September 21, 2021
Kleinfelder Project No. 20221930.001A/DEN21R130728

Mr. Jake Janicek
Caerus Piceance, LLC
1001 17th Street #1600
Denver, Colorado 80202

SUBJECT: **Site Investigation Report**
Caerus Piceance, LLC
Remediation Project # 19232
697-1X Pad
Garfield County, Colorado

Dear Mr. Janicek:

Kleinfelder Inc. (Kleinfelder) performed soil sampling activities at the 697-1X Pad in Garfield County, Colorado under contract by Caerus Piceance LLC (Caerus). Enclosed is the site investigation report 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 # 19232
697-1X PAD
GARFIELD COUNTY, COLORADO

KLEINFELDER PROJECT NO. 20221930.001A

September 21, 2021

A Report Prepared for:

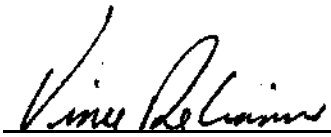
Caerus Piceance, LLC
1001 17th Street #1600
Denver, CO 80202

SITE INVESTIGATION REPORT
CAERUS PICEANCE, LLC
REMEDIATION PROJECT # 19232
697-1X PAD
GARFIELD COUNTY, COLORADO

Prepared by:

Bill Bergeron
Staff Professional II

Reviewed by:



Vince DeCianne
VP, Senior Principal Professional

KLEINFELDER
707 17th Street, Suite 3000
Denver, Colorado 80202
P|303.237.6601
F|303.237.6602

September 21, 2021
Kleinfelder Project No. 20221930.001A

Contents

Page

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 # 19232
697-1X 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 697-1X 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 approved COGCC Form 27 Site Investigation and Remediation Workplan Initial Form (Document # 402639166) provided by Caerus (**Appendix A**), a 40-barrel produced water release occurred at the 697-1X Pad, which is listed as Remediation Project # 19232. Caerus proposed soil sampling to characterize the approximate release area from the reported surface spill under COGCC 909.c.(2) Rule 906: Spill / Release Remediation. Kleinfelder collected the soil samples. Samples were analyzed by Pace Analytical National (Pace) laboratory and results are reported herein.

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

2 SITE LOCATION AND GEOLOGIC SETTING

The 697-1X Pad is located within the Piceance Basin in Garfield County, northwestern Colorado (NENE, Section 1, Township 6 South, Range 97 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 using the Unified Soil Classification System and was observed to be a road base material, which consisted of silty gravels, gravel-sand-silt mixtures (GM). Topographical information is provided in **Figure 1**.

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

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 697-1X Pad on August 24, 2021:

- Collected two (2) soil samples from the historic release area
- Collected four (4) background soil samples from locations north, east, south, and west of the pad.
- Shipped soil samples to Pace to analyze for the contaminants of concern listed within COGCC Table 910-1

Prior to sampling activities, Kleinfelder submitted a dig notification (Ticket # A123101766-00A) with Colorado One Call. No utilities were identified within the area of the planned soil sampling locations.

Caerus identified the historic release area and soil sampling locations. Kleinfelder used a hand-held global positioning system (GPS) device (Garmin GPSmap 60CSX®) to record latitude and longitude at each sample location, see **Table 1**. Two (2) soil samples were collected from the historic release area between zero (0) and six (6) inches below ground surface (bgs). Additionally, four (4) background soil samples were collected from zero (0) and six (6) inches bgs in native soil located north, east, south, and west off of the 697-1X Pad Sample locations are shown on **Figure 2**.

Soil samples were collected from a stainless-steel hand auger bucket and placed into two laboratory-supplied, 8-ounce jars with Teflon lids per sample. Each sample was collected directly from the hand auger, 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).

In order to compare the soil sample results to the COGCC Table 910-1 Cleanup Concentrations, the soil samples collected from the historical release area were analyzed for the following contaminants of concern:

- Volatile Organic Compounds (VOCs) by USEPA method 8260B and 89015D / GRO
- Semi Volatile Organic Compounds by USEPA method 8270C-SIM and 8015
- Specific Conductance (SC) by USEPA method 9050A Mod
- Sodium Absorption Ratio (SAR) by calculation
- pH by USEPA method 9045D
- Metals, which include arsenic, barium, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc by USEPA method 6010B
- Trivalent Chromium (Chromium III) by calculation
- Hexavalent Chromium (Chromium VI) by USEPA method 3060A/7196A
- Boron by USEPA method 6010B-NE493 Ch2
- Mercury by USEPA method 7471A

The background soil samples were analyzed for the following:

- Specific Conductance (SC) by USEPA method 9050A Mod
- Sodium Absorption Ratio (SAR)
- Arsenic by USEPA method 6020
- pH by USEPA method 9045D

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, the PID passed calibration.

Soil conditions within the release area were classified based on Kleinfelder's field observations using the Unified Soil Classification System. Soil sample conditions and locations are provided in **Table 1**.

4 RESULTS

Soil conditions within the historic 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 all below 1 parts per million. The general soil type within the release area observed to be a road base material, which consisted of silty gravels, gravel-sand-silt mixtures (GM). **Table 1** summarizes the samples and associated field observations.

Laboratory analytical results were received from Pace on September 14, 2021. Laboratory reports are provided in **Appendix B**. With the exception of arsenic, contaminants of concern did not exceed the COGCC Table 910-1 cleanup levels (**see Table 2**). Arsenic was detected at concentrations above the Table 910-1 cleanup concentration, but less than the site-specific background arsenic concentrations (per COGCC), which range from 5.42 mg/kg to 6.34 mg/kg. Analytical results are summarized in **Table 2** and compared to COGCC Table 910-1 Cleanup Concentrations. Laboratory reports are provided in **Appendix B**

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

5 CONCLUSIONS AND RECOMMENDATIONS

With the exception of arsenic, contaminants of concern did not exceed the COGCC Table 910-1 cleanup levels (**see Table 2**). Arsenic was detected at concentrations above the Table 910-1 cleanup concentration of 0.39 mg/kg, but is less than the site-specific background arsenic concentrations (per COGCC), which range from 5.42 mg/kg to 6.34 mg/kg.

Based on the observed soil conditions and analytical results (see **Tables 1** and **2**), Kleinfelder recommends no additional site investigation or remediation activities within the historic release area.

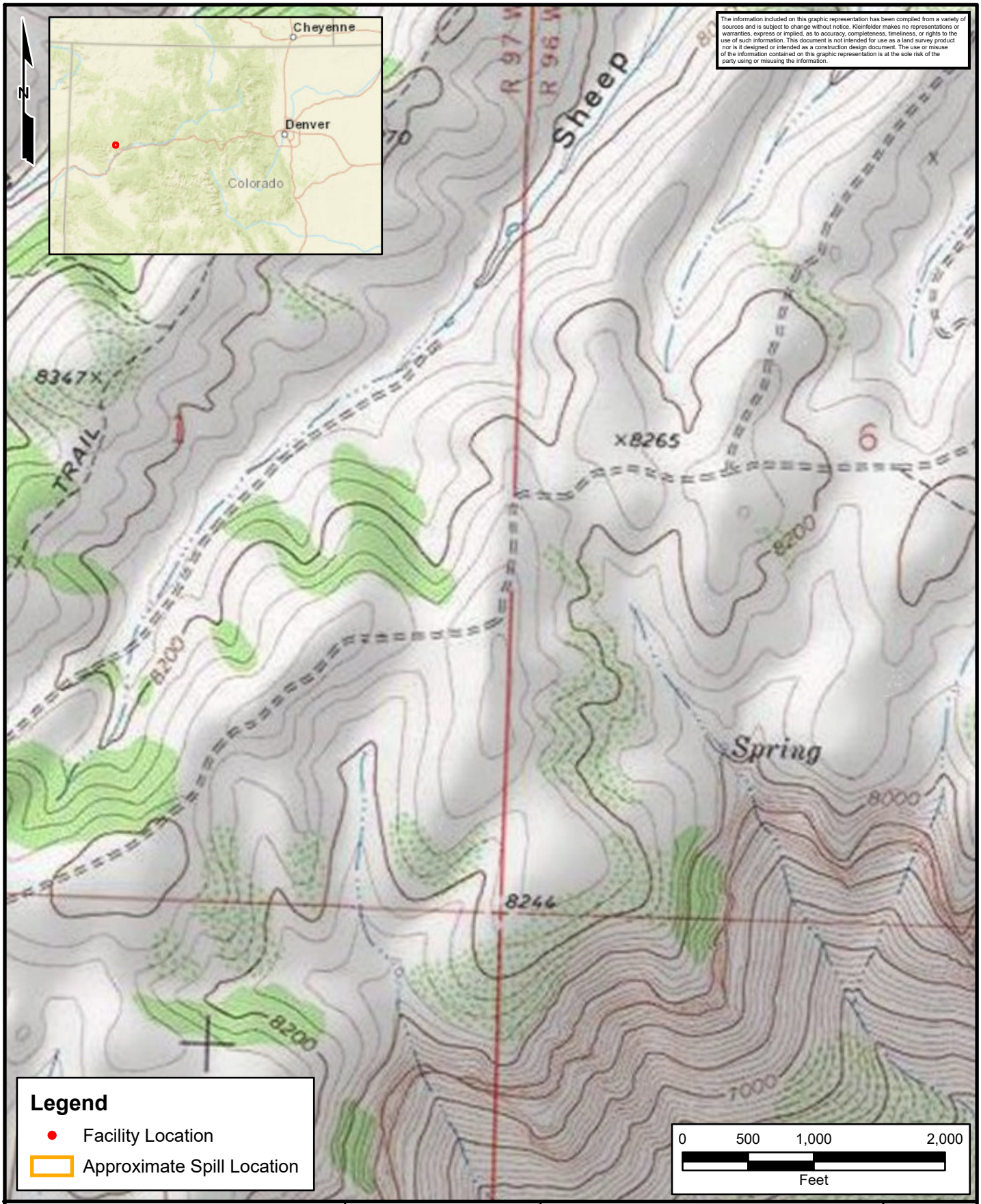
6 LIMITATIONS

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.

FIGURES

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



Date: 11/2/2021 User: DSellers Path: \\azrgisstorp01\GIS_Projects\Client\Caerus_OXY\20221930_SamplingSupport\20221930_SamplingSupport.aprx

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO.	20221930.000A
CREATED:	11/2/2021
CREATED BY:	DSellers
CHECKED BY:	JVeith
FILE NAME:	697-1X_Topo

Topographical Map

697-1X Historical Release Assessment
Caerus Piceance, LLC
NESE Sec. 1 T6S R97W
Garfield County, Colorado

FIGURE
1

Date: 11/2/2021 User: DSellers Path: \\azrgisstorp01\GIS_Projects\Client\Caerus_OXY\20221930_SamplingSupport\20221930_SamplingSupport.aprx

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO.	20221930.000A
CREATED:	11/2/2021
CREATED BY:	DSellers
CHECKED BY:	JVeith
FILE NAME:	697-1X

Sample Location Map

697-1X Historical Release Assessment
Caerus Piceance, LLC
NESE Sec. 1 T6S R97W
Garfield County, Colorado

FIGURE
2

TABLES

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

Table 1 - Soil Sample Summary
Caerus Piceance, LLC
Remediation Project # 19232
697-1X Pad
Garfield County, Colorado

Sample ID	Sample Matrix	Sample Type	Location		PID Reading (PPM)	Hydrocarbon Odor Detected (Y/N)	Soil Staining Observed (Y/N)	Observed Soil Type (USCS)
			Latitude	Longitude				
20210824_697-1X_1X Historical Release_SB01@6"	Soil	Spill Area	39.551403	-108.159872	0.4	N	N	GM
20210824_697-1X_1X Historical Release_SB02@6"	Soil	Spill Area	39.551374	-108.159772	0.9	N	N	GM
20210824_697-1X_1X Historical Release_BG01@6"	Soil	Background	39.551945	-108.159682	0.4	N	N	-
20210824_697-1X_1X Historical Release_BG02@6"	Soil	Background	39.5504	-108.158997	0	N	N	-
20210824_697-1X_1X Historical Release_BG03@6"	Soil	Background	39.54984	-108.159944	0	N	N	-
20210824_697-1X_1X Historical Release_BG04@6"	Soil	Background	39.551471	-108.16087	0	N	N	-

Notes:

GM = Silty gravel, gravel-sand-silt (per USCS)

PID = Photo-ionization Detector

PPM = Parts per million

USCS = Unified Soil Classification System

Table 2 - Soil Analytical Results
Caerus Piceance, LLC
Remediation Project # 19232
697-1X Pad
Garfield County, Colorado

		Location ID	**SB01**	**SB02**	**BG01**	**BG02**	**BG03**	**BG04**
		Sample ID	**20210824_697-1X_1X Historical Release_SB01@6"**	**20210824_697-1X_1X Historical Release_SB02@6"**	**20210824_697-1X_1X Historical Release_BG01@6"**	**20210824_697-1X_1X Historical Release_BG02@6"**	**20210824_697-1X_1X Historical Release_BG03@6"**	**20210824_697-1X_1X Historical Release_BG04@6"**
		Sample Type	**Historic Release Area**	**Historic Release Area**	**Background**	**Background**	**Background**	**Background**
		Sample Date	**8/24/2021**	**8/24/2021**	**8/24/2021**	**8/24/2021**	**8/24/2021**	**8/24/2021**
		Depth (bgs)	**0 - 6"**	**0 - 6"**	**0 - 6"**	**0 - 6"**	**0 - 6"**	**0 - 6"**
Contaminant of Concern	**Cleanup Concentration[1]**	**Unit**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Organic Compounds in Soils								
TPH (Gasoline Range Organics)	500	mg/kg	< 0.100 U	< 0.100 U	-	-	-	-
TPH (Diesel Range Organics)	500	mg/kg	< 4.00 U	< 4.00 U	-	-	-	-
benzene	0.17	mg/kg	< 0.00100 U	< 0.00100 U	-	-	-	-
toluene	85	mg/kg	< 0.00250 U	< 0.00250 U	-	-	-	-
ethylbenzene	100	mg/kg	< 0.00500 U	< 0.00500 U	-	-	-	-
xylenes (total)	175	mg/kg	< 0.00650 U	< 0.00650 U	-	-	-	-
acenaphthene	1000	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
anthracene	1000	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
benz(a)anthracene	0.22	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
benzo(b)fluoranthene	0.22	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
benzo(k)fluoranthene	2.2	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
benzo(a)pyrene	0.022	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
chrysene	22	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
dibenz(a,h)anthracene	0.022	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
fluoranthene	1000	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
fluorene	1000	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
indeno(1,2,3-cd)pyrene	0.22	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
1-Methylnaphthalene	NA	mg/kg	< 0.0200 U	< 0.0200 U	-	-	-	-
2-Methylnaphthalene	NA	mg/kg	< 0.0200 U	< 0.0200 U				
naphthalene	23	mg/kg	< 0.0200 U	< 0.0200 U	-	-	-	-
pyrene	1000	mg/kg	< 0.00600 U	< 0.00600 U	-	-	-	-
Inorganics in Soil								
Specific Conductance (SC)	<4	mmhos/cm	0.133	0.225	0.13	0.116	0.087	0.0796
Sodium adsorption ratio (SAR)	<12	SAR units	0.584	0.732	0.159	0.0984	0.0818	0.0685
pH (by saturated paste method)	6–9	pH	8.37	8.63	7.04	7	6.87	6.89
Metals in Soils								
arsenic	0.39	mg/kg	5.63	5.00	6.34	5.78	5.42	5.62
barium	15,000	mg/kg	287	312	-	-	-	-
boron (hot water soluble soil extract)	2	mg/L	< 0.200 U	< 0.200 U	-	-	-	-
cadmium	70	mg/kg	< 0.500 U	< 0.500 U	-	-	-	-
chromium (III)	120,000	mg/kg	59.5	60.4	-	-	-	-
chromium (VI)	23	mg/kg	< 2.00 U	< 2.00 U	-	-	-	-
copper	3,100	mg/kg	15.1	14.7	-	-	-	-
lead (inorganic)	400	mg/kg	12.1	12.7	-	-	-	-
mercury	23	mg/kg	< 0.0400 U	< 0.0400 U	-	-	-	-
nickel (soluble salts)	1,600	mg/kg	29.9	30.3	-	-	-	-
selenium	390	mg/kg	< 2.00 U	< 2.00 U	-	-	-	-
silver	390	mg/kg	< 1.00 U	< 1.00 U	-	-	-	-
zinc	23,000	mg/kg	45.3	46.5	-	-	-	-

Notes

Greater than COGCC Table 910-1 Cleanup Concentrations (Code of Colorado Regulations, pg 187-188)

Greater than COGCC Table 910-1 Cleanup Concentrations, but less than site specific background levels for metals in soil (per COGCC) (Code of Colorado Regulations, pg 187-188).

- Not analyzed for this constituent

[1] = COGCC Table 910-1 Cleanup Concentrations

bgs = below ground surface

COGCC = Colorado Oil and Gas Conservation Commission

mg/kg = milligram per kilogram

mg/L = milligram per liter

mmhos/cm = millimhos per centimenter

NA = Not applicable. No COGCC cleanup concentration provided

SAR = sodium absorbption ratio

U = Not detected at the Reporting Limit (or method detection limit where appicable)

APPENDIX A

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 3/16

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: 402639166
Receive Date: 04/07/2021
Report taken by: Steven Arauza

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 Form 27.
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.
Refer to Rules 340, 905, 906, 907, 908, 909, and 910

OPERATOR INFORMATON

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

Phone Numbers
Phone: (970) 778-2314
Mobile: (970) 778-2314

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 19232 Initial Form 27 Document #: 402639166

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [x] 909.c.(2), Rule 906: Spill/Release Remediation
- [ ] 909.c.(3), Rule 907.e.: Land treatment of oily waste
- [ ] 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- [ ] 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- [ ] Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- [ ] Rule 909.e.(2)B.: Closure of remediation project
- [ ] Rule 906.c.: Director request
- [ ] Other

SITE INFORMATION

N Multiple Facilites (in accordance with Rule 909.c.)

Facility Type: LOCATION Facility ID: 335722 API #: County Name: GARFIELD
Facility Name: CHEVRON-MARATHON-66S97W 1NESE Latitude: 39.550950 Longitude: -108.159790
** correct Lat/Long if needed: Latitude: 39.551267 Longitude: -108.159853
QtrQtr: NESE Sec: 1 Twp: 6S Range: 97W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

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

Other Potential Receptors within 1/4 mile

NA

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
UNDETERMINED	SOILS	To be determined	To be determined through on-site investigation

INITIAL ACTION SUMMARY

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

Please refer to COGCC document number 1981714 for immediate actions taken to abate, investigate, and remediate impacts associated with the historical spill.

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):

Please see the attached Spill Investigation Site Diagram for proposed spill investigation points. These were selected to characterize the approximate spill area from the reported surface drilling mud spill. Caerus will investigate each identified surface spill location between zero (0) and six (6) inches below ground surface. Each spill investigation area will be field-screened with visual and olfactory observations and a photo-ionization detector (PID) to identify potentially impacted soil. Investigated soil will also be photographed to document presence/absence of soil staining. If no impacts are identified during the investigation, Caerus will document these findings without sample collection on a Supplemental Form 27. Continued in Operator Comments.

Proposed Groundwater Sampling

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

If groundwater is encountered at any of the proposed sampling locations Caerus will attempt to collect a representative groundwater sample for laboratory analysis with findings reported in a supplemental Form 27.

Proposed Surface Water Sampling

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

Additional Investigative Actions

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

Caerus requests to utilize COGCC Rule 915.f. for the project to be completed prior to January 15, 2022.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 0

Number of soil samples exceeeding 910-1:

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 > 910-1:

Vertical Extent > 910-1 (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 910-1:

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 910-1

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?

Based on internal document review and proposed spill investigation results, background soil samples may be collected at the location. Background data will be presented in a supplemental Form 27.

☐ 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?

This Remediation Workplan includes a proposed spill investigation plan. With approval and weather permitting, investigation activities will be conducted, and results will be reported in a supplemental Form 27.

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

With approval of Rule 915.f allowing clearance under Table 910-1, if investigation activities identify concentrations of analytes exceeding COGCC Table 910-1 Concentration Levels, additional site investigation activities and remedial actions will be proposed in a supplemental Form 27.

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.

With approval of Rule 915.f allowing clearance under Table 910-1, if investigation activities identify concentrations of analytes exceeding COGCC Table 910-1 Concentration Levels, additional site investigation activities and remedial actions will be proposed in a supplemental Form 27.

Soil Remediation Summary

☐ **In Situ**

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

☐ **Ex Situ**

_____ 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

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☐ Other _____

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.

Any disturbance will be returned to the active working surface of the well pad for continued operation. When the site is decommissioned at a later date, it will be reclaimed in accordance with 1000 Series regulations.

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 approve the seed mix? _____

If NO, does the seed mix comply with local soil conservation district recommendations? _____

IMPLEMENTATION SCHEDULE

PRIOR DATES

Date of Surface Owner notification/consultation, if required. _____

Actual Spill or Release date, if known. 02/05/2008

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/01/2021

Date of commencement of Site Investigation. 05/01/2021

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Continuation from Proposed Soil Sampling Plan on Site Investigation Plan tab: Under COGCC Rule 915.f, Caerus requests the Director's permission to comply with the version of Table 910-1 that was previously in effect if Remediation is completed by January 15, 2022. If impacts are identified during investigation activities, Caerus will collect samples from each impacted soil interval to be analyzed for COGCC Table 910-1 metals and organic constituents of concern including GRO, DRO, BTEX, and PAH. As the location is still actively producing, Caerus proposes to defer analysis for reclamation-based analytes (SAR, EC, pH) until the required COGCC Rule 911.a.(4) site investigation during facility decommissioning and final reclamation. The number of spill investigation points may vary based on onsite assessment.

With Form 27 approval and remediation project number assignment, Caerus requests closure of COGCC Spill Document Number 1981714 as subsequent site investigation and remediation work will proceed under the assigned remediation project number.

As part of the historic spill project review and document preparation, Caerus will be implementing a phased approach to prioritize sampling and investigation.

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

Signed:` Chris McKisson Title: Senior Project Manager

Submit Date:` 04/07/2021 Email: chris.mckisson@confluence-cc.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: Steven Arauza Date: 07/26/2021

Remediation Project Number: 19232

Condition of Approval

COA Type	Description
	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.
	Per Rule 913.b.(2), the Operator will conduct sampling and analysis of soil, and groundwater--if encountered, to determine the horizontal and vertical extent of any contamination in excess of the cleanup concentrations in Table 910-1 for soil and groundwater. The Operator shall analyze samples for the complete Table 910-1 list. If groundwater is encountered during remediation activities, the Operator shall comply with Table 915-1 using the Protection of Groundwater Soil Screening Level Concentrations.
	Operator shall collect an appropriate number of representative soil samples to delineate the horizontal and vertical extents of contamination, per Rule 915.e.(2).B.
	Based on the information provided, the Operator's request to proceed under Table 910-1 is conditionally approved pursuant to Rule 915.f. Per Rule 915.f, if the remediation is not completed by January 15, 2022, then the Operator will comply with the current version of Table 915-1.
4 COAs	

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.

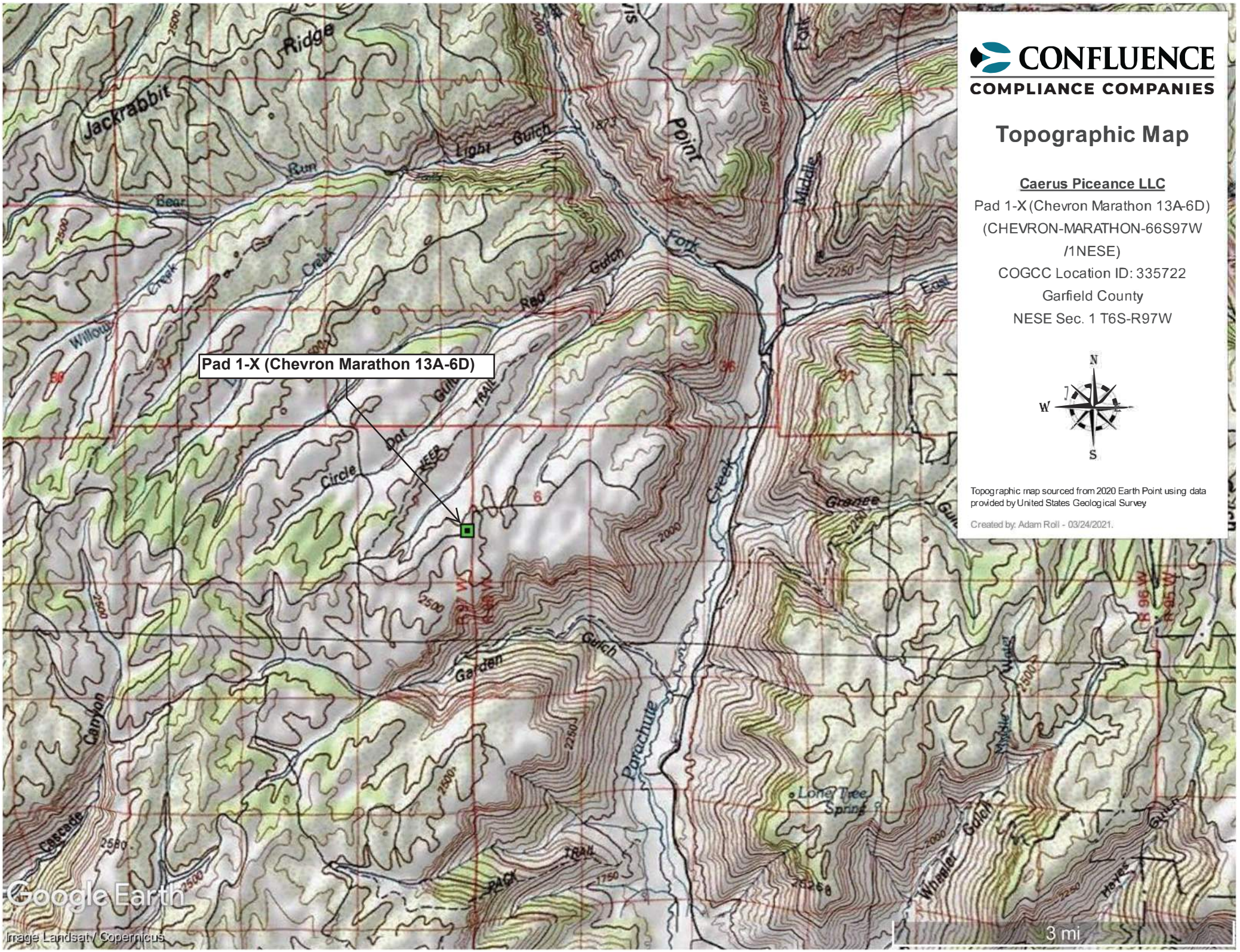
Att Doc Num	Name
402639166	FORM 27-INITIAL-SUBMITTED
402647214	MAP
402647215	MAP

Total Attach: 3 Files

General Comments

User Group	Comment	Comment Date
Environmental	Updated correct lat/long to correspond to Approximate Spill Location depicted in attached doc #402647214.	07/26/2021
Environmental	Note: Pursuant to Rule 913.h.(1).A, demonstration of compliance with COGCC 900-Series cleanup concentrations is required for closure of this remediation project.Note: Pursuant to Rule 913.h.(1).A, demonstration of compliance with COGCC 900-Series cleanup concentrations is required for closure of this remediation project.	07/26/2021

Total: 2 comment(s)



CONFLUENCE
COMPLIANCE COMPANIES

Topographic Map

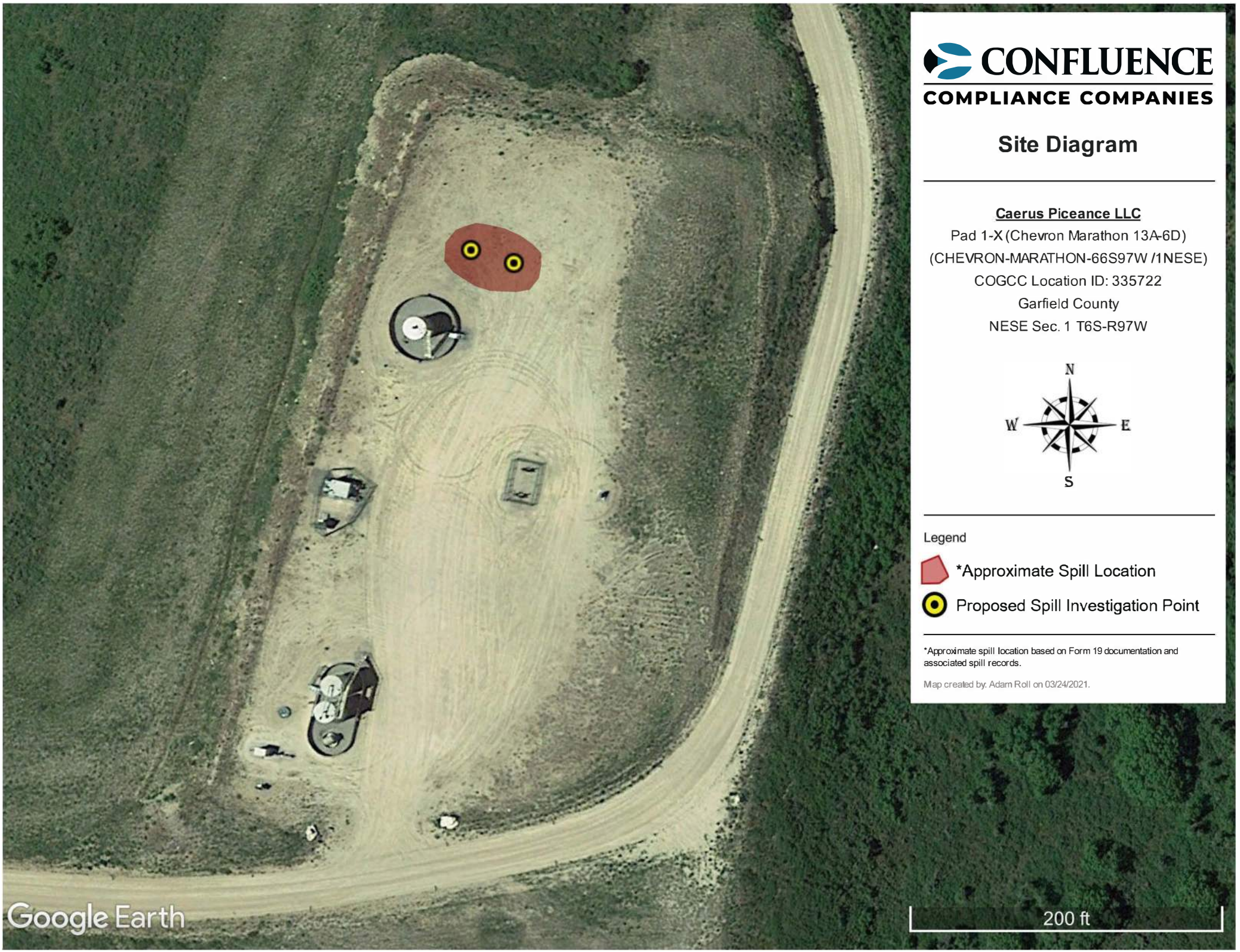
Caerus Piceance LLC

Pad 1-X (Chevron Marathon 13A-6D)
(CHEVRON-MARATHON-66S97W /1NESE)
COGCC Location ID: 335722
Garfield County
NESE Sec. 1 T6S-R97W

N
W
S

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

Created by: Adam Roll - 03/24/2021.



CONFLUENCE
COMPLIANCE COMPANIES

Site Diagram

Caerus Piceance LLC
Pad 1-X (Chevron Marathon 13A-6D)
(CHEVRON-MARATHON-66S97W /1NESE)
COGCC Location ID: 335722
Garfield County
NESE Sec. 1 T6S-R97W

N
W E
S

Legend

*Approximate Spill Location

Proposed Spill Investigation Point

*Approximate spill location based on Form 19 documentation and associated spill records.

Map created by: Adam Roll on 03/24/2021.

APPENDIX B
LABORATORY ANALYTICAL REPORTS

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

ANALYTICAL REPORT

September 14, 2021

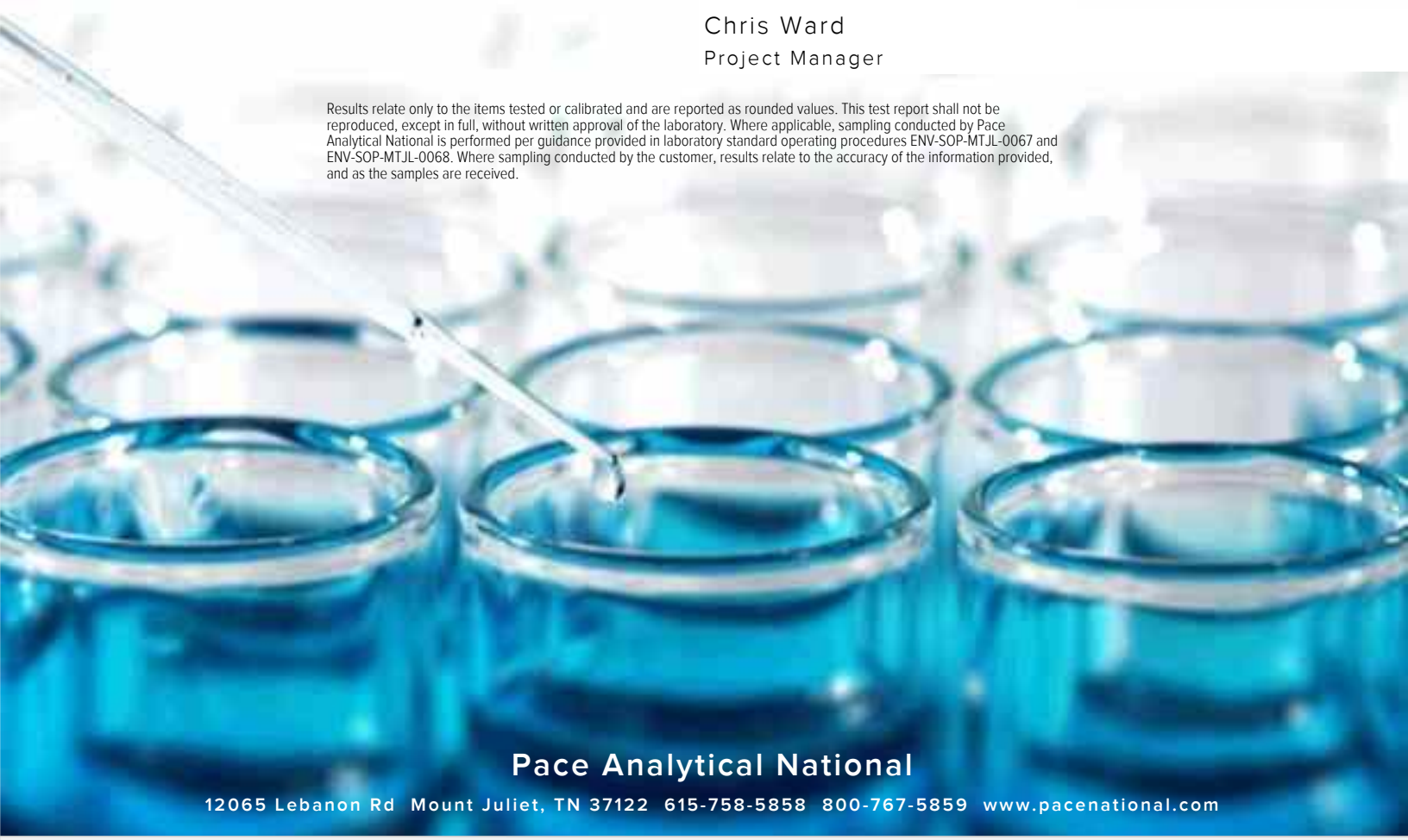
Caerus Oil and Gas

Sample Delivery Group:	L1400226
Samples Received:	08/27/2021
Project Number:	
Description:	1X Historical Release Assessment
Site:	697-IX
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward

Project Manager



Pace Analytical National

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

TABLE OF CONTENTS

SAMPLE SUMMARY

20210824-697-1X HR_BG01@6 L1400226-01 Solid

Collected by: Jordan Veith
Collected date/time: 08/24/21 11:40
Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG1737292	5	09/11/21 09:33	09/12/21 20:58	LD	Mt. Juliet, TN

20210824-697-1X HR_BG02@6 L1400226-02 Solid

Collected by: Jordan Veith
Collected date/time: 08/24/21 12:35
Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG1737292	5	09/11/21 09:33	09/12/21 21:01	LD	Mt. Juliet, TN

20210824-697-1X HR_BG03@6 L1400226-03 Solid

Collected by: Jordan Veith
Collected date/time: 08/24/21 13:05
Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG1737292	5	09/11/21 09:33	09/12/21 21:05	LD	Mt. Juliet, TN

20210824-697-1X HR_BG04@6 L1400226-04 Solid

Collected by: Jordan Veith
Collected date/time: 08/24/21 12:15
Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG1737292	5	09/11/21 09:33	09/12/21 21:08	LD	Mt. Juliet, TN

CASE NARRATIVE

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

Chris Ward
Project Manager

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.34		1.00	5	09/12/2021 20:58	WG1737292

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	5.78		1.00	5	09/12/2021 21:01	WG1737292

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	5.42		1.00	5	09/12/2021 21:05	WG1737292

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	5.62		1.00	5	09/12/2021 21:08	WG1737292

Method Blank (MB)

(MB) R3703327-1 09/12/21 20:12

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) R3703327-2 09/12/21 20:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	88.2	88.2	80.0-120	

L1401443-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1401443-07 09/12/21 20:19 • (MS) R3703327-5 09/12/21 20:30 • (MSD) R3703327-6 09/12/21 20:33

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	7.13	86.4	79.7	79.3	72.5	5	75.0-125		J6	8.12	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

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 Ave
Parachute, CO 81635

Billing Information: Same as Left

Pres Chk

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

L# L1396130
A086

Report to: Jake Janicek

Email To: jjanicek@caerusoilandgas.com

Project Description: IX Historical Release Assesment

City/State Collected: Piceance Crk, CO

Phone: 970-778-2314
Fax:

Client Project #

Lab Project #

Collected by (print): Jordan Veith

Site/Facility ID # 697-IX

P.O. # 20221930.0017

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

Acctnum:
Template:
Prelogin:
TSR:
PB: L1396130

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	EC_pH_SAR	Remarks	Sample # (lab only)
20210824_697-IX Historical Release_BS01 @6"	Grab	SS	6"	8/24/2021	11:40	2	X	-01	-01
20210824_697-IX Historical Release_BS02 @6"	Grab	SS	6"	8/24/2021	12:35	2	X	02	-02
20210824_697-IX Historical Release_BS03 @6"	Grab	SS	6"	8/24/2021	13:05	2	X	03	-03
20210824_697-IX Historical Release_BS04 @6"	Grab	SS	6"	8/24/2021	12:15	2	X	04	-04

* 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 3433

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

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	8/24/2021	16:40		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.3 °C Bottles Received: 12
	8/24/21	1830		5.2+5.2
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				8/27/21 930

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

L1396130

L1396130 *CAERUSPCO*

R3/R4/RX/EX

Please relog -01 through -04 for ASG

__

Please note that email addresses for staff at the Pace Analytical National Center for Testing & Innovation have changed.
_My new email address is <u>Chris.Ward@pacelabs.com</u>. Please update your records accordingly. _

* *

Thanks,

**Chris
Ward

*Project Manager2*_

_***Pace Analytical National**
*

12065 Lebanon Road | Mt. Juliet, TN 37122**

Chris.ward@pacelabs.com
| www.pacenational.com

<u>615.773.9712</u>

<u> </u>

NOTICE-- The contents of this email and any attachments may contain confidential, privileged, and/or legally protected information and are for the sole use of the addressee(s). Any review or distribution by others is strictly prohibited. If you are not
the intended recipient, please contact the sender immediately and delete any copies.

P Please consider the environment before printing this email

Time estimate: oh **Time spent:** oh

Members

Chris Ward (responsible)

Comments

Andy Vann *8 September 2021 10:03 AM*
Due date?

Chris Ward *8 September 2021 10:50 AM*
Ex 5 day

ANALYTICAL REPORT

September 21, 2021

Revised Report

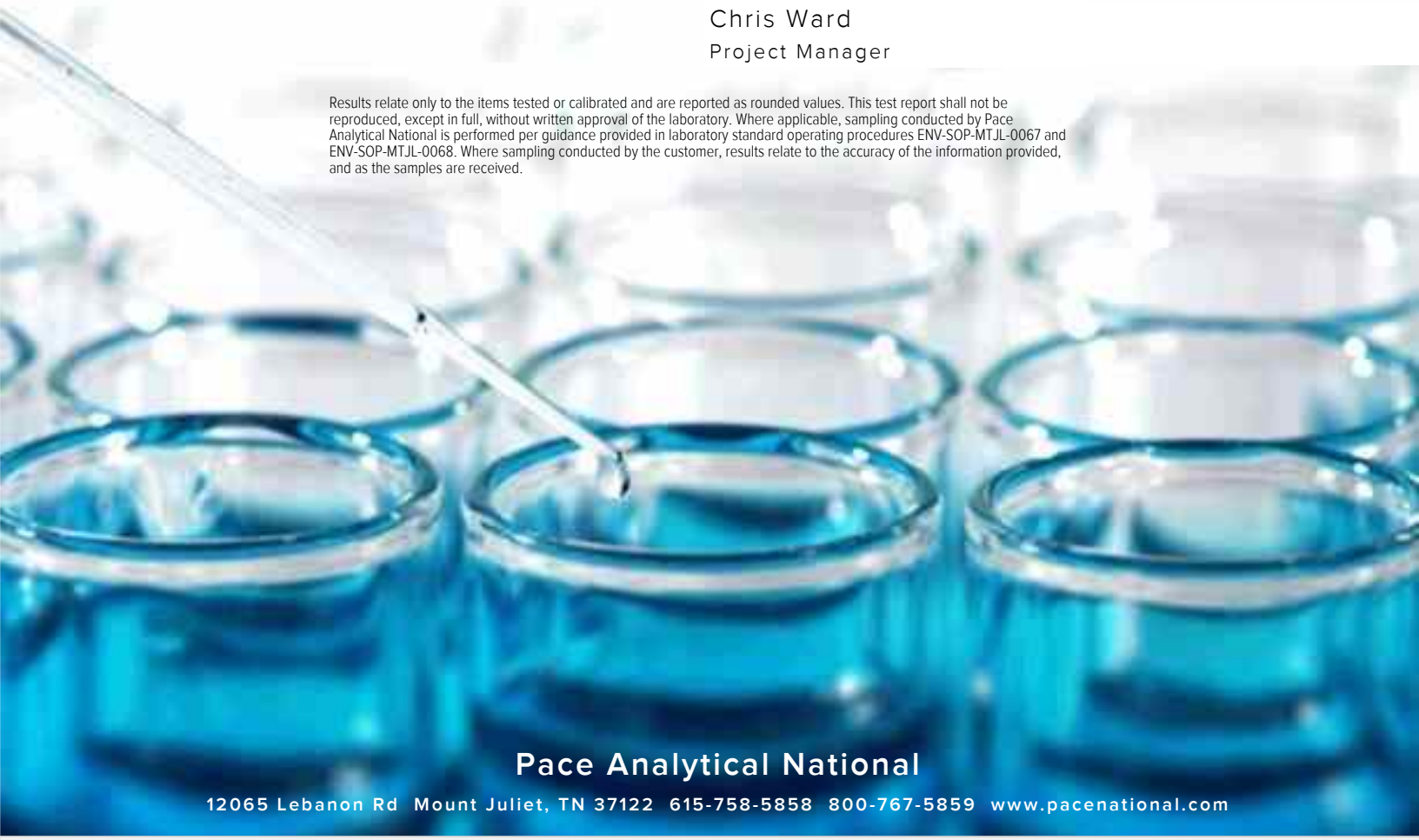
Caerus Oil and Gas

Sample Delivery Group:	L1396130
Samples Received:	08/27/2021
Project Number:	
Description:	1X Historical Release Assessment
Site:	697-IX
Report To:	Brett Middleton 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By:

Chris Ward

Project Manager



Pace Analytical National

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

TABLE OF CONTENTS

20210824-697-1X HR_BG01@6 L1396130-01 Solid

Collected by: Jordan Veith | Collected date/time: 08/24/21 11:40 | Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1732880	1	09/02/21 08:10	09/02/21 08:10	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1734079	1	09/02/21 13:00	09/02/21 17:00	MRM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1732342	1	09/01/21 12:10	09/01/21 18:48	AMH	Mt. Juliet, TN

20210824-697-1X HR_BG02@6 L1396130-02 Solid

Collected by: Jordan Veith | Collected date/time: 08/24/21 12:35 | Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1732880	1	09/02/21 08:13	09/02/21 08:13	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1734079	1	09/02/21 13:00	09/02/21 17:00	MRM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1732358	1	09/01/21 13:08	09/01/21 18:00	AMH	Mt. Juliet, TN

20210824-697-1X HR_BG03@6 L1396130-03 Solid

Collected by: Jordan Veith | Collected date/time: 08/24/21 13:05 | Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1732880	1	09/02/21 08:16	09/02/21 08:16	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1734079	1	09/02/21 13:00	09/02/21 17:00	MRM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1732358	1	09/01/21 13:08	09/01/21 18:00	AMH	Mt. Juliet, TN

20210824-697-1X HR_BG04@6 L1396130-04 Solid

Collected by: Jordan Veith | Collected date/time: 08/24/21 12:15 | Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1732880	1	09/02/21 08:19	09/02/21 08:19	CCE	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1734079	1	09/02/21 13:00	09/02/21 17:00	MRM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1732358	1	09/01/21 13:08	09/01/21 18:00	AMH	Mt. Juliet, TN

20210824-697-1X HR_SB01@6 L1396130-05 Solid

Collected by: Jordan Veith | Collected date/time: 08/24/21 10:20 | Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1732880	1	09/02/21 08:22	09/02/21 08:22	CCE	Mt. Juliet, TN
Calculated Results	WG1731492	1	08/30/21 16:50	09/02/21 19:58	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1733128	1	09/01/21 17:09	09/02/21 18:52	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1734079	1	09/02/21 13:00	09/02/21 17:00	MRM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1732358	1	09/01/21 13:08	09/01/21 18:00	AMH	Mt. Juliet, TN
Mercury by Method 7471A	WG1732230	1	08/31/21 10:06	08/31/21 18:48	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1731492	1	08/30/21 16:50	09/02/21 19:58	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1742272	1	09/17/21 18:33	09/20/21 19:58	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1732389	1	08/30/21 11:17	09/01/21 19:35	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1733794	1	08/30/21 11:17	09/02/21 13:44	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1732522	1	09/01/21 19:25	09/02/21 09:21	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1733211	1	09/01/21 17:20	09/02/21 00:13	JNJ	Mt. Juliet, TN

SAMPLE SUMMARY

20210824-697-1X HR_SB02@6 L1396130-06 Solid

Collected by: Jordan Veith
Collected date/time: 08/24/21 10:45
Received date/time: 08/27/21 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1732880	1	09/02/21 08:31	09/02/21 08:31	CCE	Mt. Juliet, TN
Calculated Results	WG1731492	1	08/30/21 16:50	09/02/21 20:01	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1733128	1	09/01/21 17:09	09/02/21 18:52	CRB	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1734079	1	09/02/21 13:00	09/02/21 17:00	MRM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1732358	1	09/01/21 13:08	09/01/21 18:00	AMH	Mt. Juliet, TN
Mercury by Method 7471A	WG1732230	1	08/31/21 10:06	08/31/21 18:55	BMF	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1731492	1	08/30/21 16:50	09/02/21 20:01	CCE	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG1742272	1	09/17/21 18:33	09/20/21 20:00	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1732389	1	08/30/21 11:17	09/01/21 19:59	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1733794	1	08/30/21 11:17	09/02/21 14:03	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1732522	1	09/01/21 19:25	09/02/21 08:40	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1733211	1	09/01/21 17:20	09/02/21 00:31	JNJ	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

Report Revision History

Level II Report - Version 1: 09/15/21 16:09

Project Narrative

Regenerated to adjust sample IDs to not cause the EDD to error.

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.159		1	09/02/2021 08:10	WG1732880

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.04	T8	1	09/02/2021 17:00	WG1734079

Sample Narrative:

L1396130-01 WG1734079: 7.04 at 21.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	130		10.0	1	09/01/2021 18:48	WG1732342

Sample Narrative:

L1396130-01 WG1732342: at 25C

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0984		1	09/02/2021 08:13	WG1732880

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	7.00	T8	1	09/02/2021 17:00	WG1734079

Sample Narrative:

L1396130-02 WG1734079: 7 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	116		10.0	1	09/01/2021 18:00	WG1732358

Sample Narrative:

L1396130-02 WG1732358: at 25C

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0818		1	09/02/2021 08:16	WG1732880

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	6.87	T8	1	09/02/2021 17:00	WG1734079

Sample Narrative:

L1396130-03 WG1734079: 6.87 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	87.0		10.0	1	09/01/2021 18:00	WG1732358

Sample Narrative:

L1396130-03 WG1732358: at 25C

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0685		1	09/02/2021 08:19	WG1732880

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	6.89	T8	1	09/02/2021 17:00	WG1734079

Sample Narrative:

L1396130-04 WG1734079: 6.89 at 21.3C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	79.6		10.0	1	09/01/2021 18:00	WG1732358

Sample Narrative:

L1396130-04 WG1732358: at 25C

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.584		1	09/02/2021 08:22	WG1732880

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	59.5		1.00	1	09/02/2021 19:58	WG1731492

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	09/02/2021 18:52	WG1733128

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.37	T8	1	09/02/2021 17:00	WG1734079

Sample Narrative:

L1396130-05 WG1734079: 8.37 at 21.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	133		10.0	1	09/01/2021 18:00	WG1732358

Sample Narrative:

L1396130-05 WG1732358: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	08/31/2021 18:48	WG1732230

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.63		2.00	1	09/02/2021 19:58	WG1731492
Barium	287		0.500	1	09/02/2021 19:58	WG1731492
Cadmium	ND		0.500	1	09/02/2021 19:58	WG1731492
Chromium	59.5		1.00	1	09/02/2021 19:58	WG1731492
Copper	15.1		2.00	1	09/02/2021 19:58	WG1731492
Lead	12.1		0.500	1	09/02/2021 19:58	WG1731492
Nickel	29.9		2.00	1	09/02/2021 19:58	WG1731492
Selenium	ND		2.00	1	09/02/2021 19:58	WG1731492
Silver	ND		1.00	1	09/02/2021 19:58	WG1731492
Zinc	45.3		5.00	1	09/02/2021 19:58	WG1731492

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	ND		0.200	1	09/20/2021 19:58	WG1742272

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	ND		0.100	1	09/01/2021 19:35	WG1732389
(S) a,a,a-Trifluorotoluene(FID)	*97.5*		*77.0-120*		*09/01/2021 19:35*	WG1732389

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	09/02/2021 13:44	WG1733794
Toluene	ND		0.00500	1	09/02/2021 13:44	WG1733794
Ethylbenzene	ND		0.00250	1	09/02/2021 13:44	WG1733794
Total Xylenes	ND		0.00650	1	09/02/2021 13:44	WG1733794
(S) Toluene-d8	*115*		*75.0-131*		*09/02/2021 13:44*	WG1733794
(S) 4-Bromofluorobenzene	*110*		*67.0-138*		*09/02/2021 13:44*	WG1733794
(S) 1,2-Dichloroethane-d4	*78.0*		*70.0-130*		*09/02/2021 13:44*	WG1733794

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	09/02/2021 09:21	WG1732522
(S) o-Terphenyl	*47.8*		*18.0-148*		*09/02/2021 09:21*	WG1732522

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Acenaphthene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Acenaphthylene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Benzo(a)anthracene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Benzo(a)pyrene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Benzo(b)fluoranthene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Benzo(g,h,i)perylene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Benzo(k)fluoranthene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Chrysene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Dibenz(a,h)anthracene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Fluoranthene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Fluorene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Naphthalene	ND		0.0200	1	09/02/2021 00:13	WG1733211
Phenanthrene	ND		0.00600	1	09/02/2021 00:13	WG1733211
Pyrene	ND		0.00600	1	09/02/2021 00:13	WG1733211
1-Methylnaphthalene	ND		0.0200	1	09/02/2021 00:13	WG1733211
2-Methylnaphthalene	ND		0.0200	1	09/02/2021 00:13	WG1733211
2-Chloronaphthalene	ND		0.0200	1	09/02/2021 00:13	WG1733211
(S) p-Terphenyl-d14	*111*		*23.0-120*		*09/02/2021 00:13*	WG1733211
(S) Nitrobenzene-d5	*70.2*		*14.0-149*		*09/02/2021 00:13*	WG1733211
(S) 2-Fluorobiphenyl	*76.3*		*34.0-125*		*09/02/2021 00:13*	WG1733211

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.732		1	09/02/2021 08:31	WG1732880

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	60.4		1.00	1	09/02/2021 20:01	WG1731492

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND		2.00	1	09/02/2021 18:52	WG1733128

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.63	T8	1	09/02/2021 17:00	WG1734079

Sample Narrative:

L1396130-06 WG1734079: 8.63 at 21.1C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	225		10.0	1	09/01/2021 18:00	WG1732358

Sample Narrative:

L1396130-06 WG1732358: at 25C

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	08/31/2021 18:55	WG1732230

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	5.00		2.00	1	09/02/2021 20:01	WG1731492
Barium	312		0.500	1	09/02/2021 20:01	WG1731492
Cadmium	ND		0.500	1	09/02/2021 20:01	WG1731492
Chromium	60.4		1.00	1	09/02/2021 20:01	WG1731492
Copper	14.7		2.00	1	09/02/2021 20:01	WG1731492
Lead	12.7		0.500	1	09/02/2021 20:01	WG1731492
Nickel	30.3		2.00	1	09/02/2021 20:01	WG1731492
Selenium	ND		2.00	1	09/02/2021 20:01	WG1731492
Silver	ND		1.00	1	09/02/2021 20:01	WG1731492
Zinc	46.5		5.00	1	09/02/2021 20:01	WG1731492

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	ND		0.200	1	09/20/2021 20:00	WG1742272

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	ND		0.100	1	09/01/2021 19:59	WG1732389
(S) a,a,a-Trifluorotoluene(FID)	*97.8*		*77.0-120*		*09/01/2021 19:59*	WG1732389

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	09/02/2021 14:03	WG1733794
Toluene	ND		0.00500	1	09/02/2021 14:03	WG1733794
Ethylbenzene	ND		0.00250	1	09/02/2021 14:03	WG1733794
Total Xylenes	ND		0.00650	1	09/02/2021 14:03	WG1733794
(S) Toluene-d8	*114*		*75.0-131*		*09/02/2021 14:03*	WG1733794
(S) 4-Bromofluorobenzene	*110*		*67.0-138*		*09/02/2021 14:03*	WG1733794
(S) 1,2-Dichloroethane-d4	*75.5*		*70.0-130*		*09/02/2021 14:03*	WG1733794

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) High Fraction	ND		4.00	1	09/02/2021 08:40	WG1732522
(S) o-Terphenyl	*40.1*		*18.0-148*		*09/02/2021 08:40*	WG1732522

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Acenaphthene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Acenaphthylene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Benzo(a)anthracene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Benzo(a)pyrene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Benzo(b)fluoranthene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Benzo(g,h,i)perylene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Benzo(k)fluoranthene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Chrysene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Dibenz(a,h)anthracene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Fluoranthene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Fluorene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Naphthalene	ND		0.0200	1	09/02/2021 00:31	WG1733211
Phenanthrene	ND		0.00600	1	09/02/2021 00:31	WG1733211
Pyrene	ND		0.00600	1	09/02/2021 00:31	WG1733211
1-Methylnaphthalene	ND		0.0200	1	09/02/2021 00:31	WG1733211
2-Methylnaphthalene	ND		0.0200	1	09/02/2021 00:31	WG1733211
2-Chloronaphthalene	ND		0.0200	1	09/02/2021 00:31	WG1733211
(S) p-Terphenyl-d14	*131*	J1	*23.0-120*		*09/02/2021 00:31*	WG1733211
(S) Nitrobenzene-d5	*100*		*14.0-149*		*09/02/2021 00:31*	WG1733211
(S) 2-Fluorobiphenyl	*112*		*34.0-125*		*09/02/2021 00:31*	WG1733211

Method Blank (MB)

(MB) R3699798-1 09/02/21 18:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U		0.640	2.00

L1395526-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1395526-06 09/02/21 18:42 • (DUP) R3699798-3 09/02/21 18:43

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	ND	1	2.34		20

L1396482-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1396482-02 09/02/21 18:52 • (DUP) R3699798-8 09/02/21 18:53

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

Laboratory Control Sample (LCS)

(LCS) R3699798-2 09/02/21 18:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	21.7	90.4	80.0-120	

L1395528-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1395528-06 09/02/21 18:45 • (MS) R3699798-4 09/02/21 18:46 • (MSD) R3699798-5 09/02/21 18:48

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 %
Chromium,Hexavalent	20.0	ND	11.5	11.2	57.3	56.1	1	75.0-125	J6	J6	2.09	20

L1395528-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1395528-06 09/02/21 18:45 • (MS) R3699798-6 09/02/21 18:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	648	ND	719	111	50	75.0-125	

L1396313-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1396313-10 09/02/21 17:00 • (DUP) R3699751-2 09/02/21 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.80	7.85	1	0.639		1

Sample Narrative:

OS: 7.8 at 21C

DUP: 7.85 at 21.2C

L1397218-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1397218-02 09/02/21 17:00 • (DUP) R3699751-3 09/02/21 17:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.47	8.47	1	0.000		1

Sample Narrative:

OS: 8.47 at 20.9C

DUP: 8.47 at 21.1C

Laboratory Control Sample (LCS)

(LCS) R3699751-1 09/02/21 17:00

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

Sample Narrative:

LCS: 10.04 at 21.8C

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

Method Blank (MB)

(MB) R3699268-1 09/01/21 18:48

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

L1395526-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1395526-01 09/01/21 18:48 • (DUP) R3699268-3 09/01/21 18:48

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	85.6	85.4	1	0.234		20

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

L1395528-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1395528-08 09/01/21 18:48 • (DUP) R3699268-4 09/01/21 18:48

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	356	357	1	0.281		20

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

Laboratory Control Sample (LCS)

(LCS) R3699268-2 09/01/21 18:48

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	899	916	102	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3699257-1 09/01/21 18:00

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

Sample Narrative:
BLANK: at 25C

L1395526-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1395526-07 09/01/21 18:00 • (DUP) R3699257-3 09/01/21 18:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	342	377	1	9.74		20

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

L1395878-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1395878-04 09/01/21 18:00 • (DUP) R3699257-4 09/01/21 18:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	4670	4580	1	1.95		20

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

Laboratory Control Sample (LCS)

(LCS) R3699257-2 09/01/21 18:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	899	916	102	85.0-115	

Sample Narrative:
LCS: at 25C

Method Blank (MB)

(MB) R3698715-1 08/31/21 17:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3698715-2 08/31/21 17:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.491	98.2	80.0-120	

L1395938-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1395938-01 08/31/21 17:55 • (MS) R3698715-3 08/31/21 17:57 • (MSD) R3698715-4 08/31/21 18:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	ND	0.508	0.501	102	100	1	75.0-125			1.50	20

Method Blank (MB)

(MB) R3699952-1 09/02/21 19:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.518	2.00
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
Chromium	U		0.133	1.00
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) R3699952-2 09/02/21 19:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.6	92.6	80.0-120	
Barium	100	98.1	98.1	80.0-120	
Cadmium	100	93.1	93.1	80.0-120	
Chromium	100	94.6	94.6	80.0-120	
Copper	100	97.0	97.0	80.0-120	
Lead	100	94.0	94.0	80.0-120	
Nickel	100	96.1	96.1	80.0-120	
Selenium	100	93.9	93.9	80.0-120	
Silver	20.0	16.9	84.5	80.0-120	
Zinc	100	93.8	93.8	80.0-120	

L1396197-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1396197-01 09/02/21 19:41 • (MS) R3699952-5 09/02/21 19:50 • (MSD) R3699952-6 09/02/21 19:52

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	4.87	93.5	97.2	88.6	92.3	1	75.0-125			3.86	20
Barium	100	202	227	270	24.7	67.6	1	75.0-125	J6	J6	17.3	20
Cadmium	100	ND	91.5	89.6	91.0	89.1	1	75.0-125			2.11	20
Chromium	100	18.3	108	107	89.6	88.4	1	75.0-125			1.05	20
Copper	100	14.1	109	110	94.8	95.5	1	75.0-125			0.656	20
Lead	100	14.5	108	104	93.6	89.8	1	75.0-125			3.57	20
Nickel	100	19.7	118	119	98.2	99.4	1	75.0-125			1.01	20

L1396197-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1396197-01 09/02/21 19:41 • (MS) R3699952-5 09/02/21 19:50 • (MSD) R3699952-6 09/02/21 19:52

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 %
Selenium	100	ND	91.7	90.0	91.7	90.0	1	75.0-125			1.85	20
Silver	20.0	ND	16.9	16.6	84.4	82.9	1	75.0-125			1.80	20
Zinc	100	61.6	141	150	79.0	88.0	1	75.0-125			6.19	20

Method Blank (MB)

(MB) R3706521-1 09/20/21 19:23

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hot Water Sol. Boron	0.0185	J	0.0167	0.200

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

(LCS) R3706521-2 09/20/21 19:26 • (LCSD) R3706521-3 09/20/21 19:28

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	0.990	1.01	99.0	101	80.0-120			2.31	20

Method Blank (MB)

(MB) R3700221-3 09/01/21 15:55

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)	*98.1*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3700221-2 09/01/21 15:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.58	83.3	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*100*	*77.0-120*	

L1396032-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1396032-01 09/01/21 18:24 • (MS) R3700221-6 09/02/21 03:49 • (MSD) R3700221-7 09/02/21 04:13

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	2.04	2.59	37.1	47.1	1	10.0-151			23.8	28
(S) a,a,a-Trifluorotoluene(FID)					*96.6*	*98.8*		*77.0-120*				

Method Blank (MB)

(MB) R3699928-3 09/02/21 05:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
(S) Toluene-d8	*116*			*75.0-131*
(S) 4-Bromofluorobenzene	*107*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*76.1*			*70.0-130*

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

(LCS) R3699928-1 09/02/21 03:57 • (LCSD) R3699928-2 09/02/21 04:16

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	0.116	0.118	92.8	94.4	70.0-123			1.71	20
Ethylbenzene	0.125	0.138	0.141	110	113	74.0-126			2.15	20
Toluene	0.125	0.132	0.135	106	108	75.0-121			2.25	20
Xylenes, Total	0.375	0.436	0.448	116	119	72.0-127			2.71	20
(S) Toluene-d8				*112*	*113*	*75.0-131*				
(S) 4-Bromofluorobenzene				*113*	*112*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*83.3*	*83.7*	*70.0-130*				

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

Method Blank (MB)

(MB) R3699525-1 09/02/21 06:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) High Fraction	U		0.769	4.00
(S) o-Terphenyl	*49.7*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3699525-2 09/02/21 06:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	32.4	64.8	50.0-150	
(S) o-Terphenyl			*46.5*	*18.0-148*	

L1395577-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1395577-01 09/02/21 07:04 • (MS) R3699525-3 09/02/21 07:18 • (MSD) R3699525-4 09/02/21 07:31

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) High Fraction	48.2	ND	31.9	30.5	66.2	63.8	1	50.0-150			4.49	20
(S) o-Terphenyl					*42.2*	*40.4*		*18.0-148*				

Method Blank (MB)

(MB) R3699413-2 09/01/21 22:11

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	*90.0*			*14.0-149*
(S) 2-Fluorobiphenyl	*100*			*34.0-125*
(S) p-Terphenyl-d14	*131*	J1		*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3699413-1 09/01/21 21:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0620	77.5	50.0-126	
Acenaphthene	0.0800	0.0651	81.4	50.0-120	
Acenaphthylene	0.0800	0.0687	85.9	50.0-120	
Benzo(a)anthracene	0.0800	0.0644	80.5	45.0-120	
Benzo(a)pyrene	0.0800	0.0575	71.9	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0630	78.8	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0603	75.4	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0609	76.1	49.0-125	
Chrysene	0.0800	0.0629	78.6	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0594	74.3	47.0-125	
Fluoranthene	0.0800	0.0640	80.0	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3699413-1 09/01/21 21:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0659	82.4	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0616	77.0	46.0-125	
Naphthalene	0.0800	0.0607	75.9	50.0-120	
Phenanthrene	0.0800	0.0644	80.5	47.0-120	
Pyrene	0.0800	0.0557	69.6	43.0-123	
1-Methylnaphthalene	0.0800	0.0566	70.8	51.0-121	
2-Methylnaphthalene	0.0800	0.0570	71.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0661	82.6	50.0-120	
(S) Nitrobenzene-d5			*84.5*	*14.0-149*	
(S) 2-Fluorobiphenyl			*102*	*34.0-125*	
(S) p-Terphenyl-d14			*117*	*23.0-120*	

L1394847-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1394847-16 09/02/21 03:42 • (MS) R3699413-3 09/02/21 04:00 • (MSD) R3699413-4 09/02/21 04:17

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 %
Anthracene	0.0784	ND	0.0598	0.0632	76.3	80.2	1	10.0-145			5.53	30
Acenaphthene	0.0784	ND	0.0595	0.0604	75.9	76.6	1	14.0-127			1.50	27
Acenaphthylene	0.0784	ND	0.0633	0.0651	80.7	82.6	1	21.0-124			2.80	25
Benzo(a)anthracene	0.0784	ND	0.0632	0.0651	80.6	82.6	1	10.0-139			2.96	30
Benzo(a)pyrene	0.0784	ND	0.0596	0.0614	76.0	77.9	1	10.0-141			2.98	31
Benzo(b)fluoranthene	0.0784	ND	0.0608	0.0607	77.6	77.0	1	10.0-140			0.165	36
Benzo(g,h,i)perylene	0.0784	ND	0.0571	0.0520	72.8	66.0	1	10.0-140			9.35	33
Benzo(k)fluoranthene	0.0784	ND	0.0557	0.0599	71.0	76.0	1	10.0-137			7.27	31
Chrysene	0.0784	ND	0.0628	0.0638	80.1	81.0	1	10.0-145			1.58	30
Dibenz(a,h)anthracene	0.0784	ND	0.0576	0.0523	73.5	66.4	1	10.0-132			9.65	31
Fluoranthene	0.0784	ND	0.0610	0.0603	77.8	76.5	1	10.0-153			1.15	33
Fluorene	0.0784	ND	0.0581	0.0590	74.1	74.9	1	11.0-130			1.54	29
Indeno(1,2,3-cd)pyrene	0.0784	ND	0.0539	0.0539	68.8	68.4	1	10.0-137			0.000	32
Naphthalene	0.0784	ND	0.0586	0.0601	74.7	76.3	1	10.0-135			2.53	27
Phenanthrene	0.0784	ND	0.0622	0.0645	79.3	81.9	1	10.0-144			3.63	31
Pyrene	0.0784	ND	0.0622	0.0551	79.3	69.9	1	10.0-148			12.1	35
1-Methylnaphthalene	0.0784	ND	0.0583	0.0612	74.4	77.7	1	10.0-142			4.85	28
2-Methylnaphthalene	0.0784	ND	0.0575	0.0601	73.3	76.3	1	10.0-137			4.42	28
2-Chloronaphthalene	0.0784	ND	0.0600	0.0609	76.5	77.3	1	29.0-120			1.49	24
(S) Nitrobenzene-d5					*97.4*	*98.8*		*14.0-149*				
(S) 2-Fluorobiphenyl					*98.5*	*101*		*34.0-125*				
(S) p-Terphenyl-d14					*124*	*114*		*23.0-120*	J1			

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

Caerus Oil and Gas
143 Diamond Ave
Parachute, CO 81635

Billing Information: Same as Left

Pres Chk

Report to: Jake Janicek

Email To: jjanicek@caerusoilandgas.com

Project Description: IX Historical Release Assesment

City/State Collected: Piceance Crk, CO

Phone: 970-778-2314
Fax:

Client Project #

Lab Project #

Collected by (print): Jordan Veith

Site/Facility ID #: 697-IX

P.O. #: 20221930.001A

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	EC, pH, SAR										Remarks	Sample # (lab only)
20210824_697-IX Historical Release_BG01 @6"	Grab	SS	6"	8/24/2021	11:40	2	X											-01
20210824_697-IX Historical Release_BG02 @6"	Grab	SS	6"	8/24/2021	12:35	2	X											-02
20210824_697-IX Historical Release_BG03 @6"	Grab	SS	6"	8/24/2021	13:05	2	X											-03
20210824_697-IX Historical Release_BG04 @6"	Grab	SS	6"	8/24/2021	12:15	2	X											-04

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

L# 1396130
A086

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

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

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

Tracking # 5016 1232 3433

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

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	8/24/2021	16:40			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.3+0=5.2 °C Bottles Received: 12	
	8/24/21	1730			
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 8/27/21 Time: 930	Hold: / Condition: NCF / OK

Caerus Oil and Gas
143 Diamond Ave
Parachute, CO 81635

Billing Information: Same as Left

Pres Chk

Report to: Jake Janicek

Email To: jjanicek@caerusoilandgas.com

Project Description: IX Historical Release Spill Assesment (SV)

City/State Collected: Piceance Crk, CO

Phone: 970-778-2314
Fax:

Client Project #

Lab Project #

Collected by (print): JORDAN VEITH

Site/Facility ID # 697-IX

P.O. # 20221930.001A

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative: COGCC Table 910-1	Remarks	Sample # (lab only)
20210824_697-IX_IX Release_SB01@6"	Grab Historical	SS	6"	8/24/2021	10:20	2	X		-05
20210824_697-IX_IX Release_SB02@6"	Grab Historical	SS	6"	8/24/2021	10:45	2	X		-06

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

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

L # 1396130

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	8/24/2021	16:40			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: A30T °C Bottles Received:	
	8/24/21	1800		5.2-5.7 12	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:	Hold:	Condition: NCF / OK
				8/27/21	930		

Caerus Oil and Gas
143 Diamond Ave
Parachute, CO 81635

Billing Information: Same as Left

Pres Chk

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

L# L1396130
A086

Report to: Jake Janicek

Email To: jjanicek@caerusoilandgas.com

Project Description: IX Historical Release Assessment

City/State Collected: Piceance Crk, CO

Phone: 970-778-2314
Fax:

Client Project #

Lab Project #

Collected by (print): Jordan Veith

Site/Facility ID # 697-IX

P.O. # 20221930.001A

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

Acctnum:
Template:
Prelogin:
TSR:
PB: L1396130

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	EC, pH, SAR	Remarks	Sample # (lab only)
20210824_697-IX Historical Release_BS01 @ 6"	Grab	SS	6"	8/24/2021	11:40	2	X	-01	-01
20210824_697-IX Historical Release_BS02 @ 6"	Grab	SS	6"	8/24/2021	12:35	2	X	02	-02
20210824_697-IX Historical Release_BS03 @ 6"	Grab	SS	6"	8/24/2021	13:05	2	X	03	-03
20210824_697-IX Historical Release_BS04 @ 6"	Grab	SS	6"	8/24/2021	12:15	2	X	04	-04

* 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 3433

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

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	8/24/2021	16:40			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 5.2 °C Bottles Received: 12	
	8/24/21	1800			
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 8/27/21 Time: 930	Hold: Condition: NCF / OK

L1396130

L1396130 *CAERUSPCO*

R3/R4/RX/EX

Please relog -01 through -04 for ASG

_ _

Please note that email addresses for staff at the Pace Analytical National Center for Testing & Innovation have changed.
_My new email address is <u>Chris.Ward@pacelabs.com</u>. Please update your records accordingly. _

* *

Thanks,*

** *Chris
Ward

*Project Manager2_*

_***Pace Analytical National**
*

12065 Lebanon Road | Mt. Juliet, TN 37122**

Chris.ward@pacelabs.com
| www.pacenational.com

<u>615.773.9712</u>

<u> </u>

Time estimate: oh **Time spent:** oh

Members

Chris Ward (responsible)

Comments

Andy Vann *8 September 2021 10:03 AM*
Due date?

Chris Ward *8 September 2021 10:50 AM*
Ex 5 day