12	30
Dibenz(a,h)anthracene	0.0776	U	0.0580	0.0601	74.7	77.4	1	10.0-132			3.56	31
Fluoranthene	0.0776	0.00411	0.0649	0.0663	78.3	80.1	1	10.0-153			2.13	33
Fluorene	0.0776	U	0.0626	0.0642	80.7	82.7	1	11.0-130			2.52	29
Indeno(1,2,3-cd)pyrene	0.0776	0.00467	0.0593	0.0621	70.4	74.0	1	10.0-137			4.61	32
Naphthalene	0.0776	U	0.0558	0.0601	71.4	76.9	1	10.0-135			7.42	27
Phenanthrene	0.0776	U	0.0631	0.0655	81.3	84.4	1	10.0-144			3.73	31
Pyrene	0.0776	0.00543	0.0725	0.0754	86.4	90.2	1	10.0-148			3.92	35
1-Methylnaphthalene	0.0776	U	0.0594	0.0631	76.2	81.0	1	10.0-142			6.04	28
2-Methylnaphthalene	0.0776	U	0.0576	0.0611	73.7	78.2	1	10.0-137			5.90	28
2-Chloronaphthalene	0.0776	U	0.0600	0.0633	77.1	81.4	1	29.0-120			5.35	24
(S) Nitrobenzene-d5					*72.2*	*74.3*		*14.0-149*				
(S) 2-Fluorobiphenyl					*83.8*	*84.4*		*34.0-125*				
(S) p-Terphenyl-d14					*107*	*108*		*23.0-120*				

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

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 INFO ON FILE

Billing Information: CAERUS OIL & GAS INFO ON FILE

Pres Chk

Report to: BLAIR ROLLINS, JAKE JANICEK, BRENT MIDDLETON

Email To: INFO ON FILE

Project Description: 7D HISTORICAL

City/State Collected: COLORADO

Phone: Fax:

Client Project #

Lab Project #

Collected by (print): ANDREW SMITH

Site/Facility ID #

P.O. #

Collected by (signature): AS

Immediately Packed on Ice N ___ Y ✓

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TABLE 915-1 VOCs	TABLE 915-1 METALS	TABLE 915-1 PAHs	TPH (ORO, GRO, DRO)	EC, SAR, PH, ARSENIC	BORON (HOT WATER SOLUBLE)					Remarks	Sample # (lab only)
PH01 @ 30"	G	SS	30"	7-22-21	0815	2	X	X	X	X	X	X						-01
PH02 @ 30"	"	"	30"	"	0820	2	X	X	X	X	X	X						-02
PH03 @ 30"	"	"	30"	"	0825	2	X	X	X	X	X	X						-03
					AS IN "DEE"													

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# L1382278
D119

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: SAMPLE ID PREFIX: 20210722-7D (SAMPLE ID)
PLEASE CC: CHRIS MCKISSON AND CONFLUENCE REMEDIATION

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 501612321054

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	If preservation required by Login: Date/Time
AS	7-22-21	1400		NA	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.4-1.2=3.2 °C Bottles Received: 6	
	7/22/21	1600			
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 7/23/21 Time: 8:30	Hold: / Condition: NCF / OK
			K. Keller		

ANALYTICAL REPORT

July 30, 2021

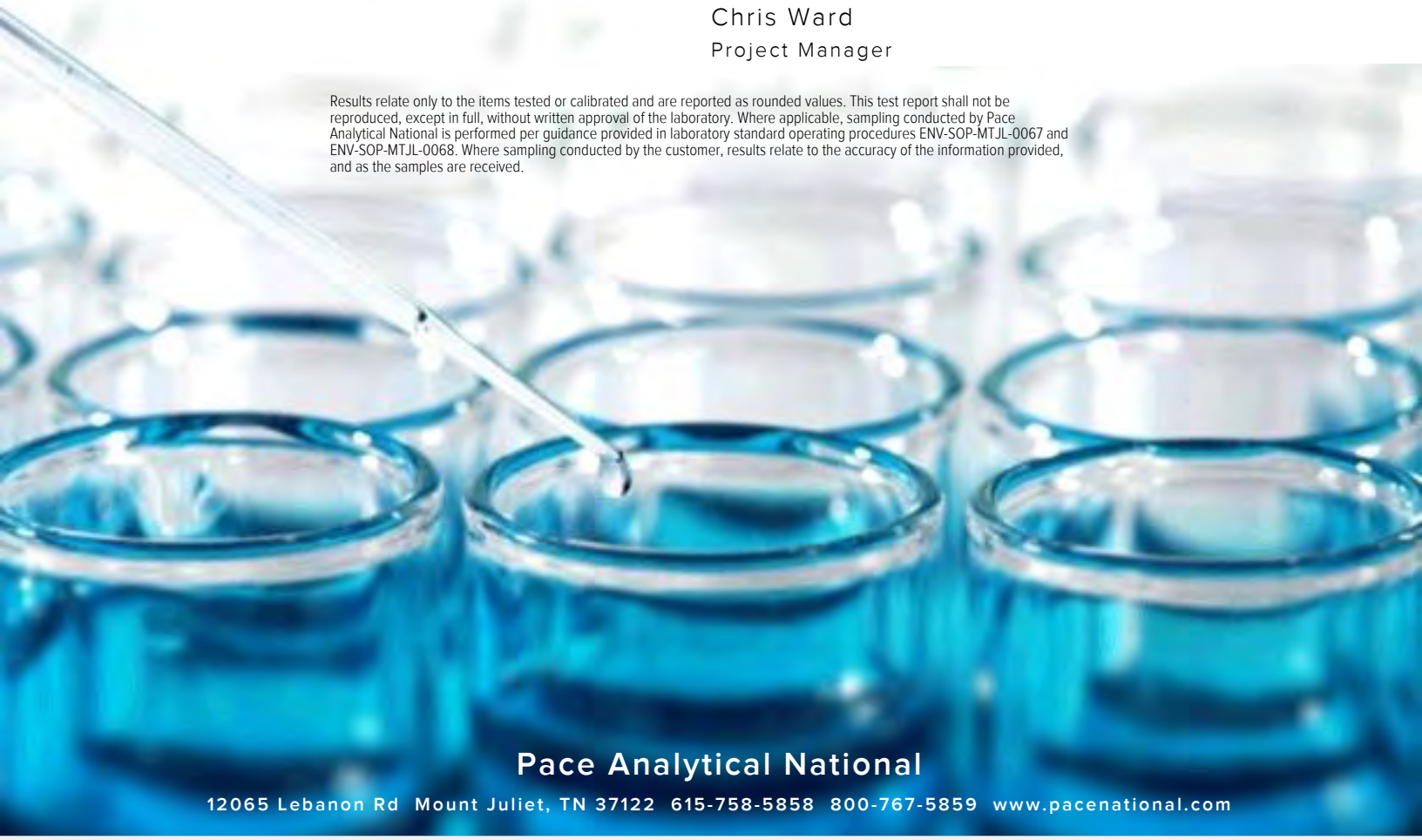
Caerus Oil and Gas

Sample Delivery Group:	L1382260
Samples Received:	07/23/2021
Project Number:	
Description:	7D HISTORICAL

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

20210722-7D (BGS) @ 3.5' L1382260-01 Solid

Collected by: Andrew Smith | Collected date/time: 07/22/21 06:50 | Received date/time: 07/23/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1711376	1	07/28/21 06:38	07/28/21 06:38	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1711572	1	07/26/21 09:00	07/26/21 11:00	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1711479	1	07/26/21 15:22	07/26/21 18:54	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1711222	1	07/28/21 09:15	07/29/21 18:43	CCE	Mt. Juliet, TN

20210722-7D (BGW) @ 1' L1382260-02 Solid

Collected by: Andrew Smith | Collected date/time: 07/22/21 07:00 | Received date/time: 07/23/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1711376	1	07/28/21 06:41	07/28/21 06:41	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1711572	1	07/26/21 09:00	07/26/21 11:00	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1711479	1	07/26/21 15:22	07/26/21 18:54	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1711222	1	07/28/21 09:15	07/29/21 18:46	CCE	Mt. Juliet, TN

20210722-7D (BGN) @ 2' L1382260-03 Solid

Collected by: Andrew Smith | Collected date/time: 07/22/21 07:05 | Received date/time: 07/23/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1711376	1	07/28/21 06:43	07/28/21 06:43	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1711572	1	07/26/21 09:00	07/26/21 11:00	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1711479	1	07/26/21 15:22	07/26/21 18:54	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1711222	1	07/28/21 09:15	07/29/21 18:49	CCE	Mt. Juliet, TN

20210722-7D (BGE) @ 1.5' L1382260-04 Solid

Collected by: Andrew Smith | Collected date/time: 07/22/21 07:10 | Received date/time: 07/23/21 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1711376	1	07/28/21 06:46	07/28/21 06:46	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1711572	1	07/26/21 09:00	07/26/21 11:00	BMD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1711479	1	07/26/21 15:22	07/26/21 18:54	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1711222	1	07/28/21 09:15	07/29/21 18:57	CCE	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.143		1	07/28/2021 06:38	WG1711376

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.07	T8	1	07/26/2021 11:00	WG1711572

Sample Narrative:

L1382260-01 WG1711572: 8.07 at 23.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	329		10.0	1	07/26/2021 18:54	WG1711479

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	3.09		0.518	2.00	1	07/29/2021 18:43	WG1711222

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.175		1	07/28/2021 06:41	WG1711376

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.10	T8	1	07/26/2021 11:00	WG1711572

Sample Narrative:

L1382260-02 WG1711572: 8.1 at 23.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	347		10.0	1	07/26/2021 18:54	WG1711479

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.4		0.518	2.00	1	07/29/2021 18:46	WG1711222

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.269		1	07/28/2021 06:43	WG1711376

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.94	T8	1	07/26/2021 11:00	WG1711572

Sample Narrative:

L1382260-03 WG1711572: 7.94 at 23.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	352		10.0	1	07/26/2021 18:54	WG1711479

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.68		0.518	2.00	1	07/29/2021 18:49	WG1711222

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.113		1	07/28/2021 06:46	WG1711376

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.54	T8	1	07/26/2021 11:00	WG1711572

Sample Narrative:

L1382260-04 WG1711572: 8.54 at 23.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	197		10.0	1	07/26/2021 18:54	WG1711479

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.03		0.518	2.00	1	07/29/2021 18:57	WG1711222

L1381607-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1381607-05 07/26/21 11:00 • (DUP) R3683855-2 07/26/21 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.23	8.25	1	0.243		1

Sample Narrative:

OS: 8.23 at 24.1C

DUP: 8.25 at 24.2C

L1382100-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1382100-05 07/26/21 11:00 • (DUP) R3683855-3 07/26/21 11:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.58	7.59	1	0.132		1

Sample Narrative:

OS: 7.58 at 23.2C

DUP: 7.59 at 23.2C

Laboratory Control Sample (LCS)

(LCS) R3683855-1 07/26/21 11:00

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: 10.04 at 22.5C

Method Blank (MB)

(MB) R3684089-1 07/26/21 18:54

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

L1382260-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1382260-01 07/26/21 18:54 • (DUP) R3684089-3 07/26/21 18:54

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	329	302	1	8.56		20

L1382528-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1382528-05 07/26/21 18:54 • (DUP) R3684089-4 07/26/21 18:54

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	279	286	1	2.48		20

Laboratory Control Sample (LCS)

(LCS) R3684089-2 07/26/21 18:54

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	899	911	101	85.0-115	

Method Blank (MB)

(MB) R3685743-1 07/29/21 17:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00

Laboratory Control Sample (LCS)

(LCS) R3685743-2 07/29/21 17:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	99.0	99.0	80.0-120	

L1382222-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1382222-07 07/29/21 17:56 • (MS) R3685743-5 07/29/21 18:04 • (MSD) R3685743-6 07/29/21 18:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	10.2	108	106	97.5	95.8	1	75.0-125			1.51	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	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
INFO ON FILE

Billing Information: CAERUS OIL & GAS INFO ON FILE

Report to: BLAIR ROLLINS

Email To: INFO ON FILE

Project Description: 7D HISTORICAL

City/State Collected: COLORADO

Phone:
Fax:

Client Project #

Lab Project #

Collected by (print): ANDREW SMITH

Site/Facility ID #

P.O. #

Collected by (signature): AS

Immediately Packed on Ice N ___ Y ___

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

Analysis / Container / Preservative

Pres Chk

EC, PH, SAR, ARSENIC

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# L1382260

D123

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs		Remarks	Sample # (lab only)
BG5@3.5'	G	SS	—	7-22-21	0650	1	X		-01
BGW@1'	"	"	—	"	0700	1	X		-02
BGN@2'	"	"	—	"	0705	1	X		-03
BGE@1.5'	"	"	—	"	0710	1	X		-04

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

Remarks: SAMPLE ID PREFIX: 20210722-7D (SAMPLE ID) pH _____ Temp _____
PLEASE CC: CHRIS MCKISSON & CONFLUENCE REMEDIATION Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 501612320620105

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
AS	7-22-21	1400		A3PL
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
	7/22/21	1600		4.4-1.4.3 4
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
	7/		K. Hoover	7/23/21 8:30

If preservation required by Login: Date/Time

Hold:

Condition: NCF (OK)

ANALYTICAL REPORT

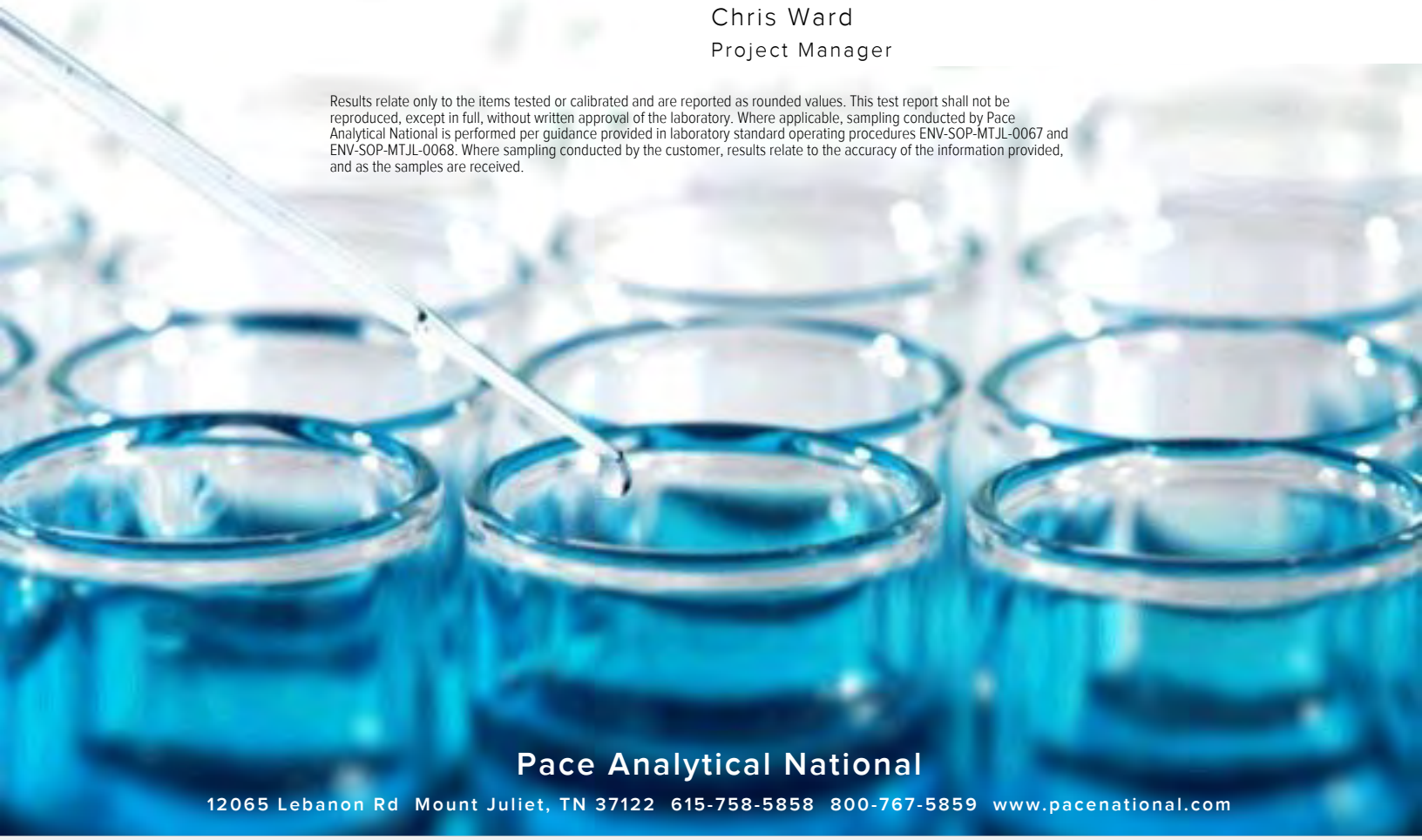
November 11, 2021

Caerus Oil and Gas

Sample Delivery Group:	L1426506
Samples Received:	11/04/2021
Project Number:	
Description:	7D Background
Site:	FEDERAL 24-6C (7D)
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

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

20211102-7D (BGN2@5') L1426506-01 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:25 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 15:52	11/10/21 15:52	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769411	1	11/05/21 08:00	11/05/21 10:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 11:30	JPD	Mt. Juliet, TN

20211102-7D (BGN2@5') L1426506-02 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:25 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 15:55	11/10/21 15:55	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769411	1	11/05/21 08:00	11/05/21 10:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 11:49	JPD	Mt. Juliet, TN

20211102-7D (BGN2@5') L1426506-03 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:25 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 15:58	11/10/21 15:58	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 11:52	JPD	Mt. Juliet, TN

20211102-7D (BGN3@5') L1426506-04 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:30 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:01	11/10/21 16:01	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 11:56	JPD	Mt. Juliet, TN

20211102-7D (BGN3@5') L1426506-05 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:30 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:04	11/10/21 16:04	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:27	JPD	Mt. Juliet, TN

20211102-7D (BGN3@5') L1426506-06 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:30 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:07	11/10/21 16:07	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769411	1	11/05/21 08:00	11/05/21 10:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:31	JPD	Mt. Juliet, TN

20211102-7D (BGN4@7') L1426506-07 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:40 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:10	11/10/21 16:10	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:35	JPD	Mt. Juliet, TN

20211102-7D (BGN4@7') L1426506-08 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:40 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:13	11/10/21 16:13	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:38	JPD	Mt. Juliet, TN

20211102-7D (BGN4@7') L1426506-09 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:40 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:16	11/10/21 16:16	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:42	JPD	Mt. Juliet, TN

20211102-7D (BGN5@3') L1426506-10 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:45 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:24	11/10/21 16:24	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1768589	1	11/08/21 06:02	11/08/21 09:32	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:46	JPD	Mt. Juliet, TN

20211102-7D (BGN5@3') L1426506-11 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:45 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:28	11/10/21 16:28	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1770233	1	11/08/21 07:25	11/08/21 09:58	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:49	JPD	Mt. Juliet, TN

20211102-7D (BGN5@3') L1426506-12 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:45 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:31	11/10/21 16:31	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1770233	1	11/08/21 07:25	11/08/21 09:58	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:53	JPD	Mt. Juliet, TN

20211102-7D (BGNW@2') L1426506-13 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:50 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:34	11/10/21 16:34	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1770233	1	11/08/21 07:25	11/08/21 09:58	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 12:56	JPD	Mt. Juliet, TN

20211102-7D (BGNW@2') L1426506-14 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:50 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:37	11/10/21 16:37	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1770233	1	11/08/21 07:25	11/08/21 09:58	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 13:14	JPD	Mt. Juliet, TN

20211102-7D (BGNW@2') L1426506-15 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:50 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:40	11/10/21 16:40	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769411	1	11/05/21 08:00	11/05/21 10:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1770233	1	11/08/21 07:25	11/08/21 09:58	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 13:18	JPD	Mt. Juliet, TN

20211102-7D (BGNW2@1') L1426506-16 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:55 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:43	11/10/21 16:43	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1770233	1	11/08/21 07:25	11/08/21 09:58	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 13:22	JPD	Mt. Juliet, TN

20211102-7D (BGNW2@1') L1426506-17 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:55 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:46	11/10/21 16:46	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1770233	1	11/08/21 07:25	11/08/21 09:58	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 13:26	JPD	Mt. Juliet, TN

20211102-7D (BGNW2@1') L1426506-18 Solid

Collected by: Andrew Smith | Collected date/time: 11/02/21 10:55 | Received date/time: 11/04/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1771265	1	11/10/21 16:49	11/10/21 16:49	EL	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1769373	1	11/05/21 08:15	11/05/21 10:43	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1770233	1	11/08/21 07:25	11/08/21 09:58	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1771101	5	11/09/21 16:17	11/10/21 13:29	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	4.61		1	11/10/2021 15:52	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.33	T8	1	11/05/2021 10:00	WG1769411

Sample Narrative:

L1426506-01 WG1769411: 9.33 at 19.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	405		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-01 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	15.3		0.100	1.00	5	11/10/2021 11:30	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.42		1	11/10/2021 15:55	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.19	T8	1	11/05/2021 10:00	WG1769411

Sample Narrative:

L1426506-02 WG1769411: 9.19 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	422		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-02 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	16.9		0.100	1.00	5	11/10/2021 11:49	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.08		1	11/10/2021 15:58	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.19	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-03 WG1769373: 9.19 at 19.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	406		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-03 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	14.2		0.100	1.00	5	11/10/2021 11:52	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	6.22		1	11/10/2021 16:01	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.05	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-04 WG1769373: 8.05 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2460		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-04 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	11.1		0.100	1.00	5	11/10/2021 11:56	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.73		1	11/10/2021 16:04	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.95	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-05 WG1769373: 7.95 at 19.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2480		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-05 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	14.3		0.100	1.00	5	11/10/2021 12:27	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.96		1	11/10/2021 16:07	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.86	T8	1	11/05/2021 10:00	WG1769411

Sample Narrative:

L1426506-06 WG1769411: 7.86 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2230		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-06 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	15.2		0.100	1.00	5	11/10/2021 12:31	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	9.07		1	11/10/2021 16:10	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.33	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-07 WG1769373: 8.33 at 19.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	2460		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-07 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.92		0.100	1.00	5	11/10/2021 12:35	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.62		1	11/10/2021 16:13	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.34	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-08 WG1769373: 8.34 at 19.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3340		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-08 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.66		0.100	1.00	5	11/10/2021 12:38	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.59		1	11/10/2021 16:16	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.27	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-09 WG1769373: 8.27 at 19.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3300		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-09 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.30		0.100	1.00	5	11/10/2021 12:42	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	15.5		1	11/10/2021 16:24	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.26	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-10 WG1769373: 8.26 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	14700		10.0	1	11/08/2021 09:32	WG1768589

Sample Narrative:

L1426506-10 WG1768589: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.21		0.100	1.00	5	11/10/2021 12:46	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	19.5		1	11/10/2021 16:28	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.29	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-11 WG1769373: 8.29 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	16400		10.0	1	11/08/2021 09:58	WG1770233

Sample Narrative:

L1426506-11 WG1770233: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.18		0.100	1.00	5	11/10/2021 12:49	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	17.3		1	11/10/2021 16:31	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.31	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-12 WG1769373: 8.31 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	18200		10.0	1	11/08/2021 09:58	WG1770233

Sample Narrative:

L1426506-12 WG1770233: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.01		0.100	1.00	5	11/10/2021 12:53	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.55		1	11/10/2021 16:34	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.80	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-13 WG1769373: 7.8 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3180		10.0	1	11/08/2021 09:58	WG1770233

Sample Narrative:

L1426506-13 WG1770233: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.642	J	0.100	1.00	5	11/10/2021 12:56	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.63		1	11/10/2021 16:37	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.72	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-14 WG1769373: 7.72 at 19.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3060		10.0	1	11/08/2021 09:58	WG1770233

Sample Narrative:

L1426506-14 WG1770233: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.484	J	0.100	1.00	5	11/10/2021 13:14	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.42		1	11/10/2021 16:40	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.76	T8	1	11/05/2021 10:00	WG1769411

Sample Narrative:

L1426506-15 WG1769411: 7.76 at 19.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	3090		10.0	1	11/08/2021 09:58	WG1770233

Sample Narrative:

L1426506-15 WG1770233: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.478	J	0.100	1.00	5	11/10/2021 13:18	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.29		1	11/10/2021 16:43	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.17	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:
L1426506-16 WG1769373: 9.17 at 19.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	311		10.0	1	11/08/2021 09:58	WG1770233

Sample Narrative:
L1426506-16 WG1770233: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.399	J	0.100	1.00	5	11/10/2021 13:22	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.04		1	11/10/2021 16:46	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.12	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:
L1426506-17 WG1769373: 9.12 at 19.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	314		10.0	1	11/08/2021 09:58	WG1770233

Sample Narrative:
L1426506-17 WG1770233: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.468	J	0.100	1.00	5	11/10/2021 13:26	WG1771101

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	4.39		1	11/10/2021 16:49	WG1771265

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.21	T8	1	11/05/2021 10:43	WG1769373

Sample Narrative:

L1426506-18 WG1769373: 9.21 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	306		10.0	1	11/08/2021 09:58	WG1770233

Sample Narrative:

L1426506-18 WG1770233: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	0.292	J	0.100	1.00	5	11/10/2021 13:29	WG1771101

L1426506-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1426506-18 11/05/21 10:43 • (DUP) R3726013-2 11/05/21 10:43

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	9.21	9.20	1	0.109		1

Sample Narrative:

OS: 9.21 at 19.5C

DUP: 9.2 at 19.6C

L1426851-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1426851-02 11/05/21 10:43 • (DUP) R3726013-3 11/05/21 10:43

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	9.55	9.54	1	0.105		1

Sample Narrative:

OS: 9.55 at 20.1C

DUP: 9.54 at 21C

Laboratory Control Sample (LCS)

(LCS) R3726013-1 11/05/21 10:43

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: 10.02 at 19.3C

L1426316-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1426316-05 11/05/21 10:00 • (DUP) R3726125-2 11/05/21 10:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.53	8.52	1	0.117		1

Sample Narrative:

OS: 8.53 at 19.6C

DUP: 8.52 at 19.6C

L1426510-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1426510-05 11/05/21 10:00 • (DUP) R3726125-3 11/05/21 10:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.91	8.91	1	0.000		1

Sample Narrative:

OS: 8.91 at 19.1C

DUP: 8.91 at 19.1C

Laboratory Control Sample (LCS)

(LCS) R3726125-1 11/05/21 10:00

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: 10.01 at 19.9C

Method Blank (MB)

(MB) R3726679-1 11/08/21 09:32

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

L1425498-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1425498-01 11/08/21 09:32 • (DUP) R3726679-3 11/08/21 09:32

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	169	170	1	0.414		20

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

L1426506-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1426506-02 11/08/21 09:32 • (DUP) R3726679-4 11/08/21 09:32

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	422	411	1	2.64		20

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

Laboratory Control Sample (LCS)

(LCS) R3726679-2 11/08/21 09:32

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	270	101	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3726701-1 11/08/21 09:58

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

L1426506-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1426506-12 11/08/21 09:58 • (DUP) R3726701-3 11/08/21 09:58

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	18200	17500	1	3.93		20

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

L1426510-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1426510-12 11/08/21 09:58 • (DUP) R3726701-4 11/08/21 09:58

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	276	257	1	7.02		20

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

Laboratory Control Sample (LCS)

(LCS) R3726701-2 11/08/21 09:58

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	278	104	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3727815-1 11/10/21 11:23

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) R3727815-2 11/10/21 11:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	89.8	89.8	80.0-120	

L1426506-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1426506-01 11/10/21 11:30 • (MS) R3727815-5 11/10/21 11:41 • (MSD) R3727815-6 11/10/21 11:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	15.3	107	104	91.7	88.5	5	75.0-125			3.05	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	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.

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

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

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here: H114

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC	Billing Information: Info on file
Address: Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins	Email To: Info on file
Copy To: Chris McKisson, remediation@confluence-cc.com	Site Collection Info/Address:
Customer Project Name/Number: 7D Background	State: CO / Garfield; County/City:; Time Zone Collected: [ ]PT [X]MT [ ]CT [ ]ET
Phone: / Email:	Site/Facility ID #: Federal 24-6C (7D)
Collected By (print): Andrew Smith	Purchase Order # : / Quote #:
Collected By (signature): AS	Turnaround Date Required: Standard 5-Day
Sample Disposal: [ ]Dispose as appropriate [ ]Return [ ]Archive: _____ [ ]Hold: _____	Rush: (Expedite Charges Apply) [ ]Same Day [ ]Next Day [ ]2 Day [ ]3 Day [ ]4 Day [ ]5 Day

Compliance Monitoring?	Container Preservative Type **	Lab Project Manager:
[ ] Yes [X] No		
DW PWS ID #: / DW Location Code:		
Immediately Packed on Ice: [X] Yes [ ] No		
Field Filtered (if applicable): [ ] Yes [ ] No		
Analysis: _____		

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

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)	Analyses: EC, SAR, pH (x3)	Analyses: Arsenic (x3)
20211102 - 7D (BGN2@5')	SL	G	11/2/2021	1025				3	G	X	X
20211102 - 7D (BGN3@5')	SL	G	11/2/2021	1030				3	G	X	X
20211102 - 7D (BGN4@7')	SL	G	11/2/2021	1040				3	G	X	X
20211102 - 7D (BGN5@3')	SL	G	11/2/2021	1045				3	G	X	X
20211102 - 7D (BGNW@2')	SL	G	11/2/2021	1050				3	G	X	X
20211102 - 7D (BGNW2@1')	SL	G	11/2/2021	1055				3	G	X	X

Lab Profile/Line:

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

LAB USE ONLY:
Lab Sample # / Comments:

L1426506
-01,02,03
-04,05,06
-07,08,09
-10,11,12
-13,14,15
-16,17,18

Customer Remarks / Special Conditions / Possible Hazards:
Please run requested analysis on all samples three (3) separate times. Store all extra material for additional analysis.

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

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

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

Lab Tracking #:

Samples received via: FEDEX UPS Client Courier Pace Courier

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

0.2+0=0.2 AZA

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
AS	11-3-21/1200		
	11/3/21 1500		11/3 1300
		T. Robertson	11/4/21 900

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

Trip Blank Received: Y N NA
HCL MeOH TSP Other
CNT= 18

Non Conformance(s): YES / NO
Page: ____ of: ____