April 7, 2021

Brett Middleton
Environmental Lead
Caerus Oil & Gas LLC (Operator #: 10456)
bmiddleton@caerusoilandgas.com

REMEDIATION - REPORT OF WORK COMPLETED	
COGCC Location Name (ID)	GRASS MESA RANCH-66S93W /33NENE (323850)
Operator Location Name	A33NW Well Pad
COGCC Well Name (API)	GRASS MESA RANCH # 33-1 (05-045-06733)
Legal Description	NENE, Section 33, T6S-R93W
Coordinates (Lat/Long)	39.48814/-107.773706 (WGS 84)
County	Garfield County, Colorado
Spill/Release #	2145622
Remediation Project #	7916

Mr. Middleton,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil & Gas LLC (Caerus) to document recent remediation activities associated with a 2013 release of produced water and condensate at the A33NW Well Pad (Location). The Location is 3.1 miles south of Rifle, Colorado in Garfield County as illustrated in the attached Topographic Map. Additional information on the Location and the associated remediation project is provided in the title block above, the attached Site Diagrams, and laboratory analytical reports. This ROWC provides background on the Location, methods used to complete the remedial investigation, results of the investigation, and recommendations for how to proceed with this information.

Background

On May 4, 2013, the previous operator of the Location discovered that a production tank had overflowed following an unanticipated volume of fluid from the well. The emergency-shut-down (ESD) had failed to alarm, allowing the tank to overfill. In response to the release, the associated well was shut-in, and a water truck was contracted to remove liquid from the tank. The released fluids were confined within the tank battery containment. However, the containment was not lined, allowing the released fluids to migrate vertically into the subsurface of the Location. A preliminary site investigation was conducted to delineate the vertical and horizontal extent of soil impacts. Investigation activities indicated concentrations of total petroleum hydrocarbons (TPH), benzene, toluene, and total xylenes exceeding Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 Concentration Levels. These impacts were observed within the tank battery containment area to at least 5 feet below ground surface (bgs). Delineation of impacts was not achieved.

In June and July 2013, three soil vapor extraction (SVE) wells were installed for the purpose of augmenting in-situ bioremediation and mass removal. A combination of wind-powered and solar-powered SVE technologies were used to remediate the identified hydrocarbons. Laboratory results of soil samples collected during these activities indicated concentrations of TPH exceeding COGCC

Table 910-1 Concentration Levels at depths up to 26 feet bgs. Delineation of impacts was not achieved.

After Caerus acquired the Location in July 2017, confirmation soil samples were collected to document remediation progress. Laboratory analytical results of the soil samples indicated concentrations of TPH above COGCC Table 910-1 Concentration Levels remained within the release area.

Methodology

Between November 3 and December 17, 2020, Confluence coordinated and oversaw excavation of impacted soil at the Location. Excavation activities were directed by Confluence personnel who characterized the soil using visual and olfactory observations and field screened soil samples for volatile organic compounds using a photoionization detector (PID). Following completion of excavation activities, confirmation soil samples were collected from the base and sidewalls of the open excavation. The total depth of the excavation was 28 feet bgs. Soil samples were collected in laboratory prepared jars, immediately placed on ice, and shipped for laboratory analysis of constituents listed in COGCC Table 910-1. Excavation extents and soil sample locations are illustrated in the attached Site Diagram – Excavation.

During remediation activities, excavated soil was segregated and stockpiled on site. Topsoil and overburden believed to be unimpacted were stockpiled separately from impacted soil. Following completion of excavation activities, representative composite soil samples were collected from the stockpiles. Stockpile samples were collected, managed, and analyzed as previously described. Stockpile locations and samples are illustrated in the attached Site Diagram – Stockpiles.

Results

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

Collected spatial data are depicted in the attached Site Diagrams. Laboratory analytical reports are attached and summarized in the Laboratory Results Summary Table. All excavated soil has been stockpiled and stabilized at the Location pending additional characterization and remediation.

Lithology and Hydrogeology

Lithology at the Location is characterized by silty clays with larger angular clasts ranging from gravel to boulder in size. Groundwater is expected to flow north-northwest towards Spray Gulch and ultimately the Colorado River, located 2.6 miles north of the Location.

Excavation Results

Laboratory results from excavation soil samples indicate compliance with COGCC Table 910-1 Concentration Levels with the exception of arsenic, pH, and TPH. Arsenic exceedances range from 10.2 milligrams per kilogram (mg/kg) in sidewall sample 20201119-A33NW-SS-N@12 to 14.2 mg/kg in 20201119-A33NW-SS-W@12. Values of pH exceeding COGCC Table 910-1 range from 9.27 in 20201119-A33NW-W@12 to 9.28 in 20201119-A33NW-S@14. Laboratory results indicate soil sample 20201119-A33NW-SS-Base@28 exceeds the COGCC Table 910-1 Concentration Level for

TPH with a concentration of 1,475 mg/kg. All other samples and analytes are compliant with COGCC Table 910-1 Concentration Levels and horizontal delineation of hydrocarbon impacts has been achieved.

Laboratory analytical results of stockpile samples indicate concentrations of TPH, arsenic, and pH exceeding COGCC Table 910-1 Concentration Levels. Stockpiles are not completely characterized by these data. All excavated soil remains at the Location pending additional characterization.

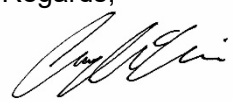
Recommendations and Analysis

Excavation soil samples indicate hydrocarbon impacts remain at the base of the excavation at approximately 28 feet bgs. Vertical delineation of these impacts has not been achieved to date. Excavation activities were suspended due to health and safety concerns associated with the depth of the excavation and winter weather conditions. Additionally, large boulders were encountered throughout the release area during excavation, impeding the progress of continued excavation. It is the opinion of Confluence that excavation as a continued remedial strategy is no longer a viable option based on the depth of observed impacts and subsurface geology encountered within the release area. Confluence proposes to use a drill rig equipped with either ODEX or a similar drilling technology to collect additional delineation soil samples. Based on the geology described above, more typical direct push or hollow stem auger technologies are unlikely to be able to reach the depths required for vertical delineation. Following successful delineation of the identified hydrocarbon impacts, Confluence will work with Caerus to evaluate remediation options and select the appropriate approach.

Continued stockpile management is recommended to increase the amount of soil that can be reused as backfill at the Location. Prior to any management activities, each stockpile will need to be characterized by collecting representative composite soil samples. Once the stockpiles are removed from the Location surface, confirmation soil samples will need to be collected beneath each stockpile to document that impacts associated with the stockpiles do not remain.

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

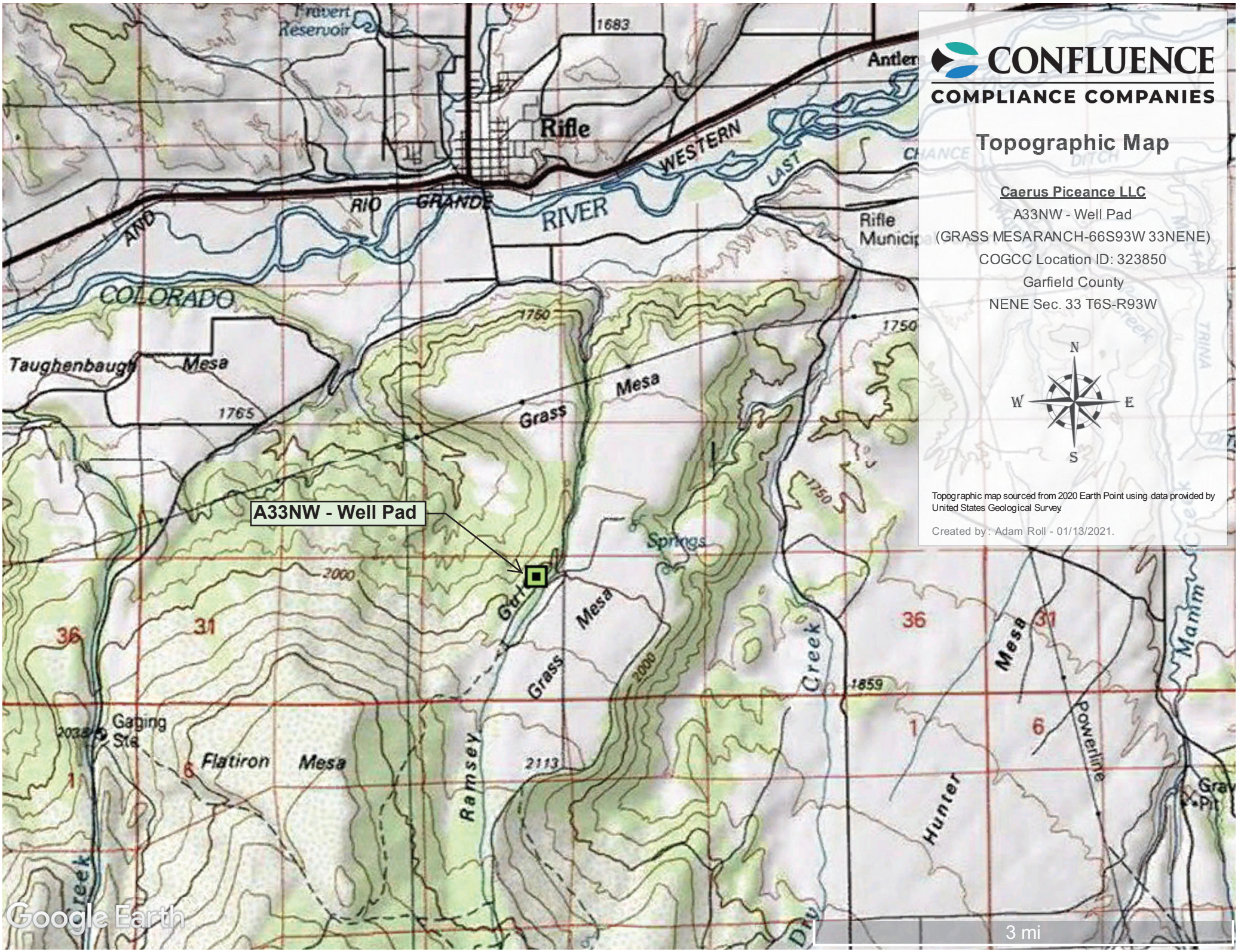
Regards,



Chris McKisson
Senior Project Manager
(720) 490-6758
chris.mckisson@confluence-cc.com

Attachments

- Topographic Map
- Site Diagram - Excavation
- Site Diagram - Stockpiles
- Laboratory Results Summary Table - Soil
- Laboratory Analytical Reports



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Topographic Map

Caerus Piceance LLC

A33NW - Well Pad

(GRASS MESARANCH-66S93W 33NENE)

COGCC Location ID: 323850

Garfield County

NENE Sec. 33 T6S-R93W

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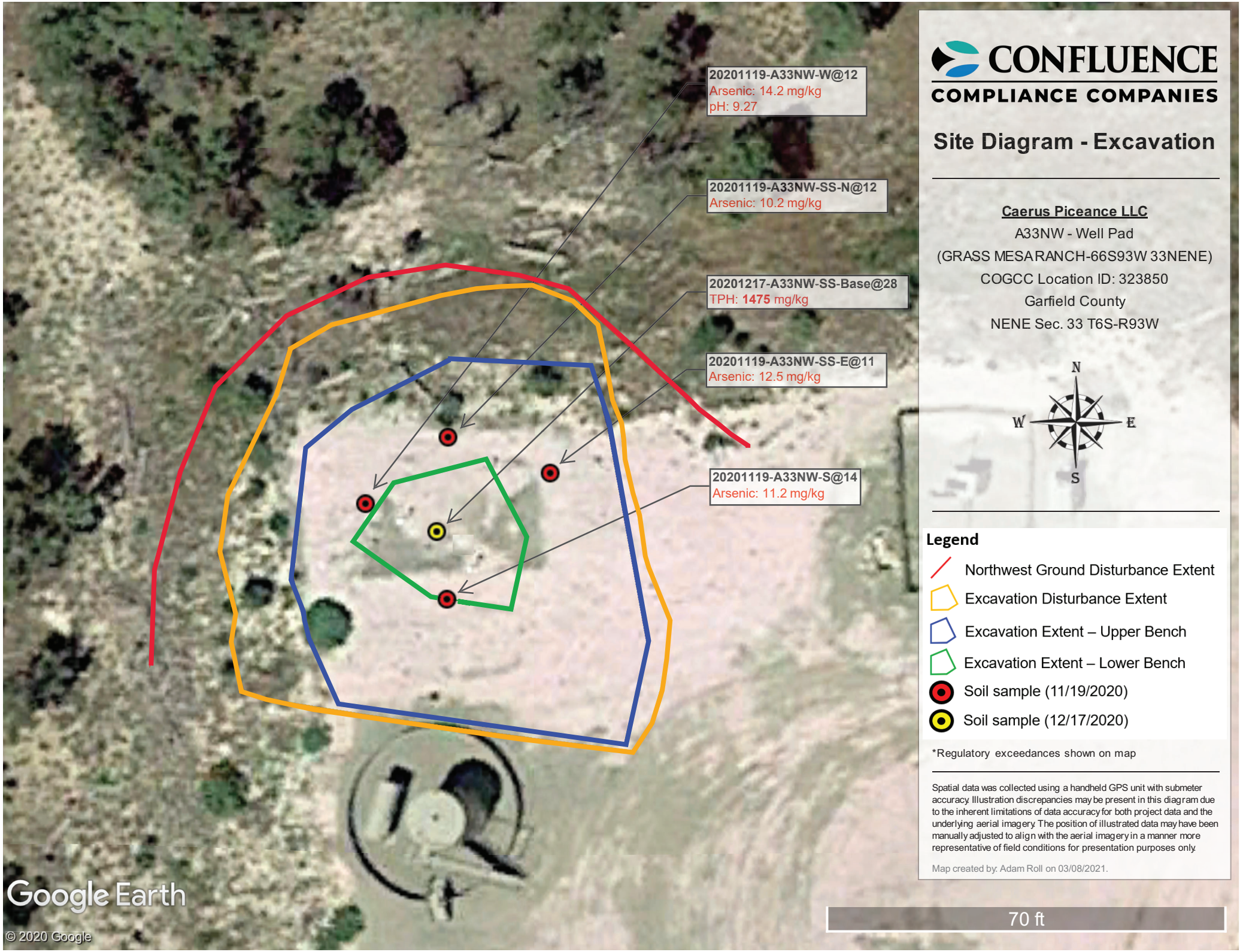
Topographic map sourced from 2020 Earth Point using data provided by United States Geological Survey.

Created by: Adam Roll - 01/13/2021.



CONFLUENCE
COMPLIANCE COMPANIES

Site Diagram - Excavation

Caerus Piceance LLC
A33NW - Well Pad
(GRASS MESA RANCH-66S93W 33NENE)
COGCC Location ID: 323850
Garfield County
NENE Sec. 33 T6S-R93W

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W E
S

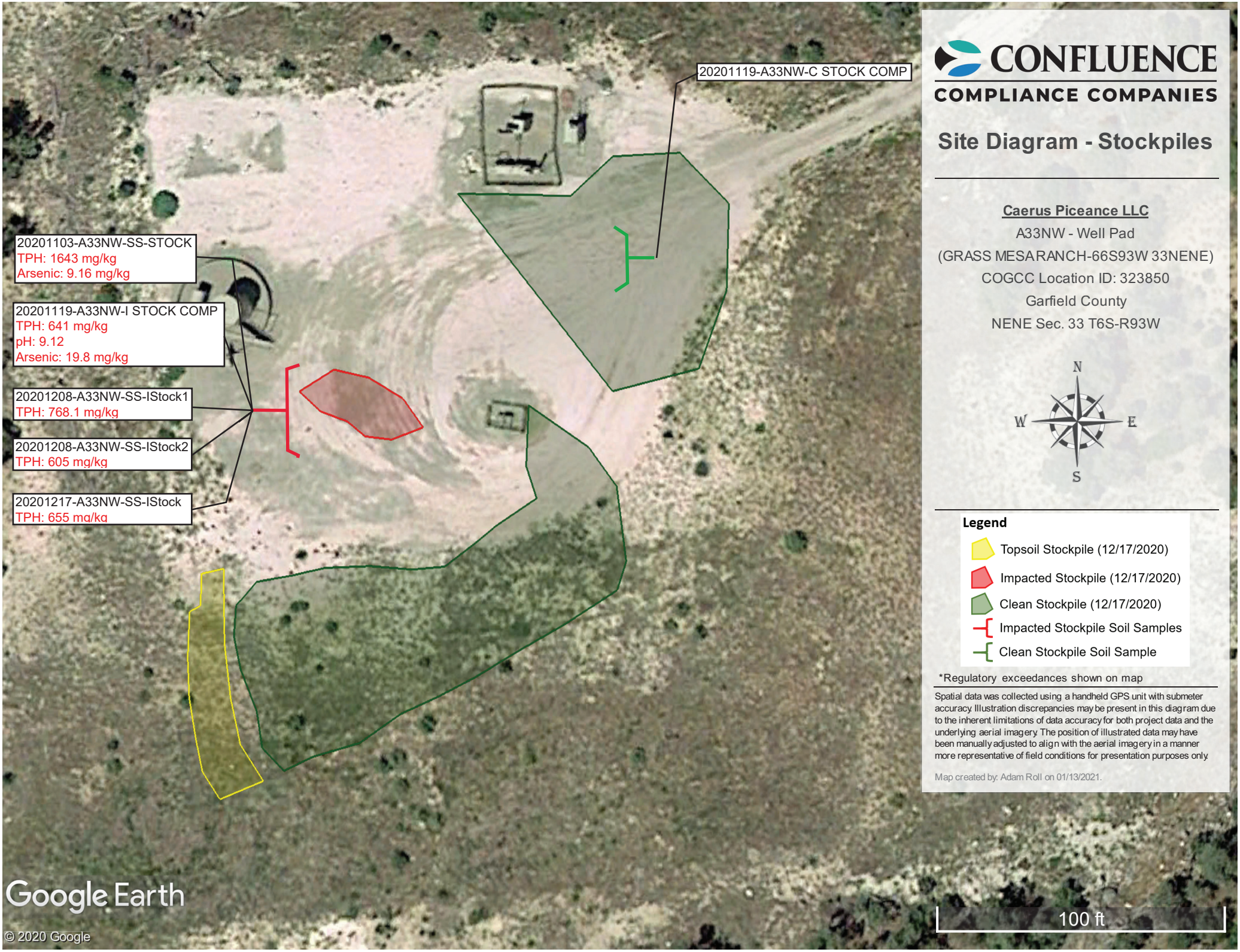
Legend

- Northwest Ground Disturbance Extent
- Excavation Disturbance Extent
- Excavation Extent – Upper Bench
- Excavation Extent – Lower Bench
- Soil sample (11/19/2020)
- Soil sample (12/17/2020)

*Regulatory exceedances shown on map

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

Map created by: Adam Roll on 03/08/2021.



CONFLUENCE
COMPLIANCE COMPANIES

Site Diagram - Stockpiles

Caerus Piceance LLC
A33NW - Well Pad
(GRASS MESA RANCH-66S93W 33NENE)
COGCC Location ID: 323850
Garfield County
NENE Sec. 33 T6S-R93W

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Legend

- Topsoil Stockpile (12/17/2020)
- Impacted Stockpile (12/17/2020)
- Clean Stockpile (12/17/2020)
- Impacted Stockpile Soil Samples
- Clean Stockpile Soil Sample

*Regulatory exceedances shown on map

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

Map created by: Adam Roll on 01/13/2021.

CONFLUENCE

Laboratory Results Summary Table - Soil

3/9/21

				Organics (mg/kg [ppm])							Organic Compounds (mg/kg)																		
			COGCC Soil Screening and Remediation Limits																										
			COGCC Table 910-1 Allowable Concentration (Soil) -->	500	NA	NA	0.17	85	100	175	1000	1000	NA	0.22	0.22	2.2	0.022	NA	22	0.022	1000	1000	0.22	NA	NA	NA	23	NA	1000
Location	Lab Sample ID	Sample Date	Sample ID	TPH (total volatile and extractable petroleum hydrocarbons) (TPH-GRO + TPH-DRO) (mg/kg)	TPH-GRO (C6-C10) Low Fraction (mg/kg)	TPH-DRO (C10-C28) High Fraction (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes - total (mg/kg)	Anthracene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Benzo(A)anthracene (mg/kg)	Benzo(B)fluoranthene (mg/kg)	Benzo(K)fluoranthene (mg/kg)	Benzo(A)pyrene (mg/kg)	Benzo(g,h,i)perylene (mg/kg)	Chrysene (mg/kg)	Dibenzo(A,H)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(1,2,3,C,D)pyrene (mg/kg)	1- Methylnaphthalene (mg/kg)	2- Methylnaphthalene (mg/kg)	2-Chloronaphthalene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
A33NW	L1288377-01	11/19/2020	**20201119-A33NW-W@12**	*<4.00*	*<0.100*	*<4.00*	**0.000969**	*<0.005*	**0.000675**	**0.00186**	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.00600*	*<0.00600*
A33NW	L1288377-02	11/19/2020	**20201119-A33NW-BASE@25**	**2230**	**1030**	**1200**	*<0.0500*	*<0.500*	**0.761**	**37.7**	*<0.00600*	*<0.00600*	*<0.00600*	**0.00875**	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	**0.00663**	*<0.00600*	**0.00894**	**0.256**	*<0.00600*	**1.24**	**3.67**	*<0.0200*	**1.02**	**0.212**	**0.0152**
A33NW	L1288377-03	11/19/2020	**20201119-A33NW-N@12**	**11.1**	*<0.100*	**11.1**	**0.000866**	*<0.00500*	*<0.000500*	*<0.00150*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.00600*	*<0.00600*
A33NW	L1288377-04	11/19/2020	**20201119-A33NW-E@11**	**6.99**	*<0.100*	**6.99**	*<0.000500*	*<0.00500*	*<0.000500*	*<0.00150*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.00600*	*<0.00600*
A33NW	L1288377-05	11/19/2020	**20201119-A33NW-S@14**	**43.830**	**0.130**	**43.7**	**0.000788**	*<0.00500*	**0.0007**	**0.00265**	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.00600*	*<0.00600*
A33NW	2012254-01	12/17/2020	**20201217-A33NW-SS-Base@28**	**1475**	**75**	**1400**	*<0.0020*	**0.010**	**0.087**	**4.3**	*<0.00500*	*<0.00500*	NA	*<0.00500*	*<0.00500*	*<0.00500*	*<0.00500*	NA	**0.00781**	*<0.00500*	*<0.00500*	**0.0688**	*<0.00500*	NA	NA	NA	*<0.00500*	NA	**0.00559**
A33NW	L1281435-01	11/3/2020	**20201103-A33NW-SS-STOCK**	**1643**	**493**	**1150**	*<0.00800*	**0.496**	**0.312**	**25**	**0.0621**	**0.035**	*<0.00600*	*<0.00600*	**0.0119**	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	**0.00883**	**0.138**	*<0.00600*	**0.902**	**1.69**	*<0.0200*	**0.226**	**0.186**	**0.0142**
A33NW	L1288377-06	11/19/2020	**20201119-A33NW-I STOCK COMP**	**641**	**137**	**504**	*<0.0125*	*<0.125*	**0.893**	**3.62**	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	**0.102**	*<0.00600*	**0.209**	**0.266**	*<0.0200*	**0.0248**	**0.0846**	**0.00824**
A33NW	L1288377-07	11/19/2020	**20201119-A33NW-C STOCK COMP**	**21.274**	**0.274**	**21**	**0.000718**	*<0.00500*	*<0.000500*	**0.00658**	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.00600*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.0200*	*<0.00600*	*<0.00600*
A33NW	2012091-01	12/8/2020	**20201208-A33NW-SS-IStock1**	**768.1**	**8.1**	**760**	*<0.0020*	*<0.0050*	*<0.0050*	**0.099**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
A33NW	2012091-02	12/8/2020	**20201208-A33NW-SS-IStock2**	**605**	**15**	**590**	*<0.0020*	*<0.0050*	*<0.0050*	**0.44**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
A33NW	2012254-02	12/17/2020	**20201217-A33NW-SS-IStock**	**655**	**35**	**620**	*<0.0020*	*<0.0050*	*<0.0050*	**0.42**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

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

Laboratory Results Summary Table - Soil

				Inorganic Constituents			Metals (mg/kg [ppm])											
			COGCC Soil Screening and Remediation Limits				0.39	15000	70	120000	23	NA	3100	400	23	1600	390	390	23000
			COGCC Table 910-1 Allowable Concentration (Soil) -->	4	12	(6-9)													
Location	Lab Sample ID	Sample Date	Sample ID	EC (Specific Conductance) (<4 mmhos/cm or 2x background) (millimhos/centimeter)	SAR (Sodium Adsorption Ratio) (calculation)	pH (pH Units)	Arsenic (mg/kg)	Barium - LDNR True Total Barium (mg/kg)	Cadmium (mg/kg)	Chromium (III) (mg/kg)	Chromium (VI) (mg/kg)	Chromium (Total) (mg/kg)	Copper (mg/kg)	Lead (inorganic) (mg/kg)	Mercury (Total Mercury by EPA 7471)	Nickel (soluble salts) (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
A33NW	L1288377-01	11/19/2020	**20201119-A33NW-W@12**	**0.276**	**2.66**	**9.27**	**14.2**	**274**	*<0.500*	**28.5**	*<2.00*	**28.5**	**20.2**	**8**	*<0.0400*	**32.1**	*<2.00*	*<1.00*	**49.6**
A33NW	L1288377-02	11/19/2020	**20201119-A33NW-BASE@25**	**0.226**	**1.49**	**8.98**	**12.5**	**216**	*<0.500*	**26.1**	*<2.00*	**26.1**	**23**	**10.8**	**0.0552**	**31**	*<2.00*	*<1.00*	**51.3**
A33NW	L1288377-03	11/19/2020	**20201119-A33NW-N@12**	**0.678**	**1.08**	**8.57**	**10.2**	**434**	*<0.500*	**14.1**	*<2.00*	**14.1**	**11**	**4.77**	*<0.0400*	**15.3**	*<2.00*	*<1.00*	**26**
A33NW	L1288377-04	11/19/2020	**20201119-A33NW-E@11**	**0.482**	**1.53**	**8.67**	**12.5**	**680**	*<0.500*	**14.2**	*<2.00*	**14.2**	**8.97**	**4.66**	*<0.0400*	**14.3**	*<2.00*	*<1.00*	**24.7**
A33NW	L1288377-05	11/19/2020	**20201119-A33NW-S@14**	**0.284**	**3.32**	**9.28**	**11.2**	**280**	*<0.500*	**25.8**	*<2.00*	**25.8**	**18.7**	**9.22**	*<0.0400*	**25.7**	*<2.00*	*<1.00*	**44.4**
A33NW	2012254-01	12/17/2020	**20201217-A33NW-SS-Base@28**	**0.721**	**1.00**	**8.89**	**12.4**	**216**	**0.378**	**18.4**	*<0.30*	**18.4**	**18.7**	**10.6**	*<0.0582*	**25.7**	**0.617**	**0.0279**	**53**
A33NW	L1281435-01	11/3/2020	**20201103-A33NW-SS-STOCK**	**0.476**	**3.5**	**8.9**	**9.16**	**330**	*<0.500*	**11**	*<2.00*	**11**	**7.91**	**3.91**	*<0.0400*	**12.9**	*<2.00*	*<1.00*	**19.16**
A33NW	L1288377-06	11/19/2020	**20201119-A33NW-I STOCK COMP**	**0.313**	**2.76**	**9.12**	**19.8**	**243**	*<0.500*	**14.6**	*<2.00*	**14.6**	**17.6**	**8.18**	*<0.0400*	**22.9**	*<2.00*	*<1.00*	**26.2**
A33NW	L1288377-07	11/19/2020	**20201119-A33NW-C STOCK COMP**	**0.36**	**1.73**	**8.74**	**9.85**	**446**	*<0.500*	**12**	*<2.00*	**12**	**15.1**	**37.2**	*<0.0400*	**15.3**	*<2.00*	*<1.00*	**189**
A33NW	2012091-01	12/8/2020	**20201208-A33NW-SS-IStock1**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
A33NW	2012091-02	12/8/2020	**20201208-A33NW-SS-IStock2**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
A33NW	2012254-02	12/17/2020	**20201217-A33NW-SS-IStock**	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 12, 2020

Caerus Oil and Gas

Sample Delivery Group:	L1281435
Samples Received:	11/04/2020
Project Number:	A33 NW
Description:	A33 NW
Site:	A33 NW
Report To:	Chris Hines 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

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

TABLE OF CONTENTS

20201103-A33NW-SS-STOCK L1281435-01 Solid

Collected by: Chris Hines
Collected date/time: 11/03/20 13:30
Received date/time: 11/04/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1571363	1	11/09/20 22:29	11/09/20 22:29	EL	Mt. Juliet, TN
Calculated Results	WG1571906	1	11/06/20 15:52	11/10/20 14:50	KPS	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1572841	1	11/07/20 15:07	11/10/20 14:50	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1574627	1	11/11/20 10:25	11/11/20 13:50	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1572761	1	11/08/20 21:00	11/09/20 02:00	CAT	Mt. Juliet, TN
Mercury by Method 7471A	WG1572109	1	11/06/20 09:01	11/07/20 13:48	SD	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1571906	1	11/06/20 15:52	11/07/20 12:03	EL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG1571902	5	11/06/20 16:05	11/07/20 14:25	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1572444	100	11/06/20 13:53	11/06/20 19:58	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1573526	8	11/06/20 13:53	11/10/20 06:18	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1573123	5	11/08/20 17:59	11/09/20 13:03	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1573128	1	11/11/20 06:35	11/11/20 13:11	LEA	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1573128	10	11/11/20 06:35	11/11/20 17:23	LEA	Mt. Juliet, TN

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.50		1	11/09/2020 22:29	WG1571363

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	11.0		1.00	1	11/10/2020 14:50	WG1571906

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	ND	J6 O1	2.00	1	11/10/2020 14:50	WG1572841

Sample Narrative:
L1281435-01 WG1572841: sample is a reducer

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.90	T8	1	11/11/2020 13:50	WG1574627

Sample Narrative:
L1281435-01 WG1574627: 8.9 at 21.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	476		10.0	1	11/09/2020 02:00	WG1572761

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	11/07/2020 13:48	WG1572109

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Barium	330	J6 O1	0.500	1	11/07/2020 12:03	WG1571906
Cadmium	ND		0.500	1	11/07/2020 12:03	WG1571906
Chromium	11.0	O1	1.00	1	11/07/2020 12:03	WG1571906
Copper	7.91		2.00	1	11/07/2020 12:03	WG1571906
Lead	3.91		0.500	1	11/07/2020 12:03	WG1571906
Nickel	12.9	O1	2.00	1	11/07/2020 12:03	WG1571906
Selenium	ND		2.00	1	11/07/2020 12:03	WG1571906
Silver	ND		1.00	1	11/07/2020 12:03	WG1571906
Zinc	19.9		5.00	1	11/07/2020 12:03	WG1571906

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.16		1.00	5	11/07/2020 14:25	WG1571902

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	493		10.0	100	11/06/2020 19:58	WG1572444
(S) a,a,a-Trifluorotoluene(FID)	*108*		*77.0-120*		*11/06/2020 19:58*	WG1572444

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00800	8	11/10/2020 06:18	WG1573526
Toluene	0.496		0.0400	8	11/10/2020 06:18	WG1573526
Ethylbenzene	0.312		0.0200	8	11/10/2020 06:18	WG1573526
Total Xylenes	25.0		0.0520	8	11/10/2020 06:18	WG1573526
(S) Toluene-d8	*100*		*75.0-131*		*11/10/2020 06:18*	WG1573526
(S) 4-Bromofluorobenzene	*111*		*67.0-138*		*11/10/2020 06:18*	WG1573526
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*11/10/2020 06:18*	WG1573526

Sample Narrative:

L1281435-01 WG1573526: Non-target compounds too high to run at a lower dilution.

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	1150		20.0	5	11/09/2020 13:03	WG1573123
(S) o-Terphenyl	*179*	J1	*18.0-148*		*11/09/2020 13:03*	WG1573123

Sample Narrative:

L1281435-01 WG1573123: Surrogate failure due to matrix interference

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Anthracene	0.0621		0.00600	1	11/11/2020 13:11	WG1573128
Acenaphthene	0.0350		0.00600	1	11/11/2020 13:11	WG1573128
Acenaphthylene	ND		0.00600	1	11/11/2020 13:11	WG1573128
Benzo(a)anthracene	ND		0.00600	1	11/11/2020 13:11	WG1573128
Benzo(a)pyrene	ND		0.00600	1	11/11/2020 13:11	WG1573128
Benzo(b)fluoranthene	0.0119		0.00600	1	11/11/2020 13:11	WG1573128
Benzo(g,h,i)perylene	ND		0.00600	1	11/11/2020 13:11	WG1573128
Benzo(k)fluoranthene	ND		0.00600	1	11/11/2020 13:11	WG1573128
Chrysene	ND		0.00600	1	11/11/2020 13:11	WG1573128
Dibenz(a,h)anthracene	ND		0.00600	1	11/11/2020 13:11	WG1573128
Fluoranthene	0.00883		0.00600	1	11/11/2020 13:11	WG1573128
Fluorene	0.138		0.00600	1	11/11/2020 13:11	WG1573128
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/11/2020 13:11	WG1573128
Naphthalene	0.226		0.200	10	11/11/2020 17:23	WG1573128
Phenanthrene	0.186		0.00600	1	11/11/2020 13:11	WG1573128
Pyrene	0.0142		0.00600	1	11/11/2020 13:11	WG1573128
1-Methylnaphthalene	0.902		0.200	10	11/11/2020 17:23	WG1573128
2-Methylnaphthalene	1.69		0.200	10	11/11/2020 17:23	WG1573128
2-Chloronaphthalene	ND		0.0200	1	11/11/2020 13:11	WG1573128
(S) p-Terphenyl-d14	*71.8*		*23.0-120*		*11/11/2020 17:23*	WG1573128
(S) p-Terphenyl-d14	*69.7*		*23.0-120*		*11/11/2020 13:11*	WG1573128
(S) Nitrobenzene-d5	*287*	J1	*14.0-149*		*11/11/2020 13:11*	WG1573128
(S) Nitrobenzene-d5	*165*	J1	*14.0-149*		*11/11/2020 17:23*	WG1573128
(S) 2-Fluorobiphenyl	*73.2*		*34.0-125*		*11/11/2020 13:11*	WG1573128
(S) 2-Fluorobiphenyl	*89.8*		*34.0-125*		*11/11/2020 17:23*	WG1573128

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	

Sample Narrative:

L1281435-01 WG1573128: Surrogate failure due to matrix interference

Method Blank (MB)

(MB) R3591496-1 11/10/20 14:38

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

L1280984-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1280984-23 11/10/20 14:40 • (DUP) R3591496-3 11/10/20 14:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Chromium,Hexavalent	ND	2.32	1	15.2		20

L1282036-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1282036-02 11/10/20 14:54 • (DUP) R3591496-8 11/10/20 14:54

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

Laboratory Control Sample (LCS)

(LCS) R3591496-2 11/10/20 14:39

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
Chromium,Hexavalent	24.0	26.0	109	80.0-120	

L1281435-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1281435-01 11/10/20 14:50 • (MS) R3591496-4 11/10/20 14:51 • (MSD) R3591496-5 11/10/20 14:52

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	20.0	ND	10.1	10.6	50.6	52.8	1	75.0-125	J6	J6	4.26	20

Sample Narrative:

OS: sample is a reducer

L1281435-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1281435-01 11/10/20 14:50 • (MS) R3591496-6 11/10/20 14:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	662	ND	650	98.1	50	75.0-125	

Sample Narrative:

OS: sample is a reducer

L1281526-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1281526-01 11/11/20 13:50 • (DUP) R3591870-2 11/11/20 13:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	11.6	11.6	1	0.0865		1

Sample Narrative:

OS: 11.56 at 21.6C

DUP: 11.55 at 21.6C

Laboratory Control Sample (LCS)

(LCS) R3591870-1 11/11/20 13:50

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

Sample Narrative:

LCS: 10.05 at 21.2C

Method Blank (MB)

(MB) R3590736-1 11/09/20 02:00

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

L1281433-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1281433-09 11/09/20 02:00 • (DUP) R3590736-3 11/09/20 02:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	38.9	36.3	1	6.91		20

L1281435-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1281435-01 11/09/20 02:00 • (DUP) R3590736-4 11/09/20 02:00

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	476	471	1	1.06		20

Laboratory Control Sample (LCS)

(LCS) R3590736-2 11/09/20 02:00

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	483	479	99.2	85.0-115	

Method Blank (MB)

(MB) R3590516-1 11/07/20 12:41

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) R3590516-2 11/07/20 12:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.522	104	80.0-120	

L1280989-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1280989-01 11/07/20 12:46 • (MS) R3590516-3 11/07/20 12:49 • (MSD) R3590516-4 11/07/20 12:52

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 %
Mercury	0.500	0.137	0.698	0.725	112	118	1	75.0-125			3.87	20

Method Blank (MB)

(MB) R3590663-1 11/07/20 11:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Barium	U		0.0852	0.500
Cadmium	U		0.0471	0.500
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) R3590663-2 11/07/20 12:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	100	102	102	80.0-120	
Cadmium	100	98.4	98.4	80.0-120	
Chromium	100	99.4	99.4	80.0-120	
Copper	100	97.8	97.8	80.0-120	
Lead	100	98.0	98.0	80.0-120	
Nickel	100	100	100	80.0-120	
Selenium	100	98.8	98.8	80.0-120	
Silver	20.0	18.2	91.0	80.0-120	
Zinc	100	96.8	96.8	80.0-120	

L1281435-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1281435-01 11/07/20 12:03 • (MS) R3590663-5 11/07/20 12:12 • (MSD) R3590663-6 11/07/20 12:14

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Barium	100	330	359	406	28.8	76.3	1	75.0-125	J6		12.4	20
Cadmium	100	ND	93.5	90.7	93.3	90.5	1	75.0-125			3.04	20
Chromium	100	11.0	96.5	92.5	85.5	81.5	1	75.0-125			4.23	20
Copper	100	7.91	101	94.6	92.7	86.7	1	75.0-125			6.16	20
Lead	100	3.91	93.9	90.8	90.0	86.9	1	75.0-125			3.34	20
Nickel	100	12.9	113	103	99.9	90.0	1	75.0-125			9.14	20
Selenium	100	ND	94.7	93.4	93.8	92.5	1	75.0-125			1.39	20
Silver	20.0	ND	18.0	17.3	90.0	86.7	1	75.0-125			3.77	20
Zinc	100	19.9	100	96.3	80.1	76.3	1	75.0-125			3.81	20

Method Blank (MB)

(MB) R3590528-1 11/07/20 14:18

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) R3590528-2 11/07/20 14:22

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	93.0	93.0	80.0-120	

L1281435-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1281435-01 11/07/20 14:25 • (MS) R3590528-5 11/07/20 14:35 • (MSD) R3590528-6 11/07/20 14:38

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	20.0	9.16	93.3	94.1	84.1	85.0	5	75.0-125			0.894	20

Method Blank (MB)

(MB) R3591350-1 11/06/20 14:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0617	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*113*			*77.0-120*

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

(LCS) R3591350-2 11/06/20 14:43 • (LCSD) R3591350-3 11/06/20 15:04

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.38	5.13	97.8	93.3	72.0-127			4.76	20
(S) a,a,a-Trifluorotoluene(FID)				*100*	*100*	*77.0-120*				

L1280406-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1280406-01 11/06/20 16:07 • (MS) R3591350-4 11/06/20 20:19 • (MSD) R3591350-5 11/06/20 20:40

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	193	ND	199	178	112	100	32.3	10.0-151			11.1	28
(S) a,a,a-Trifluorotoluene(FID)					*104*	*106*		*77.0-120*				

Method Blank (MB)

(MB) R3591836-3 11/09/20 22:01

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	*102*			*75.0-131*
(S) 4-Bromofluorobenzene	*94.1*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*91.3*			*70.0-130*

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

(LCS) R3591836-1 11/09/20 20:45 • (LCSD) R3591836-2 11/09/20 21:04

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	0.00500	0.00451	0.00430	90.2	86.0	70.0-123			4.77	20
Ethylbenzene	0.00500	0.00503	0.00488	101	97.6	74.0-126			3.03	20
Toluene	0.00500	0.00456	0.00429	91.2	85.8	75.0-121			6.10	20
Xylenes, Total	0.0150	0.0151	0.0142	101	94.7	72.0-127			6.14	20
(S) Toluene-d8				*102*	*102*	*75.0-131*				
(S) 4-Bromofluorobenzene				*106*	*108*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*113*	*113*	*70.0-130*				

L1281108-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1281108-07 11/10/20 05:59 • (MS) R3591836-4 11/10/20 06:37 • (MSD) R3591836-5 11/10/20 06:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.0985	0.105	78.8	84.0	1	10.0-149			6.39	37
Ethylbenzene	0.125	ND	0.115	0.126	92.0	101	1	10.0-160			9.13	38
Toluene	0.125	ND	0.106	0.110	84.8	88.0	1	10.0-156			3.70	38
Xylenes, Total	0.375	ND	0.378	0.388	101	103	1	10.0-160			2.61	38
(S) Toluene-d8					*107*	*105*		*75.0-131*				
(S) 4-Bromofluorobenzene					*105*	*105*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*94.4*	*97.9*		*70.0-130*				

Method Blank (MB)

(MB) R3591150-1 11/09/20 10:29

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	*62.6*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3591150-2 11/09/20 10:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	43.6	87.2	50.0-150	
(S) o-Terphenyl			*85.4*	*18.0-148*	

Method Blank (MB)

(MB) R3591881-2 11/11/20 12:48

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	*145*			*14.0-149*
(S) 2-Fluorobiphenyl	*85.3*			*34.0-125*
(S) p-Terphenyl-d14	*86.0*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3591881-1 11/11/20 12:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0714	89.3	50.0-126	
Acenaphthene	0.0800	0.0729	91.1	50.0-120	
Acenaphthylene	0.0800	0.0767	95.9	50.0-120	
Benzo(a)anthracene	0.0800	0.0685	85.6	45.0-120	
Benzo(a)pyrene	0.0800	0.0670	83.8	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0679	84.9	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0629	78.6	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0706	88.3	49.0-125	
Chrysene	0.0800	0.0681	85.1	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0645	80.6	47.0-125	
Fluoranthene	0.0800	0.0779	97.4	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3591881-1 11/11/20 12:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0749	93.6	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0641	80.1	46.0-125	
Naphthalene	0.0800	0.0734	91.8	50.0-120	
Phenanthrene	0.0800	0.0674	84.3	47.0-120	
Pyrene	0.0800	0.0707	88.4	43.0-123	
1-Methylnaphthalene	0.0800	0.0822	103	51.0-121	
2-Methylnaphthalene	0.0800	0.0788	98.5	50.0-120	
2-Chloronaphthalene	0.0800	0.0690	86.3	50.0-120	
(S) Nitrobenzene-d5			*151*	*14.0-149*	J1
(S) 2-Fluorobiphenyl			*89.6*	*34.0-125*	
(S) p-Terphenyl-d14			*89.0*	*23.0-120*	

L1281776-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1281776-02 11/11/20 14:43 • (MS) R3591881-3 11/11/20 15:06 • (MSD) R3591881-4 11/11/20 15:29

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	0.0798	ND	0.0536	0.0534	67.3	67.4	1	10.0-145			0.374	30
Acenaphthene	0.0798	ND	0.0506	0.0532	63.6	67.2	1	14.0-127			5.01	27
Acenaphthylene	0.0798	ND	0.0547	0.0575	68.7	72.6	1	21.0-124			4.99	25
Benzo(a)anthracene	0.0798	ND	0.0563	0.0555	70.7	70.1	1	10.0-139			1.43	30
Benzo(a)pyrene	0.0798	ND	0.0580	0.0557	72.9	70.3	1	10.0-141			4.05	31
Benzo(b)fluoranthene	0.0798	ND	0.0509	0.0545	63.9	68.8	1	10.0-140			6.83	36
Benzo(g,h,i)perylene	0.0798	ND	0.0595	0.0574	74.7	72.5	1	10.0-140			3.59	33
Benzo(k)fluoranthene	0.0798	ND	0.0589	0.0522	74.0	65.9	1	10.0-137			12.1	31
Chrysene	0.0798	ND	0.0583	0.0555	73.2	70.1	1	10.0-145			4.92	30
Dibenz(a,h)anthracene	0.0798	ND	0.0606	0.0571	76.1	72.1	1	10.0-132			5.95	31
Fluoranthene	0.0798	ND	0.0506	0.0536	63.6	67.7	1	10.0-153			5.76	33
Fluorene	0.0798	ND	0.0513	0.0538	64.4	67.9	1	11.0-130			4.76	29
Indeno(1,2,3-cd)pyrene	0.0798	ND	0.0594	0.0564	74.6	71.2	1	10.0-137			5.18	32
Naphthalene	0.0798	ND	0.0565	0.0579	71.0	73.1	1	10.0-135			2.45	27
Phenanthrene	0.0798	ND	0.0485	0.0498	60.9	62.9	1	10.0-144			2.64	31
Pyrene	0.0798	ND	0.0574	0.0563	72.1	71.1	1	10.0-148			1.93	35
1-Methylnaphthalene	0.0798	ND	0.0586	0.0620	73.6	78.3	1	10.0-142			5.64	28
2-Methylnaphthalene	0.0798	ND	0.0561	0.0593	70.5	74.9	1	10.0-137			5.55	28
2-Chloronaphthalene	0.0798	ND	0.0499	0.0528	62.7	66.7	1	29.0-120			5.65	24
(S) Nitrobenzene-d5					*145*	*142*		*14.0-149*				
(S) 2-Fluorobiphenyl					*82.4*	*80.9*		*34.0-125*				
(S) p-Terphenyl-d14					*89.9*	*84.6*		*23.0-120*				

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
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.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

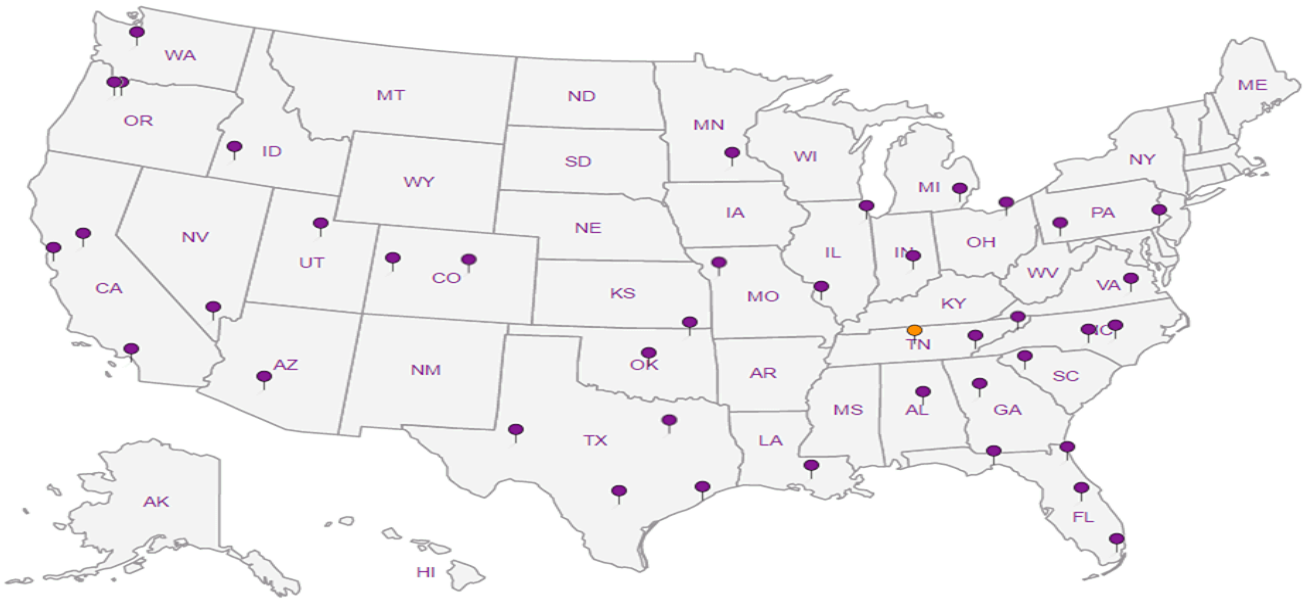
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Caerus Oil and Gas

143 Diamond Avenue
Parachute, CO 81635

Billing Information:
Accounts Payable
1001 17th St., Ste. 1600
Denver, CO 80202

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

Report to: **Chris Hines**

Email To: REMEDIATION@CONFLUENCE-CC.COM
bmiddleton@caerusoilandgas.com;jjanicek@cae

Project Description: ~~A33 MW~~ A33NW

City/State Collected: RIFLE, CO

Please Circle: PT (MT) CT ET

Phone: **970-285-2653**

Client Project #: A33NW

Lab Project #: **CAERUSPCO-CONFLUENCE**

Collected by (print): CHRIS HINES

Site/Facility ID #: A33NW

P.O. #: ——

Collected by (signature): [signature]

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: 11-06-20

Immediately Packed on Ice N___ Y X

SDG # L1281435 F135

Table #

Acctnum: **CAERUSPCO**
Template: **T177342**
Prelogin: **P808413**
PM: **824 - Chris Ward**
PB:
Shipped Via: **FedEX Ground**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TABLE910 8ozClr-NoPres		Remarks	Sample # (lab only)
~~ ~~		~~SS~~				~~2~~	~~X~~			
20201103-A33NW-SS-STOCK	~~COMP~~ COMP	SS	6"	11-03-20	13:30	6	X		RUN	-01
20201103-A33NW-SS-POR@2'	GRAB	SS	2'	11-03-20	10:00	6	X	(HOLD)	HOLD	

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

Remarks: HOLD GRAB. RUSH COMP

pH ______ Temp ______
Flow ______ Other ______

Samples returned via:
__ UPS __ FedEx __ Courier ________

Tracking # 1676 2750 5582

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)		
[signature]	11-03-20	15:05	[signature]	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
[signature]	11/3/2020	1700		Temp: .4±0=.4 °C	Bottles Received: 12
			Received for lab by: (Signature) Olivia [signature]	Date: 11/4/20	Time: 900

If preservation required by Login: Date/Time

Hold: 11-0015

Condition: NCF / (OK)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 02, 2020

Caerus Oil and Gas

Sample Delivery Group:	L1288377
Samples Received:	11/20/2020
Project Number:	A33NW
Description:	A33NW Remediation
Site:	A33NW
Report To:	Chris Hines 143 Diamond Avenue Parachute, CO 81635

Entire Report Reviewed By: Chris Ward

Chris Ward
Project Manager

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

TABLE OF CONTENTS

20201119-A33NW-W @12 L1288377-01 Solid

Collected by: Chris Hines | Collected date/time: 11/19/20 10:05 | Received date/time: 11/20/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1583423	1	11/30/20 15:49	11/30/20 15:49	EL	Mt. Juliet, TN
Calculated Results	WG1583319	1	11/29/20 12:57	11/30/20 23:10	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1583386	1	11/29/20 12:38	11/30/20 12:16	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1583551	1	11/28/20 18:34	11/28/20 20:02	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1584289	1	11/30/20 15:27	12/01/20 14:00	JRB	Mt. Juliet, TN
Mercury by Method 7471A	WG1583326	1	11/27/20 16:28	11/30/20 10:56	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1583319	1	11/29/20 12:57	11/30/20 23:10	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1583075	1	11/24/20 22:27	11/28/20 22:56	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1583345	1	11/29/20 16:56	11/30/20 07:31	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1582940	1	11/27/20 03:38	11/27/20 14:21	AAT	Mt. Juliet, TN

20201119-A33NW-BASE @2.5 L1288377-02 Solid

Collected by: Chris Hines | Collected date/time: 11/19/20 08:35 | Received date/time: 11/20/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1583423	1	11/30/20 15:52	11/30/20 15:52	EL	Mt. Juliet, TN
Calculated Results	WG1583319	1	11/29/20 12:57	11/30/20 23:12	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1583386	1	11/29/20 12:38	11/30/20 12:17	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1583551	1	11/28/20 18:34	11/28/20 20:02	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1584289	1	11/30/20 15:27	12/01/20 14:00	JRB	Mt. Juliet, TN
Mercury by Method 7471A	WG1583326	1	11/27/20 16:28	11/30/20 10:58	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1583319	1	11/29/20 12:57	11/30/20 23:12	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1583075	100	11/24/20 22:27	11/29/20 02:18	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1583345	5	11/29/20 16:56	11/30/20 13:53	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1582940	1	11/27/20 03:38	11/27/20 14:41	AAT	Mt. Juliet, TN

20201119-A33NW-N @12 L1288377-03 Solid

Collected by: Chris Hines | Collected date/time: 11/19/20 10:10 | Received date/time: 11/20/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1583423	1	11/30/20 15:55	11/30/20 15:55	EL	Mt. Juliet, TN
Calculated Results	WG1583319	1	11/29/20 12:57	11/30/20 23:21	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1583386	1	11/29/20 12:38	11/30/20 12:17	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1583551	1	11/28/20 18:34	11/28/20 20:02	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1584289	1	11/30/20 15:27	12/01/20 14:00	JRB	Mt. Juliet, TN
Mercury by Method 7471A	WG1583326	1	11/27/20 16:28	11/30/20 11:06	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1583319	1	11/29/20 12:57	11/30/20 23:21	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1583075	1	11/24/20 22:27	11/28/20 23:18	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1583345	1	11/29/20 16:56	11/30/20 09:03	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1582940	1	11/27/20 03:38	11/27/20 16:05	AAT	Mt. Juliet, TN

20201119-A33NW-E @11 L1288377-04 Solid

Collected by: Chris Hines | Collected date/time: 11/19/20 10:20 | Received date/time: 11/20/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1583423	1	11/30/20 15:58	11/30/20 15:58	EL	Mt. Juliet, TN
Calculated Results	WG1583319	1	11/29/20 12:57	11/30/20 23:24	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1583386	1	11/29/20 12:38	11/30/20 12:17	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1583551	1	11/28/20 18:34	11/28/20 20:02	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1584289	1	11/30/20 15:27	12/01/20 14:00	JRB	Mt. Juliet, TN
Mercury by Method 7471A	WG1583326	1	11/27/20 16:28	11/30/20 11:09	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1583319	1	11/29/20 12:57	11/30/20 23:24	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1583075	1	11/24/20 22:27	11/28/20 23:41	DWR	Mt. Juliet, TN

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

20201119-A33NW-E @11 L1288377-04 Solid

Collected by: Chris Hines | Collected date/time: 11/19/20 10:20 | Received date/time: 11/20/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1583345	1	11/29/20 16:56	11/30/20 07:57	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1582940	1	11/27/20 03:38	11/27/20 16:26	AAT	Mt. Juliet, TN

20201119-A33NW-S @14 L1288377-05 Solid

Collected by: Chris Hines | Collected date/time: 11/19/20 12:40 | Received date/time: 11/20/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1583423	1	11/30/20 16:01	11/30/20 16:01	EL	Mt. Juliet, TN
Calculated Results	WG1583319	1	11/29/20 12:57	11/30/20 23:27	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1583386	1	11/29/20 12:38	11/30/20 12:17	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1583551	1	11/28/20 18:34	11/28/20 20:02	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1584289	1	11/30/20 15:27	12/01/20 14:00	JRB	Mt. Juliet, TN
Mercury by Method 7471A	WG1583326	1	11/27/20 16:28	11/30/20 11:11	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1583319	1	11/29/20 12:57	11/30/20 23:27	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1583075	1	11/24/20 22:27	11/29/20 00:03	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1583345	1	11/29/20 16:56	11/30/20 08:10	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1582940	1	11/27/20 03:38	11/27/20 16:47	AAT	Mt. Juliet, TN

20201119-A33NW-I STOCK COMP L1288377-06 Solid

Collected by: Chris Hines | Collected date/time: 11/19/20 11:20 | Received date/time: 11/20/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1583423	1	11/30/20 16:04	11/30/20 16:04	EL	Mt. Juliet, TN
Calculated Results	WG1583319	1	11/29/20 12:57	11/30/20 23:30	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1583386	1	11/29/20 12:38	11/30/20 12:17	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1583551	1	11/28/20 18:34	11/28/20 20:02	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1584289	1	11/30/20 15:27	12/01/20 14:00	JRB	Mt. Juliet, TN
Mercury by Method 7471A	WG1583326	1	11/27/20 16:28	11/30/20 11:14	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1583319	1	11/29/20 12:57	11/30/20 23:30	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1583784	25	11/24/20 22:27	11/30/20 16:05	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1583345	2	11/29/20 16:56	11/30/20 14:19	CAG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1582940	1	11/27/20 03:38	11/27/20 17:08	AAT	Mt. Juliet, TN

20201119-A33NW-C STOCK COMP L1288377-07 Solid

Collected by: Chris Hines | Collected date/time: 11/19/20 11:40 | Received date/time: 11/20/20 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1583423	1	11/30/20 16:07	11/30/20 16:07	EL	Mt. Juliet, TN
Calculated Results	WG1583319	1	11/29/20 12:57	11/30/20 22:53	CCE	Mt. Juliet, TN
Wet Chemistry by Method 3060A/7196A	WG1583386	1	11/29/20 12:38	11/30/20 12:18	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG1583551	1	11/28/20 18:34	11/28/20 20:02	KPS	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG1584289	1	11/30/20 15:27	12/01/20 14:00	JRB	Mt. Juliet, TN
Mercury by Method 7471A	WG1582992	1	11/27/20 16:22	12/01/20 15:53	ABL	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1583319	1	11/29/20 12:57	11/30/20 22:53	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015/8021	WG1583075	1	11/24/20 22:27	11/29/20 00:25	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1583345	1	11/29/20 16:56	11/30/20 09:30	JN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1582940	1	11/27/20 03:38	11/27/20 17:29	AAT	Mt. Juliet, TN

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

Chris Ward
Project Manager

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.66		1	11/30/2020 15:49	WG1583423

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	28.5		1.00	1	11/30/2020 23:10	WG1583319

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	11/30/2020 12:16	WG1583386

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.27	T8	1	11/28/2020 20:02	WG1583551

Sample Narrative:

L1288377-01 WG1583551: 9.27 at 22.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	276		10.0	1	12/01/2020 14:00	WG1584289

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	11/30/2020 10:56	WG1583326

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	14.2		2.00	1	11/30/2020 23:10	WG1583319
Barium	274		0.500	1	11/30/2020 23:10	WG1583319
Cadmium	ND		0.500	1	11/30/2020 23:10	WG1583319
Chromium	28.5		1.00	1	11/30/2020 23:10	WG1583319
Copper	20.2		2.00	1	11/30/2020 23:10	WG1583319
Lead	8.00		0.500	1	11/30/2020 23:10	WG1583319
Nickel	32.1		2.00	1	11/30/2020 23:10	WG1583319
Selenium	ND		2.00	1	11/30/2020 23:10	WG1583319
Silver	ND		1.00	1	11/30/2020 23:10	WG1583319
Zinc	49.6		5.00	1	11/30/2020 23:10	WG1583319

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000969		0.000500	1	11/28/2020 22:56	WG1583075
Toluene	ND		0.00500	1	11/28/2020 22:56	WG1583075
Ethylbenzene	0.000675		0.000500	1	11/28/2020 22:56	WG1583075
Total Xylene	0.00186		0.00150	1	11/28/2020 22:56	WG1583075
TPH (GC/FID) Low Fraction	ND		0.100	1	11/28/2020 22:56	WG1583075

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*95.6*		*77.0-120*		*11/28/2020 22:56*	WG1583075
(S) a,a,a-Trifluorotoluene(PID)	*98.4*		*72.0-128*		*11/28/2020 22:56*	WG1583075

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	11/30/2020 07:31	WG1583345
(S) o-Terphenyl	*55.8*		*18.0-148*		*11/30/2020 07:31*	WG1583345

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	11/27/2020 14:21	WG1582940
Acenaphthene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Acenaphthylene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Benzo(a)anthracene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Benzo(a)pyrene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Benzo(b)fluoranthene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Benzo(g,h,i)perylene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Benzo(k)fluoranthene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Chrysene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Dibenz(a,h)anthracene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Fluoranthene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Fluorene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Naphthalene	ND		0.0200	1	11/27/2020 14:21	WG1582940
Phenanthrene	ND		0.00600	1	11/27/2020 14:21	WG1582940
Pyrene	ND		0.00600	1	11/27/2020 14:21	WG1582940
1-Methylnaphthalene	ND		0.0200	1	11/27/2020 14:21	WG1582940
2-Methylnaphthalene	ND		0.0200	1	11/27/2020 14:21	WG1582940
2-Chloronaphthalene	ND		0.0200	1	11/27/2020 14:21	WG1582940
(S) p-Terphenyl-d14	*72.7*		*23.0-120*		*11/27/2020 14:21*	WG1582940
(S) Nitrobenzene-d5	*65.9*		*14.0-149*		*11/27/2020 14:21*	WG1582940
(S) 2-Fluorobiphenyl	*69.2*		*34.0-125*		*11/27/2020 14:21*	WG1582940

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.49		1	11/30/2020 15:52	WG1583423

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	26.1		1.00	1	11/30/2020 23:12	WG1583319

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	11/30/2020 12:17	WG1583386

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.98	T8	1	11/28/2020 20:02	WG1583551

Sample Narrative:

L1288377-02 WG1583551: 8.98 at 22.4C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	226		10.0	1	12/01/2020 14:00	WG1584289

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	0.0552		0.0400	1	11/30/2020 10:58	WG1583326

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	12.5		2.00	1	11/30/2020 23:12	WG1583319
Barium	216		0.500	1	11/30/2020 23:12	WG1583319
Cadmium	ND		0.500	1	11/30/2020 23:12	WG1583319
Chromium	26.1		1.00	1	11/30/2020 23:12	WG1583319
Copper	23.0		2.00	1	11/30/2020 23:12	WG1583319
Lead	10.8		0.500	1	11/30/2020 23:12	WG1583319
Nickel	31.0		2.00	1	11/30/2020 23:12	WG1583319
Selenium	ND		2.00	1	11/30/2020 23:12	WG1583319
Silver	ND		1.00	1	11/30/2020 23:12	WG1583319
Zinc	51.3		5.00	1	11/30/2020 23:12	WG1583319

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	100	11/29/2020 02:18	WG1583075
Toluene	ND		0.500	100	11/29/2020 02:18	WG1583075
Ethylbenzene	0.761		0.0500	100	11/29/2020 02:18	WG1583075
Total Xylene	37.7		0.150	100	11/29/2020 02:18	WG1583075
TPH (GC/FID) Low Fraction	1030		10.0	100	11/29/2020 02:18	WG1583075

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*101*		*77.0-120*		*11/29/2020 02:18*	WG1583075
(S) a,a,a-Trifluorotoluene(PID)	*102*		*72.0-128*		*11/29/2020 02:18*	WG1583075

Sample Narrative:

L1288377-02 WG1583075: Non-target compounds too high to run at a lower dilution.

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	1200		20.0	5	11/30/2020 13:53	WG1583345
(S) o-Terphenyl	*81.9*		*18.0-148*		*11/30/2020 13:53*	WG1583345

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	11/27/2020 14:41	WG1582940
Acenaphthene	ND		0.00600	1	11/27/2020 14:41	WG1582940
Acenaphthylene	ND		0.00600	1	11/27/2020 14:41	WG1582940
Benzo(a)anthracene	0.00875		0.00600	1	11/27/2020 14:41	WG1582940
Benzo(a)pyrene	ND		0.00600	1	11/27/2020 14:41	WG1582940
Benzo(b)fluoranthene	ND		0.00600	1	11/27/2020 14:41	WG1582940
Benzo(g,h,i)perylene	ND		0.00600	1	11/27/2020 14:41	WG1582940
Benzo(k)fluoranthene	ND		0.00600	1	11/27/2020 14:41	WG1582940
Chrysene	0.00663		0.00600	1	11/27/2020 14:41	WG1582940
Dibenz(a,h)anthracene	ND		0.00600	1	11/27/2020 14:41	WG1582940
Fluoranthene	0.00894		0.00600	1	11/27/2020 14:41	WG1582940
Fluorene	0.256		0.00600	1	11/27/2020 14:41	WG1582940
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/27/2020 14:41	WG1582940
Naphthalene	1.02		0.0200	1	11/27/2020 14:41	WG1582940
Phenanthrene	0.212		0.00600	1	11/27/2020 14:41	WG1582940
Pyrene	0.0152		0.00600	1	11/27/2020 14:41	WG1582940
1-Methylnaphthalene	1.24		0.0200	1	11/27/2020 14:41	WG1582940
2-Methylnaphthalene	3.67		0.0200	1	11/27/2020 14:41	WG1582940
2-Chloronaphthalene	ND		0.0200	1	11/27/2020 14:41	WG1582940
(S) p-Terphenyl-d14	*73.8*		*23.0-120*		*11/27/2020 14:41*	WG1582940
(S) Nitrobenzene-d5	*0.000*	J2	*14.0-149*		*11/27/2020 14:41*	WG1582940
(S) 2-Fluorobiphenyl	*85.2*		*34.0-125*		*11/27/2020 14:41*	WG1582940

Sample Narrative:

L1288377-02 WG1582940: Surrogate failure due to matrix interference

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.08		1	11/30/2020 15:55	WG1583423

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	14.1		1.00	1	11/30/2020 23:21	WG1583319

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	11/30/2020 12:17	WG1583386

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.57	T8	1	11/28/2020 20:02	WG1583551

Sample Narrative:

L1288377-03 WG1583551: 8.57 at 22.2C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	678		10.0	1	12/01/2020 14:00	WG1584289

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	11/30/2020 11:06	WG1583326

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	10.2		2.00	1	11/30/2020 23:21	WG1583319
Barium	434		0.500	1	11/30/2020 23:21	WG1583319
Cadmium	ND		0.500	1	11/30/2020 23:21	WG1583319
Chromium	14.1		1.00	1	11/30/2020 23:21	WG1583319
Copper	11.0		2.00	1	11/30/2020 23:21	WG1583319
Lead	4.77		0.500	1	11/30/2020 23:21	WG1583319
Nickel	15.3		2.00	1	11/30/2020 23:21	WG1583319
Selenium	ND		2.00	1	11/30/2020 23:21	WG1583319
Silver	ND		1.00	1	11/30/2020 23:21	WG1583319
Zinc	26.0		5.00	1	11/30/2020 23:21	WG1583319

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000866		0.000500	1	11/28/2020 23:18	WG1583075
Toluene	ND		0.00500	1	11/28/2020 23:18	WG1583075
Ethylbenzene	ND		0.000500	1	11/28/2020 23:18	WG1583075
Total Xylene	ND		0.00150	1	11/28/2020 23:18	WG1583075
TPH (GC/FID) Low Fraction	ND		0.100	1	11/28/2020 23:18	WG1583075

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*96.3*		*77.0-120*		*11/28/2020 23:18*	WG1583075
(S) a,a,a-Trifluorotoluene(PID)	*98.3*		*72.0-128*		*11/28/2020 23:18*	WG1583075

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	11.1		4.00	1	11/30/2020 09:03	WG1583345
(S) o-Terphenyl	*58.6*		*18.0-148*		*11/30/2020 09:03*	WG1583345

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	11/27/2020 16:05	WG1582940
Acenaphthene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Acenaphthylene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Benzo(a)anthracene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Benzo(a)pyrene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Benzo(b)fluoranthene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Benzo(g,h,i)perylene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Benzo(k)fluoranthene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Chrysene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Dibenz(a,h)anthracene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Fluoranthene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Fluorene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Naphthalene	ND		0.0200	1	11/27/2020 16:05	WG1582940
Phenanthrene	ND		0.00600	1	11/27/2020 16:05	WG1582940
Pyrene	ND		0.00600	1	11/27/2020 16:05	WG1582940
1-Methylnaphthalene	ND		0.0200	1	11/27/2020 16:05	WG1582940
2-Methylnaphthalene	ND		0.0200	1	11/27/2020 16:05	WG1582940
2-Chloronaphthalene	ND		0.0200	1	11/27/2020 16:05	WG1582940
(S) p-Terphenyl-d14	*62.9*		*23.0-120*		*11/27/2020 16:05*	WG1582940
(S) Nitrobenzene-d5	*56.5*		*14.0-149*		*11/27/2020 16:05*	WG1582940
(S) 2-Fluorobiphenyl	*57.6*		*34.0-125*		*11/27/2020 16:05*	WG1582940

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.53		1	11/30/2020 15:58	WG1583423

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	14.2		1.00	1	11/30/2020 23:24	WG1583319

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	11/30/2020 12:17	WG1583386

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.67	T8	1	11/28/2020 20:02	WG1583551

Sample Narrative:

L1288377-04 WG1583551: 8.67 at 21.9C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	482		10.0	1	12/01/2020 14:00	WG1584289

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	11/30/2020 11:09	WG1583326

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	12.5		2.00	1	11/30/2020 23:24	WG1583319
Barium	680		0.500	1	11/30/2020 23:24	WG1583319
Cadmium	ND		0.500	1	11/30/2020 23:24	WG1583319
Chromium	14.2		1.00	1	11/30/2020 23:24	WG1583319
Copper	8.97		2.00	1	11/30/2020 23:24	WG1583319
Lead	4.66		0.500	1	11/30/2020 23:24	WG1583319
Nickel	14.3		2.00	1	11/30/2020 23:24	WG1583319
Selenium	ND		2.00	1	11/30/2020 23:24	WG1583319
Silver	ND		1.00	1	11/30/2020 23:24	WG1583319
Zinc	24.7		5.00	1	11/30/2020 23:24	WG1583319

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.000500	1	11/28/2020 23:41	WG1583075
Toluene	ND		0.00500	1	11/28/2020 23:41	WG1583075
Ethylbenzene	ND		0.000500	1	11/28/2020 23:41	WG1583075
Total Xylene	ND		0.00150	1	11/28/2020 23:41	WG1583075
TPH (GC/FID) Low Fraction	ND		0.100	1	11/28/2020 23:41	WG1583075

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*97.8*		*77.0-120*		*11/28/2020 23:41*	WG1583075
(S) a,a,a-Trifluorotoluene(PID)	*99.8*		*72.0-128*		*11/28/2020 23:41*	WG1583075

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	6.99		4.00	1	11/30/2020 07:57	WG1583345
(S) o-Terphenyl	*67.8*		*18.0-148*		*11/30/2020 07:57*	WG1583345

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	11/27/2020 16:26	WG1582940
Acenaphthene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Acenaphthylene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Benzo(a)anthracene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Benzo(a)pyrene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Benzo(b)fluoranthene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Benzo(g,h,i)perylene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Benzo(k)fluoranthene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Chrysene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Dibenz(a,h)anthracene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Fluoranthene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Fluorene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Naphthalene	ND		0.0200	1	11/27/2020 16:26	WG1582940
Phenanthrene	ND		0.00600	1	11/27/2020 16:26	WG1582940
Pyrene	ND		0.00600	1	11/27/2020 16:26	WG1582940
1-Methylnaphthalene	ND		0.0200	1	11/27/2020 16:26	WG1582940
2-Methylnaphthalene	ND		0.0200	1	11/27/2020 16:26	WG1582940
2-Chloronaphthalene	ND		0.0200	1	11/27/2020 16:26	WG1582940
(S) p-Terphenyl-d14	*65.3*		*23.0-120*		*11/27/2020 16:26*	WG1582940
(S) Nitrobenzene-d5	*60.7*		*14.0-149*		*11/27/2020 16:26*	WG1582940
(S) 2-Fluorobiphenyl	*60.5*		*34.0-125*		*11/27/2020 16:26*	WG1582940

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	3.32		1	11/30/2020 16:01	WG1583423

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	25.8		1.00	1	11/30/2020 23:27	WG1583319

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	11/30/2020 12:17	WG1583386

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.28	T8	1	11/28/2020 20:02	WG1583551

Sample Narrative:

L1288377-05 WG1583551: 9.28 at 21.8C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	284		10.0	1	12/01/2020 14:00	WG1584289

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	11/30/2020 11:11	WG1583326

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	11.2		2.00	1	11/30/2020 23:27	WG1583319
Barium	280		0.500	1	11/30/2020 23:27	WG1583319
Cadmium	ND		0.500	1	11/30/2020 23:27	WG1583319
Chromium	25.8		1.00	1	11/30/2020 23:27	WG1583319
Copper	18.7		2.00	1	11/30/2020 23:27	WG1583319
Lead	9.22		0.500	1	11/30/2020 23:27	WG1583319
Nickel	25.7		2.00	1	11/30/2020 23:27	WG1583319
Selenium	ND		2.00	1	11/30/2020 23:27	WG1583319
Silver	ND		1.00	1	11/30/2020 23:27	WG1583319
Zinc	44.4		5.00	1	11/30/2020 23:27	WG1583319

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000788		0.000500	1	11/29/2020 00:03	WG1583075
Toluene	ND		0.00500	1	11/29/2020 00:03	WG1583075
Ethylbenzene	0.000700		0.000500	1	11/29/2020 00:03	WG1583075
Total Xylene	0.00265		0.00150	1	11/29/2020 00:03	WG1583075
TPH (GC/FID) Low Fraction	0.130		0.100	1	11/29/2020 00:03	WG1583075

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*97.9*		*77.0-120*		*11/29/2020 00:03*	WG1583075
(S) a,a,a-Trifluorotoluene(PID)	*100*		*72.0-128*		*11/29/2020 00:03*	WG1583075

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	43.7		4.00	1	11/30/2020 08:10	WG1583345
(S) o-Terphenyl	*49.8*		*18.0-148*		*11/30/2020 08:10*	WG1583345

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	11/27/2020 16:47	WG1582940
Acenaphthene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Acenaphthylene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Benzo(a)anthracene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Benzo(a)pyrene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Benzo(b)fluoranthene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Benzo(g,h,i)perylene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Benzo(k)fluoranthene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Chrysene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Dibenz(a,h)anthracene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Fluoranthene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Fluorene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Naphthalene	ND		0.0200	1	11/27/2020 16:47	WG1582940
Phenanthrene	ND		0.00600	1	11/27/2020 16:47	WG1582940
Pyrene	ND		0.00600	1	11/27/2020 16:47	WG1582940
1-Methylnaphthalene	ND		0.0200	1	11/27/2020 16:47	WG1582940
2-Methylnaphthalene	ND		0.0200	1	11/27/2020 16:47	WG1582940
2-Chloronaphthalene	ND		0.0200	1	11/27/2020 16:47	WG1582940
(S) p-Terphenyl-d14	*70.3*		*23.0-120*		*11/27/2020 16:47*	WG1582940
(S) Nitrobenzene-d5	*55.8*		*14.0-149*		*11/27/2020 16:47*	WG1582940
(S) 2-Fluorobiphenyl	*66.9*		*34.0-125*		*11/27/2020 16:47*	WG1582940

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.76		1	11/30/2020 16:04	WG1583423

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	14.6		1.00	1	11/30/2020 23:30	WG1583319

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	11/30/2020 12:17	WG1583386

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	9.12	T8	1	11/28/2020 20:02	WG1583551

Sample Narrative:

L1288377-06 WG1583551: 9.12 at 21.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	313		10.0	1	12/01/2020 14:00	WG1584289

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	11/30/2020 11:14	WG1583326

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	19.8		2.00	1	11/30/2020 23:30	WG1583319
Barium	243		0.500	1	11/30/2020 23:30	WG1583319
Cadmium	ND		0.500	1	11/30/2020 23:30	WG1583319
Chromium	14.6		1.00	1	11/30/2020 23:30	WG1583319
Copper	17.6		2.00	1	11/30/2020 23:30	WG1583319
Lead	8.18		0.500	1	11/30/2020 23:30	WG1583319
Nickel	22.9		2.00	1	11/30/2020 23:30	WG1583319
Selenium	ND		2.00	1	11/30/2020 23:30	WG1583319
Silver	ND		1.00	1	11/30/2020 23:30	WG1583319
Zinc	26.2		5.00	1	11/30/2020 23:30	WG1583319

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.0125	25	11/30/2020 16:05	WG1583784
Toluene	ND		0.125	25	11/30/2020 16:05	WG1583784
Ethylbenzene	0.893		0.0125	25	11/30/2020 16:05	WG1583784
Total Xylene	3.62		0.0375	25	11/30/2020 16:05	WG1583784
TPH (GC/FID) Low Fraction	137		2.50	25	11/30/2020 16:05	WG1583784

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*111*		*77.0-120*		*11/30/2020 16:05*	WG1583784
(S) a,a,a-Trifluorotoluene(PID)	*101*		*72.0-128*		*11/30/2020 16:05*	WG1583784

Sample Narrative:

L1288377-06 WG1583784: Non-target compounds too high to run at a lower dilution.

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	504		8.00	2	11/30/2020 14:19	WG1583345
(S) o-Terphenyl	*57.1*		*18.0-148*		*11/30/2020 14:19*	WG1583345

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	11/27/2020 17:08	WG1582940
Acenaphthene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Acenaphthylene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Benzo(a)anthracene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Benzo(a)pyrene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Benzo(b)fluoranthene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Benzo(g,h,i)perylene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Benzo(k)fluoranthene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Chrysene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Dibenz(a,h)anthracene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Fluoranthene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Fluorene	0.102		0.00600	1	11/27/2020 17:08	WG1582940
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/27/2020 17:08	WG1582940
Naphthalene	0.0248		0.0200	1	11/27/2020 17:08	WG1582940
Phenanthrene	0.0846		0.00600	1	11/27/2020 17:08	WG1582940
Pyrene	0.00824		0.00600	1	11/27/2020 17:08	WG1582940
1-Methylnaphthalene	0.209		0.0200	1	11/27/2020 17:08	WG1582940
2-Methylnaphthalene	0.266		0.0200	1	11/27/2020 17:08	WG1582940
2-Chloronaphthalene	ND		0.0200	1	11/27/2020 17:08	WG1582940
(S) p-Terphenyl-d14	*66.2*		*23.0-120*		*11/27/2020 17:08*	WG1582940
(S) Nitrobenzene-d5	*116*		*14.0-149*		*11/27/2020 17:08*	WG1582940
(S) 2-Fluorobiphenyl	*75.1*		*34.0-125*		*11/27/2020 17:08*	WG1582940

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.73		1	11/30/2020 16:07	WG1583423

Calculated Results

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Trivalent	12.0		1.00	1	11/30/2020 22:53	WG1583319

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	11/30/2020 12:18	WG1583386

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
pH	8.74	T8	1	11/28/2020 20:02	WG1583551

Sample Narrative:
L1288377-07 WG1583551: 8.74 at 21.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	360		10.0	1	12/01/2020 14:00	WG1584289

Mercury by Method 7471A

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Mercury	ND		0.0400	1	12/01/2020 15:53	WG1582992

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.85		2.00	1	11/30/2020 22:53	WG1583319
Barium	446	O1 V	0.500	1	11/30/2020 22:53	WG1583319
Cadmium	ND		0.500	1	11/30/2020 22:53	WG1583319
Chromium	12.0	O1	1.00	1	11/30/2020 22:53	WG1583319
Copper	15.1		2.00	1	11/30/2020 22:53	WG1583319
Lead	37.2		0.500	1	11/30/2020 22:53	WG1583319
Nickel	15.3	O1	2.00	1	11/30/2020 22:53	WG1583319
Selenium	ND		2.00	1	11/30/2020 22:53	WG1583319
Silver	ND		1.00	1	11/30/2020 22:53	WG1583319
Zinc	189	J6 O1	5.00	1	11/30/2020 22:53	WG1583319

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	0.000718		0.000500	1	11/29/2020 00:25	WG1583075
Toluene	ND		0.00500	1	11/29/2020 00:25	WG1583075
Ethylbenzene	ND		0.000500	1	11/29/2020 00:25	WG1583075
Total Xylene	0.00658		0.00150	1	11/29/2020 00:25	WG1583075
TPH (GC/FID) Low Fraction	0.274		0.100	1	11/29/2020 00:25	WG1583075

Volatile Organic Compounds (GC) by Method 8015/8021

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
(S) a,a,a-Trifluorotoluene(FID)	*97.6*		*77.0-120*		*11/29/2020 00:25*	WG1583075
(S) a,a,a-Trifluorotoluene(PID)	*99.8*		*72.0-128*		*11/29/2020 00:25*	WG1583075

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	21.0		4.00	1	11/30/2020 09:30	WG1583345
(S) o-Terphenyl	*53.9*		*18.0-148*		*11/30/2020 09:30*	WG1583345

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	11/27/2020 17:29	WG1582940
Acenaphthene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Acenaphthylene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Benzo(a)anthracene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Benzo(a)pyrene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Benzo(b)fluoranthene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Benzo(g,h,i)perylene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Benzo(k)fluoranthene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Chrysene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Dibenz(a,h)anthracene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Fluoranthene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Fluorene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Naphthalene	ND		0.0200	1	11/27/2020 17:29	WG1582940
Phenanthrene	ND		0.00600	1	11/27/2020 17:29	WG1582940
Pyrene	ND		0.00600	1	11/27/2020 17:29	WG1582940
1-Methylnaphthalene	ND		0.0200	1	11/27/2020 17:29	WG1582940
2-Methylnaphthalene	ND		0.0200	1	11/27/2020 17:29	WG1582940
2-Chloronaphthalene	ND		0.0200	1	11/27/2020 17:29	WG1582940
(S) p-Terphenyl-d14	*54.5*		*23.0-120*		*11/27/2020 17:29*	WG1582940
(S) Nitrobenzene-d5	*56.6*		*14.0-149*		*11/27/2020 17:29*	WG1582940
(S) 2-Fluorobiphenyl	*55.6*		*34.0-125*		*11/27/2020 17:29*	WG1582940

Method Blank (MB)

(MB) R3598475-1 11/30/20 12:16

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

L1288377-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1288377-01 11/30/20 12:16 • (DUP) R3598475-3 11/30/20 12:16

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

L1288875-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1288875-01 11/30/20 12:20 • (DUP) R3598475-4 11/30/20 12:20

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) R3598475-2 11/30/20 12:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	22.6	94.0	80.0-120	

L1290336-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1290336-01 11/30/20 12:23 • (MS) R3598475-5 11/30/20 12:23 • (MSD) R3598475-6 11/30/20 12:23

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	ND	ND	0.000	0.000	1	75.0-125	J6	J6	0.000	20

L1288377-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1288377-01 11/28/20 20:02 • (DUP) R3598122-2 11/28/20 20:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	9.27	9.25	1	0.216		1

Sample Narrative:

OS: 9.27 at 22.7C

DUP: 9.25 at 22.8C

L1288553-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1288553-02 11/28/20 20:02 • (DUP) R3598122-3 11/28/20 20:02

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.12	7.09	1	0.422		1

Sample Narrative:

OS: 7.12 at 22.7C

DUP: 7.09 at 22.6C

Laboratory Control Sample (LCS)

(LCS) R3598122-1 11/28/20 20:02

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

Sample Narrative:

LCS: 9.99 at 19.5C

Method Blank (MB)

(MB) R3599054-1 12/01/20 14:00

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

L1288377-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1288377-02 12/01/20 14:00 • (DUP) R3599054-3 12/01/20 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	226	225	1	0.443		20

L1288879-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1288879-03 12/01/20 14:00 • (DUP) R3599054-4 12/01/20 14:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	umhos/cm	umhos/cm		%		%
Specific Conductance	289	290	1	0.104		20

Laboratory Control Sample (LCS)

(LCS) R3599054-2 12/01/20 14:00

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	umhos/cm	umhos/cm	%	%	
Specific Conductance	483	481	99.6	85.0-115	

Method Blank (MB)

(MB) R3599142-1 12/01/20 14:56

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) R3599142-2 12/01/20 14:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.466	93.2	80.0-120	

L1288042-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1288042-01 12/01/20 15:01 • (MS) R3599142-3 12/01/20 15:03 • (MSD) R3599142-4 12/01/20 15:06

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	ND	0.482	0.529	88.6	97.9	1	75.0-125			9.22	20

Method Blank (MB)

(MB) R3598467-1 11/30/20 10:43

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) R3598467-2 11/30/20 10:46

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.408	81.7	80.0-120	

L1289796-17 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1289796-17 11/30/20 10:48 • (MS) R3598467-3 11/30/20 10:51 • (MSD) R3598467-4 11/30/20 10:53

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	ND	0.425	0.434	85.0	86.9	1	75.0-125			2.21	20

Method Blank (MB)

(MB) R3598814-7 12/01/20 03:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	0.519	J	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) R3598814-2 11/30/20 22:50

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	96.9	96.9	80.0-120	
Barium	100	109	109	80.0-120	
Cadmium	100	104	104	80.0-120	
Chromium	100	105	105	80.0-120	
Copper	100	109	109	80.0-120	
Lead	100	105	105	80.0-120	
Nickel	100	106	106	80.0-120	
Selenium	100	106	106	80.0-120	
Silver	20.0	19.3	96.3	80.0-120	
Zinc	100	103	103	80.0-120	

L1288377-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1288377-07 11/30/20 22:53 • (MS) R3598814-5 11/30/20 23:01 • (MSD) R3598814-6 11/30/20 23:04

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	9.85	117	113	107	104	1	75.0-125			2.77	20
Barium	100	446	462	481	15.8	35.3	1	75.0-125	V	V	4.12	20
Cadmium	100	ND	112	111	112	111	1	75.0-125			0.703	20
Chromium	100	12.0	114	113	102	101	1	75.0-125			0.541	20
Copper	100	15.1	123	123	108	108	1	75.0-125			0.291	20
Lead	100	37.2	115	113	77.7	76.1	1	75.0-125			1.40	20
Nickel	100	15.3	124	124	109	109	1	75.0-125			0.102	20

L1288377-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1288377-07 11/30/20 22:53 • (MS) R3598814-5 11/30/20 23:01 • (MSD) R3598814-6 11/30/20 23:04

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	114	112	114	112	1	75.0-125			1.58	20
Silver	20.0	ND	20.9	20.8	104	104	1	75.0-125			0.549	20
Zinc	100	189	117	118	0.000	0.000	1	75.0-125	J6	J6	0.747	20

Method Blank (MB)

(MB) R3598215-3 11/28/20 18:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	U		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*101*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*103*			*72.0-128*

Laboratory Control Sample (LCS)

(LCS) R3598215-1 11/28/20 17:40

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0454	90.8	76.0-121	
Toluene	0.0500	0.0445	89.0	80.0-120	
Ethylbenzene	0.0500	0.0435	87.0	80.0-124	
Total Xylene	0.150	0.142	94.7	37.0-160	
(S) a,a,a-Trifluorotoluene(FID)			*101*	*77.0-120*	
(S) a,a,a-Trifluorotoluene(PID)			*103*	*72.0-128*	

Laboratory Control Sample (LCS)

(LCS) R3598215-2 11/28/20 18:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.73	104	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*102*	*77.0-120*	
(S) a,a,a-Trifluorotoluene(PID)			*108*	*72.0-128*	

L1288034-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1288034-01 11/28/20 21:49 • (MS) R3598215-4 11/29/20 03:25 • (MSD) R3598215-5 11/29/20 03:47

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	154	ND	70.6	77.7	55.2	60.7	25	10.0-151			9.58	28
(S) a,a,a-Trifluorotoluene(FID)					*102*	*100*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*105*	*106*		*72.0-128*				

L1288377-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1288377-02 11/29/20 02:18 • (MS) R3598215-6 11/29/20 04:10 • (MSD) R3598215-7 11/29/20 04:32

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	4.95	ND	4.62	3.74	93.3	75.6	100	10.0-155			21.1	32
Toluene	4.95	ND	5.00	4.15	96.5	79.4	100	10.0-160			18.6	34
Ethylbenzene	4.95	0.761	5.82	4.95	102	84.6	100	10.0-160			16.2	32
Total Xylene	14.8	37.7	58.4	50.0	140	83.1	100	10.0-160			15.5	32
(S) a,a,a-Trifluorotoluene(FID)					*101*	*101*		*77.0-120*				
(S) a,a,a-Trifluorotoluene(PID)					*103*	*103*		*72.0-128*				

Sample Narrative:

OS: Non-target compounds too high to run at a lower dilution.

Method Blank (MB)

(MB) R3598650-2 11/30/20 13:48

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000120	0.000500
Toluene	U		0.000150	0.00500
Ethylbenzene	U		0.000110	0.000500
Total Xylene	U		0.000460	0.00150
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*111*			*77.0-120*
(S) a,a,a-Trifluorotoluene(PID)	*102*			*72.0-128*

Laboratory Control Sample (LCS)

(LCS) R3598650-1 11/30/20 13:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	5.60	102	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*103*	*77.0-120*	
(S) a,a,a-Trifluorotoluene(PID)			*105*	*72.0-128*	

Laboratory Control Sample (LCS)

(LCS) R3598650-3 11/30/20 14:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.0500	0.0506	101	76.0-121	
Toluene	0.0500	0.0506	101	80.0-120	
Ethylbenzene	0.0500	0.0520	104	80.0-124	
Total Xylene	0.150	0.164	109	37.0-160	
(S) a,a,a-Trifluorotoluene(FID)			*112*	*77.0-120*	
(S) a,a,a-Trifluorotoluene(PID)			*100*	*72.0-128*	

Method Blank (MB)

(MB) R3598495-1 11/30/20 07:04

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	*63.5*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3598495-2 11/30/20 07:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) High Fraction	50.0	29.7	59.4	50.0-150	
(S) o-Terphenyl			*76.7*	*18.0-148*	

Method Blank (MB)

(MB) R3598356-2 11/27/20 11:54

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	*63.9*			*14.0-149*
(S) 2-Fluorobiphenyl	*62.8*			*34.0-125*
(S) p-Terphenyl-d14	*72.2*			*23.0-120*

Laboratory Control Sample (LCS)

(LCS) R3598356-1 11/27/20 11:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0566	70.8	50.0-126	
Acenaphthene	0.0800	0.0511	63.9	50.0-120	
Acenaphthylene	0.0800	0.0537	67.1	50.0-120	
Benzo(a)anthracene	0.0800	0.0586	73.3	45.0-120	
Benzo(a)pyrene	0.0800	0.0447	55.9	42.0-120	
Benzo(b)fluoranthene	0.0800	0.0497	62.1	42.0-121	
Benzo(g,h,i)perylene	0.0800	0.0456	57.0	45.0-125	
Benzo(k)fluoranthene	0.0800	0.0496	62.0	49.0-125	
Chrysene	0.0800	0.0547	68.4	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0560	70.0	47.0-125	
Fluoranthene	0.0800	0.0547	68.4	49.0-129	

Laboratory Control Sample (LCS)

(LCS) R3598356-1 11/27/20 11:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	0.0800	0.0575	71.9	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0575	71.9	46.0-125	
Naphthalene	0.0800	0.0521	65.1	50.0-120	
Phenanthrene	0.0800	0.0540	67.5	47.0-120	
Pyrene	0.0800	0.0492	61.5	43.0-123	
1-Methylnaphthalene	0.0800	0.0570	71.3	51.0-121	
2-Methylnaphthalene	0.0800	0.0554	69.3	50.0-120	
2-Chloronaphthalene	0.0800	0.0497	62.1	50.0-120	
(S) Nitrobenzene-d5			*72.1*	*14.0-149*	
(S) 2-Fluorobiphenyl			*65.6*	*34.0-125*	
(S) p-Terphenyl-d14			*74.9*	*23.0-120*	

L1288769-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1288769-02 11/27/20 15:02 • (MS) R3598462-1 11/27/20 15:23 • (MSD) R3598462-2 11/27/20 15:44

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0780	ND	0.0387	0.0408	49.6	52.0	1	10.0-145			5.28	30
Acenaphthene	0.0780	ND	0.0356	0.0403	45.6	51.4	1	14.0-127			12.4	27
Acenaphthylene	0.0780	ND	0.0414	0.0461	53.1	58.8	1	21.0-124			10.7	25
Benzo(a)anthracene	0.0780	ND	0.0353	0.0375	45.3	47.8	1	10.0-139			6.04	30
Benzo(a)pyrene	0.0780	ND	0.0341	0.0360	43.7	45.9	1	10.0-141			5.42	31
Benzo(b)fluoranthene	0.0780	ND	0.0315	0.0337	40.4	43.0	1	10.0-140			6.75	36
Benzo(g,h,i)perylene	0.0780	ND	0.0299	0.0322	38.3	41.1	1	10.0-140			7.41	33
Benzo(k)fluoranthene	0.0780	ND	0.0353	0.0376	45.3	48.0	1	10.0-137			6.31	31
Chrysene	0.0780	ND	0.0353	0.0376	45.3	48.0	1	10.0-145			6.31	30
Dibenz(a,h)anthracene	0.0780	ND	0.0330	0.0348	42.3	44.4	1	10.0-132			5.31	31
Fluoranthene	0.0780	ND	0.0360	0.0395	46.2	50.4	1	10.0-153			9.27	33
Fluorene	0.0780	ND	0.0364	0.0403	46.7	51.4	1	11.0-130			10.2	29
Indeno(1,2,3-cd)pyrene	0.0780	ND	0.0313	0.0328	40.1	41.8	1	10.0-137			4.68	32
Naphthalene	0.0780	ND	0.0371	0.0408	47.6	52.0	1	10.0-135			9.50	27
Phenanthrene	0.0780	ND	0.0328	0.0365	42.1	46.6	1	10.0-144			10.7	31
Pyrene	0.0780	ND	0.0295	0.0322	37.8	41.1	1	10.0-148			8.75	35
1-Methylnaphthalene	0.0780	ND	0.0374	0.0422	37.7	43.6	1	10.0-142			12.1	28
2-Methylnaphthalene	0.0780	ND	0.0389	0.0414	31.8	34.8	1	10.0-137			6.23	28
2-Chloronaphthalene	0.0780	ND	0.0382	0.0410	49.0	52.3	1	29.0-120			7.07	24
(S) Nitrobenzene-d5					*51.9*	*56.1*		*14.0-149*				
(S) 2-Fluorobiphenyl					*39.7*	*54.0*		*34.0-125*				
(S) p-Terphenyl-d14					*39.4*	*52.6*		*23.0-120*				

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
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.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

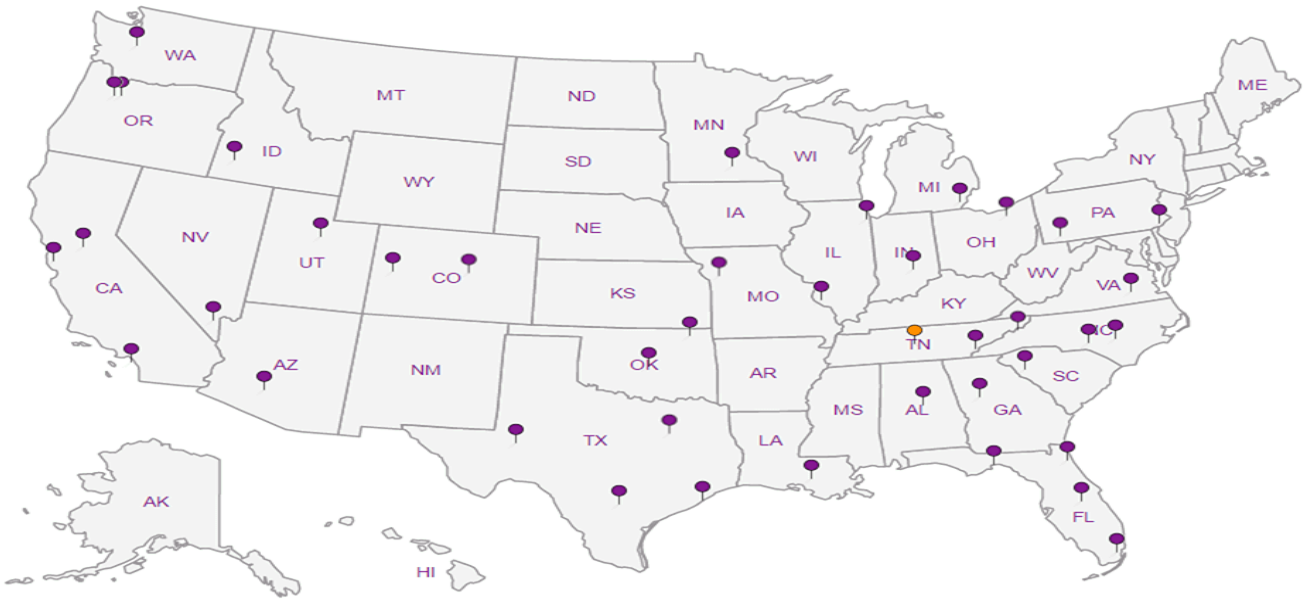
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



CAERUS - A33NW
REMEDIAL EXCAVATION
BY CONFLUENCE

Billing Information: CAERUS O&G

Report to: ON FILE

Email To: ON FILE

Project Description: A33NW REMEDIATION

City/State Collected: PARACHUTE, CO

Phone: ON FILE
~~Fax:~~ 970-261-1127

Client Project # A33NW

Lab Project #

Collected by (print): CHRIS HINES

Site/Facility ID # A33NW

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: STANDARD

Analysis / Container / Preservative

Pres Chk

COLLC TABLE 910

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs		Remarks	Sample # (lab only)
20201119-A33NW-~~TRIP~~ W@12	GRAB	SS	12'	11-19-20	10:05	2	X		-01
" - " - BASE@25			~~25~~		08:35				-02
" - " - N@12			12'		10:10				-03
E@11			11'		10:20				-04
S@14			14'		12:40				-05
ISTOCK	COMP		NA		11:20				-06
CSTOCK	COMP		NA		11:40				-07

Chain of Custody Page 1 of 1

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 # L1288377

Table A148

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: ATTN: CHRIS WARD

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking # 1676 2750 5571

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)
	11-19-20	15:35	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	11/19/2020		
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			B. Barnes

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

Temp: 1.6 °C Bottles Received: 14

Date: 11.20.20 Time: 0915

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

December 15, 2020

Chris Hines
Caerus Oil & Gas
143 Diamond Ave.
Parachute, CO 81635

RE: A33NW Remediation
Work Order #2012091

Enclosed are the results of analyses for samples received by Summit Scientific on 12/08/20 15:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Paul Shrewsbury
President

S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: A33NW Project Manager: Chris Hines	**Reported:** 12/15/20 15:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
20201208-A33NW-SS-IStock1 Comp 6"	2012091-01	Soil	12/08/20 11:45	12/08/20 15:30
20201208-A33NW-SS-IStock2 Comp 6"	2012091-02	Soil	12/08/20 12:00	12/08/20 15:30

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

2012091

Page 1 of 1

CAERUS A33NW REMEDIATION BY CONFLUENCE

Billing Information: CONFLUENCE OR CAERUS

Report to: CHRIS HINES & BRETT MIDDLETON

Email To: ON FILE

Project Description: A33NW REMEDIATION

City/State Collected: RIFLE, CO

Phone: 970-261-1127 Fax:

Client Project # A33NW

Lab Project #

Collected by (print): CHRIS HINES

Site/Facility ID # A33NW

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Date Results Needed: STANDARD

Analysis / Container / Preservative

Pres Chk

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH/BTEX
20201208-A33NW-SS-							
" - " - " - ISTOCK1	COMP	SS	6"	12-8-20	11:45	1	X
" - " - " - ISTOCK2	COMP	1	6"	"	12:00	1	X

Chain of Custody Page 1 of 1

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 #

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Remarks | Sample # (lab only)

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

Remarks: ATTN: PAUL SHREWSBURY

pH _____ Temp _____

Flow _____ Other _____

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

Tracking #

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

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	12-8-20	15:30			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: / Condition: NCF / OK

2012091

Sample Receipt Checklist

S2 Work Order_____

Client: Caerus A33NW Client Project ID: A33NW

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other_____ Airbill #: _____

Matrix (check all that apply): _____Air X Soil/Solid _____Water ____Other:_____
(Describe)

Temp (°C)	7.7°C

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C (1)? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	X			on ice
Were all samples received intact (1)?	X			
Was adequate sample volume provided (1)?	X			
If custody seals are present, are they intact (1)?			X	
Are samples with holding times due within 48 hours sample due within 48 hours present?	X		X	
Is a chain-of-custody (COC) form present and filled out completely (1)?	X			
Does the COC agree with the number and type of sample bottles received (1)?	X			
Do the sample IDs on the bottle labels match the COC (1)?	X			
Is the COC properly relinquished by the client w/ date and time recorded (1)?	X			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			X	
Are samples preserved that require preservation **(excluding cooling)** (1)? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			X	
If samples are acid preserved for metals, is the pH ≤ 2(1)? Record the pH in Comments.			X	
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				

(1) **If NO, then contact the client before proceeding with analysis and note in case narrative.**

BA	Bill Gonzales	12-9-20 1014 0 am
Custodian Printed Name or Initials	**Signature of Custodian**	**Date/Time**

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: A33NW Project Manager: Chris Hines	**Reported:** 12/15/20 15:32

20201208-A33NW-SS-IStock1 Comp 6"

2012091-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/20 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BDL0123	12/10/20	12/11/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	**0.099**	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	**8.1**	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/20 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*127 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8		*102 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*186 %*	*21-167*		"	"	"	"	*S-02*

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/20 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	**760**	50	mg/kg	1	BDL0161	12/14/20	12/15/20	EPA 8015M	

Date Sampled: **12/08/20 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*107 %*	*30-150*		"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: A33NW Project Manager: Chris Hines	**Reported:** 12/15/20 15:32

20201208-A33NW-SS-IStock2 Comp 6"

2012091-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/08/20 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BDL0123	12/10/20	12/11/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	**0.44**	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	**15**	0.50	"	"	"	"	"	"	

Date Sampled: **12/08/20 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*118 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*268 %*	*21-167*		"	"	"	"	*S-02*

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/08/20 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	**590**	50	mg/kg	1	BDL0161	12/14/20	12/15/20	EPA 8015M	

Date Sampled: **12/08/20 12:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*94.4 %*	*30-150*		"	"	"	"	

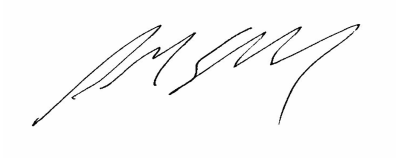
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: A33NW Project Manager: Chris Hines	**Reported:** 12/15/20 15:32

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0123 - EPA 5030 Soil MS										
Blank (BDL0123-BLK1)				Prepared: 12/10/20 Analyzed: 12/11/20						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0438*		"	*0.0400*		*110*	*23-173*			
Surrogate: Toluene-d8	*0.0406*		"	*0.0400*		*102*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0400*		"	*0.0400*		*99.9*	*21-167*			
LCS (BDL0123-BS1)				Prepared: 12/10/20 Analyzed: 12/11/20						
Benzene	0.0602	0.0020	mg/kg	0.0600		100	70-130			
Toluene	0.0664	0.0050	"	0.0600		111	70-130			
Ethylbenzene	0.0622	0.0050	"	0.0600		104	70-130			
m,p-Xylene	0.126	0.010	"	0.120		105	70-130			
o-Xylene	0.0642	0.0050	"	0.0600		107	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0449*		"	*0.0400*		*112*	*23-173*			
Surrogate: Toluene-d8	*0.0400*		"	*0.0400*		*99.9*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0407*		"	*0.0400*		*102*	*21-167*			
Matrix Spike (BDL0123-MS1)	**Source: 2012057-04**			Prepared: 12/10/20 Analyzed: 12/11/20						
Benzene	0.0556	0.0020	mg/kg	0.0600	ND	92.8	70-130			
Toluene	0.0583	0.0050	"	0.0600	0.00357	91.2	70-130			
Ethylbenzene	0.0519	0.0050	"	0.0600	0.00354	80.6	70-130			
m,p-Xylene	0.105	0.010	"	0.120	0.00756	81.3	70-130			
o-Xylene	0.0536	0.0050	"	0.0600	ND	89.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0455*		"	*0.0400*		*114*	*23-173*			
Surrogate: Toluene-d8	*0.0407*		"	*0.0400*		*102*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0398*		"	*0.0400*		*99.4*	*21-167*			



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: A33NW Project Manager: Chris Hines	**Reported:** 12/15/20 15:32

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0123 - EPA 5030 Soil MS										
Matrix Spike Dup (BDL0123-MSD1)		**Source: 2012057-04**		Prepared: 12/10/20 Analyzed: 12/11/20						
Benzene	0.0555	0.0020	mg/kg	0.0600	ND	92.6	70-130	0.216	30	
Toluene	0.0583	0.0050	"	0.0600	0.00357	91.2	70-130	0.00	30	
Ethylbenzene	0.0531	0.0050	"	0.0600	0.00354	82.6	70-130	2.23	30	
m,p-Xylene	0.106	0.010	"	0.120	0.00756	82.2	70-130	0.994	30	
o-Xylene	0.0541	0.0050	"	0.0600	ND	90.2	70-130	0.891	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0452*		*"*	*0.0400*		*113*	*23-173*			
Surrogate: Toluene-d8	*0.0400*		*"*	*0.0400*		*100*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0396*		*"*	*0.0400*		*99.0*	*21-167*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: A33NW Project Manager: Chris Hines	**Reported:** 12/15/20 15:32

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0161 - EPA 3550A										
Blank (BDL0161-BLK1)				Prepared & Analyzed: 12/14/20						
C10-C28 (DRO)	ND	50	mg/kg							
LCS (BDL0161-BS1)				Prepared & Analyzed: 12/14/20						
C10-C28 (DRO)	509	50	mg/kg	500		102	70-130			
Matrix Spike (BDL0161-MS1)	**Source: 2012119-01**			Prepared & Analyzed: 12/14/20						
C10-C28 (DRO)	445	50	mg/kg	500	23.8	84.3	70-130			
Matrix Spike Dup (BDL0161-MSD1)	**Source: 2012119-01**			Prepared & Analyzed: 12/14/20						
C10-C28 (DRO)	469	50	mg/kg	500	23.8	89.0	70-130	5.11	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: A33NW Project Manager: Chris Hines	**Reported:** 12/15/20 15:32

Notes and Definitions

S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 08, 2021

Brett Middleton
Caerus Oil & Gas
143 Diamond Ave.
Parachute, CO 81635

RE: A33NW Remediation
Work Order #2012254

Enclosed are the results of analyses for samples received by Summit Scientific on 12/22/20 12:54. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Paul Shrewsbury
President

S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
20201217-A33NW-SS-Base@28	2012254-01	Soil	12/17/20 15:00	12/22/20 12:54
20201217-A33NW-SS-IStock	2012254-02	Soil	12/17/20 15:20	12/22/20 12:54

Summit Scientific

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2012254

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4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 1

Client: CAERUS O&G BY CONFLUENCE | Project Manager: BRETT MIDDLETON - CHRIS HINES
Address: ON FILE | E-Mail: ON FILE
City/State/Zip: ON FILE
Phone: ON FILE 970-261-1127 | Project Name: A33NW REMEDIATION
Sampler Name: CHRIS HINES | Project Number: —

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative: HCl	HNO3	None	Other	Matrix: Water	Soil	Air-Canister #	Other	Analysis Requested: TPH	BTEX	COGCC METALS	COGCC INORGANICS	COGCC TABLE 910				Special Instructions
1	20201217-A33NW-SS																				
2	" - " -SS-BASE@28	12-17-20	15:00	2			X			X							X				
3	" - " - " - ISTOCK	"	15:20	2			X			X			X	X							
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by:	Date/Time:	Received by:	Date/Time:
[signature]	12-17-20		
Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by: [signature]	Date/Time: 12-22-20 1254

Turn Around Time (Check)
Same Day ___ 72 hours ___
24 hours ___ Standard X
48 hours ___

Sample Integrity:
Temperature Upon Receipt: 5.6
Samples Intact: Yes (circled) No

Notes:
on ice

www.s2scientific.com

2012254

Sample Receipt Checklist

S2 Work Order_____

Client: Caerus O+G/Confluence Client Project ID: A33NW Remediation

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other_____ Airbill #: 781617004982

☐ ☐ ☑ ☐ ☐

Matrix (check all that apply): ☐ Air ☑ Soil/Solid ☐ Water ☐ Other:_____ (Describe)

Temp (°C)	5.6

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C (1)? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			on ice
Were all samples received intact (1)?	✓			
Was adequate sample volume provided (1)?	✓			
If custody seals are present, are they intact (1)?	✓			
Are samples with holding times due within 48 hours sample due within 48 hours present?		✓		
Is a chain-of-custody (COC) form present and filled out completely (1)?	✓			
Does the COC agree with the number and type of sample bottles received (1)?	✓			
Do the sample IDs on the bottle labels match the COC (1)?	✓			
Is the COC properly relinquished by the client w/ date and time recorded (1)?	✓			
For volatiles in water – is there headspace present? **If yes, contact client and note in narrative.**			✓	
Are samples preserved that require preservation **(excluding cooling)** (1)? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			✓	
If samples are acid preserved for metals, is the pH ≤ 2(1)? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

(1) **If NO, then contact the client before proceeding with analysis and note in case narrative.**

Custodian Printed Name or Initials	Signature of Custodian	Date/Time
		12-22-20 1254

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

20201217-A33NW-SS-Base@28

2012254-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BDL0325	12/29/20	12/30/20	EPA 8260B	
Toluene	**0.010**	0.0050	"	"	"	"	"	"	
Ethylbenzene	**0.087**	0.0050	"	"	"	"	"	"	
Xylenes (total)	**4.3**	0.10	"	10	"	"	"	"	
Gasoline Range Hydrocarbons	**75**	5.0	"	"	"	"	"	"	

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*113 %*	*21-167*		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	**1400**	50	mg/kg	1	BDL0333	12/29/20	12/29/20	EPA 8015M	

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*143 %*	*30-150*		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BDL0350	12/30/20	12/30/20	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

20201217-A33NW-SS-Base@28

2012254-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzo (a) anthracene	ND	0.00500	mg/kg	1	BDL0350	12/30/20	12/30/20	EPA 8270D SIM	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Chrysene	**0.00781**	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	**0.0688**	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Naphthalene	ND	0.00500	"	"	"	"	"	"	
Pyrene	**0.00559**	0.00500	"	"	"	"	"	"	

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		*75.1 %*	*30-150*		"	"	"	"	
Surrogate: Fluoranthene-d10		*77.8 %*	*30-150*		"	"	"	"	

Total Metals by EPA 6020B

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	**12.4**	0.233	mg/kg dry	1	BDL0302	12/23/20	01/08/21	EPA 6020B	
Barium	**216**	0.466	"	"	"	"	"	"	
Cadmium	**0.378**	0.233	"	"	"	"	"	"	
Boron	ND	4.66	"	"	"	"	"	"	
Chromium	**18.4**	0.466	"	"	"	"	"	"	
Copper	**18.7**	0.466	"	"	"	"	"	"	
Lead	**10.6**	0.233	"	"	"	"	"	"	
Nickel	**25.7**	0.466	"	"	"	"	"	"	
Selenium	**0.617**	0.466	"	"	"	"	"	"	
Silver	**0.0279**	0.0233	"	"	"	"	"	"	
Zinc	**53.0**	0.466	"	"	"	"	"	"	

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S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

20201217-A33NW-SS-Base@28

2012254-01 (Soil)

Summit Scientific

Total Mercury by EPA 7471

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Mercury	ND	0.0582	mg/kg dry	1	BDL0337	12/29/20	12/30/20	EPA 7471	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BDL0358	12/30/20	12/31/20	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	**5110**	11.6	mg/kg dry	1	BDL0296	12/23/20	12/23/20	EPA 6020B	
Magnesium	**1450**	5.82	"	"	"	"	"	"	
Sodium	**341**	5.82	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium+3 Calculated	**18.4**	0.000300	mg/kg	1	BDL0379	12/31/20	12/31/20	Calculation	
Sodium Adsorption Ratio	**1.00**	0.100	units	"	BDL0305	12/26/20	12/26/20	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	**85.9**		%	1	BDL0312	12/26/20	12/28/20	Calculation	
pH	**8.89**		pH Units	"	BDL0285	12/23/20	12/23/20	EPA 9045D	

Summit Scientific

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S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

20201217-A33NW-SS-Base@28

2012254-01 (Soil)

Summit Scientific

Specific Conductance by EPA Method 120.1

Date Sampled: **12/17/20 15:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	**0.721**	0.0100	mmhos/cm	1	BDL0286	12/23/20	12/23/20	EPA 120.1	

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Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

20201217-A33NW-SS-IStock

2012254-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/17/20 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BDL0325	12/29/20	12/30/20	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	**0.42**	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	**35**	0.50	"	"	"	"	"	"	

Date Sampled: **12/17/20 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*147 %*	*21-167*		"	"	"	"	

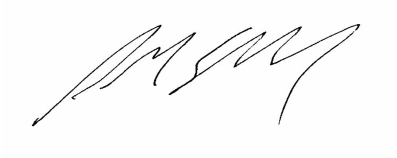
Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **12/17/20 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	**620**	50	mg/kg	1	BDL0333	12/29/20	12/30/20	EPA 8015M	

Date Sampled: **12/17/20 15:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		*129 %*	*30-150*		"	"	"	"	



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0325 - EPA 5030 Soil MS										
Blank (BDL0325-BLK1)				Prepared & Analyzed: 12/29/20						
Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*0.0413*		"	*0.0400*		*103*	*23-173*			
Surrogate: Toluene-d8	*0.0400*		"	*0.0400*		*100*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0387*		"	*0.0400*		*96.7*	*21-167*			
LCS (BDL0325-BS1)				Prepared & Analyzed: 12/29/20						
Benzene	0.106	0.0020	mg/kg	0.100		106	70-130			
Toluene	0.107	0.0050	"	0.100		107	70-130			
Ethylbenzene	0.108	0.0050	"	0.100		108	70-130			
m,p-Xylene	0.216	0.010	"	0.200		108	70-130			
o-Xylene	0.104	0.0050	"	0.100		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0428*		"	*0.0400*		*107*	*23-173*			
Surrogate: Toluene-d8	*0.0409*		"	*0.0400*		*102*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0398*		"	*0.0400*		*99.6*	*21-167*			
Matrix Spike (BDL0325-MS1)		**Source: 2012253-01**		Prepared & Analyzed: 12/29/20						
Benzene	0.101	0.0020	mg/kg	0.100	ND	101	70-130			
Toluene	0.102	0.0050	"	0.100	ND	102	70-130			
Ethylbenzene	0.106	0.0050	"	0.100	ND	106	70-130			
m,p-Xylene	0.213	0.010	"	0.200	ND	106	70-130			
o-Xylene	0.105	0.0050	"	0.100	ND	105	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0438*		"	*0.0400*		*109*	*23-173*			
Surrogate: Toluene-d8	*0.0401*		"	*0.0400*		*100*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0400*		"	*0.0400*		*100*	*21-167*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Caerus Oil & Gas	Project: A33NW Remediation	
143 Diamond Ave.	Project Number: [none]	**Reported:**
Parachute CO, 81635	Project Manager: Brett Middleton	01/08/21 09:53

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0325 - EPA 5030 Soil MS										
Matrix Spike Dup (BDL0325-MSD1)		**Source: 2012253-01**		Prepared & Analyzed: 12/29/20						
Benzene	0.0984	0.0020	mg/kg	0.100	ND	98.4	70-130	2.50	30	
Toluene	0.102	0.0050	"	0.100	ND	102	70-130	0.411	30	
Ethylbenzene	0.105	0.0050	"	0.100	ND	105	70-130	0.710	30	
m,p-Xylene	0.209	0.010	"	0.200	ND	105	70-130	1.58	30	
o-Xylene	0.103	0.0050	"	0.100	ND	103	70-130	1.65	30	
Surrogate: 1,2-Dichloroethane-d4	*0.0435*		*"*	*0.0400*		*109*	*23-173*			
Surrogate: Toluene-d8	*0.0406*		*"*	*0.0400*		*102*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*0.0401*		*"*	*0.0400*		*100*	*21-167*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0333 - EPA 3550A										
Blank (BDL0333-BLK1)				Prepared & Analyzed: 12/29/20						
C10-C28 (DRO)	ND	50	mg/kg							
LCS (BDL0333-BS1)				Prepared & Analyzed: 12/29/20						
C10-C28 (DRO)	499	50	mg/kg	500		99.7	70-130			
Matrix Spike (BDL0333-MS1)	**Source: 2012253-01**			Prepared & Analyzed: 12/29/20						
C10-C28 (DRO)	495	50	mg/kg	500	13.9	96.3	70-130			
Matrix Spike Dup (BDL0333-MSD1)	**Source: 2012253-01**			Prepared & Analyzed: 12/29/20						
C10-C28 (DRO)	482	50	mg/kg	500	13.9	93.7	70-130	2.72	20	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

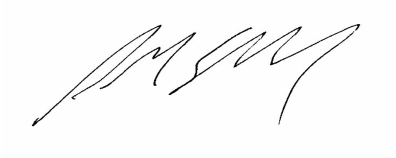
S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0350 - EPA 5030 Soil MS										
Blank (BDL0350-BLK1)				Prepared & Analyzed: 12/30/20						
Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Naphthalene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	*0.0252*		*"*	*0.0333*		*75.6*	*30-150*			
Surrogate: Fluoranthene-d10	*0.0239*		*"*	*0.0333*		*71.8*	*30-150*			
LCS (BDL0350-BS1)				Prepared & Analyzed: 12/30/20						
Acenaphthene	0.0267	0.00500	mg/kg	0.0333		80.0	31-137			
Anthracene	0.0280	0.00500	"	0.0333		83.9	30-120			
Benzo (a) anthracene	0.0295	0.00500	"	0.0333		88.4	30-120			
Benzo (b) fluoranthene	0.0277	0.00500	"	0.0333		83.0	30-120			
Benzo (k) fluoranthene	0.0277	0.00500	"	0.0333		83.0	30-120			
Benzo (a) pyrene	0.0299	0.00500	"	0.0333		89.7	30-120			
Chrysene	0.0285	0.00500	"	0.0333		85.6	30-120			
Dibenz (a,h) anthracene	0.0344	0.00500	"	0.0333		103	30-120			
Fluoranthene	0.0273	0.00500	"	0.0333		82.0	30-120			
Fluorene	0.0270	0.00500	"	0.0333		81.1	30-120			
Indeno (1,2,3-cd) pyrene	0.0278	0.00500	"	0.0333		83.4	30-120			
Naphthalene	0.0264	0.00500	"	0.0333		79.3	30-120			
Pyrene	0.0288	0.00500	"	0.0333		86.4	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0255*		*"*	*0.0333*		*76.4*	*50-150*			
Surrogate: Fluoranthene-d10	*0.0257*		*"*	*0.0333*		*77.1*	*50-150*			



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Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0350 - EPA 5030 Soil MS										
Matrix Spike (BDL0350-MS1)	**Source: 2012254-01**			Prepared & Analyzed: 12/30/20						
Acenaphthene	0.0835	0.00500	mg/kg	0.0333	ND	250	31-137			QM-07
Anthracene	0.0242	0.00500	"	0.0333	ND	72.6	30-120			
Benzo (a) anthracene	0.0254	0.00500	"	0.0333	ND	76.4	30-120			
Benzo (b) fluoranthene	0.0219	0.00500	"	0.0333	ND	65.6	30-120			
Benzo (k) fluoranthene	0.0218	0.00500	"	0.0333	0.00174	60.1	30-120			
Benzo (a) pyrene	0.0252	0.00500	"	0.0333	ND	75.7	30-120			
Chrysene	0.0327	0.00500	"	0.0333	0.00781	74.8	30-120			
Dibenz (a,h) anthracene	0.0305	0.00500	"	0.0333	ND	91.5	30-120			
Fluoranthene	0.0338	0.00500	"	0.0333	ND	102	30-120			
Fluorene	0.0936	0.00500	"	0.0333	0.0688	74.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0235	0.00500	"	0.0333	ND	70.4	30-120			
Naphthalene	0.162	0.00500	"	0.0333	ND	485	30-120			QM-07
Pyrene	0.0359	0.00500	"	0.0333	0.00559	90.9	35-142			
Surrogate: 2-Methylnaphthalene-d10	*0.0256*		*"*	*0.0333*		*76.8*	*50-150*			
Surrogate: Fluoranthene-d10	*0.0254*		*"*	*0.0333*		*76.1*	*50-150*			
Matrix Spike Dup (BDL0350-MSD1)	**Source: 2012254-01**			Prepared & Analyzed: 12/30/20						
Acenaphthene	0.0709	0.00500	mg/kg	0.0333	ND	213	31-137	16.2	30	QM-07
Anthracene	0.0248	0.00500	"	0.0333	ND	74.4	30-120	2.41	30	
Benzo (a) anthracene	0.0263	0.00500	"	0.0333	ND	78.9	30-120	3.25	30	
Benzo (b) fluoranthene	0.0229	0.00500	"	0.0333	ND	68.6	30-120	4.48	30	
Benzo (k) fluoranthene	0.0227	0.00500	"	0.0333	0.00174	62.9	30-120	4.18	30	
Benzo (a) pyrene	0.0262	0.00500	"	0.0333	ND	78.5	30-120	3.70	30	
Chrysene	0.0333	0.00500	"	0.0333	0.00781	76.6	30-120	1.85	30	
Dibenz (a,h) anthracene	0.0339	0.00500	"	0.0333	ND	102	30-120	10.4	30	
Fluoranthene	0.0303	0.00500	"	0.0333	ND	91.0	30-120	11.0	30	
Fluorene	0.0816	0.00500	"	0.0333	0.0688	38.3	30-120	13.8	30	
Indeno (1,2,3-cd) pyrene	0.0265	0.00500	"	0.0333	ND	79.6	30-120	12.3	30	
Naphthalene	0.149	0.00500	"	0.0333	ND	446	30-120	8.32	30	QM-07
Pyrene	0.0315	0.00500	"	0.0333	0.00559	77.6	35-142	13.1	30	
Surrogate: 2-Methylnaphthalene-d10	*0.0296*		*"*	*0.0333*		*88.8*	*50-150*			
Surrogate: Fluoranthene-d10	*0.0315*		*"*	*0.0333*		*94.6*	*50-150*			

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Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Total Metals by EPA 6020B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0302 - EPA 3050B										
Blank (BDL0302-BLK1)				Prepared: 12/23/20 Analyzed: 12/28/20						
Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Boron	ND	4.00	"							
Cadmium	ND	0.200	"							
Chromium	ND	0.400	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Selenium	ND	0.400	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							
LCS (BDL0302-BS1)				Prepared: 12/23/20 Analyzed: 12/28/20						
Arsenic	42.8	0.200	mg/kg wet	40.0		107	80-120			
Barium	41.7	0.400	"	40.0		104	80-120			
Cadmium	2.18	0.200	"	2.00		109	80-120			
Boron	34.3	4.00	"	40.0		85.6	80-120			
Chromium	40.1	0.400	"	40.0		100	80-120			
Copper	41.4	0.400	"	40.0		104	80-120			
Lead	21.5	0.200	"	20.0		107	80-120			
Nickel	40.9	0.400	"	40.0		102	80-120			
Selenium	4.14	0.400	"	4.00		103	80-120			
Silver	2.10	0.0200	"	2.00		105	80-120			
Zinc	43.9	0.400	"	40.0		110	80-120			
Duplicate (BDL0302-DUP1)	**Source: 2012249-01**			Prepared: 12/23/20 Analyzed: 12/28/20						
Arsenic	3.28	0.226	mg/kg dry		3.90			17.2	30	
Barium	98.8	0.452	"		106			7.06	30	
Cadmium	0.478	0.226	"		0.472			1.25	30	
Boron	1.59	4.52	"		1.54			3.14	30	
Chromium	6.25	0.452	"		7.80			22.1	30	
Copper	20.0	0.452	"		20.5			2.60	30	
Lead	56.9	0.226	"		45.3			22.8	30	
Nickel	5.78	0.452	"		6.75			15.4	30	
Selenium	0.453	0.452	"		0.502			10.2	30	
Silver	0.185	0.0226	"		0.172			7.48	30	
Zinc	150	0.452	"		121			21.7	30	

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Total Metals by EPA 6020B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0302 - EPA 3050B										
Matrix Spike (BDL0302-MS1)	**Source: 2012249-01**			Prepared: 12/23/20 Analyzed: 12/28/20						
Arsenic	48.4	0.226	mg/kg dry	45.2	3.90	98.6	75-125			
Barium	159	0.452	"	45.2	106	118	75-125			
Cadmium	2.90	0.226	"	2.26	0.472	108	75-125			
Boron	35.7	4.52	"	45.2	1.54	75.6	75-125			
Chromium	50.8	0.452	"	45.2	7.80	95.1	75-125			
Copper	65.8	0.452	"	45.2	20.5	100	75-125			
Lead	70.0	0.226	"	22.6	45.3	109	75-125			
Nickel	50.1	0.452	"	45.2	6.75	96.0	75-125			
Selenium	4.70	0.452	"	4.52	0.502	93.1	75-125			
Silver	2.44	0.0226	"	2.26	0.172	100	75-125			
Zinc	175	0.452	"	45.2	121	120	75-125			
Matrix Spike Dup (BDL0302-MSD1)	**Source: 2012249-01**			Prepared: 12/23/20 Analyzed: 12/28/20						
Arsenic	50.0	0.226	mg/kg dry	45.2	3.90	102	75-125	3.13	25	
Barium	157	0.452	"	45.2	106	114	75-125	1.04	25	
Cadmium	3.03	0.226	"	2.26	0.472	113	75-125	4.33	25	
Boron	35.9	4.52	"	45.2	1.54	76.0	75-125	0.508	20	
Chromium	53.2	0.452	"	45.2	7.80	101	75-125	4.71	25	
Copper	67.6	0.452	"	45.2	20.5	104	75-125	2.65	25	
Lead	69.6	0.226	"	22.6	45.3	107	75-125	0.567	25	
Nickel	52.3	0.452	"	45.2	6.75	101	75-125	4.35	25	
Selenium	4.89	0.452	"	4.52	0.502	97.3	75-125	3.95	25	
Silver	2.58	0.0226	"	2.26	0.172	106	75-125	5.42	25	
Zinc	174	0.452	"	45.2	121	119	75-125	0.376	25	
Post Spike (BDL0302-PS1)	**Source: 2012249-01**			Prepared: 12/23/20 Analyzed: 12/27/20						
Arsenic	11.8	0.226	mg/kg dry		3.90		75-125			
Barium	107	0.452	"		106		75-125			
Boron	4.92	4.52	"		1.54		75-125			
Cadmium	0.454	0.226	"		0.472		75-125			
Chromium	6.56	0.452	"		7.80		75-125			
Copper	8.21	0.452	"		20.5		75-125			
Lead	113	0.226	"		45.3		75-125			
Nickel	3.83	0.452	"		6.75		75-125			
Selenium	564	0.452	"		0.502		75-125			
Silver	0.0350	0.0226	"		0.172		75-125			
Zinc	6.49	0.452	"		121		75-125			

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Total Mercury by EPA 7471 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0337 - EPA 7471A										
Blank (BDL0337-BLK1)				Prepared: 12/29/20 Analyzed: 12/30/20						
Mercury	ND	0.0500	mg/kg wet							
LCS (BDL0337-BS1)				Prepared: 12/29/20 Analyzed: 12/30/20						
Mercury	0.471	0.0500	mg/kg wet	0.500		94.2	85-115			
Duplicate (BDL0337-DUP1)		**Source: 2010022-01**		Prepared: 12/29/20 Analyzed: 12/30/20						
Mercury	0.0213	0.0592	mg/kg dry		0.0213			0.00	20	
Matrix Spike (BDL0337-MS1)		**Source: 2010022-01**		Prepared: 12/29/20 Analyzed: 12/30/20						
Mercury	0.619	0.0592	mg/kg dry	0.592	0.0213	101	70-130			
Matrix Spike Dup (BDL0337-MSD1)		**Source: 2010022-01**		Prepared: 12/29/20 Analyzed: 12/30/20						
Mercury	0.600	0.0592	mg/kg dry	0.592	0.0213	97.8	70-130	3.11	20	

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Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Hexavalent Chromium by EPA Method 7196 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0358 - 3060A_Mod										
Blank (BDL0358-BLK1)				Prepared: 12/30/20 Analyzed: 12/31/20						
Chromium, Hexavalent	ND	0.30	mg/kg wet							
LCS (BDL0358-BS1)				Prepared: 12/30/20 Analyzed: 12/31/20						
Chromium, Hexavalent	24.2	0.30	mg/kg wet	25.0		97.0	80-120			
Duplicate (BDL0358-DUP1)	**Source: 2012254-01**			Prepared: 12/30/20 Analyzed: 12/31/20						
Chromium, Hexavalent	ND	0.30	mg/kg dry		ND				20	
Matrix Spike (BDL0358-MS1)	**Source: 2012254-01**			Prepared: 12/30/20 Analyzed: 12/31/20						
Chromium, Hexavalent	28.0	0.30	mg/kg dry	29.1	ND	96.0	75-125			
Matrix Spike Dup (BDL0358-MSD1)	**Source: 2012254-01**			Prepared: 12/30/20 Analyzed: 12/31/20						
Chromium, Hexavalent	28.0	0.30	mg/kg dry	29.1	ND	96.2	75-125	0.208	20	

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Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0296 - General Preparation										
Blank (BDL0296-BLK1)				Prepared & Analyzed: 12/23/20						
Calcium	ND	10.0	mg/kg wet							
Magnesium	ND	5.00	"							
Sodium	ND	5.00	"							
LCS (BDL0296-BS1)				Prepared & Analyzed: 12/23/20						
Calcium	544	10.0	mg/kg wet	500		109	70-130			
Magnesium	570	5.00	"	500		114	70-130			
Sodium	532	5.00	"	500		106	70-130			
Duplicate (BDL0296-DUP1)	**Source: 2012240-01**			Prepared & Analyzed: 12/23/20						
Calcium	2750	10.5	mg/kg dry		3050			10.4	20	
Magnesium	256	5.24	"		277			7.92	20	
Sodium	150	5.24	"		182			18.8	20	
Matrix Spike (BDL0296-MS1)	**Source: 2012240-01**			Prepared & Analyzed: 12/23/20						
Calcium	3630	10.5	mg/kg dry	524	3050	110	70-130			
Magnesium	897	5.24	"	524	277	118	70-130			
Sodium	742	5.24	"	524	182	107	70-130			
Matrix Spike Dup (BDL0296-MSD1)	**Source: 2012240-01**			Prepared & Analyzed: 12/23/20						
Calcium	3500	10.5	mg/kg dry	524	3050	84.5	70-130	3.78	25	
Magnesium	861	5.24	"	524	277	111	70-130	4.19	25	
Sodium	699	5.24	"	524	182	98.7	70-130	6.02	25	

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Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0285 - General Preparation										
LCS (BDL0285-BS1)				Prepared & Analyzed: 12/23/20						
pH	9.35		pH Units	9.21		102	95-105			
Duplicate (BDL0285-DUP1)		**Source: 2012216-01**		Prepared & Analyzed: 12/23/20						
pH	8.67		pH Units		8.65			0.231	20	
Batch BDL0312 - General Preparation										
Duplicate (BDL0312-DUP1)		**Source: 2012243-04**		Prepared: 12/26/20 Analyzed: 12/28/20						
% Solids	91.5		%		91.9			0.458	20	

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Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Specific Conductance by EPA Method 120.1 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BDL0286 - General Preparation										
Blank (BDL0286-BLK1)				Prepared & Analyzed: 12/23/20						
Specific Conductance (EC)	ND	0.0100	mmhos/cm							
LCS (BDL0286-BS1)				Prepared & Analyzed: 12/23/20						
Specific Conductance (EC)	0.797	0.0100	mmhos/cm	0.750		106	90-110			
Duplicate (BDL0286-DUP1)		**Source: 2012216-01**		Prepared & Analyzed: 12/23/20						
Specific Conductance (EC)	1.15	0.0100	mmhos/cm		1.16			0.390	20	

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S2

Caerus Oil & Gas 143 Diamond Ave. Parachute CO, 81635	Project: A33NW Remediation Project Number: [none] Project Manager: Brett Middleton	**Reported:** 01/08/21 09:53

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference