August 5, 2022
Kleinfelder Project No. 20231065.001A

Mr. Blair Rollins
Caerus Piceance, LLC
1001 17th Street #1600
Denver, Colorado 80202

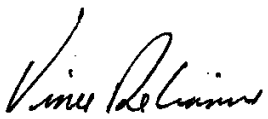
SUBJECT: **Site Investigation Report**
Caerus Piceance, LLC
Remediation Project # 23852
J30 Pad
Garfield County, Colorado

Dear Mr. Rollins:

Kleinfelder Inc. (Kleinfelder) performed soil sampling activities at the J30 Pad in Garfield County, Colorado under contract by Caerus Piceance LLC (Caerus). Enclosed is the report of work complete for this effort.

Please do not hesitate to contact me at (303) 319-2456 or by email at VDeCianne@kleinfelder.com should you have questions or concerns.

Respectfully submitted,
KLEINFELDER, INC.



Vince DeCianne
VP, Senior Principal Professional

KLEINFELDER 707 17th Street, Suite 3000, Denver, CO 80202 p | 303.237.6601 f | 303.237.6602

SITE INVESTIGATION REPORT
CAERUS PICEANCE, LLC
REMEDIATION PROJECT # 23852
J30 PAD
GARFIELD COUNTY, COLORADO

KLEINFELDER PROJECT NO. 20231065.001A

August 5, 2022

A Report Prepared for:

Caerus Piceance, LLC
1001 17th Street #1600
Denver, CO 80202

SITE INVESTIGATION REPORT
CAERUS PICEANCE, LLC
REMEDIATION PROJECT # 23852
J30 PAD
GARFIELD COUNTY, COLORADO

Prepared by:

Tristan Schmalz
Staff Professional I

Reviewed by:

Vince DeCianne
VP, Senior Principal Professional

KLEINFELDER
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Denver, Colorado 80202
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August 5, 2022
Kleinfelder Project No. 20231065.001A

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SITE INVESTIGATION REPORT
CAERUS PICEANCE, LLC
REMEDIATION PROJECT # 23852
J30 PAD
GARFIELD COUNTY, COLORADO

1 INTRODUCTION

This document was prepared by Kleinfelder Inc. (Kleinfelder) on behalf of Caerus Piceance, LLC (Caerus) to provide documentation of recent sampling support services conducted at the J30 Pad located in Garfield County, Colorado (**Figure 1**).

Kleinfelder has been contracted by Caerus to perform soil sampling support services to provide necessary information to complete the Colorado Oil and Gas Conservation Commission (COGCC) Form 27 for their upstream oil and gas production facilities located in the Piceance Basin. According to the COGCC Form 19 Spill / Release Report Approved (document # 403025378) and NFA Approved (document # 403048076) provided to Kleinfelder by Caerus (**Appendix A),** a failed pressure test indicated a potential dumpline release at the J30 Pad which was discovered on April 22, 2022. Caerus proposed soil sampling to characterize the approximate release area from the reported spill under COGCC 913.c.(3) Rule 906: Remediation of Spill and Release pursuant to Rule 912, see approved COGCC Form 27 Site Investigation and Remediation Workplan Initial Form (document # 403054273) (**Appendix B**). Kleinfelder collected the soil samples. Samples were analyzed by Pace Analytical National (Pace) laboratory and results are reported herein.

2 SITE LOCATION AND GEOLOGIC SETTING

The J30 Pad is located within the Piceance Basin in Garfield County, northwestern Colorado (NWSE, Section 30, Township 5 South, Range 95 West) (**Figure 1**). The Piceance Basin is a geologic structural basin consisting of sandstones and siltstones, containing reserves of coal, natural gas, and oil shale.

No surface water or groundwater were encountered during Kleinfelder's soil sampling activities. Adjacent land was observed to be undeveloped land. The general soil type within the release area was classified based on Kleinfelder's field observations using the Unified Soil Classification System (USCS) and were observed as silty sands, sand-silt mixture. Topographical information is provided in **Figure 1**.

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3 FIELD ACTIVITIES

As prescribed within the approved COGCC Form 27 Site Investigation and Remediation Workplan Initial Form, Kleinfelder performed the following field activities at the J30 Pad on May 3, 2022, and May 26, 2022:

May 3, 2022

- Collected two (2) soil samples from Excavation #1. One sample was taken from the base of the excavation, and the other was taken from the east sidewall. Excavation #2 was not safe for sampling.
- Collected two (2) background soil samples from locations north and south of the pad.
- Shipped soil samples to Pace to analyze for the contaminants of concern listed within COGCC Table 915-1.

May 26, 2022

- Collected two (2) soil samples from two different potholes beneath the repaired flowlines at the separators. Samples were taken from the base of the potholes.
- Shipped soil samples to Pace to analyze for the contaminants of concern listed within COGCC Table 915-1.

Caerus identified the soil sampling locations. Kleinfelder used an EOS Arrow 100 Submeter GNSS receiver to record latitude and longitude at each sample location, see **Table 1**. Sample locations are shown on **Figure 2a**.

Soil samples were collected from a stainless-steel hand auger or a stainless-steel trowel and placed into two laboratory-supplied, 9-ounce jars with Teflon lids per sample. Each sample was collected directly from the hand auger or trowel, from the appropriate depth, and placed into the glass jars. The samples were immediately placed on ice in a cooler. Standard chain-of-custody (COC) procedures were used during sampling and transportation to Pace in Mount Juliet, Tennessee (via FEDEX).

Release area (site) soil samples were analyzed for contaminants of concern listed in COGCC Table 915-1.

Background soil samples were analyzed for Specific Conductance (SC, also called Electrical Conductivity, EC), Sodium Absorption Ratio (SAR), Arsenic, Boron, and pH.

Sampling equipment (i.e., hand auger cutter head, soil sampler, etc.) was washed with a solution of Liquinox® detergent, rinsed with tap water, and then distilled water between samples.

During soil sampling activities, Kleinfelder documented staining and/or odor observations, if any, and screened the soil with a photoionization detector (PID). Kleinfelder placed the soil into a Ziploc® plastic bag directly from the hand auger for screening with the PID. The PID is a MiniRAE 3000®, which is owned and maintained by Caerus. Prior to use, Kleinfelder calibrated the PID, which passed calibration.

Soil sample conditions and observations are provided in **Table 1**.

4 RESULTS

Soil conditions within the release area were documented during the soil sampling activities. No odor or staining was observed in the site or background samples and PID readings in the release area were lower than one parts per million (PPM). **Table 1** summarizes the samples and associated field observations.

Monitoring well NPR9MW, which is located adjacent to the J30 Pad to the south, has consistently held a static water level around 25' below ground surface throughout 2019, 2020, 2021, and 2022.

Ground elevation of J30 well pad = 5,925'
NPR9MW ground elevation = 5,895'
NPR9MW location = 39.581073 / -108.095279

Given the consistent static groundwater elevation and significant elevation difference between the monitoring well and the J30 Pad, it is reasonable to assume that the depth to groundwater beneath the spill site is greater than 20 feet below ground surface. Due to the depth of groundwater, it is requested that analytical results be compared to COGCC Table 915-1 Residential Soil Screening Level Concentrations.

In addition to analytical data collected by Kleinfelder at the J30 Pad on May 3, 2022, and May 26, 2022, background soil data which was also collected on December 16, 2021 approximately 0.40 miles west of the J30 Pad adjacent to the Middle Fork Water Treatment Facility. This data was applied as site-specific background data comparison for the J30 Pad. See **Figure 2b, Figure 2c** and **Appendix C**. Analytical results are summarized in **Table 2** and compared to COGCC Table 915-1 Residential Soil Screening Level Cleanup Concentrations. Laboratory reports are provided in **Appendix C.** With the exception of pH and arsenic, the contaminants of concern did not exceed the COGCC Table 915-1 Residential Soil Screening Level Cleanup Concentrations. Arsenic and pH were detected at concentrations above the Table 915-1 Residential Soil Screening Level Cleanup Concentrations, but less than the site-specific background concentrations (per COGCC), which range from 7.09 to 18.8 mg/kg and 7.68 to 9.53, respectively.

5 CONCLUSIONS AND RECOMMENDATIONS

With the exception of pH and arsenic, the contaminants of concern did not exceed the COGCC Table 915-1 Residential Soil Screening Level Cleanup Concentrations. Arsenic and pH were detected at concentrations above the Table 915-1 Residential Soil Screening Level Cleanup Concentrations, but less than the site-specific background concentrations. Based on the observed soil conditions and analytical results (see **Tables 1** and **2**), assessment of the soil conditions at the release area is complete and Kleinfelder recommends no additional site investigation or remediation activities within the release area at the J30 Pad.

6 LIMITATIONS

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that Caerus has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage, or treatment of hazardous materials within the meaning of any governmental statute, regulation, or order. Caerus is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment, or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. Caerus is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder’s services.

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FIGURES

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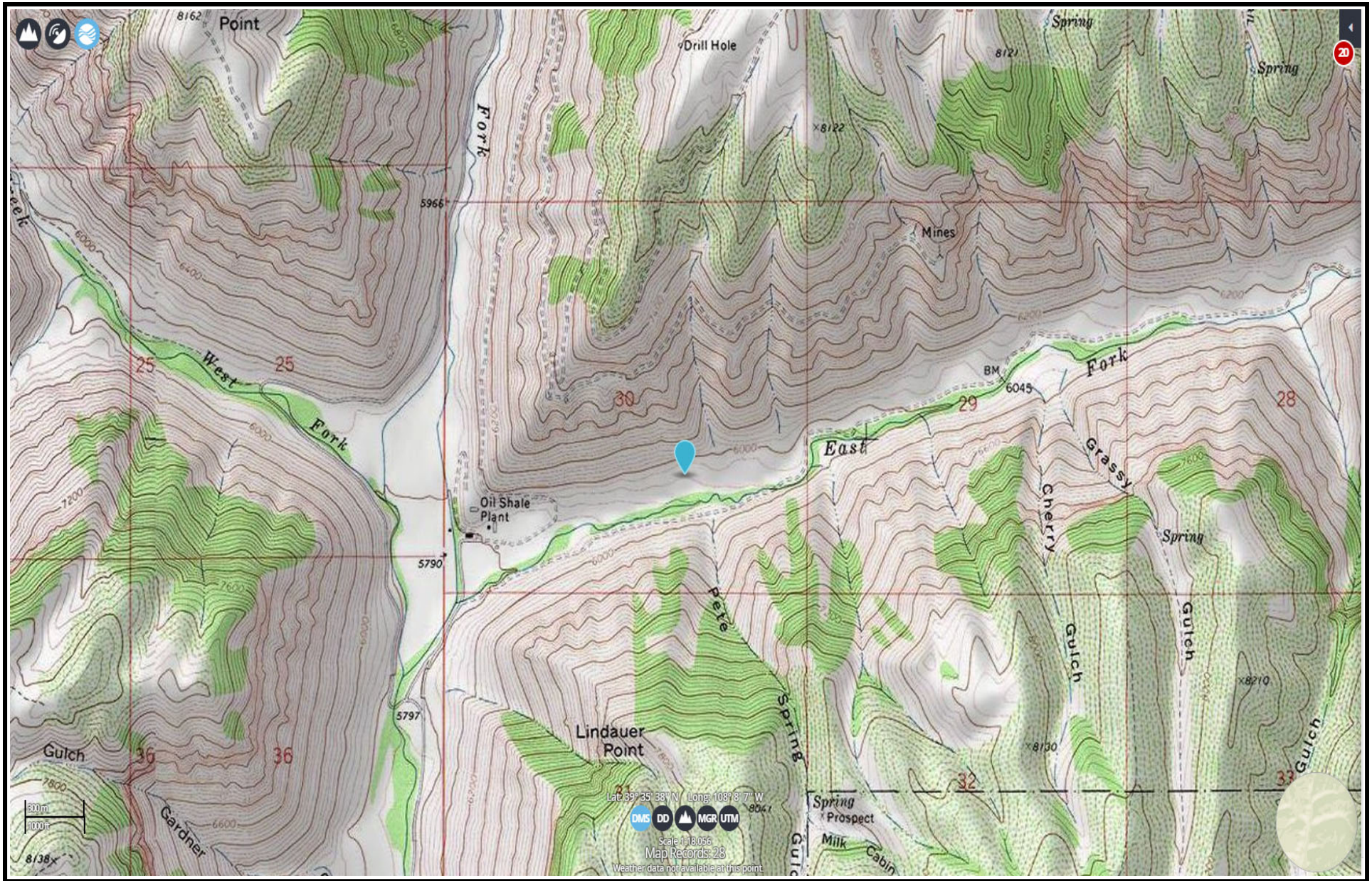

KLEINFELDER
Bright People. Right Solutions.

J30 Pad Site Investigation
Caerus Piceance, LLC
NWSE Sec. 30 T5S R95W
Garfield County, Colorado

PN 20231065.001A

Figure

1

KLEINFELDER
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J30 Pad Site Investigation
Caerus Piceance, LLC
NWSE Sec. 30 T5S R95W
Garfield County, Colorado

PN 20231065.001A

Figure

2a

KLEINFELDER
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J30 Pad Site Investigation
Caerus Piceance, LLC
NWSE Sec. 30 T5S R95W
Garfield County, Colorado

PN 20231065.001A

Figure

2b

KLEINFELDER
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J30 Pad Site Investigation
Caerus Piceance, LLC
NWSE Sec. 30 T5S R95W
Garfield County, Colorado

PN 20231065.001A

Figure

2c

TABLES

KLEINFELDER 707 17th Street, Suite 3000, Denver, CO 80202 p | 303.237.6601 f | 303.237.6602

Table 1

COGCC Soil Sampling

by **Jordan Veith** on **5/3/2022 & 5/26/2022**
for **Caerus J30 Pad Site Investigation**

Caerus - Sampling Support Services
20231065.001A
DeCianne, Vincent G. (Vince)

Sample Register

Sample ID	Sample Type	Date	Time	Depth	PID (ppmv)	Odor	Staining	Comments
20220503_J30_SB01@4ft	Other	05/3/2022	10:15 AM	4 to 4	< 1	N	N	
20220503_J30_EWALL01@4ft	Other	05/3/2022	10:40 AM	4 to 4	< 1	N	N	
20220503_J30_BG01@1ft	Background	05/3/2022	11:15 AM	1 to 1	< 1	N	N	
20220503_J30_BG02@1ft	Background	05/3/2022	11:40 AM	1 to 1	< 1	N	N	
20220526_J30_PH01@4ft	Other	05/26/2022	12:00 PM	4 to 4	< 1	N	N	
20220526_J30_PH02@4ft	Other	05/26/2022	12:15 PM	4 to 4	< 1	N	N	

Kleinfelder Representative *Signature*

Table 2 - Soil Analytical Results Summary

		J30								
		12/16/2021			5/3/2022				5/26/2022	
Contaminant of Concern	**Cleanup Concentration (mg/kg unless otherwise noted)**	**20211216_MFWTF_BG01@6in**	**20211216_MFWTF_BG02@6in**	**20211216_MFWTF_BG03@6in**	**20220503_J30_BG01@1ft**	**20220503_J30_BG02@1ft**	**20220503_J30_EWALL01@4ft**	**20220503_J30_SB01@4ft**	**20220526_J30_PH01@4ft**	**20220526_J30_PH02@4ft**
Soil TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons)	500	69.930	57.756	86.207	NM	NM	128.573	52.034	49.086	22.581
TPH Low Fraction GRO (C6-C10)		0.330	0.456	0.407	NM	NM	0.273	0.384	0.486	0.431
DRO (C10-C28)		14.6	10.9	18.8	NM	NM	35.1	9.75	9.8	4.05
MRO (C28-C36)		55.0	46.4	67.0	NM	NM	93.2	41.9	38.8	18.1
Soils and Groundwater - liquid hydrocarbons including condensate and oil	Below Visual Detection Limits	Below Visual Detection Limits	Below Visual Detection Limits	Below Visual Detection Limits	Below Visual Detection Limits	Below Visual Detection Limits	Below Visual Detection Limits	Below Visual Detection Limits	Below Visual Detection Limits	Below Visual Detection Limits
Electrical conductivity (EC) (by saturated paste method)	<4mmhos/cm	0.351	0.330	0.245	0.545	0.213	0.34	0.29	0.246	0.246
Sodium adsorption ratio (SAR) (by saturated paste method)	<6 SAR units	5.32	0.276	0.713	0.119	0.267	2.6	2.12	0.866	0.264
pH (by saturated paste method)	6–8.3 pH units	9.53	8.12 T8	8.37 T8	7.68 T8	7.99 T8	9.2 T8	8.60 T8	8.53 T8	8.40 T8
Boron (hot water soluble soil extract)	2 mg/L	0.497	0.902	0.591	NM	NM	0.818	0.409	0.474	0.423
Organic Compounds in Soils	**Residential Soil Screening Level Concentrations**									
benzene	1.2	U	U	U	NM	NM	U	U	U	U
toluene	490	U	U	U	NM	NM	U	U	U	U
ethylbenzene	5.8	U	U	U	NM	NM	U	U	U	U
xylenes (sum of o-, m- and p-isomers = total xylenes)	58	0.00113 J	U	U	NM	NM	U	U	U	U
1,2,4-trimethylbenzene	30	U	U	U	NM	NM	U	U	U	U
1,3,5-trimethylbenzene	27	U	U	U	NM	NM	U	U	U	U
acenaphthene	360	U	U	U	NM	NM	U	U	U	U
anthracene	1800	U	U	U	NM	NM	U	U	U	U
benz(a)anthracene	1.1	U	U	U	NM	NM	U	U	U	U
benzo(b)fluoranthene	1.1	U	U	U	NM	NM	U	U	U	U
benzo(k)fluoranthene	11	U	U	U	NM	NM	U	U	U	U
benzo(a)pyrene	0.11	U	U	U	NM	NM	U	U	U	U
chrysene	110	U	U	U	NM	NM	U	U	U	U
dibenz(a,h)anthracene	0.11	U	U	U	NM	NM	U	U	U	U
fluoranthene	240	U	U	U	NM	NM	U	U	U	U
fluorene	240	U	U	U	NM	NM	U	U	U	U
indeno(1,2,3-cd)pyrene	1.1	U	U	U	NM	NM	U	U	U	U
pyrene	180	U	U	U	NM	NM	U	U	U	U
1-methylnaphthalene	18	U	U	U	NM	NM	U	U	U	U
2-methylnaphthalene	24	U	U	U	NM	NM	U	U	U	U
naphthalene	2	U	U	U	NM	NM	U	U	U	U
Metals in Soils	**Residential Soil Screening Level Concentrations**									
arsenic	0.68	11.9	7.88	7.09	18.8	11.2	14.5	13.4	11.6	10.3
barium	15000	278	300	268	NM	NM	699	312	292	261 J6 O1
cadmium	71	0.356 J	0.545	0.515	NM	NM	U	U	0.468 J	1.07
chromium (VI)	0.3	U	U	U	NM	NM	U	U	U	U
copper	3100	16.8	18.3	22.0	NM	NM	21.2	23	21	21.2 O1
lead	400	8.57	15.7	14.0	NM	NM	13.2	13.2	11.2	12.3 O1
nickel	1500	15.3	16.9	17.3	NM	NM	18.4	20.1	16.7	18.3 O1
selenium	390	U	U	U	NM	NM	U	U	U	U
silver	390	U	U	U	NM	NM	U	U	U	U
zinc	23000	43.3	59.3	52.1	NM	NM	50.2	58	48.9	56.5 J6 O1

NOTES:

Greater than Table 915-1 Residential Soil Screening Level Concentrations Risk Based and MCL Basec

Greater than Table 915-1 Standards, but less than adjusted standards (Highest background level is the adjusted standard for inorganics; 1.25X highest background level for metals)

B = Result > = MDL but < RL
BG = background sample
C = carbon range
J = The identification of the analyte is acceptable: the reported value is an estimate
J6 = The sample matrix interfered with the ability to make any accurate determination; spike value low.
MDL = method detection limit
mg/kg = milligram per kilogram
mg/L = milligram per liter
mmhos/cm = millimhos per centimeter
NM = not measured
O1 = The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
PH = pothole
RL = reporting limit
SB = soil boring
T8 = Samples received past/too close to holding time expiration.
U = Not detected at the Reporting Limit (or MDL where applicable).

APPENDIX A

COGCC FORM 19 SPILL / RELEASE REPORTS

KLEINFELDER 707 17th Street, Suite 3000, Denver, CO 80202 p | 303.237.6601 f | 303.237.6602

FORM 19 Rev 03/21

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109

Document Number: 403025378
Date Received: 04/24/2022

Spill report taken by: Arauza, Steven

Spill/Release Point ID: 482087

SPILL/RELEASE REPORT (INITIAL)

This form is to be submitted by the party responsible for the oil and gas spill or release. Refer to COGCC Rule 912.b. for reporting requirements of spills or releases of E&P Waste, produced Fluids, or unauthorized Releases of natural gas. Submit a Site Investigation and Remediation Workplan (Form 27) if Rule 913.c. applies.

OPERATOR INFORMATON

Name of Operator: CAERUS PICEANCE LLC Operator No: 10456
Address: 1001 17TH STREET #1600
City: DENVER State: CO Zip: 80202
Contact Person: Blair Rollins

Phone Numbers
Phone: (970) 285-2925
Mobile: (970) 640-6919
Email: brollins@caerusoilandgas.com

INITIAL SPILL/RELEASE REPORT

Initial Spill/Release Report Doc# 403025378

Initial Report Date: 04/24/2022 Date of Discovery: 04/22/2022 Spill Type: Recent Spill

Spill/Release Point Location:

QTRQTR NWSE SEC 30 TWP 5S RNG 95W MERIDIAN 6
Latitude: 39.581908 Longitude: -108.094306
`Municipality (if within municipal boundaries): County: GARFIELD

Enter Lat./long measurement of the actual Spill/Release Point. Lat./Long. Data shall meet standards of Rule 216.

Reference Location:

Facility Type: PIPELINE [X] Facility/Location ID No 335584
Spill/Release Point Name: J30 Water Dumpline [ ] Well API No. (Only if the reference facility is well) 05- -
[ ] No Existing Facility or Location ID No.

Estimated Total Spill Volume: use same ranges as others for values

Estimated Oil Spill Volume(bbl): 0 Estimated Condensate Spill Volume(bbl): 0
Estimated Flow Back Fluid Spill Volume(bbl): 0 Estimated Produced Water Spill Volume(bbl): Unknown
Estimated Other E&P Waste Spill Volume(bbl): 0 Estimated Drilling Fluid Spill Volume(bbl): 0
Specify:

Has the subject Spill/Release been controlled at the time of reporting? Yes

Land Use:

Current Land Use: NON-CROP LAND Other(Specify):
Weather Condition: Cloudy
Surface Owner: FEE Other(Specify): Caerus Oil and Gas

Describe what is known about the spill/release event (what happened -- including how it was stopped, contained, and recovered):

While conducting monthly pressure testing on the well pad, the lease operator determined the water transfer dumpline failed pressure test. The dumpline was shut in and proper notifications were completed.

List of Agencies and Other Parties Notified Pursuant to Rule 912.b.(7)-(11):

OTHER NOTIFICATIONS

Date	Agency/Party	Contact	Phone	Response
4/24/2022	CPW	Taylor Elm	-	Sent via email
4/24/2022	Garfield County	Kirby Wynn	-	Sent via email
4/22/2022	COGCC	Steven Arauza	720-498-5298	Left voicemail

REPORT CRITERIA

Rule 912.b.(1) Report to the Director (select all criteria that apply):

No — Rule 912.b.(1).A: A Spill or Release of any size that impacts or threatens to impact any Waters of the State, Public Water System, residence or occupied structure, livestock, wildlife, or publicly-maintained road.

Waters of the State: _____ Public Water System: _____

Residence or Occupied Structure: _____ Livestock: _____

Wildlife: _____ Publicly-Maintained Road: _____

Yes — Rule 912.b.(1).B: A Spill or Release in which 1 barrel or more of E&P Waste or produced fluids is spilled or released outside of berms or other secondary containment.

No — Rule 912.b.(1).C: A Spill or Release of 5 barrels or more of E&P Waste or produced Fluids regardless of whether the Spill or Release is completely contained within berms or other secondary containment.

No — Rule 912.b.(1).D: Within 6 hours of discovery, a Grade 1 Gas Leak. For a Grade 1 Gas Leak from a Flowline, the Operator also must submit the Form 19 – Initial, document number on a Form 44, Flowline Report, for the Grade 1 Gas Leak

Enter the approximate time of discovery _____(HH:MM)

Enter the Document Number of the Grade 1 Gas Leak Report, Form 44 _____

Was there a reportable accident associated with either a Grade 1 Gas Leak or an E&P waste spill or release? _____

Enter the Document Number of the Initial Accident Report, Form 22 _____

Was there damage during excavation? _____

Was CO 811 notified prior to excavation? _____

No — Rule 912.b.(1).E: The discovery of 10 cubic yards or more of impacted material resulting from a current or historic Spill or Release. Discovery and reporting will not be contingent upon confirmation samples demonstrating exceedance of Table 915-1 standards.

Estimated Volume of Impacted Solids (cu. yd.): _____

No — Rule 912.b.(1).F: The discovery of impacted Waters of the State, including Groundwater. Discovery and reporting will not be contingent upon confirmation samples demonstrating exceedance of Table 915-1 standards. The presence of free product or hydrocarbon sheen on Groundwater or surface water is reportable. The presence of contaminated soil in contact with Groundwater or surface water is reportable. Check all that apply:

- ☐ The presence of free product or hydrocarbon sheen Surface Water
- ☐ The presence of free product or hydrocarbon sheen on Groundwater
- ☐ The presence of contaminated soil in contact with Groundwater
- ☐ The presence of contaminated soil in contact with Surface water

Yes — Rule 912.b.(1).G: A suspected or actual Spill or Release of any volume where the volume cannot be immediately determined, including a spill or release of any volume that daylights from the subsurface.

No — Rule 912.b.(1).H: Spill or Release resulting in vaporized hydrocarbon mists that leave the Oil and Gas Location or Off-Location Flowline right of way from an Oil and Gas Location and impacts or threatens to impact off-location property.

☐ Areas offsite of Oil & Gas Location ☐ Off-Location Flowline right of way

No — Rule 912.b.(1).I: A Release of natural gas that results in an accumulation of soil gas or gas seeps.

No — Rule 912.b.(1).J: A Release that results in natural gas in Groundwater.

OPERATOR COMMENTS:

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: _____ Print Name: Blair Rollins

Title: EHS Specialist Date: 04/24/2022 Email: brollins@caerusoilandgas.com

Condition of Approval

COA Type	Description
	Submit photo documentation, as described in Rule 912.b.(4).B, via a Supplemental Form 19.
	Operator shall collect sample(s) from comparable, nearby non-impacted native soil for purposes of establishing background soil conditions including pH, electrical conductivity (EC) and sodium adsorption ratio (SAR), per Rule 915.e.(2).D.
	Delineate horizontal and vertical extent of impacted area using the Table 915-1 Protection of Groundwater Soil Screening Level Concentrations and remediate impacts to Table 915-1 standards. Provide documentation in either a Supplemental Form 19 if cleaned up immediately and/or Initial Form 27 if additional site investigation and remediation is required OR if groundwater is encountered during cleanup operations. Documentation must include a figure showing spill area with sample locations plus laboratory results.
	In the Supplemental Form 19, identify the root cause of the failure and explain how reoccurrence on this pipeline and the other pipelines associated with this facility will be prevented, per Rule 912.d.(3). Operator shall coordinate with COGCC Western Integrity Inspector, Richard Murray, regarding pipeline excavation, assessment, and repair.
	Assess nature and extent of contamination with confirmation soil samples. The operator shall comply with Rule 915.e.(2) for collection of soil samples. The operator shall notify the COGCC and comply with Rule 915.e.(3) if groundwater is encountered during cleanup operations.
	Additional information required by Rule 912.b.(4) shall be submitted on a supplemental spill report no later than ten days after discovery (reported Discovery Date: 4/22/2022). Within 90 days of spill discovery date, Operator shall comply with Spill/Release closure requirements outlined in Rule 912.b.(6).
6 COAs	

Attachment List

Att Doc Num	Name
403025378	SPILL/RELEASE REPORT(INITIAL)
403030920	FORM 19 SUBMITTED

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)

FORM 19 Rev 03/21

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109

Document Number: 403048076
Date Received: 05/12/2022

Spill report taken by: Arauza, Steven

Spill/Release Point ID: 482087

SPILL/RELEASE REPORT (SUPPLEMENTAL)

This form is to be submitted by the party responsible for the oil and gas spill or release. Refer to COGCC Rule 912.b. for reporting requirements of spills or releases of E&P Waste, produced Fluids, or unauthorized Releases of natural gas. Submit a Site Investigation and Remediation Workplan (Form 27) if Rule 913.c. applies.

OPERATOR INFORMATON

Name of Operator: CAERUS PICEANCE LLC Operator No: 10456
Address: 1001 17TH STREET #1600
City: DENVER State: CO Zip: 80202
Contact Person: Blair Rollins

Phone Numbers
Phone: (970) 285-2925
Mobile: (970) 640-6919
Email: brollins@caerusoilandgas.com

☐ Transfer of Operatorship: Pursuant to Rule 912.f, this Supplemental Form 19 is being submitted to designate the Buying Operator as the responsible Operator for this Spill and Release.

INITIAL SPILL/RELEASE REPORT

Initial Spill/Release Report Doc# 403025378

Initial Report Date: 04/24/2022 Date of Discovery: 04/22/2022 Spill Type: Recent Spill

Spill/Release Point Location:

QTRQTR NWSE SEC 30 TWP 5S RNG 95W MERIDIAN 6
Latitude: 39.581908 Longitude: -108.094306
`Municipality (if within municipal boundaries): County: GARFIELD

Enter Lat./long measurement of the actual Spill/Release Point. Lat./Long. Data shall meet standards of Rule 216.

Reference Location:

Facility Type: PIPELINE ☒ Facility/Location ID No 335584
Spill/Release Point Name: J30 Water Dumpline ☐ Well API No. (Only if the reference facility is well) 05- -
☐ No Existing Facility or Location ID No.

Estimated Total Spill Volume: use same ranges as others for values

Estimated Oil Spill Volume(bbl): 0 Estimated Condensate Spill Volume(bbl): 0
Estimated Flow Back Fluid Spill Volume(bbl): 0 Estimated Produced Water Spill Volume(bbl): Unknown
Estimated Other E&P Waste Spill Volume(bbl): 0 Estimated Drilling Fluid Spill Volume(bbl): 0
Specify:

Has the subject Spill/Release been controlled at the time of reporting? Yes

Land Use:

Current Land Use: NON-CROP LAND Other(Specify):
Weather Condition: Cloudy
Surface Owner: FEE Other(Specify): Caerus Oil and Gas

Describe what is known about the spill/release event (what happened -- including how it was stopped, contained, and recovered):

While conducting monthly pressure testing on the well pad, the lease operator determined the water transfer dumpline failed pressure test. The dumpline was shut in and proper notifications were completed.

List of Agencies and Other Parties Notified Pursuant to Rule 912.b.(7)-(11):

OTHER NOTIFICATIONS

Date	Agency/Party	Contact	Phone	Response
4/24/2022	CPW	Taylor Elm	-	Sent via email
4/24/2022	Garfield County	Kirby Wynn	-	Sent via email
4/22/2022	COGCC	Steven Arauza	720-498-5298	Left voicemail

REPORT CRITERIA

Rule 912.b.(1) Report to the Director (select all criteria that apply):

No — Rule 912.b.(1).A: A Spill or Release of any size that impacts or threatens to impact any Waters of the State, Public Water System, residence or occupied structure, livestock, wildlife, or publicly-maintained road.

Waters of the State: _____ Public Water System: _____

Residence or Occupied Structure: _____ Livestock: _____

Wildlife: _____ Publicly-Maintained Road: _____

Yes — Rule 912.b.(1).B: A Spill or Release in which 1 barrel or more of E&P Waste or produced fluids is spilled or released outside of berms or other secondary containment.

No — Rule 912.b.(1).C: A Spill or Release of 5 barrels or more of E&P Waste or produced Fluids regardless of whether the Spill or Release is completely contained within berms or other secondary containment.

No — Rule 912.b.(1).D: Within 6 hours of discovery, a Grade 1 Gas Leak. For a Grade 1 Gas Leak from a Flowline, the Operator also must submit the Form 19 – Initial, document number on a Form 44, Flowline Report, for the Grade 1 Gas Leak

Enter the approximate time of discovery _____(HH:MM)

Enter the Document Number of the Grade 1 Gas Leak Report, Form 44 _____

Was there a reportable accident associated with either a Grade 1 Gas Leak or an E&P waste spill or release? _____

Enter the Document Number of the Initial Accident Report, Form 22 _____

Was there damage during excavation? _____

Was CO 811 notified prior to excavation? _____

No — Rule 912.b.(1).E: The discovery of 10 cubic yards or more of impacted material resulting from a current or historic Spill or Release. Discovery and reporting will not be contingent upon confirmation samples demonstrating exceedance of Table 915-1 standards.

Estimated Volume of Impacted Solids (cu. yd.): _____

No — Rule 912.b.(1).F: The discovery of impacted Waters of the State, including Groundwater. Discovery and reporting will not be contingent upon confirmation samples demonstrating exceedance of Table 915-1 standards. The presence of free product or hydrocarbon sheen on Groundwater or surface water is reportable. The presence of contaminated soil in contact with Groundwater or surface water is reportable. Check all that apply:

- ☐ The presence of free product or hydrocarbon sheen Surface Water
- ☐ The presence of free product or hydrocarbon sheen on Groundwater
- ☐ The presence of contaminated soil in contact with Groundwater
- ☐ The presence of contaminated soil in contact with Surface water

Yes — Rule 912.b.(1).G: A suspected or actual Spill or Release of any volume where the volume cannot be immediately determined, including a spill or release of any volume that daylights from the subsurface.

No — Rule 912.b.(1).H: Spill or Release resulting in vaporized hydrocarbon mists that leave the Oil and Gas Location or Off-Location Flowline right of way from an Oil and Gas Location and impacts or threatens to impact off-location property.

☐ Areas offsite of Oil & Gas Location ☐ Off-Location Flowline right of way

No — Rule 912.b.(1).I: A Release of natural gas that results in an accumulation of soil gas or gas seeps.

No — Rule 912.b.(1).J: A Release that results in natural gas in Groundwater.

REQUEST FOR CLOSURE

Spill/Release Reports should be closed when impacts have been remediated or when further investigation and corrective actions will take place under an approved Form 27.

Basis for Closure:

☐ Corrective Actions Completed (documentation attached, check all that apply)

☐ Horizontal and Vertical extents of impacts have been delineated.

☐ Documentation of compliance with Table 915-1 is attached.

☐ All E&P Waste has been properly treated or disposed.

☐ Work proceeding under an approved Form 27 (Rule 912.c).

Form 27 Remediation Project No: _____

☒ SUSPECTED Spill/Release did not occur or was below Rule 912.a.(5) reporting thresholds.

OPERATOR COMMENTS:

After exposing the entire water transfer dumpline using a hydrovac, no obvious point of release was determined within the pipeline trench. The pipeline was pressure tested and proved to hold pressure and have pipeline integrity. The failed pressure test was determined to be due to a faulty valve which was replaced. Based on the outlined investigation of the water transfer line, there was not a spill of produced water associated with the water transfer dumpline. Caerus is requesting closure of this release based on this information.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: _____ Print Name: Blair Rollins

Title: EHS Specialist Date: 05/12/2022 Email: brollins@caerusoilandgas.com

Condition of Approval

COA Type	Description
	Based on review of information presented it appears that no further action is necessary at this time, and COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if surface and/or ground water is found to be impacted, then further investigation and/or remediation activities will be required at the site.
1 COA	

Attachment List

Att Doc Num	Name
403048076	SPILL/RELEASE REPORT(SUPPLEMENTAL)
403050533	FORM 19 SUBMITTED

Total Attach: 2 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)

APPENDIX B

APPROVED COGCC FORM 27 SITE INVESTIGATION AND REMEDIATION WORKPLAN (INITIAL FORM)

KLEINFELDER 707 17th Street, Suite 3000, Denver, CO 80202 p | 303.237.6601 f | 303.237.6602

FORM 27 Rev 4/21

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109

Document Number: 403054273
Receive Date:
Report taken by:

Site Investigation and Remediation Workplan (Initial Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.
This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by COGCC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form27.
This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.
Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATON

Name of Operator: CAERUS PICEANCE LLC Operator No: 10456
Address: 1001 17TH STREET #1600
City: DENVER State: CO Zip: 80202
Contact Person: Blair Rollins Email: brollins@caerusoilandgas.com

Phone Numbers
Phone: (970) 285-2925
Mobile: (970) 640-6919

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #:
Initial Form 27 Document #: 403054273

PURPOSE INFORMATION

- [ ] Rule 913.c.(1): Pit or Cuttings Trench closure.
- [ ] Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- [ ] Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- [ ] Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- [ ] Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- [ ] Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- [ ] Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- [ ] Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- [X] Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- [ ] Rule 913.g: Changes of Operator.
- [ ] Rule 915.b: Request to leave elevated inorganics in situ.
- [ ] Other:

SITE INFORMATION

No Multiple Facilities

Facility Type: PIPELINE Facility ID: 335584 API #: County Name: GARFIELD
Facility Name: N PARACHUTE EF11B-30 J30595 Latitude: 39.581872 Longitude: -108.094658
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: NWSE Sec: 30 Twp: 5S Range: 95W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications: GM
Most Sensitive Adjacent Land Use: Non-crop land
Is domestic water well within 1/4 mile? No
Is surface water within 1/4 mile? Yes
Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

East Fork Parachute Creek

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [ ] **E&P Waste**
  - [ ] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [X] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [X] Other (as described by EPA) No impacts associated with this project have been identified
- [ ] **Non-E&P Waste**

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
UNDETERMINED	SOILS	To be determined	Field screening and laboratory analysis of soil samples

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

The water transfer pipeline was excavated to assess and repair a suspected pipeline release reported to the COGCC under Spill/Release Number 482087. The pipeline was pressure tested after exposure and determined to be of good quality and integrity. Caerus proposes to remove the header section of the water transfer pipeline from the ground and replace it with surface piping to aid in visual inspection and testing to prevent incidents in the future. This form is being submitted to comply with COGCC Rule 911.a.(4). The form serves as initial notification to decommission on-location water transfer pipeline associated with COGCC Location 335584.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

[X] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

During piping removal, any liquids evacuated from the piping will be properly contained and disposed of in compliance with Rule 905. Caerus will observe and field screen the piping trench according to the COGCC Operator Guidance for Rule 911.a.(4). Soil samples will be collected from the areas of the pipeline trench most likely to be impacted such as valve can connections, elbows, and areas where field screening and observations indicate potential impacts. Soil samples will be submitted for laboratory analysis of the full list of constituents in COGCC Table 915-1. Any impacted soil will be segregated, stockpiled on site, and the extent of impacts will be investigated through additional excavation and confirmation soil sampling. A Site Diagram illustrating the approximate
pipeline and previous excavation is attached to this form.

Proposed Groundwater Sampling

[ ] Will groundwater samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Groundwater is not expected to be encountered. If groundwater is encountered during investigation activities, the COGCC will be notified, and a representative sample will be collected and submitted for laboratory analysis of constituents listed in COGCC Table 915-1.

Proposed Surface Water Sampling

[ ] Will surface water samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Additional Investigative Actions

[ ] Additional alternative investigative actions described in attached Site Investigation Plan (summary):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 0

Number of soil samples exceeeding 915-1:

Was the areal and vertical extent of soil contamination delineated?:

Approximate areal extent (square feet):

NA / ND

Highest concentration of TPH (mg/kg):

Highest concentration of SAR:

BTEX > 915-1:

Vertical Extent > 915-1 (in feet):

Groundwater

Number of groundwater samples collected: 0

Was extent of groundwater contaminated delineated?: No

Depth to groundwater (below ground surface, in feet): `

Number of groundwater monitoring wells installed:

Number of groundwater samples exceeding 915-1:

Highest concentration of Benzene (µg/l):

Highest concentration of Toluene (µg/l):

Highest concentration of Ethylbenzene (µg/l):

Highest concentration of Xylene (µg/l):

Highest concentration of Methane (mg/l):

Surface Water

0 Number of surface water samples collected

Number of surface water samples exceeding 915-1

If surface water is impacted, other agency notification may be required.

OTHER INVESTIGATION INFORMATION

☐ Were impacts to adjacent property or offsite impacts identified?

☐ Were background samples collected as part of this site investigation?

☐ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards):

Volume of liquid waste (barrels):

☐ Is further site investigation required?

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

No source removal is expected at this time as no impacts associated with the well have been identified. If impacts are identified, an assessment will be made to select the most appropriate strategy for removal of impacts.

REMEDIATION SUMMARY

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

A remediation plan will be presented to the COGCC if impacts are observed during the proposed activities.

Soil Remediation Summary

☐ **In Situ**

☐ **Ex Situ**

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

_____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____

Name of Licensed Disposal Facility or COGCC Facility ID # _____

_____ Excavate and onsite remediation

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

Groundwater Remediation Summary

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☐ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other

☐ **Request Alternative Reporting Schedule:**

☐ Semi-Annually ☐ Annually ☐ Other

Rule 913.e:
After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

Report Type: ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☐ Other

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation?

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards

E&P waste (solid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

RECLAMATION PLAN

RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

All disturbance areas will be returned to grade with suitable material in preparation for final reclamation activities pursuant to the COGCC 1000 Series Rules.

Is the described reclamation complete? No

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

☐ Interim ☐ Final

Did the Surface Owner provide the seed mix?

If YES, does the seed mix comply with local soil conservation district recommendations?

Did the local soil conservation district provide the seed mix?

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation.

Proposed date of completion of Reclamation.

IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

PRIOR DATES

Date of Surface Owner notification/consultation, if required.

Actual Spill or Release date, or date of discovery.

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date).

Proposed site investigation commencement. 05/24/2022

Proposed completion of site investigation.

REMEDIAL ACTION DATES

Proposed start date of Remediation.

Proposed date of completion of Remediation.

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

☐ Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

OPERATOR COMMENT

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed:` Blair Rollins Title: EHS Specialist

Submit Date:` Email: brollins@caerusoilandgas.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: Date:

Remediation Project Number:

COA Type	Description

Attachment Check List

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

Att Doc Num	Name
403054538	SITE INVESTIGATION PLAN

Total Attach: 1 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)


J30 Pipeline Abandonment
Legend
J30 Water Pipeline P&A
J30
Google Earth
N
100 ft

APPENDIX C

LABORATORY ANALYTICAL REPORTS

KLEINFELDER 707 17th Street, Suite 3000, Denver, CO 80202 p | 303.237.6601 f | 303.237.6602

ANALYTICAL REPORT

May 13, 2022

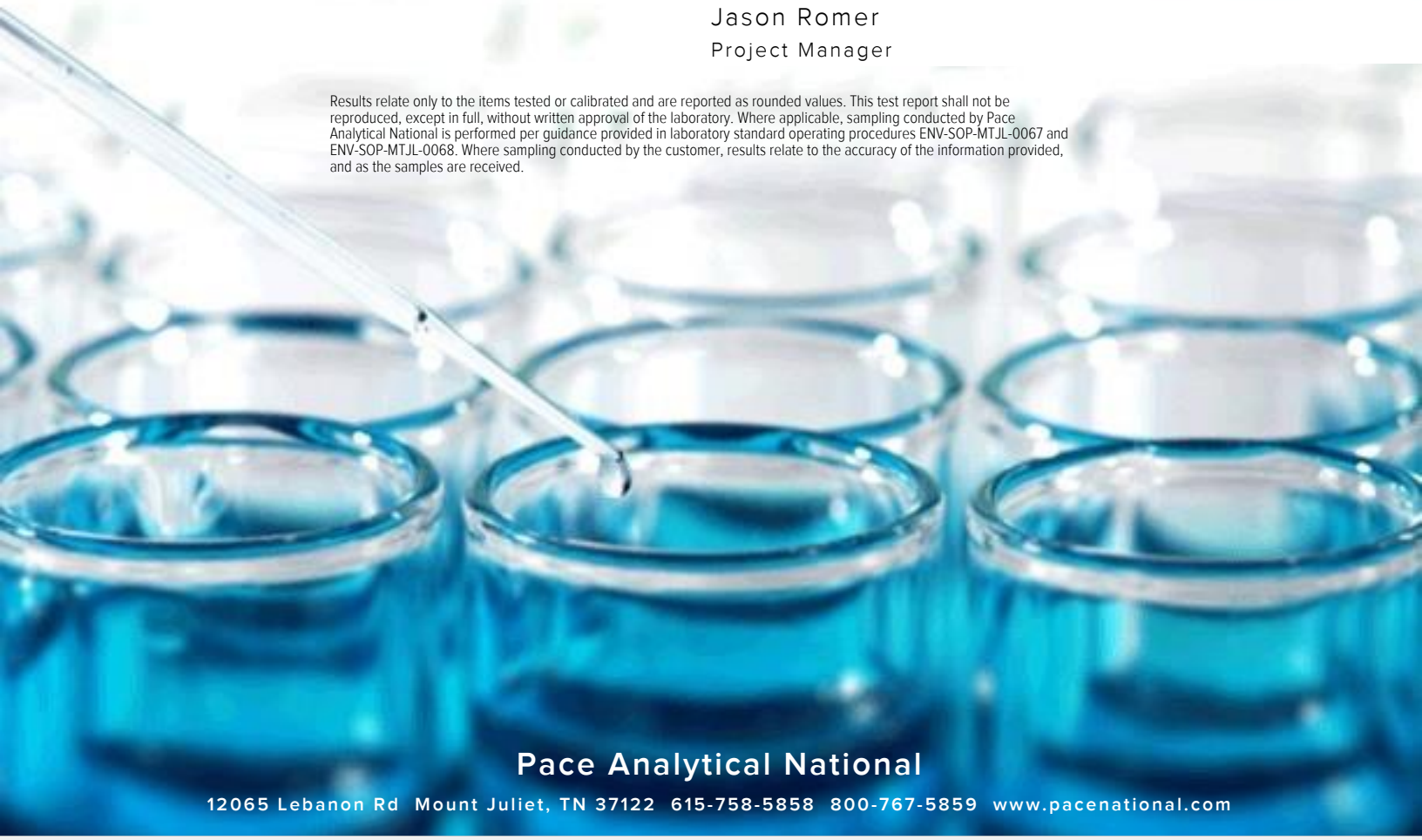
Caerus Oil and Gas

Sample Delivery Group:	L1489294
Samples Received:	05/04/2022
Project Number:	
Description:	J30 Spill Investigation
Site:	J30
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Jason Romer
Project Manager

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



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

TABLE OF CONTENTS

20220503_J30_SB01@4FT L1489294-01 Solid

Collected by: Jordan Veith
Collected date/time: 05/03/22 10:15
Received date/time: 05/04/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1858975	1	05/10/22 18:43	05/10/22 18:43	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1860696	1	05/08/22 19:00	05/10/22 21:32	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859473	1	05/07/22 12:00	05/07/22 14:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1861040	1	05/10/22 09:03	05/10/22 13:48	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1860015	1	05/08/22 23:36	05/10/22 04:00	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1860015	1	05/08/22 23:36	05/11/22 16:32	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1858974	1	05/09/22 20:13	05/10/22 21:10	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1860022	5	05/08/22 23:37	05/09/22 17:01	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1859718	1	05/04/22 19:16	05/09/22 05:56	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1861168	1	05/04/22 19:16	05/10/22 00:44	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1860617	1	05/10/22 16:53	05/11/22 01:22	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1862323	1	05/12/22 10:16	05/12/22 16:57	AMG	Mt. Juliet, TN

20220503_J30_EWALL02@4FT L1489294-02 Solid

Collected by: Jordan Veith
Collected date/time: 05/03/22 10:40
Received date/time: 05/04/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1858975	1	05/10/22 18:45	05/10/22 18:45	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1860696	1	05/08/22 19:00	05/10/22 21:42	JER	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1860417	1	05/09/22 11:00	05/09/22 11:10	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1861040	1	05/10/22 09:03	05/10/22 13:48	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1860015	1	05/08/22 23:36	05/10/22 04:03	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1860015	1	05/08/22 23:36	05/11/22 16:35	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1857735	1	05/08/22 12:56	05/10/22 01:44	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1860022	5	05/08/22 23:37	05/09/22 17:04	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1860265	1	05/04/22 19:16	05/08/22 04:14	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1861168	1	05/04/22 19:16	05/10/22 01:02	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1860617	1	05/10/22 16:53	05/11/22 02:02	JN	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1860617	5	05/10/22 16:53	05/11/22 15:04	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1862323	1	05/12/22 10:16	05/12/22 17:17	AMG	Mt. Juliet, TN

CASE NARRATIVE

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

Jason Romer
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.12		1	05/10/2022 18:43	WG1858975

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/10/2022 21:32	WG1860696

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.60	T8	1	05/07/2022 14:00	WG1859473

Sample Narrative:
L1489294-01 WG1859473: 8.6 at 21.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	290		10.0	1	05/10/2022 13:48	WG1861040

Sample Narrative:
L1489294-01 WG1861040: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	312		0.500	1	05/11/2022 16:32	WG1860015
Cadmium	ND		0.500	1	05/10/2022 04:00	WG1860015
Copper	23.0		2.00	1	05/10/2022 04:00	WG1860015
Lead	13.2		0.500	1	05/10/2022 04:00	WG1860015
Nickel	20.1		2.00	1	05/10/2022 04:00	WG1860015
Selenium	ND		2.00	1	05/10/2022 04:00	WG1860015
Silver	ND		1.00	1	05/10/2022 04:00	WG1860015
Zinc	58.0		5.00	1	05/10/2022 04:00	WG1860015

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.409		0.200	1	05/10/2022 21:10	WG1858974

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	13.4		1.00	5	05/09/2022 17:01	WG1860022

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.384		0.100	1	05/09/2022 05:56	WG1859718
(S) a,a,a-Trifluorotoluene(FID)	*99.3*		*77.0-120*		*05/09/2022 05:56*	WG1859718

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	05/10/2022 00:44	WG1861168
Toluene	ND		0.00500	1	05/10/2022 00:44	WG1861168
Ethylbenzene	ND		0.00250	1	05/10/2022 00:44	WG1861168
Xylenes, Total	ND		0.00650	1	05/10/2022 00:44	WG1861168
1,2,4-Trimethylbenzene	ND		0.00500	1	05/10/2022 00:44	WG1861168
1,3,5-Trimethylbenzene	ND		0.00500	1	05/10/2022 00:44	WG1861168
(S) Toluene-d8	*98.8*		*75.0-131*		*05/10/2022 00:44*	WG1861168
(S) 4-Bromofluorobenzene	*101*		*67.0-138*		*05/10/2022 00:44*	WG1861168
(S) 1,2-Dichloroethane-d4	*88.1*		*70.0-130*		*05/10/2022 00:44*	WG1861168

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	9.75		4.00	1	05/11/2022 01:22	WG1860617
C28-C36 Motor Oil Range	41.9		4.00	1	05/11/2022 01:22	WG1860617
(S) o-Terphenyl	*54.9*		*18.0-148*		*05/11/2022 01:22*	WG1860617

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Anthracene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Benzo(a)anthracene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Benzo(b)fluoranthene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Benzo(k)fluoranthene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Benzo(a)pyrene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Chrysene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Dibenz(a,h)anthracene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Fluoranthene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Fluorene	ND		0.00600	1	05/12/2022 16:57	WG1862323
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/12/2022 16:57	WG1862323
1-Methylnaphthalene	ND		0.0200	1	05/12/2022 16:57	WG1862323
2-Methylnaphthalene	ND		0.0200	1	05/12/2022 16:57	WG1862323
Naphthalene	ND		0.0200	1	05/12/2022 16:57	WG1862323
Pyrene	ND		0.00600	1	05/12/2022 16:57	WG1862323
(S) p-Terphenyl-d14	*85.5*		*23.0-120*		*05/12/2022 16:57*	WG1862323
(S) Nitrobenzene-d5	*54.5*		*14.0-149*		*05/12/2022 16:57*	WG1862323
(S) 2-Fluorobiphenyl	*62.0*		*34.0-125*		*05/12/2022 16:57*	WG1862323

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.60		1	05/10/2022 18:45	WG1858975

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	05/10/2022 21:42	WG1860696

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	9.20	T8	1	05/09/2022 11:10	WG1860417

Sample Narrative:
L1489294-02 WG1860417: 9.2 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	340		10.0	1	05/10/2022 13:48	WG1861040

Sample Narrative:
L1489294-02 WG1861040: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	699		0.500	1	05/11/2022 16:35	WG1860015
Cadmium	ND		0.500	1	05/10/2022 04:03	WG1860015
Copper	21.2		2.00	1	05/10/2022 04:03	WG1860015
Lead	13.2		0.500	1	05/10/2022 04:03	WG1860015
Nickel	18.4		2.00	1	05/10/2022 04:03	WG1860015
Selenium	ND		2.00	1	05/10/2022 04:03	WG1860015
Silver	ND		1.00	1	05/10/2022 04:03	WG1860015
Zinc	50.2		5.00	1	05/10/2022 04:03	WG1860015

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.818		0.200	1	05/10/2022 01:44	WG1857735

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	14.5		1.00	5	05/09/2022 17:04	WG1860022

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.273		0.100	1	05/08/2022 04:14	WG1860265
(S) a,a,a-Trifluorotoluene(FID)	*102*		*77.0-120*		*05/08/2022 04:14*	WG1860265

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	05/10/2022 01:02	WG1861168
Toluene	ND		0.00500	1	05/10/2022 01:02	WG1861168
Ethylbenzene	ND		0.00250	1	05/10/2022 01:02	WG1861168
Xylenes, Total	ND		0.00650	1	05/10/2022 01:02	WG1861168
1,2,4-Trimethylbenzene	ND		0.00500	1	05/10/2022 01:02	WG1861168
1,3,5-Trimethylbenzene	ND		0.00500	1	05/10/2022 01:02	WG1861168
(S) Toluene-d8	*99.1*		*75.0-131*		*05/10/2022 01:02*	WG1861168
(S) 4-Bromofluorobenzene	*100*		*67.0-138*		*05/10/2022 01:02*	WG1861168
(S) 1,2-Dichloroethane-d4	*91.4*		*70.0-130*		*05/10/2022 01:02*	WG1861168

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	35.1		4.00	1	05/11/2022 02:02	WG1860617
C28-C36 Motor Oil Range	93.2		20.0	5	05/11/2022 15:04	WG1860617
(S) o-Terphenyl	*55.5*		*18.0-148*		*05/11/2022 15:04*	WG1860617
(S) o-Terphenyl	*40.3*		*18.0-148*		*05/11/2022 02:02*	WG1860617

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Anthracene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Benzo(a)anthracene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Benzo(b)fluoranthene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Benzo(k)fluoranthene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Benzo(a)pyrene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Chrysene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Dibenz(a,h)anthracene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Fluoranthene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Fluorene	ND		0.00600	1	05/12/2022 17:17	WG1862323
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	05/12/2022 17:17	WG1862323
1-Methylnaphthalene	ND		0.0200	1	05/12/2022 17:17	WG1862323
2-Methylnaphthalene	ND		0.0200	1	05/12/2022 17:17	WG1862323
Naphthalene	ND		0.0200	1	05/12/2022 17:17	WG1862323
Pyrene	ND		0.00600	1	05/12/2022 17:17	WG1862323
(S) p-Terphenyl-d14	*78.0*		*23.0-120*		*05/12/2022 17:17*	WG1862323
(S) Nitrobenzene-d5	*51.3*		*14.0-149*		*05/12/2022 17:17*	WG1862323
(S) 2-Fluorobiphenyl	*57.9*		*34.0-125*		*05/12/2022 17:17*	WG1862323

Method Blank (MB)

(MB) R3790758-1 05/10/22 18:59

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

L1488725-16 Original Sample (OS) • Duplicate (DUP)

(OS) L1488725-16 05/10/22 19:12 • (DUP) R3790758-3 05/10/22 19:17

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

L1489294-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1489294-01 05/10/22 21:32 • (DUP) R3790758-10 05/10/22 21:37

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

Laboratory Control Sample (LCS)

(LCS) R3790758-2 05/10/22 19:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.69	96.9	80.0-120	

L1488915-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1488915-11 05/10/22 20:29 • (MS) R3790758-8 05/10/22 20:45

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	657	ND	571	87.0	50	75.0-125	

L1488915-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488915-11 05/10/22 20:29 • (MS) R3790758-6 05/10/22 20:35 • (MSD) R3790758-7 05/10/22 20:40

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	ND	8.02	8.51	40.1	42.6	1	75.0-125	J6	J6	6.03	20

L1488154-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1488154-04 05/07/22 14:00 • (DUP) R3789228-3 05/07/22 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.61	7.60	1	0.131		1

Sample Narrative:

OS: 7.61 at 21.2C

DUP: 7.6 at 20.7C

Laboratory Control Sample (LCS)

(LCS) R3789228-1 05/07/22 14:00

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

Sample Narrative:

LCS: 9.94 at 20.1C

L1489294-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1489294-02 05/09/22 11:10 • (DUP) R3789822-2 05/09/22 11:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	9.20	9.15	1	0.545		1

Sample Narrative:

OS: 9.2 at 21.3C

DUP: 9.15 at 21.2C

Laboratory Control Sample (LCS)

(LCS) R3789822-1 05/09/22 11:10

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 20.5C

Method Blank (MB)

(MB) R3790164-1 05/10/22 13:48

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

L1489300-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1489300-02 05/10/22 13:48 • (DUP) R3790164-3 05/10/22 13:48

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	213	218	1	2.69		20

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

L1489822-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1489822-02 05/10/22 13:48 • (DUP) R3790164-4 05/10/22 13:48

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	571	603	1	5.45		20

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

Laboratory Control Sample (LCS)

(LCS) R3790164-2 05/10/22 13:48

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	290	108	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3789936-1 05/10/22 02:45

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) R3789936-2 05/10/22 02:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	105	105	80.0-120	
Cadmium	100	104	104	80.0-120	
Copper	100	99.6	99.6	80.0-120	
Lead	100	103	103	80.0-120	
Nickel	100	103	103	80.0-120	
Selenium	100	99.2	99.2	80.0-120	
Silver	20.0	20.9	104	80.0-120	
Zinc	100	94.0	94.0	80.0-120	

L1488915-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488915-01 05/10/22 02:51 • (MS) R3789936-5 05/10/22 02:59 • (MSD) R3789936-6 05/10/22 03:02

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	9870	10400	9270	538	0.000	1	75.0-125	E V	E V	11.5	20
Cadmium	100	ND	107	97.1	107	97.1	1	75.0-125			9.62	20
Copper	100	23.4	131	122	107	98.8	1	75.0-125			6.60	20
Lead	100	12.2	119	109	107	97.3	1	75.0-125			8.67	20
Nickel	100	14.2	118	111	104	97.1	1	75.0-125			6.10	20
Selenium	100	ND	103	94.3	103	94.3	1	75.0-125			8.38	20
Silver	20.0	ND	22.6	20.4	113	102	1	75.0-125			10.1	20
Zinc	100	44.5	132	128	87.5	83.5	1	75.0-125			3.13	20

Method Blank (MB)

(MB) R3789929-1 05/10/22 00:27

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) R3789929-2 05/10/22 00:29 • (LCSD) R3789929-3 05/10/22 00:32

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	1.02	100	102	80.0-120			1.95	20

Method Blank (MB)

(MB) R3790387-1 05/10/22 20:07

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) R3790387-2 05/10/22 20:10 • (LCSD) R3790387-3 05/10/22 20:13

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	0.966	0.968	96.6	96.8	80.0-120			0.284	20

Method Blank (MB)

(MB) R3789775-1 05/09/22 15:24

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) R3789775-2 05/09/22 15:27

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

L1488915-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488915-01 05/09/22 15:31 • (MS) R3789775-5 05/09/22 15:41 • (MSD) R3789775-6 05/09/22 15:44

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	4.21	103	90.1	98.7	85.8	5	75.0-125			13.4	20

Method Blank (MB)

(MB) R3789492-4 05/08/22 21:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*111*			*77.0-120*

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

(LCS) R3789492-1 05/08/22 19:10 • (LCSD) R3789492-2 05/08/22 19:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.28	5.17	77.8	94.0	72.0-127			18.8	20
(S) a,a,a-Trifluorotoluene(FID)				*102*	*99.8*	*77.0-120*				

L1488915-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488915-13 05/09/22 00:11 • (MS) R3789492-5 05/09/22 06:39 • (MSD) R3789492-6 05/09/22 07:01

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	0.337	2.76	2.59	44.1	41.3	1	10.0-151			6.36	28
(S) a,a,a-Trifluorotoluene(FID)					*81.5*	*84.3*		*77.0-120*				

Method Blank (MB)

(MB) R3789389-3 05/07/22 22:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*111*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3789389-2 05/07/22 20:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.87	88.5	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*97.9*	*77.0-120*	

Method Blank (MB)

(MB) R3789931-3 05/09/22 22:03

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	*96.6*			*75.0-131*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*97.0*			*70.0-130*

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

(LCS) R3789931-1 05/09/22 20:47 • (LCSD) R3789931-2 05/09/22 21:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.123	0.120	98.4	96.0	70.0-123			2.47	20
Toluene	0.125	0.121	0.116	96.8	92.8	75.0-121			4.22	20
Ethylbenzene	0.125	0.118	0.113	94.4	90.4	74.0-126			4.33	20
Xylenes, Total	0.375	0.362	0.346	96.5	92.3	72.0-127			4.52	20
1,2,4-Trimethylbenzene	0.125	0.123	0.120	98.4	96.0	70.0-126			2.47	20
1,3,5-Trimethylbenzene	0.125	0.118	0.117	94.4	93.6	73.0-127			0.851	20
(S) Toluene-d8				*94.3*	*94.6*	*75.0-131*				
(S) 4-Bromofluorobenzene				*105*	*103*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*97.8*	*99.1*	*70.0-130*				

L1489281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1489281-01 05/09/22 23:46 • (MS) R3789931-4 05/10/22 05:47 • (MSD) R3789931-5 05/10/22 06:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.124	ND	0.150	0.139	121	112	1	10.0-149			7.61	37
Toluene	0.124	ND	0.153	0.141	123	114	1	10.0-156			8.16	38
Ethylbenzene	0.124	ND	0.149	0.138	120	111	1	10.0-160			7.67	38
Xylenes, Total	0.372	ND	0.446	0.410	120	110	1	10.0-160			8.41	38
1,2,4-Trimethylbenzene	0.124	ND	0.153	0.145	121	115	1	10.0-160			5.37	36
1,3,5-Trimethylbenzene	0.124	ND	0.156	0.144	126	116	1	10.0-160			8.00	38
(S) Toluene-d8					*96.9*	*96.9*		*75.0-131*				
(S) 4-Bromofluorobenzene					*101*	*100*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*94.7*	*92.4*		*70.0-130*				

Method Blank (MB)

(MB) R3790360-1 05/10/22 23:39

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	*44.6*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3790360-2 05/10/22 23:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	32.4	64.8	50.0-150	
(S) o-Terphenyl			*63.7*	*18.0-148*	

L1491467-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1491467-02 05/11/22 04:38 • (MS) R3790360-3 05/11/22 04:51 • (MSD) R3790360-4 05/11/22 05:05

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	145	113	123	0.000	0.000	5	50.0-150	J6	J6	8.47	20
(S) o-Terphenyl					*79.1*	*76.3*		*18.0-148*				

Method Blank (MB)

(MB) R3791479-2 05/12/22 16:18

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	*112*			*23.0-120*
(S) Nitrobenzene-d5	*61.2*			*14.0-149*
(S) 2-Fluorobiphenyl	*80.2*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3791479-1 05/12/22 15:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0637	79.6	50.0-120	
Anthracene	0.0800	0.0614	76.8	50.0-126	
Benzo(a)anthracene	0.0800	0.0626	78.3	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0636	79.5	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0658	82.3	49.0-125	
Benzo(a)pyrene	0.0800	0.0531	66.4	42.0-120	
Chrysene	0.0800	0.0692	86.5	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0630	78.8	47.0-125	
Fluoranthene	0.0800	0.0657	82.1	49.0-129	
Fluorene	0.0800	0.0666	83.3	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0630	78.8	46.0-125	
1-Methylnaphthalene	0.0800	0.0656	82.0	51.0-121	
2-Methylnaphthalene	0.0800	0.0628	78.5	50.0-120	
Naphthalene	0.0800	0.0626	78.3	50.0-120	
Pyrene	0.0800	0.0715	89.4	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3791479-1 05/12/22 15:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*114*	*23.0-120*	
(S) Nitrobenzene-d5			*75.7*	*14.0-149*	
(S) 2-Fluorobiphenyl			*87.4*	*34.0-125*	

L1490054-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1490054-13 05/12/22 18:16 • (MS) R3791479-3 05/12/22 18:36 • (MSD) R3791479-4 05/12/22 18:56

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 %
Acenaphthene	0.0776	ND	0.0586	0.0535	75.5	69.3	1	14.0-127			9.10	27
Anthracene	0.0776	ND	0.0547	0.0494	70.5	64.0	1	10.0-145			10.2	30
Benzo(a)anthracene	0.0776	ND	0.0552	0.0493	71.1	63.9	1	10.0-139			11.3	30
Benzo(b)fluoranthene	0.0776	ND	0.0547	0.0496	70.5	64.2	1	10.0-140			9.78	36
Benzo(k)fluoranthene	0.0776	ND	0.0579	0.0517	74.6	67.0	1	10.0-137			11.3	31
Benzo(a)pyrene	0.0776	ND	0.0553	0.0497	71.3	64.4	1	10.0-141			10.7	31
Chrysene	0.0776	ND	0.0611	0.0556	78.7	72.0	1	10.0-145			9.43	30
Dibenz(a,h)anthracene	0.0776	ND	0.0546	0.0480	70.4	62.2	1	10.0-132			12.9	31
Fluoranthene	0.0776	ND	0.0591	0.0542	76.2	70.2	1	10.0-153			8.65	33
Fluorene	0.0776	ND	0.0596	0.0540	76.8	69.9	1	11.0-130			9.86	29
Indeno(1,2,3-cd)pyrene	0.0776	ND	0.0545	0.0509	70.2	65.9	1	10.0-137			6.83	32
1-Methylnaphthalene	0.0776	ND	0.0603	0.0554	77.7	71.8	1	10.0-142			8.47	28
2-Methylnaphthalene	0.0776	ND	0.0577	0.0525	74.4	68.0	1	10.0-137			9.44	28
Naphthalene	0.0776	ND	0.0574	0.0535	74.0	69.3	1	10.0-135			7.03	27
Pyrene	0.0776	ND	0.0639	0.0587	82.3	76.0	1	10.0-148			8.48	35
(S) p-Terphenyl-d14					*105*	*98.1*		*23.0-120*				
(S) Nitrobenzene-d5					*63.2*	*57.1*		*14.0-149*				
(S) 2-Fluorobiphenyl					*79.6*	*72.4*		*34.0-125*				

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
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.

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information: **SAME AS LEFT**

Pres Chk

Report to: **Blair Rollins**

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

Project Description: J30 Spill Investigation

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

Please Circle: PT MT CT ET

Phone: **(970) 640-6919**

Client Project #

Lab Project # CAERUSPCO-KLEIN

Collected by (print): **Jordan Veith**

Site/Facility ID # J30

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

Quote #

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	COGCC Table 915-1	EC, pH, SAR	Arsenic, Boron	COGCC Table 910-1	Remarks	Sample # (lab only)
20220503_J30_SB01@4ft	Grab	SS	4ft	5/3/2022	10:15	2	X					-01
20220503_J30_EWALL02@4ft	Grab	SS	4ft	5/3/2022	10:40	2	X					-02

5/3/2022

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

SDG # L1484254

Ta F115

Acctnum:

Template:

Prelogin:

PM:

PB:

Shipped Via:

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

Sample Receipt Checklist

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	5/3/2022	13:45			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp DRATC 3.7+0=3.7 Bottles Received: 4	
	5/3/22	1700			
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/4/22 Time: 930	Hold: Condition: NCF / OK

ANALYTICAL REPORT

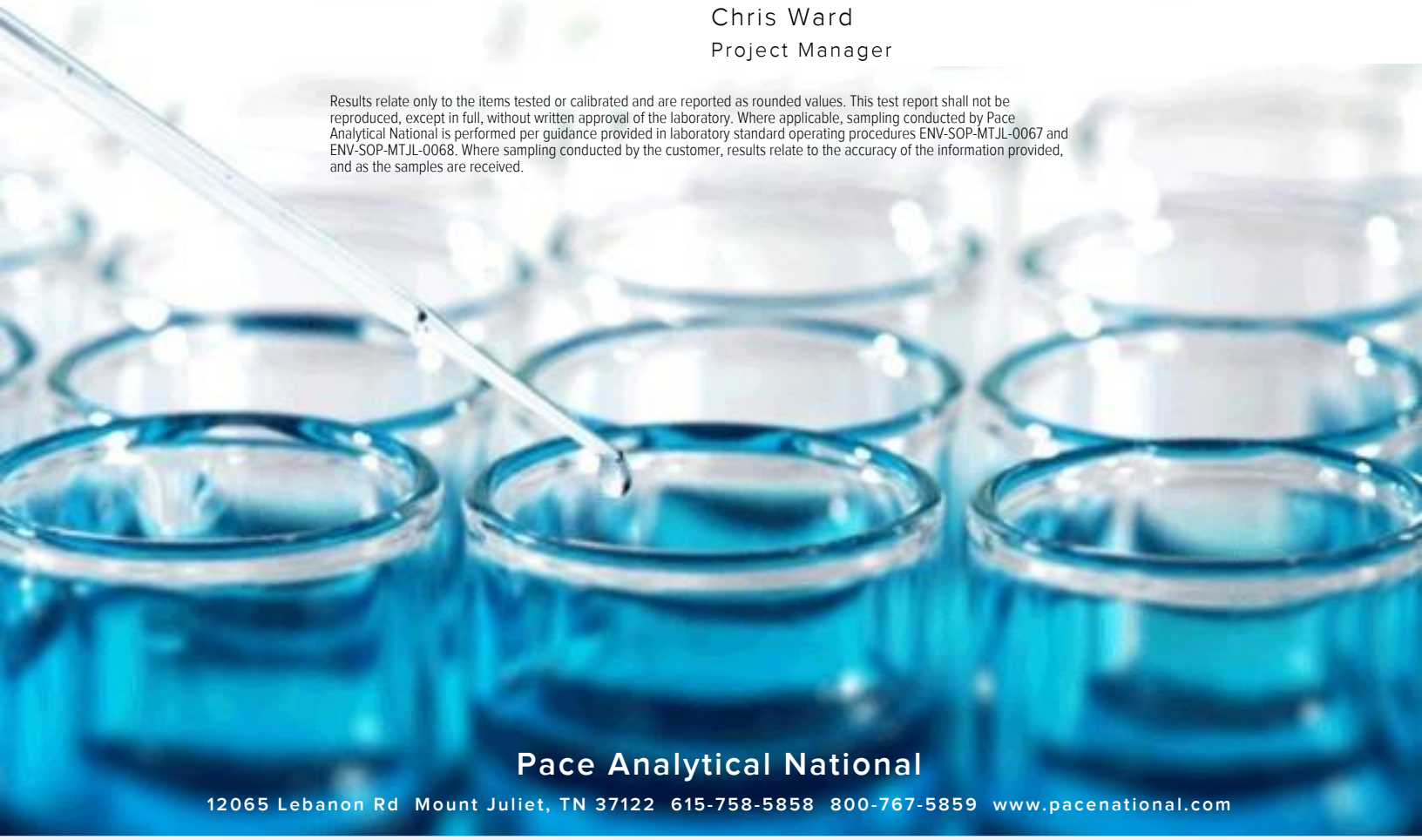
June 15, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1498904
Samples Received:	05/27/2022
Project Number:	
Description:	J30 Flowline Investigation
Site:	J30 PAD
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

20220526-J30-PH01 @ 4FT L1498904-01 Solid

Collected by: Jordan Veith
Collected date/time: 05/26/22 12:00
Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875462	1	06/14/22 14:08	06/14/22 14:08	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1873644	1	06/05/22 17:00	06/06/22 11:17	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1873606	1	06/03/22 09:17	06/04/22 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1873907	1	06/03/22 14:39	06/03/22 18:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1874713	1	06/06/22 14:27	06/09/22 20:44	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875456	1	06/09/22 00:20	06/10/22 17:37	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1874714	5	06/06/22 14:30	06/07/22 01:14	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1872906	1	06/01/22 09:00	06/02/22 02:09	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1874560	1	06/01/22 09:00	06/05/22 16:36	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875654	1	06/08/22 10:12	06/08/22 17:59	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1874657	1	06/07/22 03:10	06/07/22 22:01	AMG	Mt. Juliet, TN

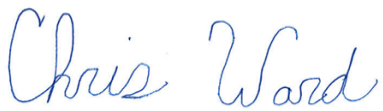
20220526-J30-PH02 @ 4FT L1498904-02 Solid

Collected by: Jordan Veith
Collected date/time: 05/26/22 12:15
Received date/time: 05/27/22 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1875462	1	06/14/22 14:11	06/14/22 14:11	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1873644	1	06/05/22 17:00	06/06/22 11:22	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1873606	1	06/03/22 09:17	06/04/22 12:00	SDE	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1873907	1	06/03/22 14:39	06/03/22 18:12	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1874713	1	06/06/22 14:27	06/09/22 20:14	ZSA	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1875456	1	06/09/22 00:20	06/10/22 17:40	ZSA	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1874714	5	06/06/22 14:30	06/07/22 00:39	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1873048	1	06/01/22 09:00	06/02/22 13:27	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1874560	1	06/01/22 09:00	06/05/22 16:55	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1875654	1	06/08/22 10:12	06/08/22 17:17	JDG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1874657	1	06/07/22 03:10	06/07/22 21:41	AMG	Mt. Juliet, TN

CASE NARRATIVE

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



Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.866		1	06/14/2022 14:08	WG1875462

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	06/06/2022 11:17	WG1873644

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.53	T8	1	06/04/2022 12:00	WG1873606

Sample Narrative:

L1498904-01 WG1873606: 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	246		10.0	1	06/03/2022 18:12	WG1873907

Sample Narrative:

L1498904-01 WG1873907: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	292		0.0852	0.500	1	06/09/2022 20:44	WG1874713
Cadmium	0.468	J	0.0471	0.500	1	06/09/2022 20:44	WG1874713
Copper	21.0		0.400	2.00	1	06/09/2022 20:44	WG1874713
Lead	11.2		0.208	0.500	1	06/09/2022 20:44	WG1874713
Nickel	16.7		0.132	2.00	1	06/09/2022 20:44	WG1874713
Selenium	U		0.764	2.00	1	06/09/2022 20:44	WG1874713
Silver	U		0.127	1.00	1	06/09/2022 20:44	WG1874713
Zinc	48.9		0.832	5.00	1	06/09/2022 20:44	WG1874713

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	0.474		0.0167	0.200	1	06/10/2022 17:37	WG1875456

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	11.6		0.100	1.00	5	06/07/2022 01:14	WG1874714

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	0.486		0.0217	0.100	1	06/02/2022 02:09	WG1872906
(S) a,a,a-Trifluorotoluene(FID)	*99.2*			*77.0-120*		*06/02/2022 02:09*	WG1872906

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	06/05/2022 16:36	WG1874560
Toluene	U		0.00130	0.00500	1	06/05/2022 16:36	WG1874560
Ethylbenzene	U		0.000737	0.00250	1	06/05/2022 16:36	WG1874560
Xylenes, Total	U		0.000880	0.00650	1	06/05/2022 16:36	WG1874560
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	06/05/2022 16:36	WG1874560
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	06/05/2022 16:36	WG1874560
(S) Toluene-d8	*103*			*75.0-131*		*06/05/2022 16:36*	WG1874560
(S) 4-Bromofluorobenzene	*104*			*67.0-138*		*06/05/2022 16:36*	WG1874560
(S) 1,2-Dichloroethane-d4	*87.7*			*70.0-130*		*06/05/2022 16:36*	WG1874560

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	9.80		1.61	4.00	1	06/08/2022 17:59	WG1875654
C28-C36 Motor Oil Range	38.8		0.274	4.00	1	06/08/2022 17:59	WG1875654
(S) o-Terphenyl	*58.4*			*18.0-148*		*06/08/2022 17:59*	WG1875654

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	06/07/2022 22:01	WG1874657
Acenaphthene	U		0.00209	0.00600	1	06/07/2022 22:01	WG1874657
Benzo(a)anthracene	U		0.00173	0.00600	1	06/07/2022 22:01	WG1874657
Benzo(a)pyrene	U		0.00179	0.00600	1	06/07/2022 22:01	WG1874657
Benzo(b)fluoranthene	U		0.00153	0.00600	1	06/07/2022 22:01	WG1874657
Benzo(k)fluoranthene	U		0.00215	0.00600	1	06/07/2022 22:01	WG1874657
Chrysene	U		0.00232	0.00600	1	06/07/2022 22:01	WG1874657
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	06/07/2022 22:01	WG1874657
Fluoranthene	U		0.00227	0.00600	1	06/07/2022 22:01	WG1874657
Fluorene	U		0.00205	0.00600	1	06/07/2022 22:01	WG1874657
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	06/07/2022 22:01	WG1874657
Naphthalene	U		0.00408	0.0200	1	06/07/2022 22:01	WG1874657
Pyrene	U		0.00200	0.00600	1	06/07/2022 22:01	WG1874657
1-Methylnaphthalene	U		0.00449	0.0200	1	06/07/2022 22:01	WG1874657
2-Methylnaphthalene	U		0.00427	0.0200	1	06/07/2022 22:01	WG1874657
(S) p-Terphenyl-d14	*93.2*			*23.0-120*		*06/07/2022 22:01*	WG1874657
(S) Nitrobenzene-d5	*73.3*			*14.0-149*		*06/07/2022 22:01*	WG1874657
(S) 2-Fluorobiphenyl	*77.6*			*34.0-125*		*06/07/2022 22:01*	WG1874657

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.32		1	06/14/2022 14:11	WG1875462

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	06/06/2022 11:22	WG1873644

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.40	T8	1	06/04/2022 12:00	WG1873606

Sample Narrative:
L1498904-02 WG1873606: 8.4 at 19.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	264		10.0	1	06/03/2022 18:12	WG1873907

Sample Narrative:
L1498904-02 WG1873907: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	261	J6 O1	0.0852	0.500	1	06/09/2022 20:14	WG1874713
Cadmium	1.07		0.0471	0.500	1	06/09/2022 20:14	WG1874713
Copper	21.2	O1	0.400	2.00	1	06/09/2022 20:14	WG1874713
Lead	12.3	O1	0.208	0.500	1	06/09/2022 20:14	WG1874713
Nickel	18.3	O1	0.132	2.00	1	06/09/2022 20:14	WG1874713
Selenium	U		0.764	2.00	1	06/09/2022 20:14	WG1874713
Silver	U		0.127	1.00	1	06/09/2022 20:14	WG1874713
Zinc	56.5	J6 O1	0.832	5.00	1	06/09/2022 20:14	WG1874713

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	0.423		0.0167	0.200	1	06/10/2022 17:40	WG1875456

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	06/07/2022 00:39	WG1874714

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	0.431		0.0217	0.100	1	06/02/2022 13:27	WG1873048
(S) a,a,a-Trifluorotoluene(FID)	*97.9*			*77.0-120*		*06/02/2022 13:27*	WG1873048

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	06/05/2022 16:55	WG1874560
Toluene	U		0.00130	0.00500	1	06/05/2022 16:55	WG1874560
Ethylbenzene	U		0.000737	0.00250	1	06/05/2022 16:55	WG1874560
Xylenes, Total	U		0.000880	0.00650	1	06/05/2022 16:55	WG1874560
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	06/05/2022 16:55	WG1874560
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	06/05/2022 16:55	WG1874560
(S) Toluene-d8	*102*			*75.0-131*		*06/05/2022 16:55*	WG1874560
(S) 4-Bromofluorobenzene	*104*			*67.0-138*		*06/05/2022 16:55*	WG1874560
(S) 1,2-Dichloroethane-d4	*86.4*			*70.0-130*		*06/05/2022 16:55*	WG1874560

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	4.05		1.61	4.00	1	06/08/2022 17:17	WG1875654
C28-C36 Motor Oil Range	18.1		0.274	4.00	1	06/08/2022 17:17	WG1875654
(S) o-Terphenyl	*42.7*			*18.0-148*		*06/08/2022 17:17*	WG1875654

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	06/07/2022 21:41	WG1874657
Acenaphthene	U		0.00209	0.00600	1	06/07/2022 21:41	WG1874657
Benzo(a)anthracene	U		0.00173	0.00600	1	06/07/2022 21:41	WG1874657
Benzo(a)pyrene	U		0.00179	0.00600	1	06/07/2022 21:41	WG1874657
Benzo(b)fluoranthene	U		0.00153	0.00600	1	06/07/2022 21:41	WG1874657
Benzo(k)fluoranthene	U		0.00215	0.00600	1	06/07/2022 21:41	WG1874657
Chrysene	U		0.00232	0.00600	1	06/07/2022 21:41	WG1874657
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	06/07/2022 21:41	WG1874657
Fluoranthene	U		0.00227	0.00600	1	06/07/2022 21:41	WG1874657
Fluorene	U		0.00205	0.00600	1	06/07/2022 21:41	WG1874657
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	06/07/2022 21:41	WG1874657
Naphthalene	U		0.00408	0.0200	1	06/07/2022 21:41	WG1874657
Pyrene	U		0.00200	0.00600	1	06/07/2022 21:41	WG1874657
1-Methylnaphthalene	U		0.00449	0.0200	1	06/07/2022 21:41	WG1874657
2-Methylnaphthalene	U		0.00427	0.0200	1	06/07/2022 21:41	WG1874657
(S) p-Terphenyl-d14	*96.9*			*23.0-120*		*06/07/2022 21:41*	WG1874657
(S) Nitrobenzene-d5	*72.3*			*14.0-149*		*06/07/2022 21:41*	WG1874657
(S) 2-Fluorobiphenyl	*79.6*			*34.0-125*		*06/07/2022 21:41*	WG1874657

Method Blank (MB)

(MB) R3799949-1 06/06/22 09:56

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

L1497979-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1497979-01 06/06/22 10:51 • (DUP) R3799949-3 06/06/22 11:07

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

L1498929-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1498929-01 06/06/22 11:27 • (DUP) R3799949-4 06/06/22 11:33

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) R3799949-2 06/06/22 10:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.1	101	80.0-120	

L1498929-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498929-08 06/06/22 12:19 • (MS) R3799949-8 06/06/22 12:50 • (MSD) R3799949-5 06/06/22 12:30

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 %
Hexavalent Chromium	20.0	0.381	20.1	21.2	98.6	104	1	75.0-125			5.32	20

L1498929-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1498929-08 06/06/22 12:19 • (MS) R3799949-6 06/06/22 12:35

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	681	0.381	664	97.5	50	75.0-125	

L1498937-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1498937-01 06/04/22 12:00 • (DUP) R3799426-2 06/04/22 12:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	8.13	8.12	1	0.123		1

Sample Narrative:

OS: 8.13 at 19.6C

DUP: 8.12 at 19.8C

Laboratory Control Sample (LCS)

(LCS) R3799426-1 06/04/22 12:00

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

Sample Narrative:

LCS: 9.98 at 20.2C

Method Blank (MB)

(MB) R3799342-1 06/03/22 18:12

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

L1498429-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1498429-02 06/03/22 18:12 • (DUP) R3799342-3 06/03/22 18:12

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	780	791	1	1.40		20

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

L1498436-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1498436-03 06/03/22 18:12 • (DUP) R3799342-4 06/03/22 18:12

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1150	1130	1	1.93		20

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

Laboratory Control Sample (LCS)

(LCS) R3799342-2 06/03/22 18:12

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	283	106	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

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

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

Laboratory Control Sample (LCS)

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

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

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

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

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	261	338	333	76.6	71.7	1	75.0-125		J6	1.47	20
Cadmium	100	1.07	96.8	97.3	95.7	96.2	1	75.0-125			0.479	20
Copper	100	21.2	114	118	93.2	96.6	1	75.0-125			2.94	20
Lead	100	12.3	105	107	92.8	95.0	1	75.0-125			2.04	20
Nickel	100	18.3	110	112	91.7	93.7	1	75.0-125			1.77	20
Selenium	100	U	97.1	97.9	97.1	97.9	1	75.0-125			0.846	20
Silver	20.0	U	18.8	19.0	94.1	94.8	1	75.0-125			0.683	20
Zinc	100	56.5	128	129	71.4	72.8	1	75.0-125	J6	J6	1.10	20

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

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

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	120	165	188	45.5	68.2	1	75.0-125	J6	J6	12.8	20
Cadmium	100	0.124	93.9	90.0	93.8	89.9	1	75.0-125			4.18	20
Copper	100	17.5	122	112	105	94.8	1	75.0-125			8.26	20
Lead	100	U	94.3	90.5	94.3	90.5	1	75.0-125			4.07	20
Nickel	100	10.2	103	100	93.1	90.0	1	75.0-125			3.05	20
Selenium	100	2.40	99.9	95.8	97.5	93.4	1	75.0-125			4.14	20
Silver	20.0	U	16.0	15.5	80.1	77.5	1	75.0-125			3.25	20
Zinc	100	10.4	99.7	96.7	89.3	86.3	1	75.0-125			3.07	20

Method Blank (MB)

(MB) R3802198-1 06/10/22 16:47

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) R3802198-2 06/10/22 16:50 • (LCSD) R3802198-3 06/10/22 16:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.03	1.04	103	104	80.0-120			0.596	20

Method Blank (MB)

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

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

Laboratory Control Sample (LCS)

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

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

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

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

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

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

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

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

Method Blank (MB)

(MB) R3798392-2 06/01/22 19:59

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)	*97.6*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3798392-1 06/01/22 19:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.11	92.9	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*110*	*77.0-120*	

Method Blank (MB)

(MB) R3798705-2 06/02/22 11:51

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)	*101*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3798705-1 06/02/22 10:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.73	122	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*111*	*77.0-120*	

Method Blank (MB)

(MB) R3799656-2 06/05/22 12:04

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	*101*			*75.0-131*
(S) 4-Bromofluorobenzene	*106*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*90.7*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3799656-1 06/05/22 11:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.121	96.8	70.0-123	
Toluene	0.125	0.125	100	75.0-121	
Ethylbenzene	0.125	0.122	97.6	74.0-126	
Xylenes, Total	0.375	0.377	101	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.116	92.8	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.112	89.6	73.0-127	
(S) Toluene-d8			*99.2*	*75.0-131*	
(S) 4-Bromofluorobenzene			*107*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*95.3*	*70.0-130*	

Method Blank (MB)

(MB) R3800865-1 06/08/22 13:41

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	*61.7*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3800865-2 06/08/22 13:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	32.7	65.4	50.0-150	
(S) o-Terphenyl			*84.2*	*18.0-148*	

L1498923-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498923-15 06/08/22 16:35 • (MS) R3800863-1 06/08/22 16:49 • (MSD) R3800863-2 06/08/22 17:03

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	2.80	33.7	68.0	64.1	132	1	50.0-150		J3	67.5	20
(S) o-Terphenyl					*49.1*	*46.4*		*18.0-148*				

Method Blank (MB)

(MB) R3800588-2 06/07/22 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	*112*			*23.0-120*
(S) Nitrobenzene-d5	*91.8*			*14.0-149*
(S) 2-Fluorobiphenyl	*94.6*			*34.0-125*

Laboratory Control Sample (LCS)

(LCS) R3800588-1 06/07/22 16:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0765	95.6	50.0-120	
Anthracene	0.0800	0.0753	94.1	50.0-126	
Benzo(a)anthracene	0.0800	0.0777	97.1	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0711	88.9	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0718	89.8	49.0-125	
Benzo(a)pyrene	0.0800	0.0687	85.9	42.0-120	
Chrysene	0.0800	0.0738	92.3	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0736	92.0	47.0-125	
Fluoranthene	0.0800	0.0771	96.4	49.0-129	
Fluorene	0.0800	0.0757	94.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0755	94.4	46.0-125	
1-Methylnaphthalene	0.0800	0.0854	107	51.0-121	
2-Methylnaphthalene	0.0800	0.0947	118	50.0-120	
Naphthalene	0.0800	0.0885	111	50.0-120	
Pyrene	0.0800	0.0745	93.1	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R3800588-1 06/07/22 16:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) p-Terphenyl-d14			*104*	*23.0-120*	
(S) Nitrobenzene-d5			*92.9*	*14.0-149*	
(S) 2-Fluorobiphenyl			*92.0*	*34.0-125*	

L1498947-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1498947-02 06/07/22 19:01 • (MS) R3800588-3 06/07/22 19:21 • (MSD) R3800588-4 06/07/22 19:41

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 %
Acenaphthene	0.0788	U	0.0548	0.0566	69.5	74.5	1	14.0-127			3.23	27
Anthracene	0.0788	U	0.0518	0.0535	65.7	70.4	1	10.0-145			3.23	30
Benzo(a)anthracene	0.0788	U	0.0515	0.0529	65.4	69.6	1	10.0-139			2.68	30
Benzo(b)fluoranthene	0.0788	U	0.0514	0.0529	65.2	69.6	1	10.0-140			2.88	36
Benzo(k)fluoranthene	0.0788	U	0.0542	0.0556	68.8	73.2	1	10.0-137			2.55	31
Benzo(a)pyrene	0.0788	U	0.0522	0.0536	66.2	70.5	1	10.0-141			2.65	31
Chrysene	0.0788	U	0.0546	0.0567	69.3	74.6	1	10.0-145			3.77	30
Dibenz(a,h)anthracene	0.0788	U	0.0552	0.0576	70.1	75.8	1	10.0-132			4.26	31
Fluoranthene	0.0788	U	0.0559	0.0561	70.9	73.8	1	10.0-153			0.357	33
Fluorene	0.0788	U	0.0524	0.0542	66.5	71.3	1	11.0-130			3.38	29
Indeno(1,2,3-cd)pyrene	0.0788	U	0.0544	0.0561	69.0	73.8	1	10.0-137			3.08	32
1-Methylnaphthalene	0.0788	U	0.0576	0.0590	73.1	77.6	1	10.0-142			2.40	28
2-Methylnaphthalene	0.0788	U	0.0526	0.0542	66.8	71.3	1	10.0-137			3.00	28
Naphthalene	0.0788	U	0.0545	0.0570	69.2	75.0	1	10.0-135			4.48	27
Pyrene	0.0788	U	0.0554	0.0564	70.3	74.2	1	10.0-148			1.79	35
(S) p-Terphenyl-d14					*82.9*	*89.0*		*23.0-120*				
(S) Nitrobenzene-d5					*64.8*	*70.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*71.4*	*76.9*		*34.0-125*				

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information: **SAME AS LEFT**

Report to: **Blair Rollins**

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

Project Description: J30 Flowline Investigation

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

Please Circle: PT MT CT ET

Phone: **(970) 640-6919**

Client Project #

Lab Project # CAERUSPCO-KLEIN

Collected by (print): **Jordan Veith**

Site/Facility ID # J30 Pad

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

Quote #

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

SDG # L1498904 A249

Acctnum:
Template:
Prelogin:
PM:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	COGCC Table 915-1	EC, pH, SAR	Arsenic, Boron	COGCC Table 910-1	Remarks	Sample # (lab only)
20220526-J30-PH01@4ft	Grab	SS	4ft	5/26/2022	12:00	2	X					-01
20220526-J30-PH02@4ft	Grab	SS	4ft	5/26/2022	12:15	2	X					-02

5/26/2022

* 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 # 5755 8084 9716

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
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	5/26/2022	14:45		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.4°C Bottles Received: 4
	5/26/22	1500		3,4
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 5/27/22 Time: 845
				Hold: Condition: NCF / OK

If preservation required by Login: Date/Time

ANALYTICAL REPORT

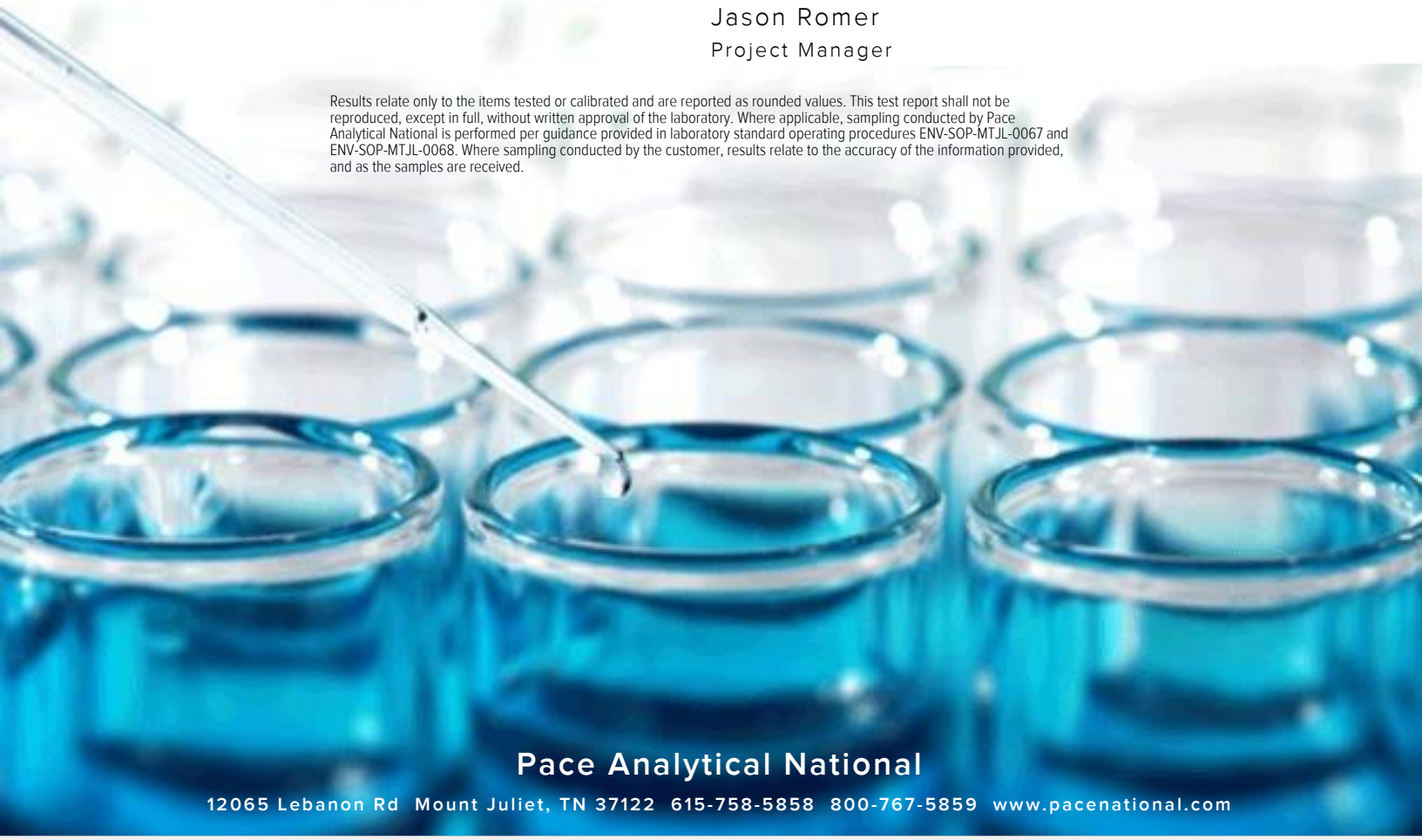
May 11, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1489300
Samples Received:	05/04/2022
Project Number:	
Description:	J30 Spill Investigation
Site:	J30
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Jason Romer
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

20220503_J30_BG01@1FT L1489300-01 Solid

Collected by: Jordan Veith
Collected date/time: 05/03/22 11:15
Received date/time: 05/04/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1858975	1	05/10/22 18:48	05/10/22 18:48	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859473	1	05/07/22 12:00	05/07/22 14:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1861040	1	05/10/22 09:03	05/10/22 13:48	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1859746	5	05/06/22 07:39	05/06/22 13:54	JPD	Mt. Juliet, TN

20220503_J30_BG02@1FT L1489300-02 Solid

Collected by: Jordan Veith
Collected date/time: 05/03/22 11:40
Received date/time: 05/04/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1858975	1	05/10/22 18:51	05/10/22 18:51	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1859463	1	05/06/22 15:00	05/06/22 17:00	GI	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1861040	1	05/10/22 09:03	05/10/22 13:48	ARD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1859746	5	05/06/22 07:39	05/06/22 13:57	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Jason Romer
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.119		1	05/10/2022 18:48	WG1858975

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.68	T8	1	05/07/2022 14:00	WG1859473

Sample Narrative:

L1489300-01 WG1859473: 7.68 at 22C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	545		10.0	1	05/10/2022 13:48	WG1861040

Sample Narrative:

L1489300-01 WG1861040: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	18.8		0.100	1.00	5	05/06/2022 13:54	WG1859746

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.267		1	05/10/2022 18:51	WG1858975

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.99	T8	1	05/06/2022 17:00	WG1859463

Sample Narrative:

L1489300-02 WG1859463: 7.99 at 20.9C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	umhos/cm		umhos/cm			
Specific Conductance	213		10.0	1	05/10/2022 13:48	WG1861040

Sample Narrative:

L1489300-02 WG1861040: at 25C

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Arsenic	11.2		0.100	1.00	5	05/06/2022 13:57	WG1859746

L1488352-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1488352-01 05/06/22 17:00 • (DUP) R3789117-2 05/06/22 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	pH	su		%		%
pH	7.97	7.97	1	0.000		1

Sample Narrative:

OS: 7.97 at 20.7C

DUP: 7.97 at 20.7C

L1488805-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1488805-03 05/06/22 17:00 • (DUP) R3789117-3 05/06/22 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.15	8.15	1	0.000		1

Sample Narrative:

OS: 8.15 at 20.5C

DUP: 8.15 at 20.5C

Laboratory Control Sample (LCS)

(LCS) R3789117-1 05/06/22 17:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	9.95	99.5	99.0-101	

Sample Narrative:

LCS: 9.95 at 20.6C

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

L1488154-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1488154-04 05/07/22 14:00 • (DUP) R3789228-3 05/07/22 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.61	7.60	1	0.131		1

Sample Narrative:

OS: 7.61 at 21.2C

DUP: 7.6 at 20.7C

Laboratory Control Sample (LCS)

(LCS) R3789228-1 05/07/22 14:00

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

Sample Narrative:

LCS: 9.94 at 20.1C

Method Blank (MB)

(MB) R3790164-1 05/10/22 13:48

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

L1489300-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1489300-02 05/10/22 13:48 • (DUP) R3790164-3 05/10/22 13:48

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	213	218	1	2.69		20

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

L1489822-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1489822-02 05/10/22 13:48 • (DUP) R3790164-4 05/10/22 13:48

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	571	603	1	5.45		20

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

Laboratory Control Sample (LCS)

(LCS) R3790164-2 05/10/22 13:48

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	290	108	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3789008-1 05/06/22 13:28

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) R3789008-2 05/06/22 13:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	105	105	80.0-120	

L1488678-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1488678-03 05/06/22 13:34 • (MS) R3789008-5 05/06/22 13:44 • (MSD) R3789008-6 05/06/22 13:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	10.1	114	98.9	104	88.8	5	75.0-125			13.8	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information: **SAME AS LEFT**

Pres Chk

Report to: **Blair Rollins**

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

Project Description: J30 Spill Investigation

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

Please Circle: PT MT CT ET

Phone: **(970) 640-6919**

Client Project #

Lab Project # CAERUSCO-KLEIN

Collected by (print): **Jordan Veith**

Site/Facility ID # J30

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

Quote #

Date Results Needed: **Standard TAT**

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	COGCC Table 915-1	EC, pH, SAR	Arsenic, Boron	COGCC Table 910-1	Arsenic						Remarks	Sample # (lab only)
20220503_J30-B501@1ft	Grab	SS	1ft	5/3/2022	11:15	2		X			X							1
20220503_J30-B502@1ft	Grab	SS	1ft	5/3/2022	11:40	2		X			X							2

5/3/2022

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

SDG # L1489700
F116

Acctnum:
Template:
Prelogin:
PM:
PB:
Shipped Via:

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

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

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	5/3/2022	13:45		0	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: DRAFT °C Bottles Received:	
	5/3/22	1700		3.7+0=3.7 4	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF / OK
				5/4/22 930	

ANALYTICAL REPORT

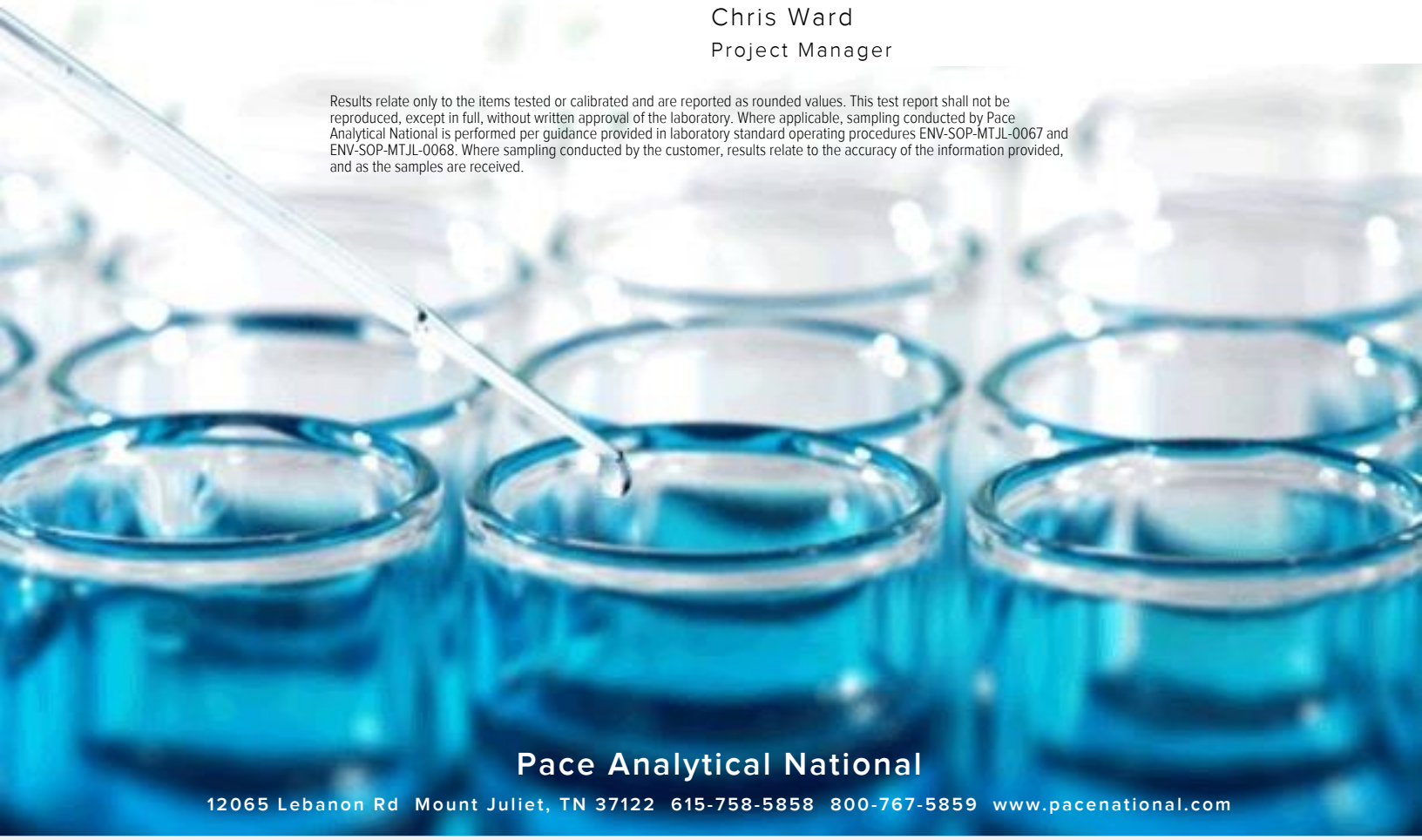
January 03, 2022

Caerus Oil and Gas

Sample Delivery Group:	L1443794
Samples Received:	12/17/2021
Project Number:	
Description:	Middle Fork WTF Spill Assessment
Site:	MIDDLE FORK WTF
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

20211216_MFWTF_BG01 @ 6IN L1443794-01 Solid

Collected by: Jordan Veith | Collected date/time: 12/16/21 13:05 | Received date/time: 12/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1793927	1	12/27/21 12:28	12/27/21 12:28	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1794187	1	12/27/21 12:41	12/28/21 11:44	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1792326	1	12/22/21 12:00	12/22/21 13:37	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1791836	1	12/19/21 03:07	12/19/21 07:28	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1794044	1	12/23/21 11:35	12/24/21 15:29	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1791870	1	12/20/21 06:27	12/21/21 15:00	KMG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1794042	5	12/23/21 11:38	12/23/21 19:43	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1792019	1	12/18/21 19:47	12/20/21 11:06	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1792290	1	12/18/21 19:47	12/21/21 04:58	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1792816	1	12/18/21 19:47	12/22/21 02:05	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1794031	1	12/24/21 04:30	12/24/21 17:02	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794631	1	12/27/21 06:09	12/28/21 10:39	ADF	Mt. Juliet, TN

20211216_MFWTF_BG02 @ 6IN L1443794-02 Solid

Collected by: Jordan Veith | Collected date/time: 12/16/21 12:50 | Received date/time: 12/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1793925	1	12/27/21 13:42	12/27/21 13:42	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1794187	1	12/27/21 12:41	12/28/21 11:59	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1792326	1	12/22/21 12:00	12/22/21 13:37	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1791836	1	12/19/21 03:07	12/19/21 07:28	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1794044	1	12/23/21 11:35	12/24/21 15:38	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1793922	1	12/23/21 17:18	12/27/21 16:29	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1794042	5	12/23/21 11:38	12/23/21 19:53	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1792019	1	12/18/21 19:47	12/20/21 11:27	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1792290	1	12/18/21 19:47	12/21/21 05:17	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1792816	1	12/18/21 19:47	12/22/21 02:23	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1794031	1	12/24/21 04:30	12/24/21 17:15	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794631	1	12/27/21 06:09	12/28/21 10:59	ADF	Mt. Juliet, TN

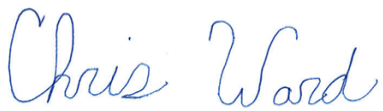
20211216_MFWTF_BG03 @ 6IN L1443794-03 Solid

Collected by: Jordan Veith | Collected date/time: 12/16/21 12:35 | Received date/time: 12/17/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1793925	1	12/27/21 13:44	12/27/21 13:44	CCE	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG1794187	1	12/27/21 12:41	12/28/21 12:04	SCM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1792326	1	12/22/21 12:00	12/22/21 13:37	PSN	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1791836	1	12/19/21 03:07	12/19/21 07:28	ARD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1794044	1	12/23/21 11:35	12/24/21 15:41	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1793922	1	12/23/21 17:18	12/27/21 16:32	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1794042	5	12/23/21 11:38	12/23/21 19:56	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1792019	1	12/18/21 19:47	12/20/21 11:49	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1792290	1	12/18/21 19:47	12/21/21 05:36	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1792816	1	12/18/21 19:47	12/22/21 02:42	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG1794031	1	12/24/21 04:30	12/24/21 17:54	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1794631	1	12/27/21 06:09	12/28/21 11:19	ADF	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	5.32		1	12/27/2021 12:28	WG1793927

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	12/28/2021 11:44	WG1794187

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	9.53	T8	1	12/22/2021 13:37	WG1792326

Sample Narrative:

L1443794-01 WG1792326: 9.53 at 19.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	351		10.0	1	12/19/2021 07:28	WG1791836

Sample Narrative:

L1443794-01 WG1791836: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	278		0.0852	0.500	1	12/24/2021 15:29	WG1794044
Cadmium	0.356	J	0.0471	0.500	1	12/24/2021 15:29	WG1794044
Copper	16.8		0.400	2.00	1	12/24/2021 15:29	WG1794044
Lead	8.57		0.208	0.500	1	12/24/2021 15:29	WG1794044
Nickel	15.3		0.132	2.00	1	12/24/2021 15:29	WG1794044
Selenium	U		0.764	2.00	1	12/24/2021 15:29	WG1794044
Silver	U		0.127	1.00	1	12/24/2021 15:29	WG1794044
Zinc	43.3		0.832	5.00	1	12/24/2021 15:29	WG1794044

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	0.497		0.0167	0.200	1	12/21/2021 15:00	WG1791870

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	11.9		0.100	1.00	5	12/23/2021 19:43	WG1794042

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	0.330		0.0217	0.100	1	12/20/2021 11:06	WG1792019
(S) a,a,a-Trifluorotoluene(FID)	*97.2*			*77.0-120*		*12/20/2021 11:06*	WG1792019

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	12/22/2021 02:05	WG1792816
Toluene	U		0.00130	0.00500	1	12/21/2021 04:58	WG1792290
Ethylbenzene	U		0.000737	0.00250	1	12/21/2021 04:58	WG1792290
Xylenes, Total	0.00113	J	0.000880	0.00650	1	12/21/2021 04:58	WG1792290
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	12/21/2021 04:58	WG1792290
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	12/21/2021 04:58	WG1792290
(S) Toluene-d8	*106*			*75.0-131*		*12/21/2021 04:58*	WG1792290
(S) Toluene-d8	*113*			*75.0-131*		*12/22/2021 02:05*	WG1792816
(S) 4-Bromofluorobenzene	*97.3*			*67.0-138*		*12/21/2021 04:58*	WG1792290
(S) 4-Bromofluorobenzene	*96.4*			*67.0-138*		*12/22/2021 02:05*	WG1792816
(S) 1,2-Dichloroethane-d4	*99.1*			*70.0-130*		*12/21/2021 04:58*	WG1792290
(S) 1,2-Dichloroethane-d4	*98.6*			*70.0-130*		*12/22/2021 02:05*	WG1792816

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

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	14.6		1.61	4.00	1	12/24/2021 17:02	WG1794031
C28-C36 Motor Oil Range	55.0		0.274	4.00	1	12/24/2021 17:02	WG1794031
(S) o-Terphenyl	*83.6*			*18.0-148*		*12/24/2021 17:02*	WG1794031

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	12/28/2021 10:39	WG1794631
Acenaphthene	U		0.00209	0.00600	1	12/28/2021 10:39	WG1794631
Acenaphthylene	U		0.00216	0.00600	1	12/28/2021 10:39	WG1794631
Benzo(a)anthracene	U		0.00173	0.00600	1	12/28/2021 10:39	WG1794631
Benzo(a)pyrene	U		0.00179	0.00600	1	12/28/2021 10:39	WG1794631
Benzo(b)fluoranthene	U		0.00153	0.00600	1	12/28/2021 10:39	WG1794631
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	12/28/2021 10:39	WG1794631
Benzo(k)fluoranthene	U		0.00215	0.00600	1	12/28/2021 10:39	WG1794631
Chrysene	U		0.00232	0.00600	1	12/28/2021 10:39	WG1794631
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	12/28/2021 10:39	WG1794631
Fluoranthene	U		0.00227	0.00600	1	12/28/2021 10:39	WG1794631
Fluorene	U		0.00205	0.00600	1	12/28/2021 10:39	WG1794631
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	12/28/2021 10:39	WG1794631
Naphthalene	U		0.00408	0.0200	1	12/28/2021 10:39	WG1794631
Phenanthrene	U		0.00231	0.00600	1	12/28/2021 10:39	WG1794631
Pyrene	U		0.00200	0.00600	1	12/28/2021 10:39	WG1794631
1-Methylnaphthalene	U		0.00449	0.0200	1	12/28/2021 10:39	WG1794631
2-Methylnaphthalene	U		0.00427	0.0200	1	12/28/2021 10:39	WG1794631
2-Chloronaphthalene	U		0.00466	0.0200	1	12/28/2021 10:39	WG1794631
(S) p-Terphenyl-d14	*92.0*			*23.0-120*		*12/28/2021 10:39*	WG1794631
(S) Nitrobenzene-d5	*97.7*			*14.0-149*		*12/28/2021 10:39*	WG1794631
(S) 2-Fluorobiphenyl	*91.3*			*34.0-125*		*12/28/2021 10:39*	WG1794631

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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	SAR				
Sodium Adsorption Ratio	0.276		1	12/27/2021 13:42	WG1793925

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	12/28/2021 11:59	WG1794187

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.12	T8	1	12/22/2021 13:37	WG1792326

Sample Narrative:

L1443794-02 WG1792326: 8.12 at 18.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	330		10.0	1	12/19/2021 07:28	WG1791836

Sample Narrative:

L1443794-02 WG1791836: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	300		0.0852	0.500	1	12/24/2021 15:38	WG1794044
Cadmium	0.545		0.0471	0.500	1	12/24/2021 15:38	WG1794044
Copper	18.3		0.400	2.00	1	12/24/2021 15:38	WG1794044
Lead	15.7		0.208	0.500	1	12/24/2021 15:38	WG1794044
Nickel	16.9		0.132	2.00	1	12/24/2021 15:38	WG1794044
Selenium	U		0.764	2.00	1	12/24/2021 15:38	WG1794044
Silver	U		0.127	1.00	1	12/24/2021 15:38	WG1794044
Zinc	59.3		0.832	5.00	1	12/24/2021 15:38	WG1794044

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	0.902		0.0167	0.200	1	12/27/2021 16:29	WG1793922

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.88		0.100	1.00	5	12/23/2021 19:53	WG1794042

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	0.456		0.0217	0.100	1	12/20/2021 11:27	WG1792019
(S) a,a,a-Trifluorotoluene(FID)	*92.5*			*77.0-120*		*12/20/2021 11:27*	WG1792019

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	12/22/2021 02:23	WG1792816
Toluene	U		0.00130	0.00500	1	12/21/2021 05:17	WG1792290
Ethylbenzene	U		0.000737	0.00250	1	12/21/2021 05:17	WG1792290
Xylenes, Total	U		0.000880	0.00650	1	12/21/2021 05:17	WG1792290
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	12/21/2021 05:17	WG1792290
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	12/21/2021 05:17	WG1792290
(S) Toluene-d8	*109*			*75.0-131*		*12/21/2021 05:17*	WG1792290
(S) Toluene-d8	*111*			*75.0-131*		*12/22/2021 02:23*	WG1792816
(S) 4-Bromofluorobenzene	*96.1*			*67.0-138*		*12/21/2021 05:17*	WG1792290
(S) 4-Bromofluorobenzene	*97.6*			*67.0-138*		*12/22/2021 02:23*	WG1792816
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*		*12/21/2021 05:17*	WG1792290
(S) 1,2-Dichloroethane-d4	*103*			*70.0-130*		*12/22/2021 02:23*	WG1792816

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	10.9		1.61	4.00	1	12/24/2021 17:15	WG1794031
C28-C36 Motor Oil Range	46.4		0.274	4.00	1	12/24/2021 17:15	WG1794031
(S) o-Terphenyl	*79.1*			*18.0-148*		*12/24/2021 17:15*	WG1794031

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	12/28/2021 10:59	WG1794631
Acenaphthene	U		0.00209	0.00600	1	12/28/2021 10:59	WG1794631
Acenaphthylene	U		0.00216	0.00600	1	12/28/2021 10:59	WG1794631
Benzo(a)anthracene	U		0.00173	0.00600	1	12/28/2021 10:59	WG1794631
Benzo(a)pyrene	U		0.00179	0.00600	1	12/28/2021 10:59	WG1794631
Benzo(b)fluoranthene	U		0.00153	0.00600	1	12/28/2021 10:59	WG1794631
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	12/28/2021 10:59	WG1794631
Benzo(k)fluoranthene	U		0.00215	0.00600	1	12/28/2021 10:59	WG1794631
Chrysene	U		0.00232	0.00600	1	12/28/2021 10:59	WG1794631
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	12/28/2021 10:59	WG1794631
Fluoranthene	U		0.00227	0.00600	1	12/28/2021 10:59	WG1794631
Fluorene	U		0.00205	0.00600	1	12/28/2021 10:59	WG1794631
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	12/28/2021 10:59	WG1794631
Naphthalene	U		0.00408	0.0200	1	12/28/2021 10:59	WG1794631
Phenanthrene	U		0.00231	0.00600	1	12/28/2021 10:59	WG1794631
Pyrene	U		0.00200	0.00600	1	12/28/2021 10:59	WG1794631
1-Methylnaphthalene	U		0.00449	0.0200	1	12/28/2021 10:59	WG1794631
2-Methylnaphthalene	U		0.00427	0.0200	1	12/28/2021 10:59	WG1794631
2-Chloronaphthalene	U		0.00466	0.0200	1	12/28/2021 10:59	WG1794631
(S) p-Terphenyl-d14	*74.4*			*23.0-120*		*12/28/2021 10:59*	WG1794631
(S) Nitrobenzene-d5	*84.5*			*14.0-149*		*12/28/2021 10:59*	WG1794631
(S) 2-Fluorobiphenyl	*77.2*			*34.0-125*		*12/28/2021 10:59*	WG1794631

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.713		1	12/27/2021 13:44	WG1793925

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	12/28/2021 12:04	WG1794187

Wet Chemistry by Method 9045D

Analyte	Result pH	Qualifier	Dilution	Analysis date / time	Batch
pH	8.37	T8	1	12/22/2021 13:37	WG1792326

Sample Narrative:

L1443794-03 WG1792326: 8.37 at 20.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	245		10.0	1	12/19/2021 07:28	WG1791836

Sample Narrative:

L1443794-03 WG1791836: at 25C

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	268		0.0852	0.500	1	12/24/2021 15:41	WG1794044
Cadmium	0.515		0.0471	0.500	1	12/24/2021 15:41	WG1794044
Copper	22.0		0.400	2.00	1	12/24/2021 15:41	WG1794044
Lead	14.0		0.208	0.500	1	12/24/2021 15:41	WG1794044
Nickel	17.3		0.132	2.00	1	12/24/2021 15:41	WG1794044
Selenium	U		0.764	2.00	1	12/24/2021 15:41	WG1794044
Silver	U		0.127	1.00	1	12/24/2021 15:41	WG1794044
Zinc	52.1		0.832	5.00	1	12/24/2021 15:41	WG1794044

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	0.591		0.0167	0.200	1	12/27/2021 16:32	WG1793922

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.09		0.100	1.00	5	12/23/2021 19:56	WG1794042

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	0.407		0.0217	0.100	1	12/20/2021 11:49	WG1792019
(S) a,a,a-Trifluorotoluene(FID)	*96.7*			*77.0-120*		*12/20/2021 11:49*	WG1792019

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	12/22/2021 02:42	WG1792816
Toluene	U		0.00130	0.00500	1	12/21/2021 05:36	WG1792290
Ethylbenzene	U		0.000737	0.00250	1	12/21/2021 05:36	WG1792290
Xylenes, Total	U		0.000880	0.00650	1	12/21/2021 05:36	WG1792290
1,2,4-Trimethylbenzene	U		0.00158	0.00500	1	12/21/2021 05:36	WG1792290
1,3,5-Trimethylbenzene	U		0.00200	0.00500	1	12/21/2021 05:36	WG1792290
(S) Toluene-d8	*105*			*75.0-131*		*12/21/2021 05:36*	WG1792290
(S) Toluene-d8	*112*			*75.0-131*		*12/22/2021 02:42*	WG1792816
(S) 4-Bromofluorobenzene	*100*			*67.0-138*		*12/21/2021 05:36*	WG1792290
(S) 4-Bromofluorobenzene	*98.4*			*67.0-138*		*12/22/2021 02:42*	WG1792816
(S) 1,2-Dichloroethane-d4	*98.4*			*70.0-130*		*12/21/2021 05:36*	WG1792290
(S) 1,2-Dichloroethane-d4	*99.7*			*70.0-130*		*12/22/2021 02:42*	WG1792816

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	18.8		1.61	4.00	1	12/24/2021 17:54	WG1794031
C28-C36 Motor Oil Range	67.0		0.274	4.00	1	12/24/2021 17:54	WG1794031
(S) o-Terphenyl	*86.6*			*18.0-148*		*12/24/2021 17:54*	WG1794031

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	12/28/2021 11:19	WG1794631
Acenaphthene	U		0.00209	0.00600	1	12/28/2021 11:19	WG1794631
Acenaphthylene	U		0.00216	0.00600	1	12/28/2021 11:19	WG1794631
Benzo(a)anthracene	U		0.00173	0.00600	1	12/28/2021 11:19	WG1794631
Benzo(a)pyrene	U		0.00179	0.00600	1	12/28/2021 11:19	WG1794631
Benzo(b)fluoranthene	U		0.00153	0.00600	1	12/28/2021 11:19	WG1794631
Benzo(g,h,i)perylene	U		0.00177	0.00600	1	12/28/2021 11:19	WG1794631
Benzo(k)fluoranthene	U		0.00215	0.00600	1	12/28/2021 11:19	WG1794631
Chrysene	U		0.00232	0.00600	1	12/28/2021 11:19	WG1794631
Dibenz(a,h)anthracene	U		0.00172	0.00600	1	12/28/2021 11:19	WG1794631
Fluoranthene	U		0.00227	0.00600	1	12/28/2021 11:19	WG1794631
Fluorene	U		0.00205	0.00600	1	12/28/2021 11:19	WG1794631
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600	1	12/28/2021 11:19	WG1794631
Naphthalene	U		0.00408	0.0200	1	12/28/2021 11:19	WG1794631
Phenanthrene	U		0.00231	0.00600	1	12/28/2021 11:19	WG1794631
Pyrene	U		0.00200	0.00600	1	12/28/2021 11:19	WG1794631
1-Methylnaphthalene	U		0.00449	0.0200	1	12/28/2021 11:19	WG1794631
2-Methylnaphthalene	U		0.00427	0.0200	1	12/28/2021 11:19	WG1794631
2-Chloronaphthalene	U		0.00466	0.0200	1	12/28/2021 11:19	WG1794631
(S) p-Terphenyl-d14	*82.1*			*23.0-120*		*12/28/2021 11:19*	WG1794631
(S) Nitrobenzene-d5	*88.6*			*14.0-149*		*12/28/2021 11:19*	WG1794631
(S) 2-Fluorobiphenyl	*81.5*			*34.0-125*		*12/28/2021 11:19*	WG1794631

QUALITY CONTROL SUMMARY

L1443794-01,02,03

Method Blank (MB)

(MB) R3746469-1 12/28/21 09:33

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

Laboratory Control Sample (LCS)

(LCS) R3746469-2 12/28/21 09:41

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

L1443723-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1443723-01 12/22/21 13:37 • (DUP) R3743848-2 12/22/21 13:37

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	9.07	9.08	1	0.110		1

Sample Narrative:

OS: 9.07 at 19C

DUP: 9.08 at 18.4C

L1444188-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1444188-03 12/22/21 13:37 • (DUP) R3743848-3 12/22/21 13:37

Analyte	Original Result su	DUP Result su	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	7.45	7.44	1	0.134		1

Sample Narrative:

OS: 7.45 at 18.4C

DUP: 7.44 at 19C

Laboratory Control Sample (LCS)

(LCS) R3743848-1 12/22/21 13:37

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

Sample Narrative:

LCS: 10 at 18.5C

Method Blank (MB)

(MB) R3742341-1 12/19/21 07:28

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

L1443776-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1443776-04 12/19/21 07:28 • (DUP) R3742341-3 12/19/21 07:28

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	698	739	1	5.71		20

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

L1443832-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1443832-01 12/19/21 07:28 • (DUP) R3742341-4 12/19/21 07:28

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	4890	4460	1	9.20		20

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

Laboratory Control Sample (LCS)

(LCS) R3742341-2 12/19/21 07:28

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	268	272	102	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3744878-1 12/24/21 14:29

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) R3744878-2 12/24/21 14:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	97.3	97.3	80.0-120	
Cadmium	100	92.8	92.8	80.0-120	
Copper	100	94.3	94.3	80.0-120	
Lead	100	97.7	97.7	80.0-120	
Nickel	100	93.5	93.5	80.0-120	
Selenium	100	98.8	98.8	80.0-120	
Silver	20.0	18.9	94.7	80.0-120	
Zinc	100	87.6	87.6	80.0-120	

L1443788-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443788-04 12/24/21 14:35 • (MS) R3744878-5 12/24/21 14:43 • (MSD) R3744878-6 12/24/21 14:46

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 %
Barium	100	237	307	347	69.3	110	1	75.0-125	J6		12.4	20
Cadmium	100	0.243	92.0	103	91.7	103	1	75.0-125			11.6	20
Copper	100	17.2	112	123	94.9	105	1	75.0-125			9.02	20
Lead	100	11.3	111	123	100	112	1	75.0-125			9.93	20
Nickel	100	16.1	112	124	95.5	108	1	75.0-125			10.2	20
Selenium	100	U	99.3	110	99.3	110	1	75.0-125			9.87	20
Silver	20.0	U	19.0	21.5	95.0	108	1	75.0-125			12.4	20
Zinc	100	44.6	120	134	75.7	89.6	1	75.0-125			11.0	20

Method Blank (MB)

(MB) R3743438-1 12/21/21 13:23

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) R3743438-2 12/21/21 13:25 • (LCSD) R3743438-3 12/21/21 13:28

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	0.960	0.960	96.0	96.0	80.0-120			0.0286	20

Method Blank (MB)

(MB) R3745266-1 12/27/21 16:22

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	U		0.0167	0.200

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

(LCS) R3745266-2 12/27/21 16:24 • (LCSD) R3745266-3 12/27/21 16:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.11	1.07	111	107	80.0-120			3.26	20

Method Blank (MB)

(MB) R3744525-1 12/23/21 17:19

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) R3744525-2 12/23/21 17:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	88.6	88.6	80.0-120	

L1443788-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443788-04 12/23/21 17:26 • (MS) R3744525-5 12/23/21 17:37 • (MSD) R3744525-6 12/23/21 17:41

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 %
Arsenic	100	11.4	95.1	107	83.8	95.6	5	75.0-125			11.7	20

Method Blank (MB)

(MB) R3744459-2 12/20/21 04:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*107*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3744459-1 12/20/21 03:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.57	83.1	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*97.5*	*77.0-120*	

Method Blank (MB)

(MB) R3743089-3 12/20/21 21:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
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	*106*			*75.0-131*
(S) 4-Bromofluorobenzene	*95.8*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*102*			*70.0-130*

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

(LCS) R3743089-1 12/20/21 20:22 • (LCSD) R3743089-2 12/20/21 20:42

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	0.125	0.120	0.118	96.0	94.4	74.0-126			1.68	20
Toluene	0.125	0.129	0.128	103	102	75.0-121			0.778	20
1,2,4-Trimethylbenzene	0.125	0.128	0.123	102	98.4	70.0-126			3.98	20
1,3,5-Trimethylbenzene	0.125	0.128	0.124	102	99.2	73.0-127			3.17	20
Xylenes, Total	0.375	0.361	0.365	96.3	97.3	72.0-127			1.10	20
(S) Toluene-d8				*101*	*103*	*75.0-131*				
(S) 4-Bromofluorobenzene				*92.2*	*95.1*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*109*	*107*	*70.0-130*				

L1443662-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443662-01 12/20/21 23:39 • (MS) R3743089-4 12/21/21 06:58 • (MSD) R3743089-5 12/21/21 07:17

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	0.0925	0.000999	0.106	0.111	114	119	1	10.0-160			4.61	38
Toluene	0.0925	0.00435	0.106	0.108	110	112	1	10.0-156			1.87	38
1,2,4-Trimethylbenzene	0.0925	0.00292	0.0902	0.0988	94.4	104	1	10.0-160			9.10	36
1,3,5-Trimethylbenzene	0.0925	U	0.0895	0.0952	96.8	103	1	10.0-160			6.17	38
Xylenes, Total	0.277	0.00537	0.313	0.332	111	118	1	10.0-160			5.89	38
(S) Toluene-d8					*101*	*100*		*75.0-131*				
(S) 4-Bromofluorobenzene					*105*	*108*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*102*	*103*		*70.0-130*				

Method Blank (MB)

(MB) R3743552-3 12/21/21 18:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
(S) Toluene-d8	*110*			*75.0-131*
(S) 4-Bromofluorobenzene	*96.6*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*

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

(LCS) R3743552-1 12/21/21 16:57 • (LCSD) R3743552-2 12/21/21 17:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.129	0.126	103	101	70.0-123			2.35	20
(S) Toluene-d8				*110*	*108*	*75.0-131*				
(S) 4-Bromofluorobenzene				*96.8*	*99.8*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*113*	*115*	*70.0-130*				

Method Blank (MB)

(MB) R3744798-1 12/24/21 14:27

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	*91.4*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3744798-2 12/24/21 14:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	50.4	101	50.0-150	
(S) o-Terphenyl			*117*	*18.0-148*	

Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) • (MS) R3744798-3 12/24/21 16:10 • (MSD) R3744798-4 12/24/21 16:23

Analyte	Spike Amount mg/kg	Original Result	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	48.5		40.7	47.2	68.0	80.9	1	50.0-150			14.8	20
(S) o-Terphenyl					*80.2*	*90.6*		*18.0-148*				

Method Blank (MB)

(MB) R3745457-2 12/28/21 09:40

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	*96.6*			*14.0-149*
(S) 2-Fluorobiphenyl	*87.6*			*34.0-125*
(S) p-Terphenyl-d14	*89.3*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3745457-1 12/28/21 09:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0670	83.8	50.0-126	
Acenaphthene	0.0800	0.0669	83.6	50.0-120	
Acenaphthylene	0.0800	0.0703	87.9	50.0-120	
Benzo(a)anthracene	0.0800	0.0679	84.9	45.0-120	
Benzo(a)pyrene	0.0800	0.0578	72.3	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0565	70.6	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0548	68.5	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0578	72.3	49.0-125	
Chrysene	0.0800	0.0639	79.9	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0556	69.5	47.0-125	
Fluoranthene	0.0800	0.0654	81.8	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3745457-1 12/28/21 09:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0645	80.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0617	77.1	46.0-125	
Naphthalene	0.0800	0.0637	79.6	50.0-120	
Phenanthrene	0.0800	0.0653	81.6	47.0-120	
Pyrene	0.0800	0.0661	82.6	43.0-123	
1-Methylnaphthalene	0.0800	0.0634	79.3	51.0-121	
2-Methylnaphthalene	0.0800	0.0657	82.1	50.0-120	
2-Chloronaphthalene	0.0800	0.0641	80.1	50.0-120	
(S) Nitrobenzene-d5			*96.8*	*14.0-149*	
(S) 2-Fluorobiphenyl			*88.8*	*34.0-125*	
(S) p-Terphenyl-d14			*87.6*	*23.0-120*	

L1443779-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443779-04 12/28/21 16:14 • (MS) R3745457-3 12/28/21 16:34 • (MSD) R3745457-4 12/28/21 16:54

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	0.0788	0.00514	0.0700	0.0633	82.3	73.4	1	10.0-145			10.1	30
Acenaphthene	0.0788	U	0.0591	0.0568	75.0	71.7	1	14.0-127			3.97	27
Acenaphthylene	0.0788	0.00288	0.0603	0.0599	72.9	72.0	1	21.0-124			0.666	25
Benzo(a)anthracene	0.0788	0.0282	0.130	0.119	129	115	1	10.0-139			8.84	30
Benzo(a)pyrene	0.0788	0.0330	0.132	0.126	126	117	1	10.0-141			4.65	31
Benzo(b)fluoranthene	0.0788	0.0490	0.148	0.142	126	117	1	10.0-140			4.14	36
Benzo(g,h,i)perylene	0.0788	0.0389	0.117	0.110	99.1	89.8	1	10.0-140			6.17	33
Benzo(k)fluoranthene	0.0788	0.0146	0.0814	0.0803	84.8	83.0	1	10.0-137			1.36	31
Chrysene	0.0788	0.0309	0.144	0.140	144	138	1	10.0-145			2.82	30
Dibenz(a,h)anthracene	0.0788	0.00569	0.0546	0.0525	62.1	59.1	1	10.0-132			3.92	31
Fluoranthene	0.0788	0.0604	0.196	0.192	172	166	1	10.0-153	J5	J5	2.06	33
Fluorene	0.0788	U	0.0564	0.0542	71.6	68.4	1	11.0-130			3.98	29
Indeno(1,2,3-cd)pyrene	0.0788	0.0336	0.117	0.112	106	99.0	1	10.0-137			4.37	32
Naphthalene	0.0788	0.00790	0.0664	0.0636	74.2	70.3	1	10.0-135			4.31	27
Phenanthrene	0.0788	0.0336	0.143	0.128	139	119	1	10.0-144			11.1	31
Pyrene	0.0788	0.0529	0.174	0.168	154	145	1	10.0-148	J5		3.51	35
1-Methylnaphthalene	0.0788	0.00914	0.0694	0.0639	76.5	69.1	1	10.0-142			8.25	28
2-Methylnaphthalene	0.0788	0.0113	0.0770	0.0688	83.4	72.6	1	10.0-137			11.2	28
2-Chloronaphthalene	0.0788	U	0.0529	0.0514	67.1	64.9	1	29.0-120			2.88	24
(S) Nitrobenzene-d5					*73.2*	*74.1*		*14.0-149*				
(S) 2-Fluorobiphenyl					*71.6*	*70.7*		*34.0-125*				
(S) p-Terphenyl-d14					*69.3*	*67.4*		*23.0-120*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
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.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information: SAME AS LEFT

Report to: Blair Rollins

Email To: brollins@caerusoilandgas.com

Project Description: Middle Fork WTF Spill Assessment

City/State Collected: Piceance Crk, CO

Please Circle: PT MT CT ET

Phone: (970) 640-6919

Client Project #

Lab Project # CAERUSPCO-KLEIN

Collected by (print): Jordan Veith

Site/Facility ID # Middle Fork WTF

P.O. #

Collected by (signature): Jordan Veith

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: Standard TAT

Analysis / Container / Preservative (6)

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	COGCC Table 915-1	EC, pH, SAR	Arsenic, Boron	COGCC Table 910-1	Remarks	Sample # (lab only)
20211216_MFWTF_BG01@6in	Grab	SS	6"	12/16/2021	13:05	2	X					-01
20211216_MFWTF_BG02@6in	↓	↓	↓	↓	12:50	2	X					-02
20211216_MFWTF_BG03@6in	↓	↓	↓	↓	12:35	2	X					-03

Jordan Veith 12/16/2021

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

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

SDG # L1493724

D193

Acctnum:

Template:

Prelogin:

PM:

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 0401

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
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Jordan Veith	12/16/2021	15:30			
Relinquished by : (Signature)	Date: 12/16/21	Time: 1700	Received by: (Signature)	Temp PLA 7C 2.5+0=2.5 Bottles Received: 6	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/17/21 Time: 0900	Hold: Condition: NCF / OK