November 10, 2022

Blair Rollins
Environmental Specialist
Caerus Oil & Gas LLC
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Report of Work Completed – Well P&A

COGCC Location Name (ID)	SHAEFFER-67S93W 12SENW (334607)
Client Location Name	F12W
COGCC Well Name	SHAEFFER 12-6A (F12)
COGCC Remediation Project Number	25554
Legal Description	SENW Sec. 12 T7S-R93W
Coordinates (Lat/Long)	39.462140, -107.726280
County	Garfield County, Colorado

Mr. Rollins,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil & Gas LLC (Caerus) to document findings of site investigation conducted in association with well plugging and abandonment (P&A) of SHAEFFER 12-6A (F12) (API #05-045-09126) and associated flowline at the F12W well pad (Location). The Location is 5.3 miles southeast of Rifle, Colorado in Garfield County, as illustrated in the attached Topographic Location Map. Additional information on the Location is provided in the title block above, attached Site Diagrams, and laboratory analytical reports. This ROWC provides background on the Location, methods used to complete the investigation, results of the investigation, and recommendations for how to proceed with this information.

Background

In September 2022, the SHAEFFER 12-6A (F12) well and associated flowline at the Location were plugged and abandoned. Colorado Oil and Gas Conservation Commission (COGCC) Form 27 Document 403176422 was submitted to open Remediation Project Number 25554.

Methodology

On September 28, 2022, Confluence provided sampling support to characterize soil beneath the plugged and abandoned equipment in accordance with Colorado Oil and Gas Conservation Commission (COGCC) Rule 911.a. Following cut and cap operations, soil around the wellhead had been removed to a depth of 7 feet below ground surface (bgs), and soil beneath the separator inlet had been removed to a depth of 6 feet bgs. One base sample and one sidewall sample were collected from the wellhead excavation at 7 feet and 6 feet bgs, respectively. One soil sample was collected from the base of the flowline excavation at 6 feet bgs. Samples were characterized using visual and olfactory observations and field-screened with a photoionization detector (PID).

All soil samples were collected in laboratory provided jars, immediately placed on ice, and shipped under a completed chain-of-custody form to Pace Analytical Services (Pace) for analysis of COGCC Table 915-1 soil constituents of concern.

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 site investigation activities.

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

Lithology and Hydrogeology

Lithology at the Location is characterized as sandy clay with gravel. Groundwater is expected to flow northeast toward Mamm Creek and ultimately to the Colorado River, located 4.7 miles north of the Location. No groundwater was observed during sampling activities. Based on Division of Water Resources (DWR) well permit number 234397 located 0.62 miles west of the Location, depth to groundwater is estimated to measure 115 feet bgs.

Initial Site Investigation

During P&A site investigation, field screening results did not indicate soil impacts. PID measurements ranged from 4.6 to 7.5 parts per million (ppm). Analytical results of collected soil samples are within COGCC Table 915-1 Residential Soil Screening Levels for all constituents except arsenic and pH. Arsenic exceedances range from 4.83 milligrams per kilogram (mg/kg) in the flowline sample to 10.6 mg/kg at the base of the wellhead excavation. Exceedances of pH range from 8.53 in the flowline sample to 8.78 at the base of the wellhead excavation.

Recommendations and Analysis

Although pH and arsenic values above COGCC Table 915-1 Residential Soil Screening Levels remain within the investigation area, analytical results of background samples collected from the nearby H12W (COGCC Location ID 323927) indicates a peak native arsenic level of 9.38 mg/kg and peak native pH of 8.85. The H12W is 0.48 miles east of the Location. According to the United States Geologic Survey (USGS) [1] and National Resource Conservation Service (NRCS) [2], the Location and H12W background samples are both found within the Potts loam soil classification. Due to the proximity and identical soil type, it is reasonable to conclude that the background samples collected from the H12W well pad are representative of soil conditions at the Location.

Based on Footnote 11 of COGCC Table 915-1, Confluence recommends requesting an alternative allowable limit for arsenic of 11.72 mg/kg. Additionally, Confluence recommends that Caerus request consideration of COGCC Table 915-1 Footnote 1 to establish an alternative allowable limit for pH of 8.85. Assuming the arsenic and pH alternative allowable limits are accepted, all constituents of concern are within COGCC Table 915-1 allowable limits or within their requested alternative allowable limits. Based on these results, Confluence recommends

that Caerus request closure of this remediation project with 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 us.

Regards,

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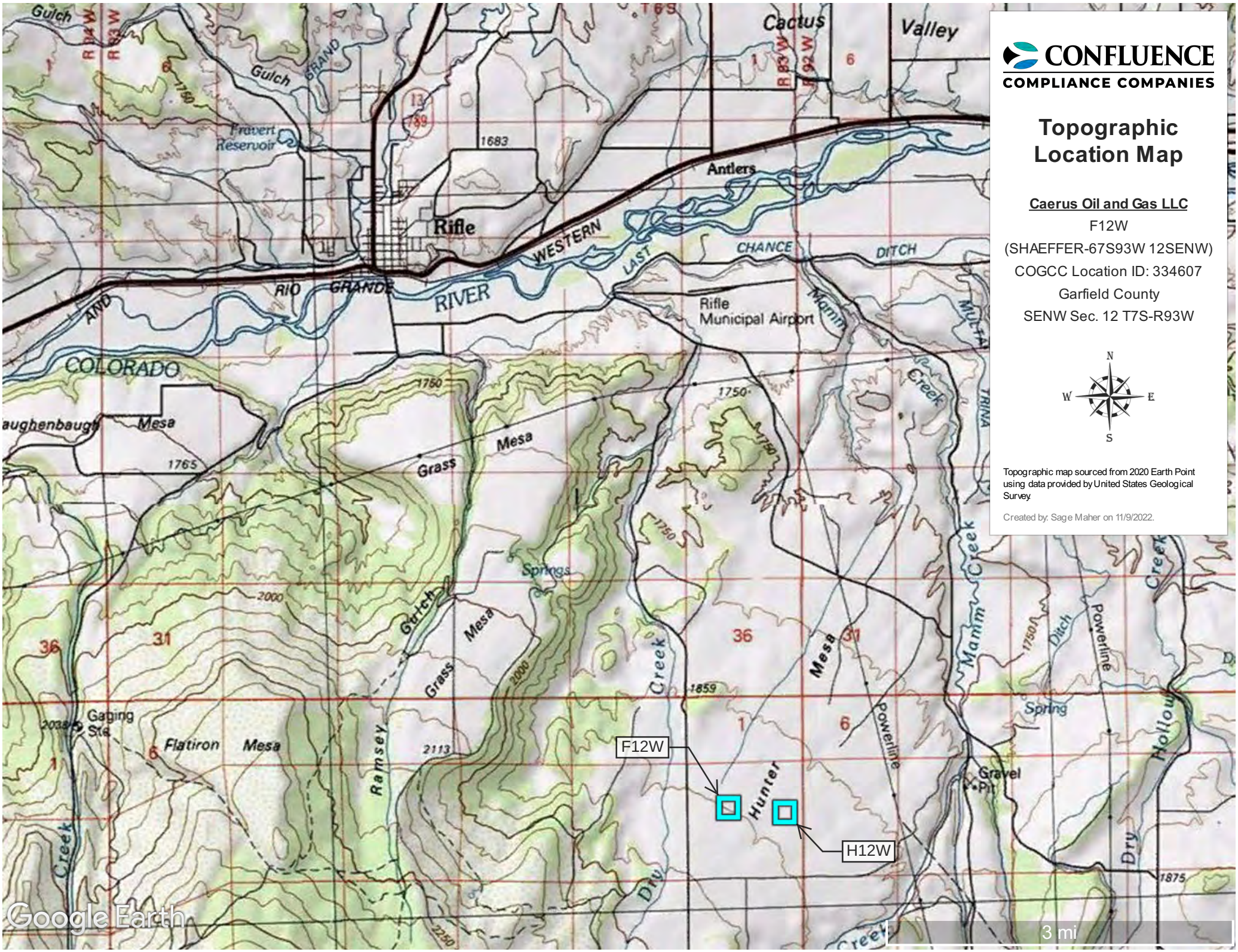
Attachments

- Topographic Location Map
- Site Diagram – P&A Samples
- Laboratory Results Summary Table
- Laboratory Reports

References

1. USGS Staff, United States Geological Survey, United States Department of Interior. National Geologic Map Database. Available online at the following link: https://ngmdb.usgs.gov/Prodesc/proddesc_68589.htm. Accessed [11/09/2022].
2. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: http://websoilsurvey.sc.egov.usda.gov/. Accessed [11/09/2022].



CONFLUENCE
COMPLIANCE COMPANIES

Topographic Location Map

Caerus Oil and Gas LLC

F12W

(SHAEFFER-67S93W 12SENW)

COGCC Location ID: 334607

Garfield County

SENW Sec. 12 T7S-R93W

N
W E
S

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

Created by: Sage Maher on 11/9/2022.

CONFLUENCE
COMPLIANCE COMPANIES

Site Diagram
P&A Samples

Caerus Oil and Gas LLC

F12

(SHAEFFER-67S93W /12SENW)

COGCC Location ID: 334607

Garfield County

SENW Sec. 12 T7S-R93W

N
W
E
S

Legend

Soil Sample – 09/28/2022

Excavation Extent – 09/28/2022

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: Andrew Smith on 10/04/2022.

CONFLUENCE

Laboratory Results Summary Table - Soil
F12W - 6A

11/9/2022

		Soil Screening and Remediation Limits			Organic Compounds (mg/kg [ppm])																									
		COGCC Table 915-1 Residential -->		NA	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	18	24	2	180
Sample Date	Solid/Soil Source (Equipment) (Wellhead, Separator, Tank Battery, Dump Line, Pit, Cuttings, Background, etc.)	Depth - Z (feet) (NEGATIVE VALUE) below ground surface (bgs)	Sample ID	PID (ppm)	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	Dibenz(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-C,D)pyrene	1- Methylnaphthalene	2- Methylnaphthalene	Naphthalene	Pyrene
9/28/2022	Flowline	-6	**20220928-F12W-12-6A_WH_FL@6'**	**4.6**	**243**	**0.0476**	**80.9**	**162**	*<0.00100*	*<0.00500*	*<0.00250*	*<0.00650*	*<0.00500*	*<0.00500*	*<0.00600*	**0.00356**	*<0.00600*	*<0.00600*	**0.00328**	*<0.00600*	**0.00712**	*<0.00600*	**0.00411**	**0.0102**	*<0.00600*	**0.0729**	**0.218**	**0.0581**	**0.0199**
9/28/2022	Wellhead	-7	**20220928-F12W-12-6A_WH_BASE@7'**	**7.5**	**125.6**	**0.0845**	**41.4**	**84.1**	*<0.00100*	**0.00130**	*<0.00250*	**0.00175**	*<0.00500*	*<0.00500*	**0.00236**	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	**0.00427**	*<0.00600*	**0.0124**	**0.0383**	**0.00922**	**0.00832**
9/28/2022	Flowline	-6	**20220928-F12W-12-6A_SEP_FL@6'**	**5.0**	**1.42**	**0.0530**	*<4.00*	**1.37**	*<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*	*<0.00600*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.00600*
9/15/2021	Background	-2	**20210915-H12W(BG01)@2'**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
9/15/2021	Background	-3	**20210915-H12W(BG02)@3'**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
9/15/2021	Background	-4	**20210915-H12W(BG03)@4'**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
8/17/2021	Background	-0.5	**20210817-H12W-BG**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

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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
F12W - 6A

11/9/2022

		Soil Screening and Remediation Limits		Soil Suitability for Reclamation				Metals (mg/kg [ppm])									
			COGCC Table 915-1 Residential -->	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.]	Depth - Z (feet) (NEGATIVE VALUE) below ground surface (bgs)	Sample ID	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
9/28/2022	Flowline	-6	**20220928-F12W-12-6A_WH_FL@6'**	**0.428**	**5.12**	**8.56**	**0.386**	**6.75**	**5610**	*<0.500*	*<1.00*	**16.5**	**385**	**11.6**	*<2.00*	*<1.00*	**100**
9/28/2022	Wellhead	-7	**20220928-F12W-12-6A_WH_BASE@7'**	**0.312**	**3.35**	**8.78**	**0.269**	**10.6**	**872**	**0.216**	*<1.00*	**15.7**	**22.3**	**14.5**	*<2.00*	*<1.00*	**61.3**
9/28/2022	Flowline	-6	**20220928-F12W-12-6A_SEP_FL@6'**	**0.177**	**0.816**	**8.53**	**0.325**	**4.83**	**203**	**0.149**	*<1.00*	**8.70**	**7.74**	**10.5**	**1.40**	*<1.00*	**23.7**
9/15/2021	Background	-2	**20210915-H12W(BG01)@2'**	*NA*	*NA*	**8.03**	*NA*	**4.88**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
9/15/2021	Background	-3	**20210915-H12W(BG02)@3'**	*NA*	*NA*	**8.24**	*NA*	**5.31**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
9/15/2021	Background	-4	**20210915-H12W(BG03)@4'**	*NA*	*NA*	**8.85**	*NA*	**3.79**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
8/17/2021	Background	-0.5	**20210817-H12W-BG**	**0.375**	**0.0667**	**7.72**	*NA*	**9.38**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

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"NA" = Not Analyzed
mg/kg = milligrams per kilogram / parts per million

ANALYTICAL REPORT

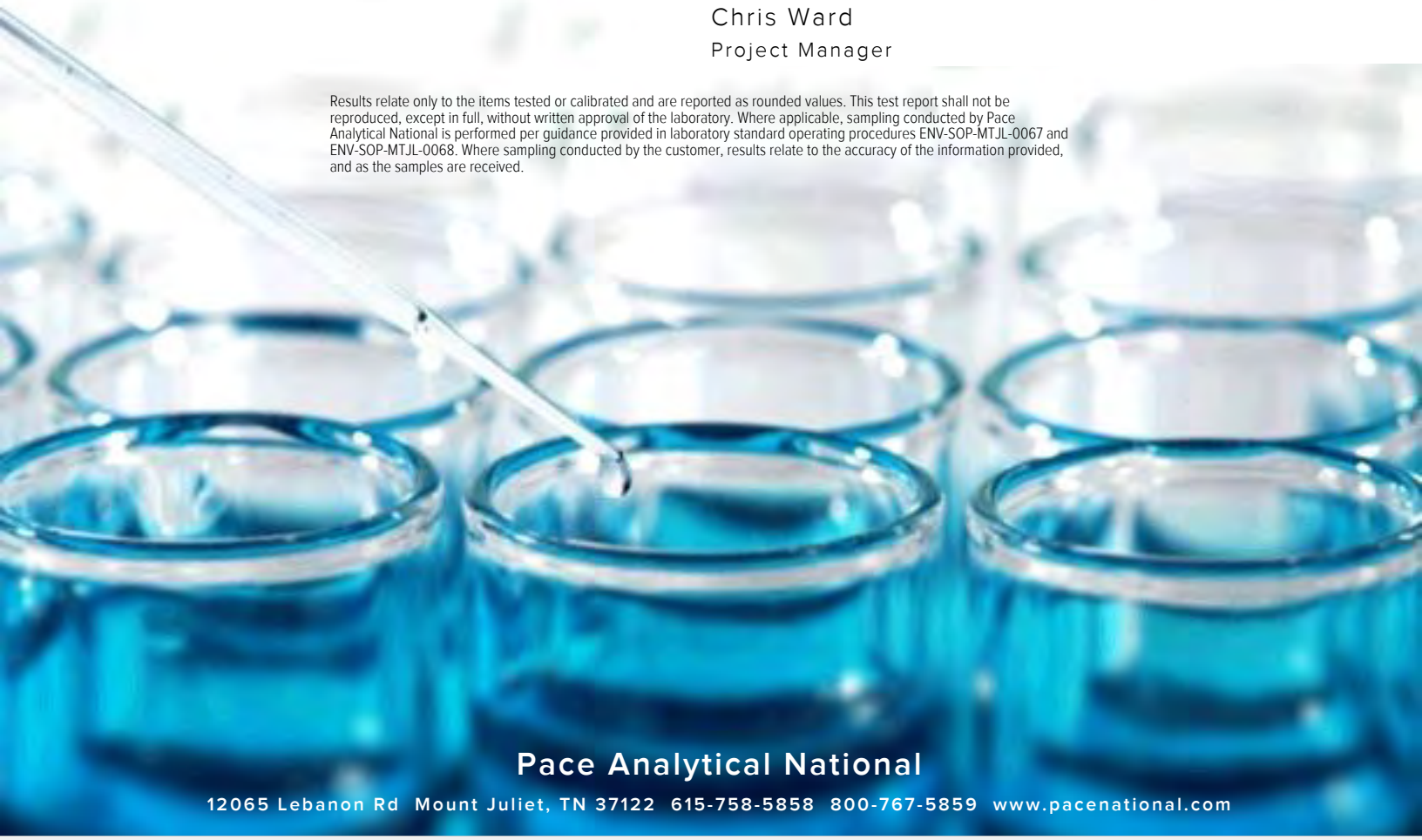
October 11, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1541710
Samples Received:	09/30/2022
Project Number:	F12W
Description:	F12W (12-6A & 12-6B) P&A
Site:	F12W
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

20220928-F12W-12-6A_WH_BASE@7' L1541710-01 Solid

Collected by: Andrew Smith | Collected date/time: 09/28/22 11:30 | Received date/time: 09/30/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1938855	1	10/08/22 14:01	10/08/22 14:01	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1939396	1	10/08/22 17:49	10/11/22 10:17	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1936009	1	10/03/22 12:00	10/03/22 14:34	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1935067	1	10/04/22 08:00	10/04/22 11:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1937529	1	10/05/22 09:51	10/06/22 11:24	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1935954	1	10/03/22 10:30	10/05/22 11:11	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1937532	5	10/05/22 09:46	10/06/22 23:49	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1937191	1	10/04/22 08:27	10/05/22 09:36	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1938255	1	10/04/22 08:27	10/06/22 10:48	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1938247	1	10/07/22 17:36	10/08/22 10:28	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1938036	1	10/06/22 05:18	10/06/22 18:28	AO	Mt. Juliet, TN

20220928-F12W-12-6A_WH_FL@6' L1541710-02 Solid

Collected by: Andrew Smith | Collected date/time: 09/28/22 11:40 | Received date/time: 09/30/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1938855	1	10/08/22 14:03	10/08/22 14:03	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1939396	1	10/08/22 17:49	10/11/22 10:22	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1935996	1	10/03/22 12:00	10/03/22 14:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1935067	1	10/04/22 08:00	10/04/22 11:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1937529	1	10/05/22 09:51	10/06/22 11:27	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1937529	5	10/05/22 09:51	10/06/22 20:52	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1935954	1	10/03/22 10:30	10/05/22 11:13	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1937532	5	10/05/22 09:46	10/06/22 23:52	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1937191	1	10/04/22 08:27	10/05/22 09:56	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1938255	1	10/04/22 08:27	10/06/22 11:07	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1938247	1	10/07/22 17:36	10/08/22 10:03	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1938037	1	10/06/22 05:40	10/06/22 20:42	JMB	Mt. Juliet, TN

20220928-F12W-12-6B_WH_BASE@7' L1541710-03 Solid

Collected by: Andrew Smith | Collected date/time: 09/28/22 11:50 | Received date/time: 09/30/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1938855	1	10/08/22 14:06	10/08/22 14:06	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1939396	1	10/08/22 17:49	10/11/22 10:27	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1935996	1	10/03/22 12:00	10/03/22 14:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1935067	1	10/04/22 08:00	10/04/22 11:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1937529	1	10/05/22 09:51	10/06/22 11:29	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1935954	1	10/03/22 10:30	10/05/22 11:16	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1937532	5	10/05/22 09:46	10/06/22 23:55	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1937191	1	10/04/22 08:27	10/05/22 10:17	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1938255	1	10/04/22 08:27	10/06/22 11:26	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1938247	1	10/07/22 17:36	10/08/22 10:02	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1938037	1	10/06/22 05:40	10/06/22 20:59	JMB	Mt. Juliet, TN

20220928-F12W-12-6B_WH_FL@6' L1541710-04 Solid

Collected by: Andrew Smith | Collected date/time: 09/28/22 12:00 | Received date/time: 09/30/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1938855	1	10/08/22 14:14	10/08/22 14:14	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1939396	1	10/08/22 17:49	10/11/22 10:32	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1936009	1	10/03/22 12:00	10/03/22 14:34	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1935067	1	10/04/22 08:00	10/04/22 11:00	NTG	Mt. Juliet, TN

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

SAMPLE SUMMARY

20220928-F12W-12-6B_WH_FL@6' L1541710-04 Solid

Collected by: Andrew Smith
Collected date/time: 09/28/22 12:00
Received date/time: 09/30/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1937529	1	10/05/22 09:51	10/06/22 11:38	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1935954	1	10/03/22 10:30	10/05/22 11:19	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1937532	5	10/05/22 09:46	10/07/22 00:05	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1937191	1	10/04/22 08:27	10/05/22 10:37	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1938255	1	10/04/22 08:27	10/06/22 11:44	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1938247	1	10/07/22 17:36	10/08/22 10:16	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1938247	10	10/07/22 17:36	10/08/22 16:18	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1938037	1	10/06/22 05:40	10/06/22 21:17	JMB	Mt. Juliet, TN

20220928-F12W-12-6B_SEP_FL@6' L1541710-05 Solid

Collected by: Andrew Smith
Collected date/time: 09/28/22 12:10
Received date/time: 09/30/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1938855	1	10/08/22 14:17	10/08/22 14:17	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1939396	1	10/08/22 17:49	10/11/22 10:38	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1935996	1	10/03/22 12:00	10/03/22 14:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1935067	1	10/04/22 08:00	10/04/22 11:00	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1937529	1	10/05/22 09:51	10/06/22 11:41	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1935954	1	10/03/22 10:30	10/05/22 11:22	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1937532	5	10/05/22 09:46	10/07/22 00:08	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1937191	1	10/04/22 08:27	10/05/22 10:58	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1938255	1	10/04/22 08:27	10/06/22 12:03	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1938247	1	10/07/22 17:36	10/08/22 09:36	JAS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1938247	10	10/07/22 17:36	10/08/22 15:52	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1938037	1	10/06/22 05:40	10/06/22 21:34	JMB	Mt. Juliet, TN

20220928-F12W-12-6A_SEP_FL@6' L1541710-06 Solid

Collected by: Andrew Smith
Collected date/time: 09/28/22 12:20
Received date/time: 09/30/22 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1938855	1	10/08/22 14:20	10/08/22 14:20	KMG	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1939396	1	10/08/22 17:49	10/11/22 10:43	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1935996	1	10/03/22 12:00	10/03/22 14:00	SGB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1936746	1	10/04/22 08:41	10/04/22 11:50	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1937529	1	10/05/22 09:51	10/06/22 11:44	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1935954	1	10/03/22 10:30	10/05/22 11:25	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1937532	5	10/05/22 09:46	10/07/22 00:11	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1937191	1	10/04/22 08:27	10/05/22 11:18	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1938255	1	10/04/22 08:27	10/06/22 12:22	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1938247	1	10/07/22 17:36	10/08/22 11:27	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1938037	1	10/06/22 05:40	10/06/22 21:51	JMB	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.35		1	10/08/2022 14:01	WG1938855

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	10/11/2022 10:17	WG1939396

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.78	T8	1	10/03/2022 14:34	WG1936009

Sample Narrative:
L1541710-01 WG1936009: 8.78 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	312		10.0	1	10/04/2022 11:00	WG1935067

Sample Narrative:
L1541710-01 WG1935067: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	872		0.0852	0.500	1	10/06/2022 11:24	WG1937529
Cadmium	0.216	J	0.0471	0.500	1	10/06/2022 11:24	WG1937529
Copper	15.7		0.400	2.00	1	10/06/2022 11:24	WG1937529
Lead	22.3		0.208	0.500	1	10/06/2022 11:24	WG1937529
Nickel	14.5		0.132	2.00	1	10/06/2022 11:24	WG1937529
Selenium	U		0.764	2.00	1	10/06/2022 11:24	WG1937529
Silver	U		0.127	1.00	1	10/06/2022 11:24	WG1937529
Zinc	61.3		0.832	5.00	1	10/06/2022 11:24	WG1937529

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	0.269		0.0167	0.200	1	10/05/2022 11:11	WG1935954

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.6		0.100	1.00	5	10/06/2022 23:49	WG1937532

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	0.0845	J	0.0217	0.100	1	10/05/2022 09:36	WG1937191
(S) a,a,a-Trifluorotoluene(FID)	*91.5*			*77.0-120*		*10/05/2022 09:36*	WG1937191

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	10/06/2022 10:48	WG1938255
Toluene	0.00130	J	0.00130	0.00500	1	10/06/2022 10:48	WG1938255
Ethylbenzene	U		0.000737	0.00250	1	10/06/2022 10:48	WG1938255
Xylenes, Total	0.00175	J	0.000880	0.00650	1	10/06/2022 10:48	WG1938255
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	10/06/2022 10:48	WG1938255
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	10/06/2022 10:48	WG1938255
(S) Toluene-d8	*105*			*75.0-131*		*10/06/2022 10:48*	WG1938255
(S) 4-Bromofluorobenzene	*99.4*			*67.0-138*		*10/06/2022 10:48*	WG1938255
(S) 1,2-Dichloroethane-d4	*83.8*			*70.0-130*		*10/06/2022 10:48*	WG1938255

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	41.4		1.61	4.00	1	10/08/2022 10:28	WG1938247
C28-C36 Motor Oil Range	84.1		0.274	4.00	1	10/08/2022 10:28	WG1938247
(S) o-Terphenyl	*36.8*			*18.0-148*		*10/08/2022 10:28*	WG1938247

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	0.00236	J	0.00209	0.00600	1	10/06/2022 18:28	WG1938036
Anthracene	U		0.00230	0.00600	1	10/06/2022 18:28	WG1938036
Benzo(a)anthracene	U		0.00173	0.00600	1	10/06/2022 18:28	WG1938036
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/06/2022 18:28	WG1938036
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/06/2022 18:28	WG1938036
Benzo(a)pyrene	U		0.00179	0.00600	1	10/06/2022 18:28	WG1938036
Chrysene	U		0.00232	0.00600	1	10/06/2022 18:28	WG1938036
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/06/2022 18:28	WG1938036
Fluoranthene	U		0.00227	0.00600	1	10/06/2022 18:28	WG1938036
Fluorene	0.00427	J	0.00205	0.00600	1	10/06/2022 18:28	WG1938036
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/06/2022 18:28	WG1938036
1-Methylnaphthalene	0.0124	J	0.00449	0.0200	1	10/06/2022 18:28	WG1938036
2-Methylnaphthalene	0.0383		0.00427	0.0200	1	10/06/2022 18:28	WG1938036
Naphthalene	0.00922	J	0.00408	0.0200	1	10/06/2022 18:28	WG1938036
Pyrene	0.00832		0.00200	0.00600	1	10/06/2022 18:28	WG1938036
(S) p-Terphenyl-d14	*79.3*			*23.0-120*		*10/06/2022 18:28*	WG1938036
(S) Nitrobenzene-d5	*79.2*			*14.0-149*		*10/06/2022 18:28*	WG1938036
(S) 2-Fluorobiphenyl	*82.0*			*34.0-125*		*10/06/2022 18:28*	WG1938036

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.12		1	10/08/2022 14:03	WG1938855

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	10/11/2022 10:22	WG1939396

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.56	T8	1	10/03/2022 14:00	WG1935996

Sample Narrative:
L1541710-02 WG1935996: 8.56 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	428		10.0	1	10/04/2022 11:00	WG1935067

Sample Narrative:
L1541710-02 WG1935067: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	5610		0.426	2.50	5	10/06/2022 20:52	WG1937529
Cadmium	U		0.0471	0.500	1	10/06/2022 11:27	WG1937529
Copper	16.5		0.400	2.00	1	10/06/2022 11:27	WG1937529
Lead	385		0.208	0.500	1	10/06/2022 11:27	WG1937529
Nickel	11.6		0.132	2.00	1	10/06/2022 11:27	WG1937529
Selenium	U		0.764	2.00	1	10/06/2022 11:27	WG1937529
Silver	U		0.127	1.00	1	10/06/2022 11:27	WG1937529
Zinc	100		0.832	5.00	1	10/06/2022 11:27	WG1937529

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	0.386		0.0167	0.200	1	10/05/2022 11:13	WG1935954

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.75		0.100	1.00	5	10/06/2022 23:52	WG1937532

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	0.0476	J	0.0217	0.100	1	10/05/2022 09:56	WG1937191
(S) a,a,a-Trifluorotoluene(FID)	*92.1*			*77.0-120*		*10/05/2022 09:56*	WG1937191

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	10/06/2022 11:07	WG1938255
Toluene	U		0.00130	0.00500	1	10/06/2022 11:07	WG1938255
Ethylbenzene	U		0.000737	0.00250	1	10/06/2022 11:07	WG1938255
Xylenes, Total	U		0.000880	0.00650	1	10/06/2022 11:07	WG1938255
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	10/06/2022 11:07	WG1938255
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	10/06/2022 11:07	WG1938255
(S) Toluene-d8	*102*			*75.0-131*		*10/06/2022 11:07*	WG1938255
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*10/06/2022 11:07*	WG1938255
(S) 1,2-Dichloroethane-d4	*86.1*			*70.0-130*		*10/06/2022 11:07*	WG1938255

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	80.9		1.61	4.00	1	10/08/2022 10:03	WG1938247
C28-C36 Motor Oil Range	162		0.274	4.00	1	10/08/2022 10:03	WG1938247
(S) o-Terphenyl	*38.9*			*18.0-148*		*10/08/2022 10:03*	WG1938247

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	10/06/2022 20:42	WG1938037
Anthracene	0.00356	J	0.00230	0.00600	1	10/06/2022 20:42	WG1938037
Benzo(a)anthracene	U		0.00173	0.00600	1	10/06/2022 20:42	WG1938037
Benzo(b)fluoranthene	0.00328	J	0.00153	0.00600	1	10/06/2022 20:42	WG1938037
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/06/2022 20:42	WG1938037
Benzo(a)pyrene	U		0.00179	0.00600	1	10/06/2022 20:42	WG1938037
Chrysene	0.00712		0.00232	0.00600	1	10/06/2022 20:42	WG1938037
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/06/2022 20:42	WG1938037
Fluoranthene	0.00411	J	0.00227	0.00600	1	10/06/2022 20:42	WG1938037
Fluorene	0.0102		0.00205	0.00600	1	10/06/2022 20:42	WG1938037
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/06/2022 20:42	WG1938037
1-Methylnaphthalene	0.0729		0.00449	0.0200	1	10/06/2022 20:42	WG1938037
2-Methylnaphthalene	0.218		0.00427	0.0200	1	10/06/2022 20:42	WG1938037
Naphthalene	0.0581		0.00408	0.0200	1	10/06/2022 20:42	WG1938037
Pyrene	0.0199		0.00200	0.00600	1	10/06/2022 20:42	WG1938037
(S) p-Terphenyl-d14	*80.2*			*23.0-120*		*10/06/2022 20:42*	WG1938037
(S) Nitrobenzene-d5	*87.6*			*14.0-149*		*10/06/2022 20:42*	WG1938037
(S) 2-Fluorobiphenyl	*76.4*			*34.0-125*		*10/06/2022 20:42*	WG1938037

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.21		1	10/08/2022 14:06	WG1938855

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	10/11/2022 10:27	WG1939396

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	9.77	T8	1	10/03/2022 14:00	WG1935996

Sample Narrative:

L1541710-03 WG1935996: 9.77 at 20.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	241		10.0	1	10/04/2022 11:00	WG1935067

Sample Narrative:

L1541710-03 WG1935067: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	276		0.0852	0.500	1	10/06/2022 11:29	WG1937529
Cadmium	0.312	J	0.0471	0.500	1	10/06/2022 11:29	WG1937529
Copper	14.1		0.400	2.00	1	10/06/2022 11:29	WG1937529
Lead	11.5		0.208	0.500	1	10/06/2022 11:29	WG1937529
Nickel	14.2		0.132	2.00	1	10/06/2022 11:29	WG1937529
Selenium	U		0.764	2.00	1	10/06/2022 11:29	WG1937529
Silver	U		0.127	1.00	1	10/06/2022 11:29	WG1937529
Zinc	48.2		0.832	5.00	1	10/06/2022 11:29	WG1937529

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	0.410		0.0167	0.200	1	10/05/2022 11:16	WG1935954

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	8.37		0.100	1.00	5	10/06/2022 23:55	WG1937532

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	0.0814	J	0.0217	0.100	1	10/05/2022 10:17	WG1937191
(S) a,a,a-Trifluorotoluene(FID)	*90.1*			*77.0-120*		*10/05/2022 10:17*	WG1937191

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	10/06/2022 11:26	WG1938255
Toluene	U		0.00130	0.00500	1	10/06/2022 11:26	WG1938255
Ethylbenzene	U		0.000737	0.00250	1	10/06/2022 11:26	WG1938255
Xylenes, Total	U		0.000880	0.00650	1	10/06/2022 11:26	WG1938255
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	10/06/2022 11:26	WG1938255
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	10/06/2022 11:26	WG1938255
(S) Toluene-d8	*101*			*75.0-131*		*10/06/2022 11:26*	WG1938255
(S) 4-Bromofluorobenzene	*97.0*			*67.0-138*		*10/06/2022 11:26*	WG1938255
(S) 1,2-Dichloroethane-d4	*87.1*			*70.0-130*		*10/06/2022 11:26*	WG1938255

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	6.43		1.61	4.00	1	10/08/2022 10:02	WG1938247
C28-C36 Motor Oil Range	16.2		0.274	4.00	1	10/08/2022 10:02	WG1938247
(S) o-Terphenyl	*66.6*			*18.0-148*		*10/08/2022 10:02*	WG1938247

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	10/06/2022 20:59	WG1938037
Anthracene	U		0.00230	0.00600	1	10/06/2022 20:59	WG1938037
Benzo(a)anthracene	U		0.00173	0.00600	1	10/06/2022 20:59	WG1938037
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/06/2022 20:59	WG1938037
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/06/2022 20:59	WG1938037
Benzo(a)pyrene	U		0.00179	0.00600	1	10/06/2022 20:59	WG1938037
Chrysene	U		0.00232	0.00600	1	10/06/2022 20:59	WG1938037
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/06/2022 20:59	WG1938037
Fluoranthene	U		0.00227	0.00600	1	10/06/2022 20:59	WG1938037
Fluorene	U		0.00205	0.00600	1	10/06/2022 20:59	WG1938037
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/06/2022 20:59	WG1938037
1-Methylnaphthalene	U		0.00449	0.0200	1	10/06/2022 20:59	WG1938037
2-Methylnaphthalene	U		0.00427	0.0200	1	10/06/2022 20:59	WG1938037
Naphthalene	U		0.00408	0.0200	1	10/06/2022 20:59	WG1938037
Pyrene	U		0.00200	0.00600	1	10/06/2022 20:59	WG1938037
(S) p-Terphenyl-d14	*70.9*			*23.0-120*		*10/06/2022 20:59*	WG1938037
(S) Nitrobenzene-d5	*74.3*			*14.0-149*		*10/06/2022 20:59*	WG1938037
(S) 2-Fluorobiphenyl	*72.2*			*34.0-125*		*10/06/2022 20:59*	WG1938037

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.66		1	10/08/2022 14:14	WG1938855

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	10/11/2022 10:32	WG1939396

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.66	T8	1	10/03/2022 14:34	WG1936009

Sample Narrative:

L1541710-04 WG1936009: 8.66 at 20.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	192		10.0	1	10/04/2022 11:00	WG1935067

Sample Narrative:

L1541710-04 WG1935067: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	478		0.0852	0.500	1	10/06/2022 11:38	WG1937529
Cadmium	0.232	J	0.0471	0.500	1	10/06/2022 11:38	WG1937529
Copper	14.1		0.400	2.00	1	10/06/2022 11:38	WG1937529
Lead	16.0		0.208	0.500	1	10/06/2022 11:38	WG1937529
Nickel	11.2		0.132	2.00	1	10/06/2022 11:38	WG1937529
Selenium	U		0.764	2.00	1	10/06/2022 11:38	WG1937529
Silver	U		0.127	1.00	1	10/06/2022 11:38	WG1937529
Zinc	56.6		0.832	5.00	1	10/06/2022 11:38	WG1937529

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	0.352		0.0167	0.200	1	10/05/2022 11:19	WG1935954

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.64		0.100	1.00	5	10/07/2022 00:05	WG1937532

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	0.0379	J	0.0217	0.100	1	10/05/2022 10:37	WG1937191
(S) a,a,a-Trifluorotoluene(FID)	*91.4*			*77.0-120*		*10/05/2022 10:37*	WG1937191

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	10/06/2022 11:44	WG1938255
Toluene	0.00133	J	0.00130	0.00500	1	10/06/2022 11:44	WG1938255
Ethylbenzene	U		0.000737	0.00250	1	10/06/2022 11:44	WG1938255
Xylenes, Total	U		0.000880	0.00650	1	10/06/2022 11:44	WG1938255
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	10/06/2022 11:44	WG1938255
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	10/06/2022 11:44	WG1938255
(S) Toluene-d8	*105*			*75.0-131*		*10/06/2022 11:44*	WG1938255
(S) 4-Bromofluorobenzene	*95.1*			*67.0-138*		*10/06/2022 11:44*	WG1938255
(S) 1,2-Dichloroethane-d4	*82.4*			*70.0-130*		*10/06/2022 11:44*	WG1938255

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	168		1.61	4.00	1	10/08/2022 10:16	WG1938247
C28-C36 Motor Oil Range	393		2.74	40.0	10	10/08/2022 16:18	WG1938247
(S) o-Terphenyl	*55.0*			*18.0-148*		*10/08/2022 10:16*	WG1938247
(S) o-Terphenyl	*58.2*			*18.0-148*		*10/08/2022 16:18*	WG1938247

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	0.00217	J	0.00209	0.00600	1	10/06/2022 21:17	WG1938037
Anthracene	U		0.00230	0.00600	1	10/06/2022 21:17	WG1938037
Benzo(a)anthracene	U		0.00173	0.00600	1	10/06/2022 21:17	WG1938037
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/06/2022 21:17	WG1938037
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/06/2022 21:17	WG1938037
Benzo(a)pyrene	U		0.00179	0.00600	1	10/06/2022 21:17	WG1938037
Chrysene	U		0.00232	0.00600	1	10/06/2022 21:17	WG1938037
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/06/2022 21:17	WG1938037
Fluoranthene	U		0.00227	0.00600	1	10/06/2022 21:17	WG1938037
Fluorene	0.00217	J	0.00205	0.00600	1	10/06/2022 21:17	WG1938037
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/06/2022 21:17	WG1938037
1-Methylnaphthalene	0.0112	J	0.00449	0.0200	1	10/06/2022 21:17	WG1938037
2-Methylnaphthalene	0.0369		0.00427	0.0200	1	10/06/2022 21:17	WG1938037
Naphthalene	0.0117	J	0.00408	0.0200	1	10/06/2022 21:17	WG1938037
Pyrene	0.0112		0.00200	0.00600	1	10/06/2022 21:17	WG1938037
(S) p-Terphenyl-d14	*82.7*			*23.0-120*		*10/06/2022 21:17*	WG1938037
(S) Nitrobenzene-d5	*84.1*			*14.0-149*		*10/06/2022 21:17*	WG1938037
(S) 2-Fluorobiphenyl	*77.1*			*34.0-125*		*10/06/2022 21:17*	WG1938037

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.522		1	10/08/2022 14:17	WG1938855

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	10/11/2022 10:38	WG1939396

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.40	T8	1	10/03/2022 14:00	WG1935996

Sample Narrative:

L1541710-05 WG1935996: 8.4 at 20C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	159		10.0	1	10/04/2022 11:00	WG1935067

Sample Narrative:

L1541710-05 WG1935067: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	283		0.0852	0.500	1	10/06/2022 11:41	WG1937529
Cadmium	0.218	J	0.0471	0.500	1	10/06/2022 11:41	WG1937529
Copper	10.3		0.400	2.00	1	10/06/2022 11:41	WG1937529
Lead	8.66		0.208	0.500	1	10/06/2022 11:41	WG1937529
Nickel	11.9		0.132	2.00	1	10/06/2022 11:41	WG1937529
Selenium	1.60	J	0.764	2.00	1	10/06/2022 11:41	WG1937529
Silver	U		0.127	1.00	1	10/06/2022 11:41	WG1937529
Zinc	28.5		0.832	5.00	1	10/06/2022 11:41	WG1937529

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	0.312		0.0167	0.200	1	10/05/2022 11:22	WG1935954

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.52		0.100	1.00	5	10/07/2022 00:08	WG1937532

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	0.0555	J	0.0217	0.100	1	10/05/2022 10:58	WG1937191
(S) a,a,a-Trifluorotoluene(FID)	*92.1*			*77.0-120*		*10/05/2022 10:58*	WG1937191

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	10/06/2022 12:03	WG1938255
Toluene	0.00133	J	0.00130	0.00500	1	10/06/2022 12:03	WG1938255
Ethylbenzene	U		0.000737	0.00250	1	10/06/2022 12:03	WG1938255
Xylenes, Total	U		0.000880	0.00650	1	10/06/2022 12:03	WG1938255
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	10/06/2022 12:03	WG1938255
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	10/06/2022 12:03	WG1938255
(S) Toluene-d8	*102*			*75.0-131*		*10/06/2022 12:03*	WG1938255
(S) 4-Bromofluorobenzene	*99.9*			*67.0-138*		*10/06/2022 12:03*	WG1938255
(S) 1,2-Dichloroethane-d4	*83.4*			*70.0-130*		*10/06/2022 12:03*	WG1938255

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	115		1.61	4.00	1	10/08/2022 09:36	WG1938247
C28-C36 Motor Oil Range	287		2.74	40.0	10	10/08/2022 15:52	WG1938247
(S) o-Terphenyl	*67.4*			*18.0-148*		*10/08/2022 09:36*	WG1938247
(S) o-Terphenyl	*82.1*			*18.0-148*		*10/08/2022 15:52*	WG1938247

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	10/06/2022 21:34	WG1938037
Anthracene	U		0.00230	0.00600	1	10/06/2022 21:34	WG1938037
Benzo(a)anthracene	U		0.00173	0.00600	1	10/06/2022 21:34	WG1938037
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/06/2022 21:34	WG1938037
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/06/2022 21:34	WG1938037
Benzo(a)pyrene	U		0.00179	0.00600	1	10/06/2022 21:34	WG1938037
Chrysene	U		0.00232	0.00600	1	10/06/2022 21:34	WG1938037
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/06/2022 21:34	WG1938037
Fluoranthene	U		0.00227	0.00600	1	10/06/2022 21:34	WG1938037
Fluorene	U		0.00205	0.00600	1	10/06/2022 21:34	WG1938037
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/06/2022 21:34	WG1938037
1-Methylnaphthalene	U		0.00449	0.0200	1	10/06/2022 21:34	WG1938037
2-Methylnaphthalene	U		0.00427	0.0200	1	10/06/2022 21:34	WG1938037
Naphthalene	U		0.00408	0.0200	1	10/06/2022 21:34	WG1938037
Pyrene	U		0.00200	0.00600	1	10/06/2022 21:34	WG1938037
(S) p-Terphenyl-d14	*82.3*			*23.0-120*		*10/06/2022 21:34*	WG1938037
(S) Nitrobenzene-d5	*86.3*			*14.0-149*		*10/06/2022 21:34*	WG1938037
(S) 2-Fluorobiphenyl	*83.4*			*34.0-125*		*10/06/2022 21:34*	WG1938037

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.816		1	10/08/2022 14:20	WG1938855

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	10/11/2022 10:43	WG1939396

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.53	T8	1	10/03/2022 14:00	WG1935996

Sample Narrative:

L1541710-06 WG1935996: 8.53 at 19.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	177		10.0	1	10/04/2022 11:50	WG1936746

Sample Narrative:

L1541710-06 WG1936746: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	203		0.0852	0.500	1	10/06/2022 11:44	WG1937529
Cadmium	0.149	J	0.0471	0.500	1	10/06/2022 11:44	WG1937529
Copper	8.70		0.400	2.00	1	10/06/2022 11:44	WG1937529
Lead	7.74		0.208	0.500	1	10/06/2022 11:44	WG1937529
Nickel	10.5		0.132	2.00	1	10/06/2022 11:44	WG1937529
Selenium	1.40	J	0.764	2.00	1	10/06/2022 11:44	WG1937529
Silver	U		0.127	1.00	1	10/06/2022 11:44	WG1937529
Zinc	23.7		0.832	5.00	1	10/06/2022 11:44	WG1937529

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.325		0.0167	0.200	1	10/05/2022 11:25	WG1935954

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.83		0.100	1.00	5	10/07/2022 00:11	WG1937532

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	0.0530	J	0.0217	0.100	1	10/05/2022 11:18	WG1937191
(S) a,a,a-Trifluorotoluene(FID)	*90.4*			*77.0-120*		*10/05/2022 11:18*	WG1937191

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	10/06/2022 12:22	WG1938255
Toluene	U		0.00130	0.00500	1	10/06/2022 12:22	WG1938255
Ethylbenzene	U		0.000737	0.00250	1	10/06/2022 12:22	WG1938255
Xylenes, Total	U		0.000880	0.00650	1	10/06/2022 12:22	WG1938255
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	10/06/2022 12:22	WG1938255
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	10/06/2022 12:22	WG1938255
(S) Toluene-d8	*103*			*75.0-131*		*10/06/2022 12:22*	WG1938255
(S) 4-Bromofluorobenzene	*98.8*			*67.0-138*		*10/06/2022 12:22*	WG1938255
(S) 1,2-Dichloroethane-d4	*89.9*			*70.0-130*		*10/06/2022 12:22*	WG1938255

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.61	4.00	1	10/08/2022 11:27	WG1938247
C28-C36 Motor Oil Range	1.37	J	0.274	4.00	1	10/08/2022 11:27	WG1938247
(S) o-Terphenyl	*59.4*			*18.0-148*		*10/08/2022 11:27*	WG1938247

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.00209	0.00600	1	10/06/2022 21:51	WG1938037
Anthracene	U		0.00230	0.00600	1	10/06/2022 21:51	WG1938037
Benzo(a)anthracene	U		0.00173	0.00600	1	10/06/2022 21:51	WG1938037
Benzo(b)fluoranthene	U		0.00153	0.00600	1	10/06/2022 21:51	WG1938037
Benzo(k)fluoranthene	U		0.00215	0.00600	1	10/06/2022 21:51	WG1938037
Benzo(a)pyrene	U		0.00179	0.00600	1	10/06/2022 21:51	WG1938037
Chrysene	U		0.00232	0.00600	1	10/06/2022 21:51	WG1938037
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	10/06/2022 21:51	WG1938037
Fluoranthene	U		0.00227	0.00600	1	10/06/2022 21:51	WG1938037
Fluorene	U		0.00205	0.00600	1	10/06/2022 21:51	WG1938037
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	10/06/2022 21:51	WG1938037
1-Methylnaphthalene	U		0.00449	0.0200	1	10/06/2022 21:51	WG1938037
2-Methylnaphthalene	U		0.00427	0.0200	1	10/06/2022 21:51	WG1938037
Naphthalene	U		0.00408	0.0200	1	10/06/2022 21:51	WG1938037
Pyrene	U		0.00200	0.00600	1	10/06/2022 21:51	WG1938037
(S) p-Terphenyl-d14	*80.3*			*23.0-120*		*10/06/2022 21:51*	WG1938037
(S) Nitrobenzene-d5	*86.6*			*14.0-149*		*10/06/2022 21:51*	WG1938037
(S) 2-Fluorobiphenyl	*83.8*			*34.0-125*		*10/06/2022 21:51*	WG1938037

Method Blank (MB)

(MB) R3847060-1 10/11/22 08:00

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

L1540745-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1540745-11 10/11/22 08:23 • (DUP) R3847060-3 10/11/22 08:28

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

L1540777-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1540777-02 10/11/22 09:46 • (DUP) R3847060-10 10/11/22 09:51

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

Laboratory Control Sample (LCS)

(LCS) R3847060-2 10/11/22 08:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	11.4	114	80.0-120	

L1540776-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1540776-01 10/11/22 09:04 • (MS) R3847060-7 10/11/22 09:15 • (MSD) R3847060-8 10/11/22 09:20

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	13.2	90.1	65.9	1	75.0-125		J3 J6	31.1	20

Sample Narrative:

OS: Sample is a reducer.

MSD: Matrix spike failure due to matrix interference.

L1540776-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1540776-01 10/11/22 09:04 • (MS) R3847060-9 10/11/22 09:25

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	636	U	613	96.3	50	75.0-125	

Sample Narrative:

OS: Sample is a reducer.

L1541121-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1541121-13 10/03/22 14:00 • (DUP) R3844059-2 10/03/22 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.53	6.51	1	0.307		1

Sample Narrative:

OS: 6.53 at 20.8C

DUP: 6.51 at 20.8C

L1541161-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1541161-01 10/03/22 14:00 • (DUP) R3844059-3 10/03/22 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.66	7.66	1	0.000		1

Sample Narrative:

OS: 7.66 at 20.7C

DUP: 7.66 at 20.8C

Laboratory Control Sample (LCS)

(LCS) R3844059-1 10/03/22 14:00

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

Sample Narrative:

LCS: 9.9 at 21.1C

L1541154-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1541154-01 10/03/22 14:34 • (DUP) R3844088-2 10/03/22 14:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.26	8.31	1	0.604		1

Sample Narrative:

OS: 8.26 at 20.2C

DUP: 8.31 at 20.6C

L1541350-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1541350-04 10/03/22 14:34 • (DUP) R3844088-3 10/03/22 14:34

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

Sample Narrative:

OS: 8.96 at 20.6C

DUP: 8.95 at 20.8C

Laboratory Control Sample (LCS)

(LCS) R3844088-1 10/03/22 14:34

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

Sample Narrative:

LCS: 9.9 at 21.2C

Method Blank (MB)

(MB) R3844359-1 10/04/22 11:00

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

L1541161-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1541161-02 10/04/22 11:00 • (DUP) R3844359-3 10/04/22 11:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	828	821	1	0.849		20

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

L1541170-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1541170-10 10/04/22 11:00 • (DUP) R3844359-4 10/04/22 11:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	144	144	1	0.0697		20

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

Laboratory Control Sample (LCS)

(LCS) R3844359-2 10/04/22 11:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1090	97.6	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3844385-1 10/04/22 11:50

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

L1541720-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1541720-01 10/04/22 11:50 • (DUP) R3844385-3 10/04/22 11:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	521	518	1	0.577		20

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

L1541869-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1541869-04 10/04/22 11:50 • (DUP) R3844385-4 10/04/22 11:50

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	380	380	1	0.000		20

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

Laboratory Control Sample (LCS)

(LCS) R3844385-2 10/04/22 11:50

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	1120	1120	99.7	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3845642-7 10/06/22 20:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	0.0862	J	0.0852	0.500
Cadmium	U		0.0471	0.500
Copper	U		0.400	2.00
Lead	U		0.208	0.500
Nickel	U		0.132	2.00
Selenium	U		0.764	2.00
Silver	U		0.127	1.00
Zinc	U		0.832	5.00

Laboratory Control Sample (LCS)

(LCS) R3845642-8 10/06/22 20:49

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	92.5	92.5	80.0-120	
Cadmium	100	90.0	90.0	80.0-120	
Copper	100	91.8	91.8	80.0-120	
Lead	100	90.0	90.0	80.0-120	
Nickel	100	90.1	90.1	80.0-120	
Selenium	100	89.1	89.1	80.0-120	
Silver	20.0	16.7	83.5	80.0-120	
Zinc	100	88.1	88.1	80.0-120	

L1540745-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1540745-14 10/06/22 10:34 • (MS) R3845642-5 10/06/22 10:42 • (MSD) R3845642-6 10/06/22 10:45

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 %
Barium	100	185	274	332	89.4	147	1	75.0-125		J5	19.0	20
Cadmium	100	0.323	90.0	89.3	89.7	88.9	1	75.0-125			0.867	20
Copper	100	19.7	109	108	89.0	88.5	1	75.0-125			0.417	20
Lead	100	11.3	102	101	90.6	89.6	1	75.0-125			1.06	20
Nickel	100	17.4	108	106	90.8	88.8	1	75.0-125			1.89	20
Selenium	100	0.912	89.6	88.5	88.7	87.6	1	75.0-125			1.26	20
Silver	20.0	U	17.3	17.0	86.3	84.9	1	75.0-125			1.62	20
Zinc	100	37.5	116	114	78.9	76.7	1	75.0-125			1.91	20

Method Blank (MB)

(MB) R3845028-1 10/05/22 10:25

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) R3845028-2 10/05/22 10:28 • (LCSD) R3845028-3 10/05/22 10:30

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	0.950	0.963	95.0	96.3	80.0-120			1.38	20

Method Blank (MB)

(MB) R3845728-1 10/06/22 22:40

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) R3845728-2 10/06/22 22:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	94.2	94.2	80.0-120	

L1540745-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1540745-14 10/06/22 22:46 • (MS) R3845728-5 10/06/22 22:56 • (MSD) R3845728-6 10/06/22 22:59

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	15.5	105	103	89.3	87.2	5	75.0-125			2.02	20

Method Blank (MB)

(MB) R3845118-2 10/05/22 05:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*95.4*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3845118-1 10/05/22 04:56

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.18	94.2	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*105*	*77.0-120*	

L1541709-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1541709-01 10/05/22 09:15 • (MS) R3845118-3 10/05/22 13:21 • (MSD) R3845118-4 10/05/22 13:41

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	5.45	0.126	3.88	3.23	68.9	57.6	1	10.0-151			18.3	28
(S) a,a,a-Trifluorotoluene(FID)					*104*	*103*		*77.0-120*				

Method Blank (MB)

(MB) R3845712-2 10/06/22 08:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	*105*			*75.0-131*
(S) 4-Bromofluorobenzene	*101*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*85.0*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3845712-1 10/06/22 07:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.129	103	70.0-123	
Toluene	0.125	0.123	98.4	75.0-121	
Ethylbenzene	0.125	0.124	99.2	74.0-126	
Xylenes, Total	0.375	0.379	101	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.122	97.6	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.124	99.2	73.0-127	
(S) Toluene-d8			*101*	*75.0-131*	
(S) 4-Bromofluorobenzene			*101*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*91.9*	*70.0-130*	

Method Blank (MB)

(MB) R3846230-1 10/08/22 09:25

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	*71.0*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3846230-2 10/08/22 09:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	27.3	54.6	50.0-150	
(S) o-Terphenyl			*49.1*	*18.0-148*	

L1540766-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1540766-03 10/08/22 11:20 • (MS) R3846239-1 10/08/22 11:33 • (MSD) R3846239-2 10/08/22 11:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	1.63	32.8	37.4	62.3	71.5	1	50.0-150			13.1	20
(S) o-Terphenyl					*64.1*	*72.7*		*18.0-148*				

Method Blank (MB)

(MB) R3845787-2 10/06/22 13:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	*94.7*			*23.0-120*
(S) Nitrobenzene-d5	*84.2*			*14.0-149*
(S) 2-Fluorobiphenyl	*91.7*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3845787-1 10/06/22 13:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0756	94.5	50.0-120	
Anthracene	0.0800	0.0752	94.0	50.0-126	
Benzo(a)anthracene	0.0800	0.0770	96.3	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0775	96.9	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0754	94.3	49.0-125	
Benzo(a)pyrene	0.0800	0.0714	89.3	42.0-120	
Chrysene	0.0800	0.0814	102	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0726	90.8	47.0-125	
Fluoranthene	0.0800	0.0781	97.6	49.0-129	
Fluorene	0.0800	0.0792	99.0	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0746	93.3	46.0-125	
1-Methylnaphthalene	0.0800	0.0729	91.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0760	95.0	50.0-120	
Naphthalene	0.0800	0.0760	95.0	50.0-120	
Pyrene	0.0800	0.0786	98.3	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3845787-1 10/06/22 13:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*93.5*	*23.0-120*	
(S) Nitrobenzene-d5			*87.8*	*14.0-149*	
(S) 2-Fluorobiphenyl			*94.0*	*34.0-125*	

L1541584-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1541584-02 10/06/22 19:08 • (MS) R3845787-3 10/06/22 19:27 • (MSD) R3845787-4 10/06/22 19:47

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.0800	U	0.0741	0.0684	92.6	85.5	1	14.0-127			8.00	27
Anthracene	0.0800	U	0.0774	0.0725	96.8	90.6	1	10.0-145			6.54	30
Benzo(a)anthracene	0.0800	U	0.0794	0.0738	99.3	92.3	1	10.0-139			7.31	30
Benzo(b)fluoranthene	0.0800	U	0.0696	0.0654	87.0	81.8	1	10.0-140			6.22	36
Benzo(k)fluoranthene	0.0800	U	0.0697	0.0645	87.1	80.6	1	10.0-137			7.75	31
Benzo(a)pyrene	0.0800	U	0.0774	0.0721	96.8	90.1	1	10.0-141			7.09	31
Chrysene	0.0800	U	0.0797	0.0747	99.6	93.4	1	10.0-145			6.48	30
Dibenz(a,h)anthracene	0.0800	U	0.0747	0.0700	93.4	87.5	1	10.0-132			6.50	31
Fluoranthene	0.0800	U	0.0780	0.0733	97.5	91.6	1	10.0-153			6.21	33
Fluorene	0.0800	U	0.0776	0.0731	97.0	91.4	1	11.0-130			5.97	29
Indeno(1,2,3-cd)pyrene	0.0800	U	0.0791	0.0741	98.9	92.6	1	10.0-137			6.53	32
1-Methylnaphthalene	0.0800	U	0.0711	0.0659	88.9	82.4	1	10.0-142			7.59	28
2-Methylnaphthalene	0.0800	U	0.0734	0.0686	91.8	85.8	1	10.0-137			6.76	28
Naphthalene	0.0800	U	0.0720	0.0669	90.0	83.6	1	10.0-135			7.34	27
Pyrene	0.0800	U	0.0715	0.0667	89.4	83.4	1	10.0-148			6.95	35
(S) p-Terphenyl-d14					*82.6*	*76.5*		*23.0-120*				
(S) Nitrobenzene-d5					*88.8*	*84.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*88.5*	*83.3*		*34.0-125*				

Method Blank (MB)

(MB) R3845842-2 10/06/22 16:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	*86.7*			*23.0-120*
(S) Nitrobenzene-d5	*84.8*			*14.0-149*
(S) 2-Fluorobiphenyl	*84.2*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3845842-1 10/06/22 16:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0722	90.3	50.0-120	
Anthracene	0.0800	0.0720	90.0	50.0-126	
Benzo(a)anthracene	0.0800	0.0745	93.1	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0737	92.1	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0719	89.9	49.0-125	
Benzo(a)pyrene	0.0800	0.0710	88.8	42.0-120	
Chrysene	0.0800	0.0757	94.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0711	88.9	47.0-125	
Fluoranthene	0.0800	0.0759	94.9	49.0-129	
Fluorene	0.0800	0.0739	92.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0719	89.9	46.0-125	
1-Methylnaphthalene	0.0800	0.0689	86.1	51.0-121	
2-Methylnaphthalene	0.0800	0.0719	89.9	50.0-120	
Naphthalene	0.0800	0.0695	86.9	50.0-120	
Pyrene	0.0800	0.0759	94.9	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3845842-1 10/06/22 16:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*87.9*	*23.0-120*	
(S) Nitrobenzene-d5			*93.8*	*14.0-149*	
(S) 2-Fluorobiphenyl			*88.2*	*34.0-125*	

L1540742-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1540742-07 10/06/22 19:33 • (MS) R3845842-3 10/06/22 19:50 • (MSD) R3845842-4 10/06/22 20:07

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 %
Acenaphthene	0.0801	U	0.0664	0.0626	83.0	78.3	1	14.0-127			5.89	27
Anthracene	0.0801	U	0.0669	0.0645	83.6	80.6	1	10.0-145			3.65	30
Benzo(a)anthracene	0.0801	U	0.0701	0.0685	87.6	85.6	1	10.0-139			2.31	30
Benzo(b)fluoranthene	0.0801	U	0.0678	0.0658	84.8	82.3	1	10.0-140			2.99	36
Benzo(k)fluoranthene	0.0801	U	0.0698	0.0680	87.3	85.0	1	10.0-137			2.61	31
Benzo(a)pyrene	0.0801	U	0.0755	0.0740	94.4	92.5	1	10.0-141			2.01	31
Chrysene	0.0801	U	0.0726	0.0728	90.8	91.0	1	10.0-145			0.275	30
Dibenz(a,h)anthracene	0.0801	U	0.0710	0.0709	88.8	88.6	1	10.0-132			0.141	31
Fluoranthene	0.0801	U	0.0735	0.0674	91.9	84.3	1	10.0-153			8.66	33
Fluorene	0.0801	U	0.0684	0.0640	85.5	80.0	1	11.0-130			6.65	29
Indeno(1,2,3-cd)pyrene	0.0801	U	0.0667	0.0644	83.4	80.5	1	10.0-137			3.51	32
1-Methylnaphthalene	0.0801	U	0.0633	0.0608	79.1	76.0	1	10.0-142			4.03	28
2-Methylnaphthalene	0.0801	U	0.0656	0.0630	82.0	78.8	1	10.0-137			4.04	28
Naphthalene	0.0801	U	0.0643	0.0627	80.4	78.4	1	10.0-135			2.52	27
Pyrene	0.0801	U	0.0730	0.0679	91.3	84.9	1	10.0-148			7.24	35
(S) p-Terphenyl-d14					*89.7*	*88.5*		*23.0-120*				
(S) Nitrobenzene-d5					*90.0*	*91.0*		*14.0-149*				
(S) 2-Fluorobiphenyl					*89.7*	*89.8*		*34.0-125*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

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

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical®

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

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: F12W (12-6A & 12-6B) P&A
State: CO / County/City: Garfield
Time Zone Collected: [ ]PT [X]MT [ ]CT [ ]ET

Container Preservative Type **
Lab Project Manager:

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

Phone:
Email:
Site/Facility ID #: F12W
Compliance Monitoring? [ ] Yes [X] No
Collected By (print): Andrew Smith
Purchase Order # :
Quote #:
DW PWS ID #:
DW Location Code:
Collected By (signature): A Smith
Turnaround Date Required: Standard Turnaround
Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal:
[ ] Dispose as appropriate
[ ] Return
[ ] Archive: _____
[ ] Hold: _____
Rush: (Expedite Charges Apply)
[ ] Same Day [ ] Next Day
[ ] 2 Day [ ] 3 Day
[ ] 4 Day [ ] 5 Day
Field Filtered (if applicable):
[ ] Yes [ ] No
Analysis: _____

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

Analyses

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)	Table 915-1 VOCs	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	Lab Sample # / Comments
20220928-F12W-12-6A_WH_BASE@7'	SL	G	9/28/2022	1130				3	P/G	X	X	X	X	X	X	L541710 -01
20220928-F12W-12-6A_WH_FL@6'	SL	G	9/28/2022	1140				3	P/G	X	X	X	X	X	X	-02
20220928-F12W-12-6B_WH_BASE@7'	SL	G	9/28/2022	1150				3	P/G	X	X	X	X	X	X	-03
20220928-F12W-12-6B_WH_FL@6'	SL	G	9/28/2022	1200				3	P/G	X	X	X	X	X	X	-04
20220928-F12W-12-6B_SEP_FL@6'	SL	G	9/28/2022	1210				3	P/G	X	X	X	X	X	X	-05
20220928-F12W-12-6A_SEP_FL@6'	SL	G	9/28/2022	1220				3	P/G	X	X	X	X	X	X	-06

Lab Profile/Line:

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

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None
Packing Material Used:
Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
Lab Tracking #: 5755 8085 0764
Samples received via: (FEDEX) UPS Client Courier P...

H143

LAB Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: NS96
Cooler 1 Temp Upon Receipt: 3.3 oC
Cooler 1 Therm Corr. Factor: 0 oC
Cooler 1 Corrected Temp: 3.3 oC
Comments:

Relinquished by/Company: (Signature) A Smith	Date/Time: 9/29/22 1330	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time: 9/29/22 1600	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time: 9-30-22 1000

Acctnum:
Template:
Prelogin:
PM:
PB:

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

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

ANALYTICAL REPORT

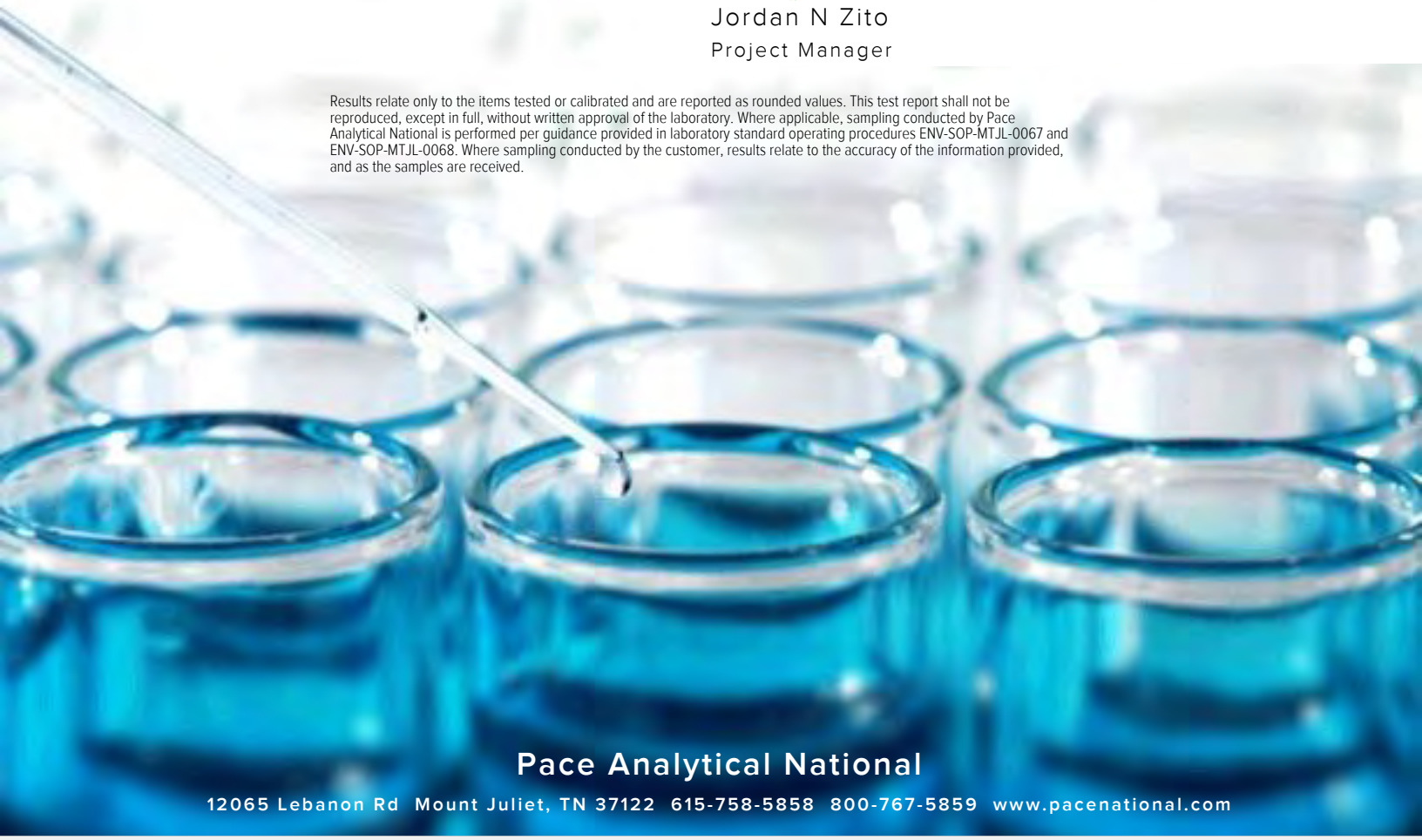
August 27, 2021

Caerus Oil and Gas

Sample Delivery Group:	L1392648
Samples Received:	08/19/2021
Project Number:	H12W
Description:	H12W
Site:	H12W
Report To:	Steve Sivigliano 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Jordan N Zito
Project Manager



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

TABLE OF CONTENTS

20210817-H12W (SEP) EAST L1392648-01 Solid

Collected by: Steve Sivigliano | Collected date/time: 08/17/21 13:00 | Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1726658	1	08/25/21 06:14	08/25/21 06:14	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1727026	1	08/23/21 07:00	08/24/21 15:35	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1727872	1	08/25/21 12:00	08/25/21 17:40	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1727881	1	08/23/21 14:20	08/23/21 20:08	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1727062	1	08/22/21 07:18	08/24/21 16:14	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1726661	1	08/22/21 15:55	08/25/21 10:44	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1727063	5	08/22/21 07:19	08/22/21 19:51	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1727352	1	08/20/21 21:05	08/22/21 19:31	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1727211	1	08/20/21 21:05	08/21/21 15:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1728491	1	08/24/21 15:55	08/25/21 05:59	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1728532	1	08/25/21 15:00	08/25/21 21:32	AAT	Mt. Juliet, TN

20210817-H12W-E. WALL @ 4' L1392648-03 Solid

Collected by: Steve Sivigliano | Collected date/time: 08/17/21 13:20 | Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1726658	1	08/25/21 06:17	08/25/21 06:17	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1727026	1	08/23/21 07:00	08/24/21 15:51	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1727875	1	08/25/21 12:00	08/25/21 17:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1727881	1	08/23/21 14:20	08/23/21 20:08	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1727062	1	08/22/21 07:18	08/24/21 16:17	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1726661	1	08/22/21 15:55	08/25/21 10:47	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1727063	5	08/22/21 07:19	08/22/21 19:54	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1727352	1	08/20/21 21:05	08/22/21 19:55	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1727211	1	08/20/21 21:05	08/21/21 15:20	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1728491	1	08/24/21 15:55	08/25/21 05:18	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1728532	1	08/25/21 15:00	08/25/21 21:51	AAT	Mt. Juliet, TN

20210817-H12W-S. WALL @ 4' L1392648-04 Solid

Collected by: Steve Sivigliano | Collected date/time: 08/17/21 13:30 | Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1726658	1	08/25/21 06:20	08/25/21 06:20	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1727026	1	08/23/21 07:00	08/24/21 15:56	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1727875	1	08/25/21 12:00	08/25/21 17:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1727881	1	08/23/21 14:20	08/23/21 20:08	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1727062	1	08/22/21 07:18	08/24/21 16:20	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1726661	1	08/22/21 15:55	08/25/21 10:50	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1727063	5	08/22/21 07:19	08/22/21 19:57	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1727352	1	08/20/21 21:05	08/22/21 20:18	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1727211	1	08/20/21 21:05	08/21/21 15:39	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1728491	1	08/24/21 15:55	08/25/21 05:04	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1728532	1	08/25/21 15:00	08/25/21 22:11	AAT	Mt. Juliet, TN

20210817-H12W-W. WALL @ 4' L1392648-05 Solid

Collected by: Steve Sivigliano | Collected date/time: 08/17/21 13:40 | Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1726658	1	08/25/21 06:23	08/25/21 06:23	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1727026	1	08/23/21 07:00	08/24/21 16:01	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1727875	1	08/25/21 12:00	08/25/21 17:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1727881	1	08/23/21 14:20	08/23/21 20:08	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1727069	1	08/22/21 07:14	08/25/21 04:17	CCE	Mt. Juliet, TN

20210817-H12W-W. WALL @ 4' L1392648-05 Solid

Collected by: Steve Sivigliano | Collected date/time: 08/17/21 13:40 | Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1726661	1	08/22/21 15:59	08/25/21 10:53	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1727068	5	08/22/21 07:16	08/22/21 20:54	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1727352	1	08/20/21 21:05	08/22/21 20:41	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1727211	1	08/20/21 21:05	08/21/21 15:58	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1728491	1	08/24/21 15:55	08/25/21 06:12	CAG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1728491	5	08/24/21 15:55	08/25/21 13:43	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1728532	1	08/25/21 15:00	08/25/21 22:31	AAT	Mt. Juliet, TN

20210817-H12W-N. WALL @ 4' L1392648-06 Solid

Collected by: Steve Sivigliano | Collected date/time: 08/17/21 13:50 | Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1726658	1	08/25/21 06:26	08/25/21 06:26	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1727026	1	08/23/21 07:00	08/24/21 16:06	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1727875	1	08/25/21 12:00	08/25/21 17:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1727881	1	08/23/21 14:20	08/23/21 20:08	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1727069	1	08/22/21 07:14	08/25/21 04:20	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1726661	1	08/22/21 15:55	08/25/21 10:56	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1727068	5	08/22/21 07:16	08/22/21 20:58	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1727352	1	08/20/21 21:05	08/22/21 21:05	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1727211	1	08/20/21 21:05	08/21/21 16:17	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1728493	1	08/25/21 21:01	08/26/21 03:42	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1728532	1	08/25/21 15:00	08/25/21 22:50	AAT	Mt. Juliet, TN

20210817-H12W-BASE @ 5' L1392648-07 Solid

Collected by: Steve Sivigliano | Collected date/time: 08/17/21 14:00 | Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1726658	1	08/25/21 06:28	08/25/21 06:28	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1727026	1	08/23/21 07:00	08/24/21 16:12	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1727875	1	08/25/21 12:00	08/25/21 17:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1727881	1	08/23/21 14:20	08/23/21 20:08	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1727069	1	08/22/21 07:14	08/25/21 04:29	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1726661	1	08/22/21 15:55	08/25/21 10:59	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1727068	5	08/22/21 07:16	08/22/21 21:09	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1727352	1	08/20/21 21:05	08/22/21 22:05	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1727211	1	08/20/21 21:05	08/21/21 16:36	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1728493	5	08/25/21 21:01	08/26/21 13:12	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1728532	1	08/25/21 15:00	08/25/21 23:10	AAT	Mt. Juliet, TN

20210817-H12W-CT NORTH L1392648-08 Solid

Collected by: Steve Sivigliano | Collected date/time: 08/17/21 14:10 | Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1726658	1	08/25/21 06:31	08/25/21 06:31	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1727026	1	08/23/21 07:00	08/24/21 16:17	GB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1727875	1	08/25/21 12:00	08/25/21 17:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1727881	1	08/23/21 14:20	08/23/21 20:08	AMH	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1727069	1	08/22/21 07:14	08/25/21 04:31	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1726661	1	08/22/21 15:55	08/25/21 11:02	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1727068	5	08/22/21 07:16	08/22/21 21:12	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1727352	1	08/20/21 21:05	08/22/21 23:40	MGF	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1727211	1	08/20/21 21:05	08/21/21 16:55	DWR	Mt. Juliet, TN

SAMPLE SUMMARY

20210817-H12W-CT NORTH L1392648-08 Solid

Collected by: Steve Sivigliano
Collected date/time: 08/17/21 14:10
Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1728493	1	08/25/21 21:01	08/26/21 03:28	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1728532	1	08/25/21 15:00	08/25/21 23:30	AAT	Mt. Juliet, TN

20210817-H12W-BG L1392648-10 Solid

Collected by: Steve Sivigliano
Collected date/time: 08/17/21 14:35
Received date/time: 08/19/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1726658	1	08/25/21 06:34	08/25/21 06:34	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1727875	1	08/25/21 12:00	08/25/21 17:30	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1727881	1	08/23/21 14:20	08/23/21 20:08	AMH	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1726988	5	08/23/21 06:17	08/24/21 12:27	LAT	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.

Jordan N Zito
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.75		1	08/25/2021 06:14	WG1726658

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	08/24/2021 15:35	WG1727026

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.46	T8	1	08/25/2021 17:40	WG1727872

Sample Narrative:

L1392648-01 WG1727872: 8.46 at 25C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	604		10.0	1	08/23/2021 20:08	WG1727881

Sample Narrative:

L1392648-01 WG1727881: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	288		0.0852	0.500	1	08/24/2021 16:14	WG1727062
Cadmium	0.321	J	0.0471	0.500	1	08/24/2021 16:14	WG1727062
Copper	13.3		0.400	2.00	1	08/24/2021 16:14	WG1727062
Lead	9.70		0.208	0.500	1	08/24/2021 16:14	WG1727062
Nickel	15.3		0.132	2.00	1	08/24/2021 16:14	WG1727062
Selenium	1.11	J	0.764	2.00	1	08/24/2021 16:14	WG1727062
Silver	U		0.127	1.00	1	08/24/2021 16:14	WG1727062
Zinc	43.1		0.832	5.00	1	08/24/2021 16:14	WG1727062

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	0.569		0.0167	0.200	1	08/25/2021 10:44	WG1726661

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.44		0.100	1.00	5	08/22/2021 19:51	WG1727063

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/22/2021 19:31	WG1727352
(S) a,a,a-Trifluorotoluene(FID)	*97.9*			*77.0-120*		*08/22/2021 19:31*	WG1727352

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/21/2021 15:02	WG1727211
Toluene	U		0.00130	0.00500	1	08/21/2021 15:02	WG1727211
Ethylbenzene	U		0.000737	0.00250	1	08/21/2021 15:02	WG1727211
Xylenes, Total	U		0.000880	0.00650	1	08/21/2021 15:02	WG1727211
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/21/2021 15:02	WG1727211
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/21/2021 15:02	WG1727211
(S) Toluene-d8	*107*			*75.0-131*		*08/21/2021 15:02*	WG1727211
(S) 4-Bromofluorobenzene	*79.8*			*67.0-138*		*08/21/2021 15:02*	WG1727211
(S) 1,2-Dichloroethane-d4	*117*			*70.0-130*		*08/21/2021 15:02*	WG1727211

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	9.04		1.61	4.00	1	08/25/2021 05:59	WG1728491
C28-C36 Motor Oil Range	36.9		0.274	4.00	1	08/25/2021 05:59	WG1728491
(S) o-Terphenyl	*56.8*			*18.0-148*		*08/25/2021 05:59*	WG1728491

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/25/2021 21:32	WG1728532
Acenaphthene	U		0.00209	0.00600	1	08/25/2021 21:32	WG1728532
Acenaphthylene	U		0.00216	0.00600	1	08/25/2021 21:32	WG1728532
Benzo(a)anthracene	0.00720		0.00173	0.00600	1	08/25/2021 21:32	WG1728532
Benzo(a)pyrene	0.00590	J	0.00179	0.00600	1	08/25/2021 21:32	WG1728532
Benzo(b)fluoranthene	0.0103		0.00153	0.00600	1	08/25/2021 21:32	WG1728532
Benzo(g,h,i)perylene	0.00458	J	0.00177	0.00600	1	08/25/2021 21:32	WG1728532
Benzo(k)fluoranthene	0.00323	J	0.00215	0.00600	1	08/25/2021 21:32	WG1728532
Chrysene	0.00742		0.00232	0.00600	1	08/25/2021 21:32	WG1728532
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/25/2021 21:32	WG1728532
Fluoranthene	0.00844		0.00227	0.00600	1	08/25/2021 21:32	WG1728532
Fluorene	U		0.00205	0.00600	1	08/25/2021 21:32	WG1728532
Indeno(1,2,3-cd)pyrene	0.00482	J	0.00181	0.00600	1	08/25/2021 21:32	WG1728532
Naphthalene	U		0.00408	0.0200	1	08/25/2021 21:32	WG1728532
Phenanthrene	U		0.00231	0.00600	1	08/25/2021 21:32	WG1728532
Pyrene	0.00940		0.00200	0.00600	1	08/25/2021 21:32	WG1728532
1-Methylnaphthalene	U		0.00449	0.0200	1	08/25/2021 21:32	WG1728532
2-Methylnaphthalene	U		0.00427	0.0200	1	08/25/2021 21:32	WG1728532
2-Chloronaphthalene	U		0.00466	0.0200	1	08/25/2021 21:32	WG1728532
(S) p-Terphenyl-d14	*103*			*23.0-120*		*08/25/2021 21:32*	WG1728532
(S) Nitrobenzene-d5	*69.7*			*14.0-149*		*08/25/2021 21:32*	WG1728532
(S) 2-Fluorobiphenyl	*79.5*			*34.0-125*		*08/25/2021 21:32*	WG1728532

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.39		1	08/25/2021 06:17	WG1726658

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	08/24/2021 15:51	WG1727026

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.73	T8	1	08/25/2021 17:30	WG1727875

Sample Narrative:

L1392648-03 WG1727875: 8.73 at 24.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	273		10.0	1	08/23/2021 20:08	WG1727881

Sample Narrative:

L1392648-03 WG1727881: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	322		0.0852	0.500	1	08/24/2021 16:17	WG1727062
Cadmium	0.380	J	0.0471	0.500	1	08/24/2021 16:17	WG1727062
Copper	14.4		0.400	2.00	1	08/24/2021 16:17	WG1727062
Lead	13.4		0.208	0.500	1	08/24/2021 16:17	WG1727062
Nickel	14.1		0.132	2.00	1	08/24/2021 16:17	WG1727062
Selenium	U		0.764	2.00	1	08/24/2021 16:17	WG1727062
Silver	U		0.127	1.00	1	08/24/2021 16:17	WG1727062
Zinc	41.5		0.832	5.00	1	08/24/2021 16:17	WG1727062

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	0.384		0.0167	0.200	1	08/25/2021 10:47	WG1726661

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	08/22/2021 19:54	WG1727063

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/22/2021 19:55	WG1727352
(S) a,a,a-Trifluorotoluene(FID)	*99.7*			*77.0-120*		*08/22/2021 19:55*	WG1727352

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/21/2021 15:20	WG1727211
Toluene	U		0.00130	0.00500	1	08/21/2021 15:20	WG1727211
Ethylbenzene	U		0.000737	0.00250	1	08/21/2021 15:20	WG1727211
Xylenes, Total	U		0.000880	0.00650	1	08/21/2021 15:20	WG1727211
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/21/2021 15:20	WG1727211
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/21/2021 15:20	WG1727211
(S) Toluene-d8	*106*			*75.0-131*		*08/21/2021 15:20*	WG1727211
(S) 4-Bromofluorobenzene	*83.8*			*67.0-138*		*08/21/2021 15:20*	WG1727211
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*		*08/21/2021 15:20*	WG1727211

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	13.8		1.61	4.00	1	08/25/2021 05:18	WG1728491
C28-C36 Motor Oil Range	30.8		0.274	4.00	1	08/25/2021 05:18	WG1728491
(S) o-Terphenyl	*57.5*			*18.0-148*		*08/25/2021 05:18*	WG1728491

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/25/2021 21:51	WG1728532
Acenaphthene	U		0.00209	0.00600	1	08/25/2021 21:51	WG1728532
Acenaphthylene	U		0.00216	0.00600	1	08/25/2021 21:51	WG1728532
Benzo(a)anthracene	U		0.00173	0.00600	1	08/25/2021 21:51	WG1728532
Benzo(a)pyrene	U		0.00179	0.00600	1	08/25/2021 21:51	WG1728532
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/25/2021 21:51	WG1728532
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/25/2021 21:51	WG1728532
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/25/2021 21:51	WG1728532
Chrysene	U		0.00232	0.00600	1	08/25/2021 21:51	WG1728532
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/25/2021 21:51	WG1728532
Fluoranthene	U		0.00227	0.00600	1	08/25/2021 21:51	WG1728532
Fluorene	U		0.00205	0.00600	1	08/25/2021 21:51	WG1728532
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/25/2021 21:51	WG1728532
Naphthalene	U		0.00408	0.0200	1	08/25/2021 21:51	WG1728532
Phenanthrene	U		0.00231	0.00600	1	08/25/2021 21:51	WG1728532
Pyrene	U		0.00200	0.00600	1	08/25/2021 21:51	WG1728532
1-Methylnaphthalene	U		0.00449	0.0200	1	08/25/2021 21:51	WG1728532
2-Methylnaphthalene	U		0.00427	0.0200	1	08/25/2021 21:51	WG1728532
2-Chloronaphthalene	U		0.00466	0.0200	1	08/25/2021 21:51	WG1728532
(S) p-Terphenyl-d14	*95.9*			*23.0-120*		*08/25/2021 21:51*	WG1728532
(S) Nitrobenzene-d5	*70.1*			*14.0-149*		*08/25/2021 21:51*	WG1728532
(S) 2-Fluorobiphenyl	*77.9*			*34.0-125*		*08/25/2021 21:51*	WG1728532

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.53		1	08/25/2021 06:20	WG1726658

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	08/24/2021 15:56	WG1727026

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.72	T8	1	08/25/2021 17:30	WG1727875

Sample Narrative:

L1392648-04 WG1727875: 8.72 at 24.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	245		10.0	1	08/23/2021 20:08	WG1727881

Sample Narrative:

L1392648-04 WG1727881: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	202		0.0852	0.500	1	08/24/2021 16:20	WG1727062
Cadmium	0.324	J	0.0471	0.500	1	08/24/2021 16:20	WG1727062
Copper	15.1		0.400	2.00	1	08/24/2021 16:20	WG1727062
Lead	8.36		0.208	0.500	1	08/24/2021 16:20	WG1727062
Nickel	17.0		0.132	2.00	1	08/24/2021 16:20	WG1727062
Selenium	U		0.764	2.00	1	08/24/2021 16:20	WG1727062
Silver	U		0.127	1.00	1	08/24/2021 16:20	WG1727062
Zinc	38.7		0.832	5.00	1	08/24/2021 16:20	WG1727062

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	0.243		0.0167	0.200	1	08/25/2021 10:50	WG1726661

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	11.4		0.100	1.00	5	08/22/2021 19:57	WG1727063

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/22/2021 20:18	WG1727352
(S) a,a,a-Trifluorotoluene(FID)	*99.7*			*77.0-120*		*08/22/2021 20:18*	WG1727352

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/21/2021 15:39	WG1727211
Toluene	U		0.00130	0.00500	1	08/21/2021 15:39	WG1727211
Ethylbenzene	U		0.000737	0.00250	1	08/21/2021 15:39	WG1727211
Xylenes, Total	U		0.000880	0.00650	1	08/21/2021 15:39	WG1727211
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/21/2021 15:39	WG1727211
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/21/2021 15:39	WG1727211
(S) Toluene-d8	*110*			*75.0-131*		*08/21/2021 15:39*	WG1727211
(S) 4-Bromofluorobenzene	*80.9*			*67.0-138*		*08/21/2021 15:39*	WG1727211
(S) 1,2-Dichloroethane-d4	*106*			*70.0-130*		*08/21/2021 15:39*	WG1727211

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	U		1.61	4.00	1	08/25/2021 05:04	WG1728491
C28-C36 Motor Oil Range	2.80	J	0.274	4.00	1	08/25/2021 05:04	WG1728491
(S) o-Terphenyl	*50.3*			*18.0-148*		*08/25/2021 05:04*	WG1728491

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/25/2021 22:11	WG1728532
Acenaphthene	U		0.00209	0.00600	1	08/25/2021 22:11	WG1728532
Acenaphthylene	U		0.00216	0.00600	1	08/25/2021 22:11	WG1728532
Benzo(a)anthracene	U		0.00173	0.00600	1	08/25/2021 22:11	WG1728532
Benzo(a)pyrene	U		0.00179	0.00600	1	08/25/2021 22:11	WG1728532
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/25/2021 22:11	WG1728532
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/25/2021 22:11	WG1728532
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/25/2021 22:11	WG1728532
Chrysene	U		0.00232	0.00600	1	08/25/2021 22:11	WG1728532
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/25/2021 22:11	WG1728532
Fluoranthene	U		0.00227	0.00600	1	08/25/2021 22:11	WG1728532
Fluorene	U		0.00205	0.00600	1	08/25/2021 22:11	WG1728532
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/25/2021 22:11	WG1728532
Naphthalene	U		0.00408	0.0200	1	08/25/2021 22:11	WG1728532
Phenanthrene	U		0.00231	0.00600	1	08/25/2021 22:11	WG1728532
Pyrene	U		0.00200	0.00600	1	08/25/2021 22:11	WG1728532
1-Methylnaphthalene	U		0.00449	0.0200	1	08/25/2021 22:11	WG1728532
2-Methylnaphthalene	U		0.00427	0.0200	1	08/25/2021 22:11	WG1728532
2-Chloronaphthalene	U		0.00466	0.0200	1	08/25/2021 22:11	WG1728532
(S) p-Terphenyl-d14	*82.1*			*23.0-120*		*08/25/2021 22:11*	WG1728532
(S) Nitrobenzene-d5	*54.8*			*14.0-149*		*08/25/2021 22:11*	WG1728532
(S) 2-Fluorobiphenyl	*63.1*			*34.0-125*		*08/25/2021 22:11*	WG1728532

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.27		1	08/25/2021 06:23	WG1726658

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	08/24/2021 16:01	WG1727026

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.67	T8	1	08/25/2021 17:30	WG1727875

Sample Narrative:

L1392648-05 WG1727875: 8.67 at 24.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	500		10.0	1	08/23/2021 20:08	WG1727881

Sample Narrative:

L1392648-05 WG1727881: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	352		0.0852	0.500	1	08/25/2021 04:17	WG1727069
Cadmium	0.448	J	0.0471	0.500	1	08/25/2021 04:17	WG1727069
Copper	28.8		0.400	2.00	1	08/25/2021 04:17	WG1727069
Lead	13.1		0.208	0.500	1	08/25/2021 04:17	WG1727069
Nickel	17.3		0.132	2.00	1	08/25/2021 04:17	WG1727069
Selenium	U		0.764	2.00	1	08/25/2021 04:17	WG1727069
Silver	U		0.127	1.00	1	08/25/2021 04:17	WG1727069
Zinc	55.1		0.832	5.00	1	08/25/2021 04:17	WG1727069

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	0.418		0.0167	0.200	1	08/25/2021 10:53	WG1726661

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	12.6		0.100	1.00	5	08/22/2021 20:54	WG1727068

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/22/2021 20:41	WG1727352
(S) a,a,a-Trifluorotoluene(FID)	*98.5*			*77.0-120*		*08/22/2021 20:41*	WG1727352

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/21/2021 15:58	WG1727211
Toluene	U		0.00130	0.00500	1	08/21/2021 15:58	WG1727211
Ethylbenzene	U		0.000737	0.00250	1	08/21/2021 15:58	WG1727211
Xylenes, Total	U		0.000880	0.00650	1	08/21/2021 15:58	WG1727211
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/21/2021 15:58	WG1727211
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/21/2021 15:58	WG1727211
(S) Toluene-d8	*110*			*75.0-131*		*08/21/2021 15:58*	WG1727211
(S) 4-Bromofluorobenzene	*78.7*			*67.0-138*		*08/21/2021 15:58*	WG1727211
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*		*08/21/2021 15:58*	WG1727211

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	308		1.61	4.00	1	08/25/2021 06:12	WG1728491
C28-C36 Motor Oil Range	484		1.37	20.0	5	08/25/2021 13:43	WG1728491
(S) o-Terphenyl	*30.4*			*18.0-148*		*08/25/2021 06:12*	WG1728491
(S) o-Terphenyl	*76.5*			*18.0-148*		*08/25/2021 13:43*	WG1728491

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/25/2021 22:31	WG1728532
Acenaphthene	U		0.00209	0.00600	1	08/25/2021 22:31	WG1728532
Acenaphthylene	U		0.00216	0.00600	1	08/25/2021 22:31	WG1728532
Benzo(a)anthracene	U		0.00173	0.00600	1	08/25/2021 22:31	WG1728532
Benzo(a)pyrene	U		0.00179	0.00600	1	08/25/2021 22:31	WG1728532
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/25/2021 22:31	WG1728532
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/25/2021 22:31	WG1728532
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/25/2021 22:31	WG1728532
Chrysene	U		0.00232	0.00600	1	08/25/2021 22:31	WG1728532
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/25/2021 22:31	WG1728532
Fluoranthene	U		0.00227	0.00600	1	08/25/2021 22:31	WG1728532
Fluorene	U		0.00205	0.00600	1	08/25/2021 22:31	WG1728532
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/25/2021 22:31	WG1728532
Naphthalene	U		0.00408	0.0200	1	08/25/2021 22:31	WG1728532
Phenanthrene	U		0.00231	0.00600	1	08/25/2021 22:31	WG1728532
Pyrene	U		0.00200	0.00600	1	08/25/2021 22:31	WG1728532
1-Methylnaphthalene	U		0.00449	0.0200	1	08/25/2021 22:31	WG1728532
2-Methylnaphthalene	U		0.00427	0.0200	1	08/25/2021 22:31	WG1728532
2-Chloronaphthalene	U		0.00466	0.0200	1	08/25/2021 22:31	WG1728532
(S) p-Terphenyl-d14	*84.6*			*23.0-120*		*08/25/2021 22:31*	WG1728532
(S) Nitrobenzene-d5	*60.4*			*14.0-149*		*08/25/2021 22:31*	WG1728532
(S) 2-Fluorobiphenyl	*70.1*			*34.0-125*		*08/25/2021 22:31*	WG1728532

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.43		1	08/25/2021 06:26	WG1726658

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	08/24/2021 16:06	WG1727026

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.93	T8	1	08/25/2021 17:30	WG1727875

Sample Narrative:

L1392648-06 WG1727875: 8.93 at 24.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	258		10.0	1	08/23/2021 20:08	WG1727881

Sample Narrative:

L1392648-06 WG1727881: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	226		0.0852	0.500	1	08/25/2021 04:20	WG1727069
Cadmium	0.469	J	0.0471	0.500	1	08/25/2021 04:20	WG1727069
Copper	15.9		0.400	2.00	1	08/25/2021 04:20	WG1727069
Lead	9.20		0.208	0.500	1	08/25/2021 04:20	WG1727069
Nickel	18.5		0.132	2.00	1	08/25/2021 04:20	WG1727069
Selenium	U		0.764	2.00	1	08/25/2021 04:20	WG1727069
Silver	U		0.127	1.00	1	08/25/2021 04:20	WG1727069
Zinc	39.1		0.832	5.00	1	08/25/2021 04:20	WG1727069

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	0.188	J	0.0167	0.200	1	08/25/2021 10:56	WG1726661

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	13.0		0.100	1.00	5	08/22/2021 20:58	WG1727068

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	0.0251	J	0.0217	0.100	1	08/22/2021 21:05	WG1727352
(S) a,a,a-Trifluorotoluene(FID)	*99.5*			*77.0-120*		*08/22/2021 21:05*	WG1727352

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/21/2021 16:17	WG1727211
Toluene	U		0.00130	0.00500	1	08/21/2021 16:17	WG1727211
Ethylbenzene	U		0.000737	0.00250	1	08/21/2021 16:17	WG1727211
Xylenes, Total	U		0.000880	0.00650	1	08/21/2021 16:17	WG1727211
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/21/2021 16:17	WG1727211
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/21/2021 16:17	WG1727211
(S) Toluene-d8	*109*			*75.0-131*		*08/21/2021 16:17*	WG1727211
(S) 4-Bromofluorobenzene	*78.6*			*67.0-138*		*08/21/2021 16:17*	WG1727211
(S) 1,2-Dichloroethane-d4	*115*			*70.0-130*		*08/21/2021 16:17*	WG1727211

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	4.31		1.61	4.00	1	08/26/2021 03:42	WG1728493
C28-C36 Motor Oil Range	11.4	B	0.274	4.00	1	08/26/2021 03:42	WG1728493
(S) o-Terphenyl	*57.9*			*18.0-148*		*08/26/2021 03:42*	WG1728493

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/25/2021 22:50	WG1728532
Acenaphthene	U		0.00209	0.00600	1	08/25/2021 22:50	WG1728532
Acenaphthylene	U		0.00216	0.00600	1	08/25/2021 22:50	WG1728532
Benzo(a)anthracene	U		0.00173	0.00600	1	08/25/2021 22:50	WG1728532
Benzo(a)pyrene	U		0.00179	0.00600	1	08/25/2021 22:50	WG1728532
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/25/2021 22:50	WG1728532
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/25/2021 22:50	WG1728532
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/25/2021 22:50	WG1728532
Chrysene	U		0.00232	0.00600	1	08/25/2021 22:50	WG1728532
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/25/2021 22:50	WG1728532
Fluoranthene	U		0.00227	0.00600	1	08/25/2021 22:50	WG1728532
Fluorene	U		0.00205	0.00600	1	08/25/2021 22:50	WG1728532
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/25/2021 22:50	WG1728532
Naphthalene	U		0.00408	0.0200	1	08/25/2021 22:50	WG1728532
Phenanthrene	U		0.00231	0.00600	1	08/25/2021 22:50	WG1728532
Pyrene	U		0.00200	0.00600	1	08/25/2021 22:50	WG1728532
1-Methylnaphthalene	U		0.00449	0.0200	1	08/25/2021 22:50	WG1728532
2-Methylnaphthalene	U		0.00427	0.0200	1	08/25/2021 22:50	WG1728532
2-Chloronaphthalene	U		0.00466	0.0200	1	08/25/2021 22:50	WG1728532
(S) p-Terphenyl-d14	*95.2*			*23.0-120*		*08/25/2021 22:50*	WG1728532
(S) Nitrobenzene-d5	*69.0*			*14.0-149*		*08/25/2021 22:50*	WG1728532
(S) 2-Fluorobiphenyl	*76.1*			*34.0-125*		*08/25/2021 22:50*	WG1728532

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.52		1	08/25/2021 06:28	WG1726658

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	08/24/2021 16:12	WG1727026

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.76	T8	1	08/25/2021 17:30	WG1727875

Sample Narrative:

L1392648-07 WG1727875: 8.76 at 24.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	407		10.0	1	08/23/2021 20:08	WG1727881

Sample Narrative:

L1392648-07 WG1727881: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	611		0.0852	0.500	1	08/25/2021 04:29	WG1727069
Cadmium	0.891		0.0471	0.500	1	08/25/2021 04:29	WG1727069
Copper	16.2		0.400	2.00	1	08/25/2021 04:29	WG1727069
Lead	15.4		0.208	0.500	1	08/25/2021 04:29	WG1727069
Nickel	14.7		0.132	2.00	1	08/25/2021 04:29	WG1727069
Selenium	U		0.764	2.00	1	08/25/2021 04:29	WG1727069
Silver	U		0.127	1.00	1	08/25/2021 04:29	WG1727069
Zinc	118		0.832	5.00	1	08/25/2021 04:29	WG1727069

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	0.203		0.0167	0.200	1	08/25/2021 10:59	WG1726661

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.3		0.100	1.00	5	08/22/2021 21:09	WG1727068

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	0.174		0.0217	0.100	1	08/22/2021 22:05	WG1727352
(S) a,a,a-Trifluorotoluene(FID)	*92.4*			*77.0-120*		*08/22/2021 22:05*	WG1727352

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/21/2021 16:36	WG1727211
Toluene	U		0.00130	0.00500	1	08/21/2021 16:36	WG1727211
Ethylbenzene	U		0.000737	0.00250	1	08/21/2021 16:36	WG1727211
Xylenes, Total	0.00151	J	0.000880	0.00650	1	08/21/2021 16:36	WG1727211
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/21/2021 16:36	WG1727211
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/21/2021 16:36	WG1727211
(S) Toluene-d8	*105*			*75.0-131*		*08/21/2021 16:36*	WG1727211
(S) 4-Bromofluorobenzene	*80.4*			*67.0-138*		*08/21/2021 16:36*	WG1727211
(S) 1,2-Dichloroethane-d4	*116*			*70.0-130*		*08/21/2021 16:36*	WG1727211

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	375		8.05	20.0	5	08/26/2021 13:12	WG1728493
C28-C36 Motor Oil Range	550		1.37	20.0	5	08/26/2021 13:12	WG1728493
(S) o-Terphenyl	*89.7*			*18.0-148*		*08/26/2021 13:12*	WG1728493

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/25/2021 23:10	WG1728532
Acenaphthene	0.00329	J	0.00209	0.00600	1	08/25/2021 23:10	WG1728532
Acenaphthylene	U		0.00216	0.00600	1	08/25/2021 23:10	WG1728532
Benzo(a)anthracene	U		0.00173	0.00600	1	08/25/2021 23:10	WG1728532
Benzo(a)pyrene	U		0.00179	0.00600	1	08/25/2021 23:10	WG1728532
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/25/2021 23:10	WG1728532
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/25/2021 23:10	WG1728532
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/25/2021 23:10	WG1728532
Chrysene	U		0.00232	0.00600	1	08/25/2021 23:10	WG1728532
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/25/2021 23:10	WG1728532
Fluoranthene	U		0.00227	0.00600	1	08/25/2021 23:10	WG1728532
Fluorene	0.00589	J	0.00205	0.00600	1	08/25/2021 23:10	WG1728532
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/25/2021 23:10	WG1728532
Naphthalene	0.0141	J	0.00408	0.0200	1	08/25/2021 23:10	WG1728532
Phenanthrene	0.0240		0.00231	0.00600	1	08/25/2021 23:10	WG1728532
Pyrene	0.00637		0.00200	0.00600	1	08/25/2021 23:10	WG1728532
1-Methylnaphthalene	0.0173	J	0.00449	0.0200	1	08/25/2021 23:10	WG1728532
2-Methylnaphthalene	0.0516		0.00427	0.0200	1	08/25/2021 23:10	WG1728532
2-Chloronaphthalene	U		0.00466	0.0200	1	08/25/2021 23:10	WG1728532
(S) p-Terphenyl-d14	*88.1*			*23.0-120*		*08/25/2021 23:10*	WG1728532
(S) Nitrobenzene-d5	*76.1*			*14.0-149*		*08/25/2021 23:10*	WG1728532
(S) 2-Fluorobiphenyl	*73.9*			*34.0-125*		*08/25/2021 23:10*	WG1728532

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.545		1	08/25/2021 06:31	WG1726658

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	08/24/2021 16:17	WG1727026

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.96	T8	1	08/25/2021 17:30	WG1727875

Sample Narrative:

L1392648-08 WG1727875: 8.96 at 24.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	256		10.0	1	08/23/2021 20:08	WG1727881

Sample Narrative:

L1392648-08 WG1727881: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	328		0.0852	0.500	1	08/25/2021 04:31	WG1727069
Cadmium	0.266	J	0.0471	0.500	1	08/25/2021 04:31	WG1727069
Copper	13.6		0.400	2.00	1	08/25/2021 04:31	WG1727069
Lead	7.72		0.208	0.500	1	08/25/2021 04:31	WG1727069
Nickel	16.5		0.132	2.00	1	08/25/2021 04:31	WG1727069
Selenium	U		0.764	2.00	1	08/25/2021 04:31	WG1727069
Silver	U		0.127	1.00	1	08/25/2021 04:31	WG1727069
Zinc	36.0		0.832	5.00	1	08/25/2021 04:31	WG1727069

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	0.778		0.0167	0.200	1	08/25/2021 11:02	WG1726661

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.76		0.100	1.00	5	08/22/2021 21:12	WG1727068

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	U		0.0217	0.100	1	08/22/2021 23:40	WG1727352
(S) a,a,a-Trifluorotoluene(FID)	*96.3*			*77.0-120*		*08/22/2021 23:40*	WG1727352

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	U		0.000467	0.00100	1	08/21/2021 16:55	WG1727211
Toluene	U		0.00130	0.00500	1	08/21/2021 16:55	WG1727211
Ethylbenzene	U		0.000737	0.00250	1	08/21/2021 16:55	WG1727211
Xylenes, Total	U		0.000880	0.00650	1	08/21/2021 16:55	WG1727211
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	08/21/2021 16:55	WG1727211
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	08/21/2021 16:55	WG1727211
(S) Toluene-d8	*107*			*75.0-131*		*08/21/2021 16:55*	WG1727211
(S) 4-Bromofluorobenzene	*79.4*			*67.0-138*		*08/21/2021 16:55*	WG1727211
(S) 1,2-Dichloroethane-d4	*114*			*70.0-130*		*08/21/2021 16:55*	WG1727211

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	1.88	J	1.61	4.00	1	08/26/2021 03:28	WG1728493
C28-C36 Motor Oil Range	7.27	B	0.274	4.00	1	08/26/2021 03:28	WG1728493
(S) o-Terphenyl	*63.3*			*18.0-148*		*08/26/2021 03:28*	WG1728493

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00230	0.00600	1	08/25/2021 23:30	WG1728532
Acenaphthene	U		0.00209	0.00600	1	08/25/2021 23:30	WG1728532
Acenaphthylene	U		0.00216	0.00600	1	08/25/2021 23:30	WG1728532
Benzo(a)anthracene	U		0.00173	0.00600	1	08/25/2021 23:30	WG1728532
Benzo(a)pyrene	U		0.00179	0.00600	1	08/25/2021 23:30	WG1728532
Benzo(b)fluoranthene	U		0.00153	0.00600	1	08/25/2021 23:30	WG1728532
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	08/25/2021 23:30	WG1728532
Benzo(k)fluoranthene	U		0.00215	0.00600	1	08/25/2021 23:30	WG1728532
Chrysene	U		0.00232	0.00600	1	08/25/2021 23:30	WG1728532
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	08/25/2021 23:30	WG1728532
Fluoranthene	U		0.00227	0.00600	1	08/25/2021 23:30	WG1728532
Fluorene	U		0.00205	0.00600	1	08/25/2021 23:30	WG1728532
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	08/25/2021 23:30	WG1728532
Naphthalene	U		0.00408	0.0200	1	08/25/2021 23:30	WG1728532
Phenanthrene	U		0.00231	0.00600	1	08/25/2021 23:30	WG1728532
Pyrene	U		0.00200	0.00600	1	08/25/2021 23:30	WG1728532
1-Methylnaphthalene	U		0.00449	0.0200	1	08/25/2021 23:30	WG1728532
2-Methylnaphthalene	U		0.00427	0.0200	1	08/25/2021 23:30	WG1728532
2-Chloronaphthalene	U		0.00466	0.0200	1	08/25/2021 23:30	WG1728532
(S) p-Terphenyl-d14	*91.4*			*23.0-120*		*08/25/2021 23:30*	WG1728532
(S) Nitrobenzene-d5	*66.3*			*14.0-149*		*08/25/2021 23:30*	WG1728532
(S) 2-Fluorobiphenyl	*73.1*			*34.0-125*		*08/25/2021 23:30*	WG1728532

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0667		1	08/25/2021 06:34	WG1726658

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.72	T8	1	08/25/2021 17:30	WG1727875

Sample Narrative:

L1392648-10 WG1727875: 7.72 at 25C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	375		10.0	1	08/23/2021 20:08	WG1727881

Sample Narrative:

L1392648-10 WG1727881: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.38		0.100	1.00	5	08/24/2021 12:27	WG1726988

Method Blank (MB)

(MB) R3695875-1 08/24/21 13:55

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

L1391493-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1391493-02 08/24/21 14:07 • (DUP) R3695875-3 08/24/21 14:12

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.391	0.365	1	6.72	J	20

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3695875-8 08/24/21 15:25

Analyte	Original Result	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium		1.60	1	1.33		20

Laboratory Control Sample (LCS)

(LCS) R3695875-2 08/24/21 14:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.33	93.3	80.0-120	

L1391493-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1391493-03 08/24/21 14:17 • (MS) R3695875-4 08/24/21 14:23 • (MSD) R3695875-5 08/24/21 14:28

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	U	12.6	12.9	62.8	64.3	1	75.0-125	J6	J6	2.40	20

L1391493-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1391493-03 08/24/21 14:17 • (MS) R3695875-6 08/24/21 14:33

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	696	U	673	96.7	50	75.0-125	

L1392508-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1392508-01 08/25/21 17:40 • (DUP) R3696444-3 08/25/21 17:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	5.33	5.30	1	0.564		1

Sample Narrative:

OS: 5.33 at 24.4C

DUP: 5.3 at 24.6C

Laboratory Control Sample (LCS)

(LCS) R3696444-1 08/25/21 17:40

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: 10.03 at 24C

L1392648-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1392648-03 08/25/21 17:30 • (DUP) R3696435-2 08/25/21 17:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.73	8.71	1	0.229		1

Sample Narrative:

OS: 8.73 at 24.2C

DUP: 8.71 at 24.1C

L1392694-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1392694-01 08/25/21 17:30 • (DUP) R3696435-3 08/25/21 17:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.25	8.25	1	0.000		1

Sample Narrative:

OS: 8.25 at 24.3C

DUP: 8.25 at 24.3C

Laboratory Control Sample (LCS)

(LCS) R3696435-1 08/25/21 17:30

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: 10.03 at 24C

Method Blank (MB)

(MB) R3695442-1 08/23/21 20:08

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

Sample Narrative:
BLANK: at 25C

L1392648-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1392648-06 08/23/21 20:08 • (DUP) R3695442-3 08/23/21 20:08

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	258	233	1	10.3		20

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

L1392654-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1392654-01 08/23/21 20:08 • (DUP) R3695442-4 08/23/21 20:08

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	325	336	1	3.33		20

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

Laboratory Control Sample (LCS)

(LCS) R3695442-2 08/23/21 20:08

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	899	915	102	85.0-115	

Sample Narrative:
LCS: at 25C

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

Method Blank (MB)

(MB) R3696023-1 08/24/21 15:28

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) R3696023-2 08/24/21 15:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	98.9	98.9	80.0-120	
Cadmium	100	93.3	93.3	80.0-120	
Copper	100	92.9	92.9	80.0-120	
Lead	100	98.9	98.9	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	94.4	94.4	80.0-120	
Silver	20.0	19.0	95.1	80.0-120	
Zinc	100	94.0	94.0	80.0-120	

L1392963-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392963-01 08/24/21 15:34 • (MS) R3696023-5 08/24/21 15:42 • (MSD) R3696023-6 08/24/21 15:45

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 %
Barium	99.6	13.7	170	127	157	113	1	75.0-125	J5	J3	29.5	20
Cadmium	99.6	U	107	98.4	107	98.4	1	75.0-125			8.33	20
Copper	99.6	4.73	125	106	121	101	1	75.0-125			16.8	20
Lead	99.6	2.91	129	106	127	103	1	75.0-125	J5	J3	20.4	20
Nickel	99.6	4.05	115	101	111	96.6	1	75.0-125			13.3	20
Selenium	99.6	U	110	100	110	100	1	75.0-125			9.41	20
Silver	20.0	U	22.4	20.9	112	104	1	75.0-125			6.98	20
Zinc	99.6	10.3	123	98.9	112	88.6	1	75.0-125		J3	21.5	20

Method Blank (MB)

(MB) R3696014-1 08/25/21 03:55

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) R3696014-2 08/25/21 03:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	105	105	80.0-120	
Cadmium	100	101	101	80.0-120	
Copper	100	106	106	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	18.0	90.2	80.0-120	
Zinc	100	98.0	98.0	80.0-120	

L1392658-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392658-01 08/25/21 04:00 • (MS) R3696014-5 08/25/21 04:09 • (MSD) R3696014-6 08/25/21 04:12

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	3300	1870	2040	0.000	0.000	1	75.0-125	V	V	8.65	20
Cadmium	100	U	93.2	93.3	93.2	93.3	1	75.0-125			0.0683	20
Copper	100	18.2	114	113	95.7	95.3	1	75.0-125			0.367	20
Lead	100	28.1	111	112	83.1	83.9	1	75.0-125			0.769	20
Nickel	100	15.9	115	115	98.8	98.9	1	75.0-125			0.0729	20
Selenium	100	U	92.3	93.5	92.3	93.5	1	75.0-125			1.31	20
Silver	20.0	U	17.4	17.5	87.2	87.5	1	75.0-125			0.231	20
Zinc	100	42.6	117	117	74.1	74.7	1	75.0-125	J6	J6	0.561	20

Method Blank (MB)

(MB) R3696222-1 08/25/21 10:36

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) R3696222-2 08/25/21 10:39 • (LCSD) R3696222-3 08/25/21 10:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.00	1.04	100	104	80.0-120			3.75	20

Method Blank (MB)

(MB) R3695677-1 08/24/21 12:01

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

Laboratory Control Sample (LCS)

(LCS) R3695677-2 08/24/21 12:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	96.3	96.3	80.0-120	

L1392748-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392748-02 08/24/21 12:07 • (MS) R3695677-5 08/24/21 12:17 • (MSD) R3695677-6 08/24/21 12:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.32	87.0	87.3	84.7	85.0	5	75.0-125			0.365	20

Method Blank (MB)

(MB) R3695005-1 08/22/21 18:54

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) R3695005-2 08/22/21 18:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	90.4	90.4	80.0-120	

L1392963-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392963-01 08/22/21 19:01 • (MS) R3695005-5 08/22/21 19:10 • (MSD) R3695005-6 08/22/21 19:13

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	99.6	1.02	103	89.4	102	88.4	5	75.0-125			14.4	20

Method Blank (MB)

(MB) R3695007-1 08/22/21 20:27

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) R3695007-2 08/22/21 20:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.8	93.8	80.0-120	

L1392658-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392658-01 08/22/21 20:34 • (MS) R3695007-5 08/22/21 20:44 • (MSD) R3695007-6 08/22/21 20:47

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	5.32	88.3	86.5	83.0	81.2	5	75.0-125			2.07	20

Method Blank (MB)

(MB) R3695272-2 08/22/21 14:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.8*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3695272-1 08/22/21 13:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.37	97.6	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*77.0-120*	

Method Blank (MB)

(MB) R3694918-2 08/21/21 10:13

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	*107*			*75.0-131*
(S) 4-Bromofluorobenzene	*77.4*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3694918-1 08/21/21 09:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.123	98.4	70.0-123	
Ethylbenzene	0.125	0.105	84.0	74.0-126	
Toluene	0.125	0.116	92.8	75.0-121	
1,2,4-Trimethylbenzene	0.125	0.122	97.6	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.127	102	73.0-127	
Xylenes, Total	0.375	0.298	79.5	72.0-127	
(S) Toluene-d8			*94.4*	*75.0-131*	
(S) 4-Bromofluorobenzene			*89.7*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*130*	*70.0-130*	

L1392653-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392653-01 08/21/21 17:14 • (MS) R3694918-3 08/21/21 18:11 • (MSD) R3694918-4 08/21/21 18:30

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	0.137	U	0.135	0.136	113	114	1	10.0-149			0.738	37
Ethylbenzene	0.137	U	0.116	0.121	97.5	102	1	10.0-160			4.22	38
Toluene	0.137	U	0.137	0.145	115	122	1	10.0-156			5.67	38
1,2,4-Trimethylbenzene	0.137	U	0.134	0.143	113	120	1	10.0-160			6.50	36
1,3,5-Trimethylbenzene	0.137	U	0.149	0.154	125	129	1	10.0-160			3.30	38
Xylenes, Total	0.410	U	0.320	0.326	89.6	91.3	1	10.0-160			1.86	38
(S) Toluene-d8					*103*	*105*		*75.0-131*				
(S) 4-Bromofluorobenzene					*84.2*	*80.5*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*118*	*112*		*70.0-130*				

Method Blank (MB)

(MB) R3696020-1 08/25/21 02:19

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	*59.6*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3696020-2 08/25/21 02:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	36.6	73.2	50.0-150	
(S) o-Terphenyl			*55.9*	*18.0-148*	

L1392181-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392181-01 08/25/21 06:26 • (MS) R3696020-3 08/25/21 06:39 • (MSD) R3696020-4 08/25/21 06:53

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	48.2	5.57	33.5	34.5	57.9	59.3	1	50.0-150			2.94	20
(S) o-Terphenyl					*50.3*	*50.8*		*18.0-148*				

Method Blank (MB)

(MB) R3696615-1 08/26/21 01:57

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	1.62	J	0.274	4.00
(S) o-Terphenyl	*73.0*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3696615-2 08/26/21 02:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	39.1	78.2	50.0-150	
(S) o-Terphenyl			*70.0*	*18.0-148*	

L1392665-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392665-01 08/26/21 12:33 • (MS) R3696615-3 08/26/21 12:46 • (MSD) R3696615-4 08/26/21 12:59

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	49.4	113	55.7	50.4	0.000	0.000	1	50.0-150	J6	J6	9.99	20
(S) o-Terphenyl					*57.8*	*62.4*		*18.0-148*				

Method Blank (MB)

(MB) R3696534-2 08/25/21 18:31

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	*69.3*			*14.0-149*
(S) 2-Fluorobiphenyl	*84.8*			*34.0-125*
(S) p-Terphenyl-d14	*110*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3696534-1 08/25/21 18:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0694	86.8	50.0-126	
Acenaphthene	0.0800	0.0693	86.6	50.0-120	
Acenaphthylene	0.0800	0.0743	92.9	50.0-120	
Benzo(a)anthracene	0.0800	0.0647	80.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0598	74.8	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0697	87.1	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0696	87.0	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0707	88.4	49.0-125	
Chrysene	0.0800	0.0692	86.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0664	83.0	47.0-125	
Fluoranthene	0.0800	0.0678	84.8	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3696534-1 08/25/21 18:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0703	87.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0626	78.3	46.0-125	
Naphthalene	0.0800	0.0667	83.4	50.0-120	
Phenanthrene	0.0800	0.0711	88.9	47.0-120	
Pyrene	0.0800	0.0701	87.6	43.0-123	
1-Methylnaphthalene	0.0800	0.0682	85.3	51.0-121	
2-Methylnaphthalene	0.0800	0.0640	80.0	50.0-120	
2-Chloronaphthalene	0.0800	0.0695	86.9	50.0-120	
(S) Nitrobenzene-d5			*76.7*	*14.0-149*	
(S) 2-Fluorobiphenyl			*85.0*	*34.0-125*	
(S) p-Terphenyl-d14			*108*	*23.0-120*	

L1392630-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1392630-02 08/25/21 18:51 • (MS) R3696534-3 08/25/21 19:11 • (MSD) R3696534-4 08/25/21 19:30

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	0.0764	U	0.0669	0.0690	87.6	89.8	1	10.0-145			3.09	30
Acenaphthene	0.0764	U	0.0676	0.0696	88.5	90.6	1	14.0-127			2.92	27
Acenaphthylene	0.0764	U	0.0713	0.0744	93.3	96.9	1	21.0-124			4.26	25
Benzo(a)anthracene	0.0764	U	0.0599	0.0644	78.4	83.9	1	10.0-139			7.24	30
Benzo(a)pyrene	0.0764	U	0.0562	0.0620	73.6	80.7	1	10.0-141			9.81	31
Benzo(b)fluoranthene	0.0764	U	0.0605	0.0641	79.2	83.5	1	10.0-140			5.78	36
Benzo(g,h,i)perylene	0.0764	U	0.0563	0.0636	73.7	82.8	1	10.0-140			12.2	33
Benzo(k)fluoranthene	0.0764	U	0.0602	0.0630	78.8	82.0	1	10.0-137			4.55	31
Chrysene	0.0764	U	0.0631	0.0675	82.6	87.9	1	10.0-145			6.74	30
Dibenz(a,h)anthracene	0.0764	U	0.0583	0.0644	76.3	83.9	1	10.0-132			9.94	31
Fluoranthene	0.0764	U	0.0656	0.0683	85.9	88.9	1	10.0-153			4.03	33
Fluorene	0.0764	U	0.0674	0.0703	88.2	91.5	1	11.0-130			4.21	29
Indeno(1,2,3-cd)pyrene	0.0764	U	0.0540	0.0604	70.7	78.6	1	10.0-137			11.2	32
Naphthalene	0.0764	U	0.0651	0.0660	85.2	85.9	1	10.0-135			1.37	27
Phenanthrene	0.0764	U	0.0686	0.0699	89.8	91.0	1	10.0-144			1.88	31
1-Methylnaphthalene	0.0764	U	0.0661	0.0673	86.5	87.6	1	10.0-142			1.80	28
Pyrene	0.0764	U	0.0675	0.0711	88.4	92.6	1	10.0-148			5.19	35
2-Chloronaphthalene	0.0764	U	0.0670	0.0695	87.7	90.5	1	29.0-120			3.66	24
2-Methylnaphthalene	0.0764	U	0.0621	0.0639	81.3	83.2	1	10.0-137			2.86	28
(S) Nitrobenzene-d5					*74.2*	*74.5*		*14.0-149*				
(S) 2-Fluorobiphenyl					*84.0*	*87.5*		*34.0-125*				
(S) p-Terphenyl-d14					*107*	*110*		*23.0-120*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

Billing Information: Caerus Operating, LLC
Account: CAERUSPCO

Report to: Steve Sivigliano
Email To: steve.sivigliano@camposepc.com

Project Description: H12W
City/State Collected: CO

Phone: 970-619-0600
Fax:
Client Project # H12W
Lab Project #

Collected by (print): Steve Sivigliano
Site/Facility ID # H12W
P.O. #

Collected by (signature):
Immediately Packed on Ice N ___ Y X
Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day x Standard
Quote #
Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	COGCC Table 915 #s	EC, SAR, pH, Arsenic	Remarks	Sample # (lab only)
20210817-H12W(Sep)east	G	SS	0-6"	8/17/21	1300	3	X			-01
20210817-H12W(Sep)west	G	SS	0-6"	8/17/21	1310	2	X		Hold	-02
20210817-H12W-E.Wall@4'	G	SS	4'	8/17/21	1320	3	X			-03
20210817-H12W-S.Wall@4'	G	SS	4'	8/17/21	1330	3	X			-04
20210817-H12W-W.Wall@4'	G	SS	4'	8/17/21	1340	3	X			-05
20210817-H12W-N.Wall@4'	G	SS	4'	8/17/21	1350	3	X			-06
20210817-H12W-Base@5'	G	SS	5'	8/17/21	1400	3	X			-07
20210817-H12W-CT north	G	SS	0-6"	8/17/21	1410	3	X			-08
20210817-H12W-CT south	G	SS	0-6"	8/17/21	1420	2	X		Hold	-09
20210817-H12W-BG	G	SS	0-6"	8/17/21	1435	1		X		-10

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

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

Tracking # 5016 1232 3661

Trip Blank Received: Yes (No) HCL / MeoH TBR
Bottles Received:
Temp: 3.3-1-3.2 29

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Relinquished by : (Signature) Steve Sivigliano — Date: 8/18/21 — Time: 1700
Received by: (Signature)

Relinquished by : (Signature) — Date: 8/18/21 — Time: 1700
Received by: (Signature)

Relinquished by : (Signature) — Date: — Time:
Received for lab by: (Signature) — Date: 8/19/21 — Time: 0900

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

Chain of Custody Page 1 of 2

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# L392648
Table 1197
Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Billing Information: Caerus Operating, LLC
Account: CAERUSPCO

Report to: Steve Sivigliano
Email To: steve.sivigliano@camposepc.com

Project Description: H12W
City/State Collected: CO

Phone: 970-619-0600
Fax:

Client Project # H12W
Lab Project #

Collected by (print): Steve Sivigliano
Site/Facility ID # H12W
P.O. #

Collected by (signature): Ste Sivi
Immediately Packed on Ice N ___ Y X

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

Quote #
Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative: COGCC Table 915	Remarks	Sample # (lab only)
20210817-H12W-Stock	C	SS	0-12"	8/17/21	1430	3	X		-11

Chain of Custody Page 2 of 2

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 # L1392648
Table #
Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

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

Tracking # 5016 1232 3661

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)
Ste Sivi	8/18/21	1300	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	8/18/21	1500	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			SLC

Trip Blank Received: Yes / No
HCL / MeoH
TBR
Temp: 0.2°C Bottles Received: 29
3.3-1-3.2

If preservation required by Login: Date/Time

Date: 8/19/21 Time: 0900

Hold:

Condition: NCF / OK

ANALYTICAL REPORT

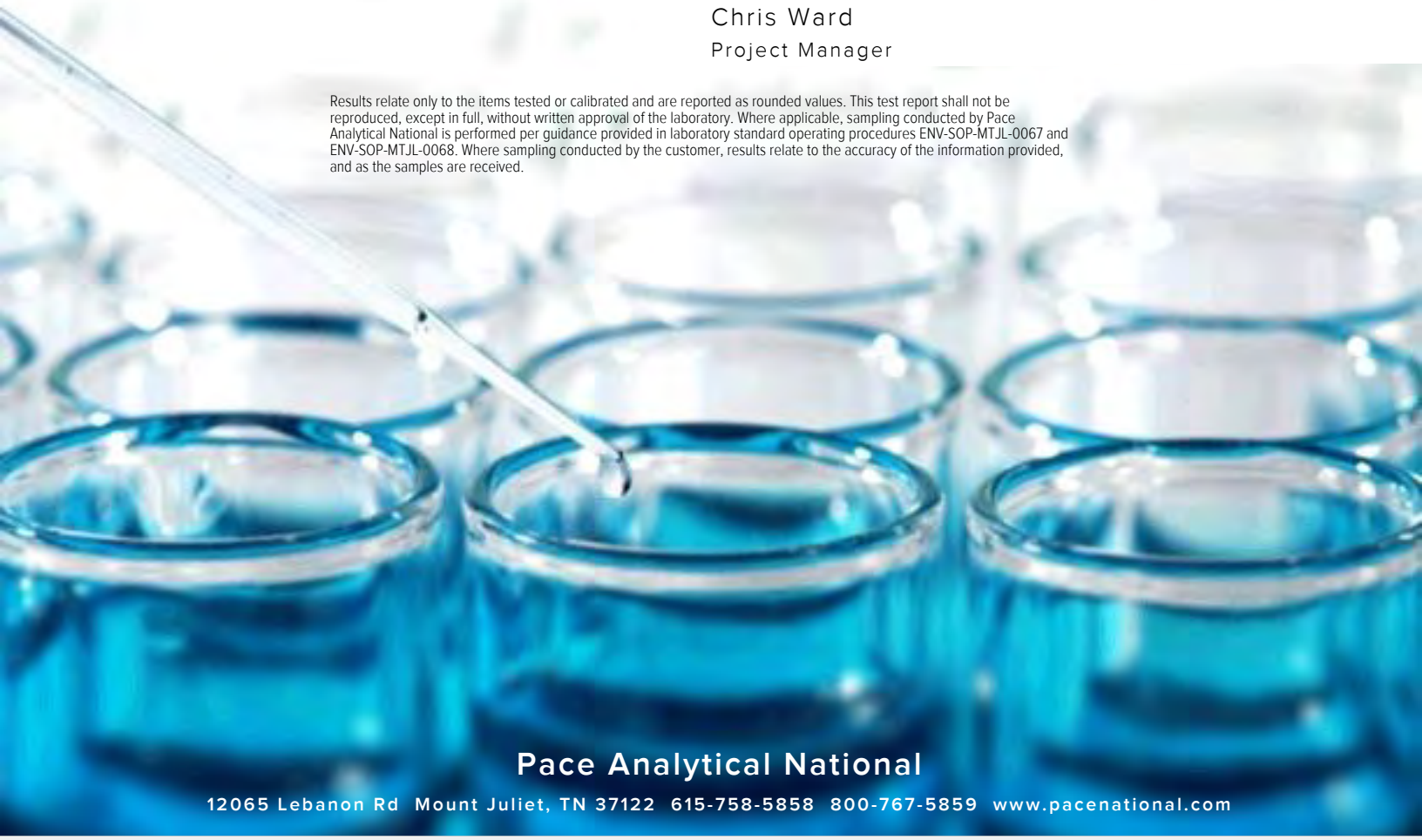
September 28, 2021

Caerus Oil and Gas

Sample Delivery Group:	L1405291
Samples Received:	09/17/2021
Project Number:	
Description:	H12W
Site:	H12W
Report To:	Steve Sivigliano 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

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SAMPLE SUMMARY

20210915-H12W(W.WALL01)@4' L1405291-01 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 08:30 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 17:02	LD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744956	1	09/22/21 08:03	09/23/21 10:51	JAS	Mt. Juliet, TN

20210915-H12W(BASE)@6' L1405291-03 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 08:40 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 17:05	LD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744956	1	09/22/21 08:03	09/23/21 11:05	JAS	Mt. Juliet, TN

20210915-H12W(BG01)@2' L1405291-05 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 10:00 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 15:44	LD	Mt. Juliet, TN

20210915-H12W(BG02)@3' L1405291-06 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 10:25 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 17:09	LD	Mt. Juliet, TN

20210915-H12W(BG03)@4' L1405291-07 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 12:10 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 17:12	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	9.03	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:
L1405291-01 WG1743935: 9.03 at 21.2C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	11.4		0.100	1.00	5	09/21/2021 17:02	WG1742724

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.61	4.00	1	09/23/2021 10:51	WG1744956
C28-C40 Oil Range	5.41		0.274	4.00	1	09/23/2021 10:51	WG1744956
(S) o-Terphenyl	*75.4*			*18.0-148*		*09/23/2021 10:51*	WG1744956

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	9.01	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:

L1405291-03 WG1743935: 9.01 at 21.1C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	8.28		0.100	1.00	5	09/21/2021 17:05	WG1742724

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.61	4.00	1	09/23/2021 11:05	WG1744956
C28-C40 Oil Range	6.03		0.274	4.00	1	09/23/2021 11:05	WG1744956
(S) o-Terphenyl	*62.4*			*18.0-148*		*09/23/2021 11:05*	WG1744956

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.03	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:

L1405291-05 WG1743935: 8.03 at 20.8C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	4.88		0.100	1.00	5	09/21/2021 15:44	WG1742724

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.24	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:

L1405291-06 WG1743935: 8.24 at 20.6C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	5.31		0.100	1.00	5	09/21/2021 17:09	WG1742724

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.85	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:

L1405291-07 WG1743935: 8.85 at 21.2C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	3.79		0.100	1.00	5	09/21/2021 17:12	WG1742724

L1405351-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1405351-03 09/27/21 23:45 • (DUP) R3709312-3 09/27/21 23:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	9.02	8.99	1	0.333		1

Sample Narrative:

OS: 9.02 at 21.4C

DUP: 8.99 at 21.4C

Laboratory Control Sample (LCS)

(LCS) R3709312-1 09/27/21 23:45

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

Sample Narrative:

LCS: 9.99 at 20.5C

Method Blank (MB)

(MB) R3706963-1 09/21/21 15:37

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) R3706963-2 09/21/21 15:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	95.2	95.2	80.0-120	

L1405291-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405291-05 09/21/21 15:44 • (MS) R3706963-5 09/21/21 15:53 • (MSD) R3706963-6 09/21/21 15:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.88	98.7	93.8	93.8	88.9	5	75.0-125			5.05	20

Method Blank (MB)

(MB) R3707899-1 09/23/21 09:47

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-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*82.7*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3707899-2 09/23/21 10:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	45.4	90.8	50.0-150	
(S) o-Terphenyl			*86.3*	*18.0-148*	

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
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®

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

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

ALL SHADED AREAS are for LAB USE ONLY

Company: Campos EPC	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Steve Sivigliano	Email To: steve.sivigliano@camposepc.com
Copy To: Evan Mason - evan.mason@camposepc.com	Site Collection Info/Address:
Customer Project Name/Number: H12W	State: CO County/City: Garfield Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-619-0600 Email: same as above	Site/Facility ID #: H12W
Collected By (print): Evan Mason	Purchase Order #: Quote #:
Collected By (signature):	Turnaround Date Required:
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [ ] Yes [ ] No

DW PWS ID #: DW Location Code:

Immediately Packed on Ice: [ ] Yes [ ] No

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

Analysis: _____

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

Container Preservative Type **

Lab Project Manager:

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

Analyses

Lab Profile/Line:

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	TPH-DRO, TPH-ORO	pH, Arsenic	Lab Profile/Line
20210915-H12W(W.WALL01)@4'	SL	G	9/15/21	0830	-	-	-	2	X	X	-01
20210915-H12W(W.WALL02)@4'	SL	G	9/15/21	0835	-	-	-	2	X	X	HOLD -02
20210915-H12W(BASE)@6'	SL	G	9/15/21	0840	-	-	-	2	X	X	-03
20210915-H12W(BASE)@8'	SL	G	9/15/21	0845	-	-	-	2	X	X	HOLD -04
20210915-H12W(BG01)@2'	SL	G	9/15/21	1000	-	-	-	1		X	-05
20210915-H12W(BG02)@3'	SL	G	9/15/21	1025	-	-	-	1		X	-06
20210915-H12W(BG03)@4'	SL	G	9/15/21	1210	-	-	-	1		X	-07

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: K124 U405291

Customer Remarks / Special Conditions / Possible Hazards:
HOLD analysis for samples 20210915-H12W(W.WALL02)@4' and 20210915-H12W(BASE)@8'

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 #: 5016 1232 3222

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: IR3K# 2.4, 1=2.3

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

Non Conformance(s): YES / NO

Page: _____ of: _____

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	9/16/21 1315		9/16 1315
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	9/16/21 1350		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
			9/17/21 0900

MTJL LAB USE ONLY

Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

ANALYTICAL REPORT

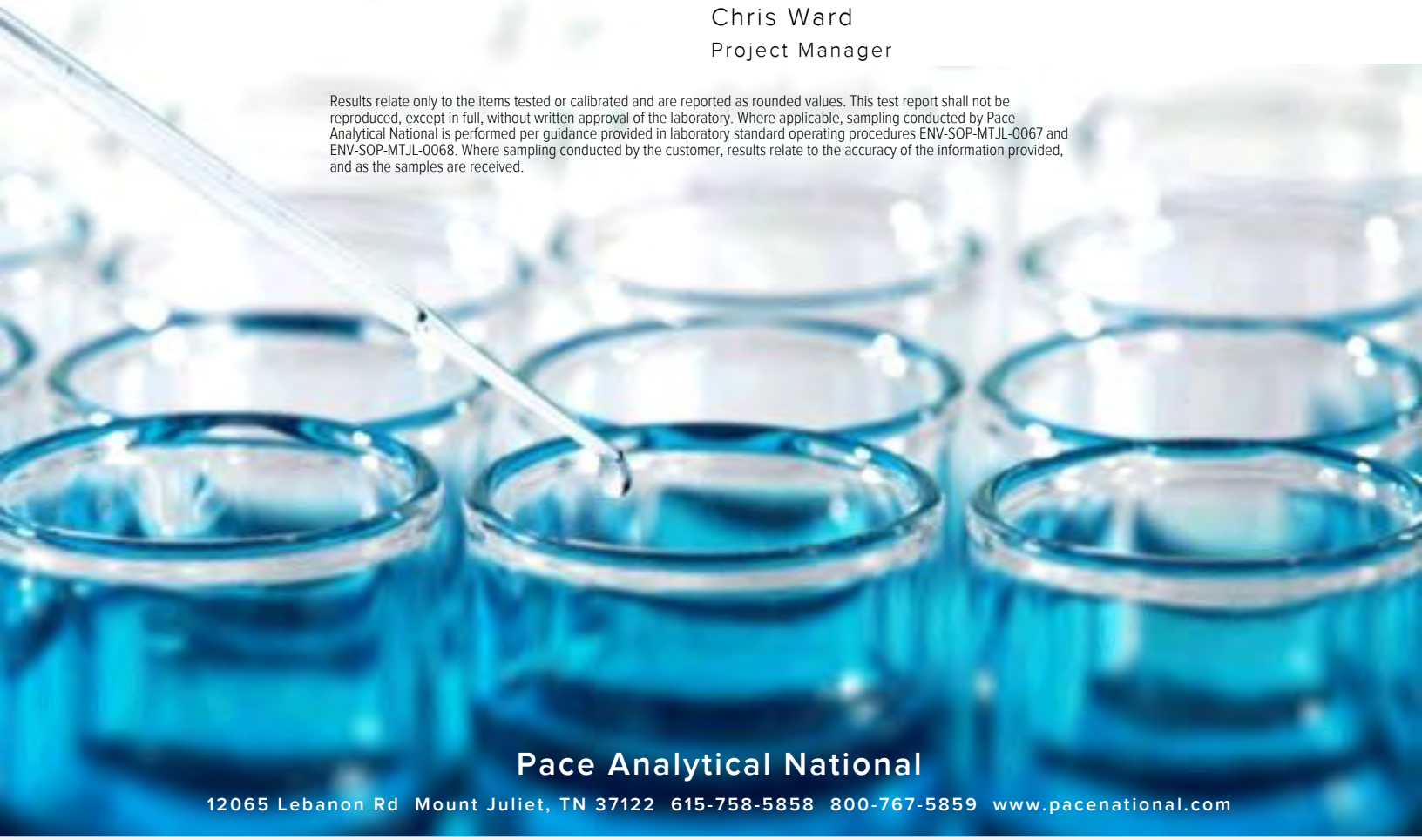
September 28, 2021

Caerus Oil and Gas

Sample Delivery Group:	L1405291
Samples Received:	09/17/2021
Project Number:	
Description:	H12W
Site:	H12W
Report To:	Steve Sivigliano 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

SAMPLE SUMMARY

20210915-H12W(W.WALL01)@4' L1405291-01 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 08:30 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 17:02	LD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744956	1	09/22/21 08:03	09/23/21 10:51	JAS	Mt. Juliet, TN

20210915-H12W(BASE)@6' L1405291-03 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 08:40 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 17:05	LD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1744956	1	09/22/21 08:03	09/23/21 11:05	JAS	Mt. Juliet, TN

20210915-H12W(BG01)@2' L1405291-05 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 10:00 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 15:44	LD	Mt. Juliet, TN

20210915-H12W(BG02)@3' L1405291-06 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 10:25 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 17:09	LD	Mt. Juliet, TN

20210915-H12W(BG03)@4' L1405291-07 Solid

Collected by: Evan Mason | Collected date/time: 09/15/21 12:10 | Received date/time: 09/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG1743935	1	09/27/21 16:43	09/27/21 23:45	WOS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1742724	5	09/21/21 06:34	09/21/21 17:12	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	9.03	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:
L1405291-01 WG1743935: 9.03 at 21.2C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	11.4		0.100	1.00	5	09/21/2021 17:02	WG1742724

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.61	4.00	1	09/23/2021 10:51	WG1744956
C28-C40 Oil Range	5.41		0.274	4.00	1	09/23/2021 10:51	WG1744956
(S) o-Terphenyl	*75.4*			*18.0-148*		*09/23/2021 10:51*	WG1744956

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	9.01	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:

L1405291-03 WG1743935: 9.01 at 21.1C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	8.28		0.100	1.00	5	09/21/2021 17:05	WG1742724

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.61	4.00	1	09/23/2021 11:05	WG1744956
C28-C40 Oil Range	6.03		0.274	4.00	1	09/23/2021 11:05	WG1744956
(S) o-Terphenyl	*62.4*			*18.0-148*		*09/23/2021 11:05*	WG1744956

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.03	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:

L1405291-05 WG1743935: 8.03 at 20.8C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	4.88		0.100	1.00	5	09/21/2021 15:44	WG1742724

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.24	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:

L1405291-06 WG1743935: 8.24 at 20.6C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	5.31		0.100	1.00	5	09/21/2021 17:09	WG1742724

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	8.85	T8	1	09/27/2021 23:45	WG1743935

Sample Narrative:

L1405291-07 WG1743935: 8.85 at 21.2C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Arsenic	3.79		0.100	1.00	5	09/21/2021 17:12	WG1742724

L1405351-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1405351-03 09/27/21 23:45 • (DUP) R3709312-3 09/27/21 23:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	9.02	8.99	1	0.333		1

Sample Narrative:

OS: 9.02 at 21.4C

DUP: 8.99 at 21.4C

Laboratory Control Sample (LCS)

(LCS) R3709312-1 09/27/21 23:45

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

Sample Narrative:

LCS: 9.99 at 20.5C

Method Blank (MB)

(MB) R3706963-1 09/21/21 15:37

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) R3706963-2 09/21/21 15:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	95.2	95.2	80.0-120	

L1405291-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1405291-05 09/21/21 15:44 • (MS) R3706963-5 09/21/21 15:53 • (MSD) R3706963-6 09/21/21 15:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	4.88	98.7	93.8	93.8	88.9	5	75.0-125			5.05	20

Method Blank (MB)

(MB) R3707899-1 09/23/21 09:47

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-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*82.7*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3707899-2 09/23/21 10:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	45.4	90.8	50.0-150	
(S) o-Terphenyl			*86.3*	*18.0-148*	

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
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®

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

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

ALL SHADED AREAS are for LAB USE ONLY

Company: Campos EPC	Billing Information: Caerus Oil and Gas, LLC Account: CAERUSPCO
Address: 1401 Blake St. Denver, CO 80202	
Report To: Steve Sivigliano	Email To: steve.sivigliano@camposepc.com
Copy To: Evan Mason - evan.mason@camposepc.com	Site Collection Info/Address:
Customer Project Name/Number: H12W	State: CO County/City: Garfield Time Zone Collected: [ ] PT [✓] MT [ ] CT [ ] ET
Phone: 970-619-0600 Email: same as above	Site/Facility ID #: H12W
Collected By (print): Evan Mason	Purchase Order #: Quote #:
Collected By (signature):	Turnaround Date Required:
Sample Disposal: [✓] Dispose as appropriate [ ] Return [ ] Archive: _____ [ ] Hold: _____	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [✓] 5 Day (Expedite Charges Apply)

Compliance Monitoring? [ ] Yes [ ] No

DW PWS ID #: DW Location Code:

Immediately Packed on Ice: [ ] Yes [ ] No

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

Analysis: _____

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

Container Preservative Type **

Lab Project Manager:

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

Analyses

Lab Profile/Line:

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	TPH-DRO, TPH-ORO	pH, Arsenic	Lab Profile/Line
20210915-H12W(W.WALL01)@4'	SL	G	9/15/21	0830	-	-	-	2	X	X	-01
20210915-H12W(W.WALL02)@4'	SL	G	9/15/21	0835	-	-	-	2	X	X	HOLD -02
20210915-H12W(BASE)@6'	SL	G	9/15/21	0840	-	-	-	2	X	X	-03
20210915-H12W(BASE)@8'	SL	G	9/15/21	0845	-	-	-	2	X	X	HOLD -04
20210915-H12W(BG01)@2'	SL	G	9/15/21	1000	-	-	-	1		X	-05
20210915-H12W(BG02)@3'	SL	G	9/15/21	1025	-	-	-	1		X	-06
20210915-H12W(BG03)@4'	SL	G	9/15/21	1210	-	-	-	1		X	-07

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: K124 U405291

Customer Remarks / Special Conditions / Possible Hazards:
HOLD analysis for samples 20210915-H12W(W.WALL02)@4' and 20210915-H12W(BASE)@8'

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 #: 5016 1232 3222

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: IR3K# 2.4, 1=2.3

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

Non Conformance(s): YES / NO

Page: _____ of: _____

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	9/16/21 1315		9/16 1315
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	9/16/21 1350		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
			9/17/21 0900

MTJL LAB USE ONLY

Table #:
Acctnum:
Template:
Prelogin:
PM:
PB: