

February 28, 2024



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Report of Work Completed – Dumpline Release

ECMC Location Name (ID)	CHEVRON D20 696/ (335161)
Client Location Name	D20 696
ECMC Spill/Release Point ID	485745
Legal Description	NWNW Sec. 20 R6S-T96W
Coordinates (Lat/Long)	39.513882 / -108.138932
County	Garfield County, Colorado

Mr. Rollins,

Confluence Compliance Companies, LLC (Confluence) prepared this Report of Work Completed (ROWC) for Caerus Oil & Gas LLC (Caerus) to document remedial investigation activities associated with a release at the D20 696 well pad (Location). The Location is 6.0 miles northwest of Parachute, Colorado, in Garfield County as illustrated in the attached Topographic Map. Additional information on the Location and the associated investigation 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 investigation, results of the investigation, and recommendations for how to proceed with this information.

Background

On December 14, 2023, an inspection conducted on the Location identified gas leaking from the dumpline at a point between the separators and storage tanks. Wells were shut in to control the incident. An unknown amount of produced fluid was released from the dumpline. The release was reported via Energy & Carbon Management Commission (ECMC) Form 19 Document 403626237 to open Spill/Release Point ID 485745.

On January 18, 2024, Confluence provided initial sampling support to characterize soil impacts at the point of release (POR). One soil sample was collected directly beneath the POR at 5 feet below ground surface (bgs) and analyzed for ECMC Table 915-1 soil constituents of concern. Analytical results of the POR characterization sample indicated compliance with Table 915-1 Residential Soil Screening Levels (RSSLs) except for total petroleum hydrocarbons (TPH), benzene, ethylbenzene, xylenes, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, sodium adsorption ratio (SAR), and arsenic. A request for a reduced analyte suite including the listed constituents for future investigations was approved on February 9, 2024, via ECMC Form 19 Document 403626237.

Methodology

On February 6, 2024, following the removal of impacted soil at the POR via excavator, Confluence personnel conducted an excavation assessment. Four samples were collected from the sidewalls at 4 to 5 feet bgs and one sample was collected from the base of the excavation at 7.5 feet bgs. Samples were characterized using visual and olfactory observations and field-screened with a photoionization detector (PID). The samples were collected in laboratory provided jars, immediately placed on ice, shipped under a completed chain-of-custody form to Pace Analytical Services (Pace), and analyzed for SAR, TPH, benzene, toluene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene.

On February 13, 2024, Confluence personnel oversaw the advancement of the POR excavation and conducted additional soil characterization and sampling. One sample was collected from the west sidewall at 12 feet bgs; three samples were collected from the remaining sidewalls at 10 feet bgs; and one sample was collected from the base of the excavation at 16 feet bgs. Approximately 700 cubic yards of soil was removed and disposed at Greenleaf Environmental Services. Samples were characterized using visual and olfactory observations and field-screened with a PID. The samples were collected in laboratory provided jars, immediately placed on ice, shipped under a completed chain-of-custody form to Pace, and analyzed for the approved reduced analyte list.

Results

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

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

Lithology and Hydrogeology

Lithology at the Location is characterized by high-plasticity inorganic clays with gravel dispersed throughout. Precise depth to groundwater data at the Location is unavailable. The nearest available groundwater measurement is from Division of Water Resources (DWR) well permit 2345968, positioned approximately 0.75 miles south of the site at an elevation of 5,560 feet above mean sea level (AMSL). This well has a static water level of 52.36 feet bgs. The Location sits at an elevation of 5,835 feet AMSL. Although exact depth to groundwater at the Location is unknown, it can be inferred to be greater than 300 feet bgs. There are no relevant upgradient groundwater measurement points. Groundwater is anticipated to flow east towards Parachute Creek, and eventually the Colorado River, approximately 6.85 miles southeast of the location.

Excavation Assessment Results – February 6

Field screening of the excavation samples ranged from 1.1 parts per million (ppm) at the south wall of the excavation to 1646 ppm at the base of the excavation. Analytical results indicate compliance with Table 915-1 RSSLs except for SAR at the east and north side walls at levels of 8.68 and 8.38, respectively; and TPH in the base sample at a concentration of 832.7 milligrams per kilogram (mg/kg).



Excavation Assessment Results – February 13

Field screening of the excavation samples ranged from 1.5 ppm at the west wall of the excavation to 18.2 ppm at the base of the excavation. Analytical results indicate compliance with Table 915-1 RSSLs except for SAR at the north wall at 7.04.

Analysis and Recommendations

Although levels of SAR exceeding Table 915-1 RSSLs remain within the investigation area, background data collected from the Location indicate levels of these constituents elevated above allowable limits in native soil. According to the United States Geologic Survey (USGS) and National Resource Conservation Service (NRCS), both the release investigation area and all collected background samples are located within the Torriorthents-Camborthids-Rock outcrop complex soil classification and from a distance of no greater than 350 feet from the Location. Additionally, background samples were collected from an elevation ranging from 5,765 feet AMSL to 5,945 feet AMSL, with a majority of the samples being collected between 5,830 and 5,580 feet AMSL. The elevation of the release area is approximately 5,835 feet AMSL and extends to a depth of 16 feet bgs, or 5,814 feet AMSL. Due to these considerations, it is reasonable to conclude that the background sample data is representative of soil conditions at the Location.

Statistical analysis of background samples indicates lower and upper outlier (LOL and UOL) SAR values ranging from -59.24875 to 101.70925 with a 99.9% probability. Additionally, no outliers were observed within the dataset and the mean value of all SAR background samples was 26.542. Characterization samples did not indicate a SAR value above 8.68 within the entire excavation. Based on these results and in accordance with Table 915-1 Footnote 1, Confluence recommends that Caerus request to establish an alternative allowable limit of 8.68 for SAR, based on the highest value within the excavation. The complete background analysis is included as an attachment.

Assuming the alternative allowable limits are approved, all constituents of concern are compliant with Table 915-1 RSSLs. Confluence concludes that impacts associated with the dumpline release at the D20 696 well pad have been adequately removed and recommends Caerus request closure of Spill/Release Point ID 485745 with a no further action (NFA) determination.



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

Regards,

Andrew Smith

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Attachments

- Topographic Location Map
- Site Diagram – Excavation Investigation
- Site Diagram – Background Samples
- Photographic Log
- Background Statistical Analysis
- Soil Analytical Results Tables
- Laboratory Reports



Topographic Location Map

Caerus Oil and Gas LLC

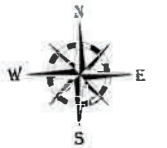
D20 696

(CHEVRON D20 696/)

ECMC Location ID: 335161

Garfield County

NWNW Sec. 20 T6S-R96W

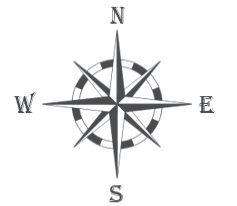


Topographic map sourced from Esri using data provided by United States Geological Survey

Created by: Alex Slorby on 03/02/2023.

Site Diagram Excavation Investigation

Caerus Oil and Gas LLC
D20 696
(CHEVRON D20 696/)
ECMC Location ID: 335161
Garfield County
NWNW Sec. 20 T6S-R96W



Legend

- Soil Sample
- Final Excavation Extent

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: Amanda Baca on 02/23/2024.



Site Diagram Background Samples

Caerus Oil and Gas LLC

D20 696

(CHEVRON D20 696/)

ECMC Location ID: 335161

Garfield County

NWNW Sec. 20 T6S-R96W



Legend

Background Soil Sample

Excavation Extent – 01/18/2024

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: Alex Storby on 02/05/2024.





Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)



February 6, 2024 - Site Overview: Orientation Southwest



Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)



February 6, 2024 - Excavation: Orientation Southwest



Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)



February 6, 2024 - Excavation: Orientation Northeast



Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)



February 13, 2024 - Excavation Overview: Orientation South



Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)

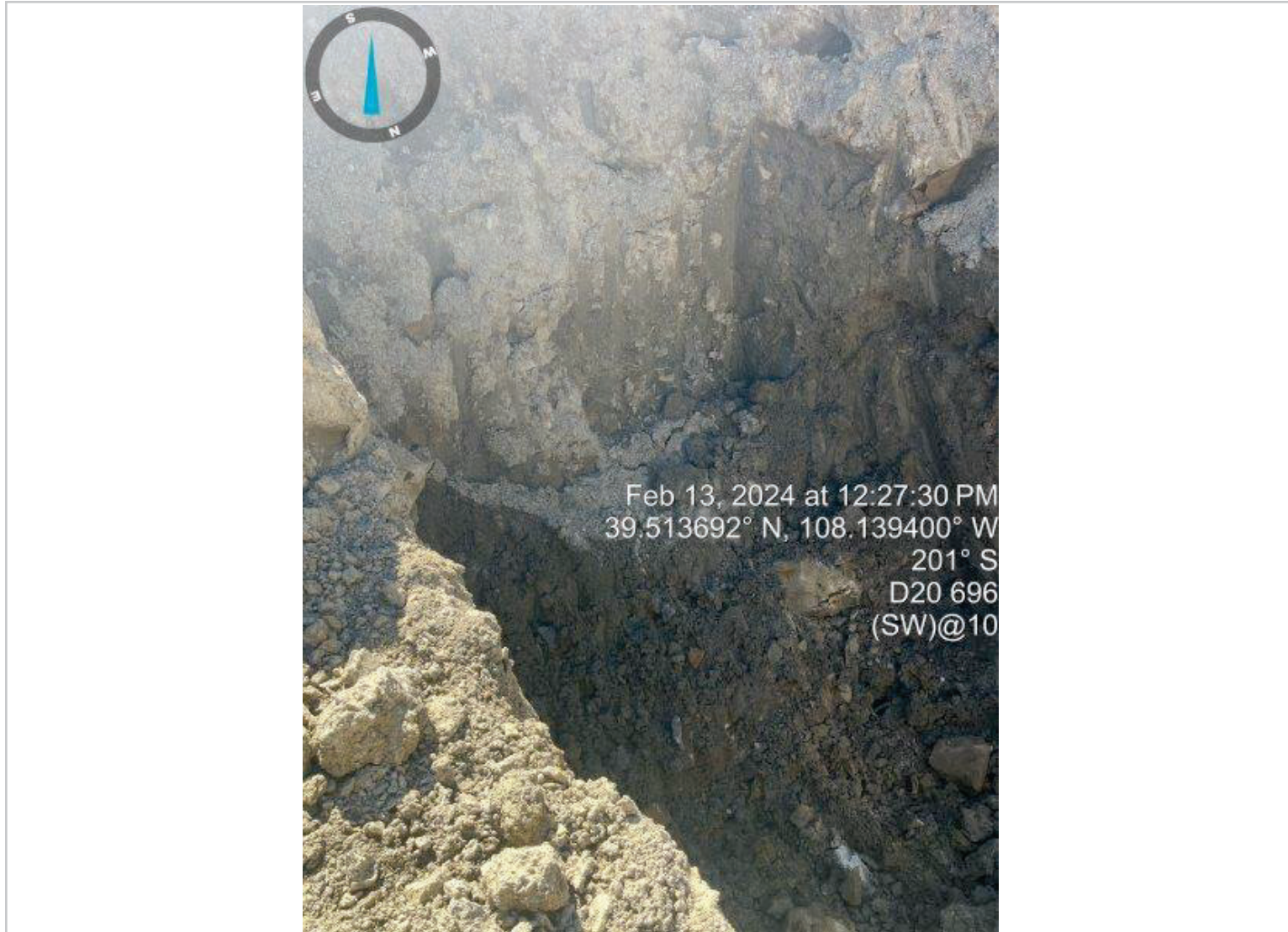


February 13, 2024 - (BASE)@16 Sample Location



Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)

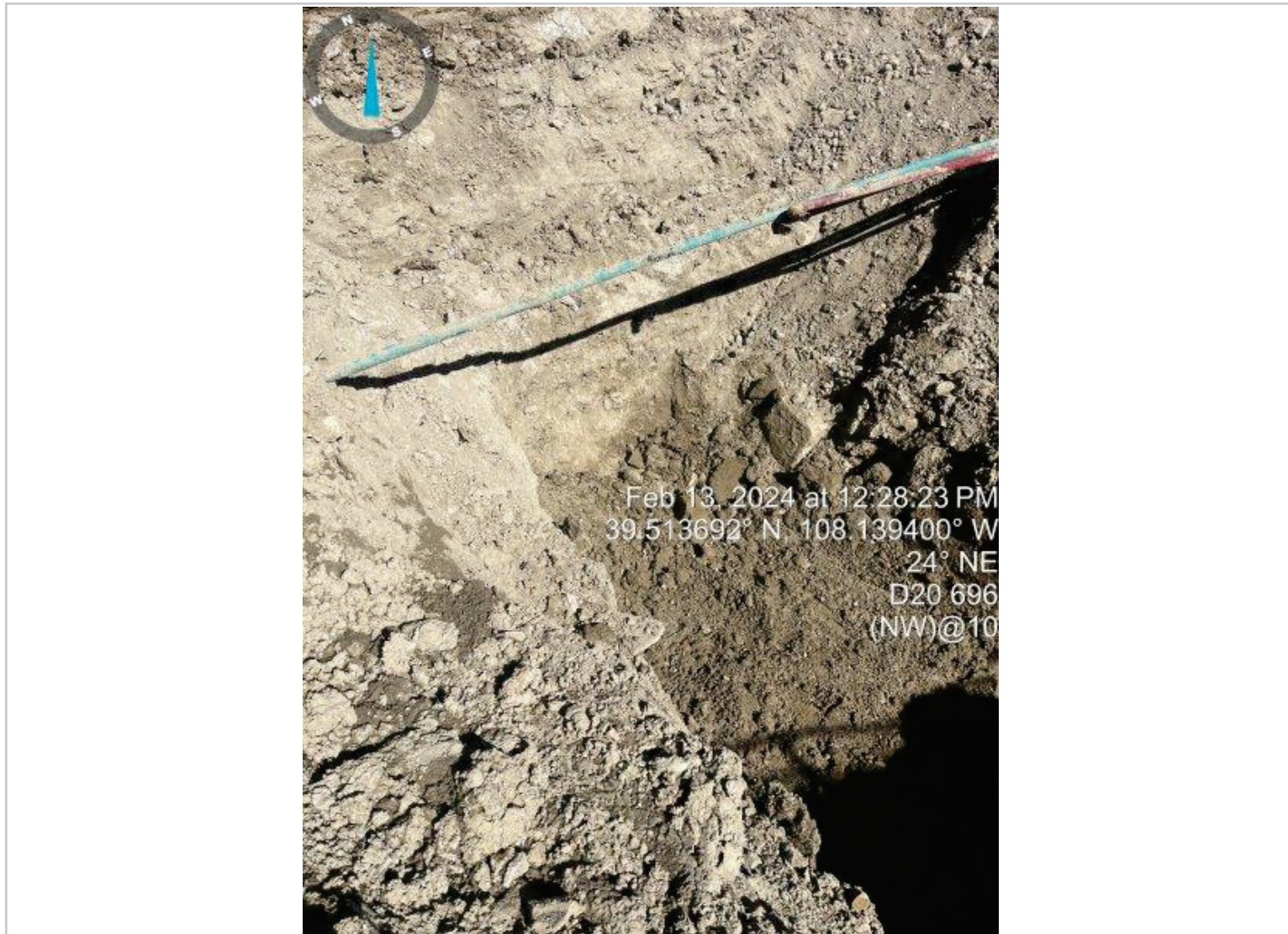


February 13, 2024 - (SW)@10 Sample Location



Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)



February 13, 2024 - (NW)@10 Sample Location



Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)



February 13, 2024 - (EW)@10 Sample Location



Photographic Log

Remediation Investigation
D20 626 (ECMC Location ID: 335161)



February 13, 2024 - (WW)@12 Sample Location

Background Statistical Analysis

CHEVRON D20 696/ (335161) D20 696 Dumpline Release

Results

These results summarize statistical data analysis of the analytical set of site-specific background samples collected to date. For organizational and presentation purposes, the results are summarized individually for each constituent of concern. A summary of statistical formulas and calculations has been included to present the process by which the statistical dataset was developed. Laboratory analytical data has been summarized in the Analytical Results Summary Table.

Background Statistical Analysis summary tables are provided for both datasets and a normal distribution graph has been provided to understand the central tendency, spread, and the probability of observing a specific range of values within the dataset.

Descriptive Dataset

Descriptive statistics involve the use of numerical and graphical methods to summarize and describe essential features of a dataset. The primary goal of descriptive statistics is to present the data in a meaningful and concise manner, enabling easy interpretation and understanding of the dataset characteristics. These statistical measures and techniques are commonly used to gain insights into the central tendencies, variability, and distribution of the data.

Inferential Dataset

Inferential statistics involves drawing conclusions or making predictions about a population based on a sample of data from that population. It aims to make inferences or generalizations about the entire population using the information gathered from a representative subset of that population and provides a range of values within which the population parameter is likely to exist.

SAR Background Results

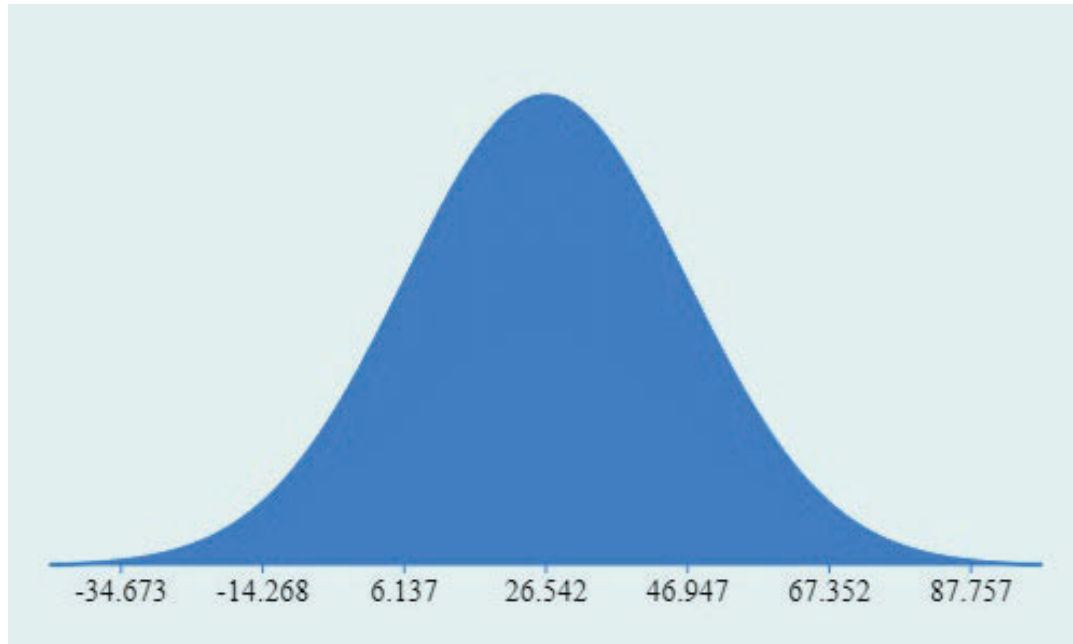
Descriptive Data

Count	13
Sum	345.047
Mean (Average)	26.542
Median	30.7
Mode	38.7 appeared 2 times
Largest	62.5
Smallest	0.0447
Range	62.4553
Geometric Mean	7.531
Standard Deviation	20.405

Variance	416.347
Sample Standard Deviation	21.238
Sample Variance	451.043

Inferential Data

First Quartile	1.1105
Third Quartile	41.35
Interquartile Range	40.2395
Lower Outlier Limit (LOL)	-59.24875
Upper Outlier Limit (UOL)	101.70925
Z-Score	-4.2 < Z < 3.68
Area (Probability)	99.9%
Significant Outliers from Dataset	-59.24875 and below (0 samples) 101.70925 and above (0 samples)



Calculations

Count	Total number of data points
Sum	Total sum of all data points
Mean (Average)	Sum / Count
Median	Middle value of assorted data (if odd count) Average of two middle values (if even count)
Mode	Value that appears most frequently
Largest	Largest value of dataset
Smallest	Smallest value of dataset
Range	Largest - Smallest
Geometric Mean	$(x_1 * x_2 * x_3 * \dots * x_n)^{(1/n)}$ xn represents the individual positive numbers in the dataset. n represents the total number of data points in the dataset.
Standard Deviation (σ)	$\sqrt{[\Sigma(x_i - \mu)^2 / N]}$ Σ represents the sum of the values. xi is an individual data point in the population. μ is the population mean. N is the total number of data points in the population.
Variance	$(\Sigma(x_i - \bar{x})^2) / N$ xi is an individual data point \bar{x} is the population mean N is the total number of data points.
Sample Standard Deviation (s)	$\sqrt{[\Sigma(x_i - \bar{x})^2 / (n - 1)]}$ Σ represents the sum of the values. xi is an individual data point in the sample. \bar{x} is the sample mean. n is the total number of data points in the sample.
Sample Variance (s^2)	$\Sigma(x_i - \bar{x})^2 / (n - 1)$ Σ represents the sum of the values. xi is an individual data point in the sample. \bar{x} is the sample mean. n is the total number of data points in the sample.
First Quartile (Q1)	With data in ascending order: Position (p) in the dataset. $(0.25) * (n + 1)$ n is the total number of data points. For an odd number of data points (n): $p(0.25) * (n + 1)$ For an even number of data points (n): Avg $p(0.25) * n$ and $(0.25) * (n + 1)$
Third Quartile (Q3)	With data in ascending order: Position (p) in the dataset. $(0.75) * (n + 1)$ n is the total number of data points. For an odd number of data points (n):



	$p(0.75) * (n + 1)$ For an even number of data points (n): Avg $p(0.75) * n$ and $(0.75) * (n + 1)$
Interquartile Range (IQR)	$Q3 - Q1$
Lower Outlier Limit (LOL)	$Q1 - 1.5 * IQR$
Upper Outlier Limit (UOL)	$Q3 + 1.5 * IQR$
Z-Score	$\frac{(x - \mu)}{\sigma}$ x is the individual data point. μ is the mean of the dataset. σ is the standard deviation of the dataset.
Area (Probability)	$F(x) = \Phi\left(\frac{x - \mu}{\sigma}\right)$ F(x) is the probability that a random variable from the normal distribution is less than or equal to x. Φ is the standard normal cumulative distribution function. μ is the mean of the normal distribution. σ is the standard deviation of the normal distribution.
Significant Outliers from Dataset	Any data point below the LOL or above the UOL
Normal Distribution Graph	Parameters needed: <ul style="list-style-type: none"> • Mean (μ) • Standard Deviation (σ) Define the Range: <ul style="list-style-type: none"> • Lower Outlier Limit • Upper Outlier Limit Calculate the probabilities or frequencies: <ul style="list-style-type: none"> • For each value in the chosen range, calculate the probability ($F(x) = \Phi((x - \mu) / \sigma)$) Plot the points on the graph: <ul style="list-style-type: none"> • x, y coordinates <ul style="list-style-type: none"> ○ x represents the values in the range ○ y represents the corresponding probabilities or frequencies.

Definitions

Count	Total number of data points
Sum	Total sum of all data points
Mean (Average)	Measure that represents the central tendency of a set of numbers.
Median	Middle value of a dataset when the values are arranged in ascending or descending order.)
Mode	Most frequently occurring value in a dataset
Largest	Largest value of dataset
Smallest	Smallest value of dataset
Range	Measure of dispersion that indicates the spread or extent of a dataset

Geometric Mean	Average that is used to calculate the central tendency of a set of positive numbers or values
Standard Deviation (σ)	Quantifies amount individual data points deviate from the mean of the dataset.
Variance	Amount the individual data points deviate from the mean.
Sample Standard Deviation (s)	Estimates the variability of the data based on a subset of observations from the population.
Sample Variance (s^2)	Estimates the variability of the data based on the sample.
First Quartile (Q1)	The value below which approximately 25% of the data points in the dataset lie.
Third Quartile (Q3)	The value below which approximately 75% of the data points in the dataset lie.
Interquartile Range (IQR)	The range of the middle 50% of the data.
Lower Outlier Limit (LOL)	Threshold used to identify lowest potential outliers in a dataset.
Upper Outlier Limit (UOL)	Threshold used to identify highest potential outliers in a dataset.
Z-Score	Quantifies the distance of a data point from the mean of a dataset, expressed in terms of standard deviations.
Area (Probability)	Likelihood that a random variable falls within a specific range of values.
Significant Outliers from Dataset	Data points in a dataset that deviate significantly from the rest of the data
Normal Distribution Graph	Graphical representation of the normal distribution of a dataset.





SOIL ANALYTICAL RESULTS TABLE
D20 696

Analyte 915-1 PROTECTION OF GW 915-1 RESIDENTIAL SOIL			GRO	DRO	ORO	Benzene	Toluene	Ethylbenzene	Total Xylenes	1,2,4-TMB	1,3,5-TMB	Acenaphthene	Anthracene	Benz(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)Pyre	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Pyrene	
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample Date	Lab Report	Units																								
20240118-D20 696-(POR)@5	01/18/2024	L1698093	4270	200	6.10	14.5	122	18.3	225	31.5	32.2	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	< 0.00600	0.0220	0.0721	0.0461	< 0.00600	
20240206-D20 696-(BASE)@7.5	02/06/2024	L1703160	686	124	22.7	< 0.0200	0.114	1.39	10.1	7.52	7.31																
20240206-D20 696-(EW)@4	02/06/2024	L1703160	0.353	6.63	13.8	< 0.00100	< 0.00500	0.00314	0.0669	0.00814	0.00963																
20240206-D20 696-(NW)@4	02/06/2024	L1703160	186	< 4.00	8.70	0.0159	0.784	0.329	5.18	1.10	1.18																
20240206-D20 696-(SW)@5	02/06/2024	L1703160	0.580	< 4.00	11.7	0.00170	0.0607	0.0183	0.217	0.0230	0.0226																
20240206-D20 696-(WW)@4	02/06/2024	L1703160	1.57	5.63	13.8	0.00105	0.0568	0.0239	0.403	0.0444	0.0477																
20240213-D20 696-(BASE)@16	02/13/2024	L1706192	0.339	< 4.00	5.41	< 0.00100	< 0.00500	< 0.00250	< 0.00650	< 0.00500	< 0.00500																
20240213-D20 696-(EW)@10	02/13/2024	L1706192	0.344	< 4.00	< 4.00	< 0.00100	< 0.00500	< 0.00250	0.0129	0.00518	0.0113																
20240213-D20 696-(NW)@10	02/13/2024	L1706192	0.394	4.07	10.9	< 0.00100	< 0.00500	< 0.00250	< 0.00650	< 0.00500	< 0.00500																
20240213-D20 696-(SW)@10	02/13/2024	L1706192	0.526	< 4.00	< 4.00	< 0.00100	< 0.00500	< 0.00250	< 0.00650	< 0.00500	0.00928																
20240213-D20 696-(WW)@12	02/13/2024	L1706192	0.308	11.8	33.8	< 0.00100	< 0.00500	< 0.00250	< 0.00650	< 0.00500	< 0.00500																

Notes:
 Bold with silver highlight: Exceeds RSSLs
 Bold with blue highlight: Exceeds POGs
 "<" (as in, less than laboratory reporting detection limit)



**SOIL ANALYTICAL RESULTS TABLE
D20 696**

Analyte			EC	SAR	pH	Boron	Arsenic	Barium	Cadmium	Chromium VI	Copper	Lead	Nickel	Selenium	Silver	Zinc
915-1 PROTECTION OF GW			4000	6	8.3	2	0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
915-1 RESIDENTIAL SOIL			4000	6	8.3	2	0.68	15000	71	0.3	3100	400	1500	390	390	23000
Units			umhos/cm	No Unit	SU	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Sample Name	Sample Date	Lab Report														
20240118-D20 696-(POR)@5	01/18/2024	L1698093	3940	7.35	7.93	0.465	6.15	169	< 1.00	< 1.00	16.0	10.4	21.0	< 2.50	< 0.500	63.7
20240206-D20 696-(BASE)@7.5	02/06/2024	L1703159		2.73												
20240206-D20 696-(EW)@4	02/06/2024	L1703159		8.68												
20240206-D20 696-(NW)@4	02/06/2024	L1703159		8.38												
20240206-D20 696-(SW)@5	02/06/2024	L1703159		5.52												
20240206-D20 696-(WW)@4	02/06/2024	L1703159		5.95												
20240213-D20 696-(BASE)@16	02/13/2024	L1706192		5.50												
20240213-D20 696-(EW)@10	02/13/2024	L1706192		1.86												
20240213-D20 696-(NW)@10	02/13/2024	L1706192		7.04												
20240213-D20 696-(SW)@10	02/13/2024	L1706192		2.64												
20240213-D20 696-(WW)@12	02/13/2024	L1706192		2.75												

Notes:
 Bold with silver highlight: Exceeds RSSLs
 Bold with blue highlight: Exceeds POGs
 "<" (as in, less than laboratory reporting detection limit)



**SOIL ANALYTICAL RESULTS TABLE
NPRBG**

Analyte			EC	SAR	pH	Boron	Boron	Arsenic	Barium	Cadmium	Chromium VI	Copper	Lead	Nickel	Selenium	Silver	Zinc	
915-1 PROTECTION OF GW			4000	6	8.3	2	2	0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370	
915-1 RESIDENTIAL SOIL			4000	6	8.3	2	2	0.68	15000	71	0.3	3100	400	1500	390	390	23000	
Sample Name	Sample Date	Lab Report	Units	umhos/cm	No Unit	SU	mg/kg	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
20230228_D20_BG01 @ 1FT_20230228	02/28/2023	L1590238		173	1.83	9.02		0.809	6.70	192	0.470	< 1.00	13.3	10.3	14.0	0.639	< 0.500	54.7
20230228_D20_BG02 @ 1FT_20230228	02/28/2023	L1590238		294	0.391	8.00		0.759	16.4	269	0.537	< 1.00	11.2	10.7	8.68	0.957	< 0.500	28.7
20230228_D20_BG03 @ 1FT_20230228	02/28/2023	L1590238		1210	0.0814	7.81		0.670	4.30	90.2	0.763	< 1.00	15.4	12.2	20.1	1.10	< 0.500	68.5
20230228_D20_BG04 @ 1FT_20230228	02/28/2023	L1590238		651	0.0447	7.57		0.759	1.79	58.0	0.706	< 1.00	29.2	17.4	19.2	0.563	0.109	90.6
20230417-NPRBG-(020 696-N01)@0.25	04/17/2023	L1606586		6350	33.7	7.95		1.56	7.09	155	0.613	< 1.00	15.5	12.4	14.7	0.851	0.0907	59.5
20230417-NPRBG-(020 696-W01)@0.25	04/17/2023	L1606586		12400	30.7	8.22		0.394	2.18	31.7	0.376	< 1.00	11.5	8.58	9.86	0.440	< 0.500	42.4
20231010-NPRBG-(020696-W-10:57)@2	10/10/2023	L1665062							7.48									
									7.81									
									9.27									
20231010-NPRBG-(D20 696-N-11:17)@1.75	10/10/2023	L1665079							4.53									
									4.44									
									6.61									
20231010-NPRBG-(D20 696-N-11:37)@3	10/10/2023	L1665072							2.93									
									2.27									
									2.42									
20231010-NPRBG-(D20 696-N-11:52)@1.5	10/10/2023	L1665070							4.70									
									4.17									
									5.30									
20231010-NPRBG-(D20 696-W-10:26)@1.5	10/10/2023	L1665068							9.05									
									14.0									
									14.8									
20231010-NPRBG-(D20 696-W-10:43)@2	10/10/2023	L1665065							13.4									
									14.3									
									12.4									
CP-D20-1	11/15/2023	L1679463		11900	23.9	8.09			10.9									
CP-D20-1R	11/15/2023	L1685445							7.95									
									7.26									
									8.56									
CP-D20-2	11/15/2023	L1679463		12600	18.0	8.01			5.36									
CP-D20-3	11/15/2023	L1679463		19300	52.5	8.17			6.31									
CP-D20-4	11/15/2023	L1679463		17700	62.5	8.33			4.97									
CP-D20-5	11/15/2023	L1679463		18600	38.7	8.26			4.75									
CP-D20-6	11/15/2023	L1679463		15800	44.0	8.32			5.37									
CP-D20-7	11/15/2023	L1679463		16400	38.7	8.18			5.62									
CP-D20-REF 1	11/15/2023	L1685445				8.45												
						8.46												
CP-D20-REF 2	11/15/2023	L1685445				8.51												
						8.44												
						8.45												
CP-D20-REF 3	11/15/2023	L1685445				8.61												
						8.59												
						8.57												

Notes:
 Bold with silver highlight: Exceeds RSSLS
 Bold with blue highlight: Exceeds POGs
 "<" (as in, less than laboratory reporting detection limit)

Caerus Oil and Gas

Sample Delivery Group: L1698093
Samples Received: 01/23/2024
Project Number: D20 696 DUMPLINE REL
Description: D20 696 Dumpline Release
Site: D20 696
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



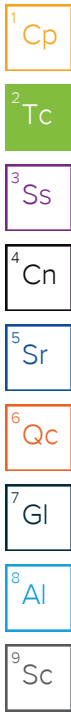
Chris Ward
Project Manager

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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

20240118-D20 696-(POR)@5 L1698093-01 Solid

Collected by: Andrew Smith
 Collected date/time: 01/18/24 11:45
 Received date/time: 01/23/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2213339	1	01/28/24 11:28	01/28/24 11:28	DJS	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2211966	1	01/24/24 17:22	01/25/24 09:47	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2212488	1	01/24/24 16:41	01/25/24 10:00	KRB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2213346	1	01/25/24 16:56	01/27/24 13:30	KRB	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2213340	1	01/27/24 09:50	01/27/24 19:09	DJS	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2212508	5	01/24/24 16:25	01/25/24 00:41	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2216123	5000	01/24/24 21:42	01/31/24 05:08	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2214063	40	01/24/24 21:42	01/26/24 19:17	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2215085	800	01/24/24 21:42	01/28/24 23:04	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2211903	1	01/24/24 15:54	01/25/24 14:52	JAS	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG2211913	1	01/24/24 16:59	01/25/24 20:24	AGW	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.35		1	01/28/2024 11:28	WG2213339

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND		1.00	1	01/25/2024 09:47	WG2211966

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.93	<u>T8</u>	1	01/25/2024 10:00	WG2212488

Sample Narrative:

L1698093-01 WG2212488: 7.93 at 20.4C

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	3940		10.0	1	01/27/2024 13:30	WG2213346

Sample Narrative:

L1698093-01 WG2213346: at 25C

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.465		0.200	1	01/27/2024 19:09	WG2213340

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	6.15		1.00	5	01/25/2024 00:41	WG2212508
Barium	169		2.50	5	01/25/2024 00:41	WG2212508
Cadmium	ND		1.00	5	01/25/2024 00:41	WG2212508
Copper	16.0		5.00	5	01/25/2024 00:41	WG2212508
Lead	10.4		2.00	5	01/25/2024 00:41	WG2212508
Nickel	21.0		2.50	5	01/25/2024 00:41	WG2212508
Selenium	ND		2.50	5	01/25/2024 00:41	WG2212508
Silver	ND		0.500	5	01/25/2024 00:41	WG2212508
Zinc	63.7		25.0	5	01/25/2024 00:41	WG2212508

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	4270		500	5000	01/31/2024 05:08	WG2216123
(S) a, a, a-Trifluorotoluene(FID)	91.1		77.0-120		01/31/2024 05:08	WG2216123

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	14.5		0.0400	40	01/26/2024 19:17	WG2214063
Toluene	122		4.00	800	01/28/2024 23:04	WG2215085
Ethylbenzene	18.3		0.100	40	01/26/2024 19:17	WG2214063
Xylenes, Total	225		5.20	800	01/28/2024 23:04	WG2215085
1,2,4-Trimethylbenzene	31.5		0.200	40	01/26/2024 19:17	WG2214063
1,3,5-Trimethylbenzene	32.2		0.200	40	01/26/2024 19:17	WG2214063
(S) Toluene-d8	95.9		75.0-131		01/26/2024 19:17	WG2214063
(S) Toluene-d8	97.6		75.0-131		01/28/2024 23:04	WG2215085
(S) 4-Bromofluorobenzene	109		67.0-138		01/26/2024 19:17	WG2214063
(S) 4-Bromofluorobenzene	90.3		67.0-138		01/28/2024 23:04	WG2215085
(S) 1,2-Dichloroethane-d4	88.4		70.0-130		01/26/2024 19:17	WG2214063
(S) 1,2-Dichloroethane-d4	99.0		70.0-130		01/28/2024 23:04	WG2215085

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	200		4.00	1	01/25/2024 14:52	WG2211903
C28-C36 Motor Oil Range	6.10		4.00	1	01/25/2024 14:52	WG2211903
(S) o-Terphenyl	46.0		18.0-148		01/25/2024 14:52	WG2211903

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Anthracene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Benzo(a)anthracene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Benzo(b)fluoranthene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Benzo(k)fluoranthene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Benzo(a)pyrene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Chrysene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Dibenz(a,h)anthracene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Fluoranthene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Fluorene	ND		0.00600	1	01/25/2024 20:24	WG2211913
Indeno(1,2,3-cd)pyrene	ND		0.00600	1	01/25/2024 20:24	WG2211913
1-Methylnaphthalene	0.0220		0.0200	1	01/25/2024 20:24	WG2211913
2-Methylnaphthalene	0.0721		0.0200	1	01/25/2024 20:24	WG2211913
Naphthalene	0.0461		0.0200	1	01/25/2024 20:24	WG2211913
Pyrene	ND		0.00600	1	01/25/2024 20:24	WG2211913
(S) p-Terphenyl-d14	73.5		23.0-120		01/25/2024 20:24	WG2211913
(S) Nitrobenzene-d5	0.000	<u>J2</u>	14.0-149		01/25/2024 20:24	WG2211913
(S) 2-Fluorobiphenyl	52.5		34.0-125		01/25/2024 20:24	WG2211913

Sample Narrative:

L1698093-01 WG2211913: Surrogate failure due to matrix interference

Method Blank (MB)

(MB) R4026354-1 01/25/24 08:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1698107-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1698107-01 01/25/24 13:39 • (DUP) R4026354-3 01/25/24 13:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

L1698555-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1698555-02 01/25/24 15:06 • (DUP) R4026354-9 01/25/24 15:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R4026354-2 01/25/24 09:04

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	10.9	109	80.0-120	

L1698107-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1698107-02 01/25/24 13:51 • (MS) R4026354-4 01/25/24 13:57 • (MSD) R4026354-5 01/25/24 14:04

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	ND	9.94	13.1	49.7	65.3	1	75.0-125	<u>J6</u>	<u>J3 J6</u>	27.2	20

L1698107-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1698107-02 01/25/24 13:51 • (MS) R4026354-6 01/25/24 14:10

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Hexavalent Chromium	656	ND	759	116	50	75.0-125	

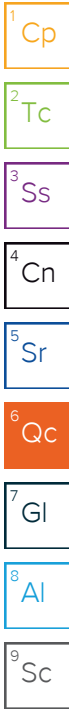
L1698104-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1698104-02 01/25/24 10:00 • (DUP) R4026120-2 01/25/24 10:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	8.55	8.55	1	0.000		1

Sample Narrative:

OS: 8.55 at 20.2C
 DUP: 8.55 at 20.3C



L1698107-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1698107-02 01/25/24 10:00 • (DUP) R4026120-3 01/25/24 10:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.95	7.98	1	0.377		1

Sample Narrative:

OS: 7.95 at 20.4C
 DUP: 7.98 at 20.4C

Laboratory Control Sample (LCS)

(LCS) R4026120-1 01/25/24 10:00

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

Sample Narrative:

LCS: 10 at 20.2C

Method Blank (MB)

(MB) R4026897-1 01/27/24 13:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1698097-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1698097-01 01/27/24 13:30 • (DUP) R4026897-3 01/27/24 13:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	2240	2240	1	0.0892		20

Sample Narrative:

OS: at 25C
DUP: at 25C

L1698544-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1698544-03 01/27/24 13:30 • (DUP) R4026897-4 01/27/24 13:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	4550	4540	1	0.220		20

Sample Narrative:

OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4026897-2 01/27/24 13:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	327	322	98.5	85.0-115	

Sample Narrative:

LCS: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4026965-1 01/27/24 18:48

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

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

(LCS) R4026965-2 01/27/24 18:50 • (LCSD) R4026965-3 01/27/24 18:51

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	0.998	1.04	99.8	104	80.0-120			3.72	20

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

Method Blank (MB)

(MB) R4026085-1 01/24/24 23:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R4026085-2 01/24/24 23:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	96.3	96.3	80.0-120	
Barium	100	88.6	88.6	80.0-120	
Cadmium	100	95.2	95.2	80.0-120	
Copper	100	94.2	94.2	80.0-120	
Lead	100	90.7	90.7	80.0-120	
Nickel	100	97.2	97.2	80.0-120	
Selenium	100	95.4	95.4	80.0-120	
Silver	20.0	18.4	91.9	80.0-120	
Zinc	100	93.6	93.6	80.0-120	

⁷Gl

⁸Al

⁹Sc

L1698091-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1698091-01 01/25/24 00:02 • (MS) R4026085-5 01/25/24 00:12 • (MSD) R4026085-6 01/25/24 00:15

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	3.77	96.0	100	92.3	96.3	5	75.0-125			4.14	20
Barium	100	170	257	264	87.3	94.6	5	75.0-125			2.78	20
Cadmium	100	ND	95.4	96.7	95.1	96.4	5	75.0-125			1.34	20
Copper	100	10.7	102	104	91.2	93.5	5	75.0-125			2.24	20
Lead	100	9.27	100	103	91.0	93.5	5	75.0-125			2.52	20
Nickel	100	13.0	102	106	88.6	93.1	5	75.0-125			4.30	20
Selenium	100	ND	94.7	93.5	94.0	92.9	5	75.0-125			1.20	20
Silver	20.0	ND	18.6	19.1	93.1	95.5	5	75.0-125			2.60	20
Zinc	100	43.1	131	133	87.6	90.1	5	75.0-125			1.86	20

Method Blank (MB)

(MB) R4028236-3 01/31/24 02:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.543	2.50
^(S) a,a,a-Trifluorotoluene(FID)	92.5			77.0-120

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

(LCS) R4028236-1 01/31/24 01:17 • (LCSD) R4028236-2 01/31/24 01:36

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	5.27	5.21	95.8	94.7	72.0-127			1.15	20
^(S) a,a,a-Trifluorotoluene(FID)				98.3	99.1	77.0-120				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4027045-3 01/26/24 10:38

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Benzene	U		0.000467	0.00100
Ethylbenzene	U		0.000737	0.00250
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	103			75.0-131
(S) 4-Bromofluorobenzene	98.1			67.0-138
(S) 1,2-Dichloroethane-d4	94.7			70.0-130

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

(LCS) R4027045-1 01/26/24 09:03 • (LCSD) R4027045-2 01/26/24 09:22

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Benzene	0.125	0.106	0.0984	84.8	78.7	70.0-123			7.44	20
Ethylbenzene	0.125	0.108	0.105	86.4	84.0	74.0-126			2.82	20
1,2,4-Trimethylbenzene	0.125	0.108	0.0975	86.4	78.0	70.0-126			10.2	20
1,3,5-Trimethylbenzene	0.125	0.111	0.101	88.8	80.8	73.0-127			9.43	20
(S) Toluene-d8				97.8	97.4	75.0-131				
(S) 4-Bromofluorobenzene				102	102	67.0-138				
(S) 1,2-Dichloroethane-d4				94.5	94.8	70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4027400-2 01/28/24 21:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Toluene	U		0.00130	0.00500
Xylenes, Total	U		0.000880	0.00650
<i>(S) Toluene-d8</i>	98.5			75.0-131
<i>(S) 4-Bromofluorobenzene</i>	97.2			67.0-138
<i>(S) 1,2-Dichloroethane-d4</i>	94.8			70.0-130

Laboratory Control Sample (LCS)

(LCS) R4027400-1 01/28/24 20:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Toluene	0.125	0.126	101	75.0-121	
Xylenes, Total	0.375	0.347	92.5	72.0-127	
<i>(S) Toluene-d8</i>			97.7	75.0-131	
<i>(S) 4-Bromofluorobenzene</i>			90.6	67.0-138	
<i>(S) 1,2-Dichloroethane-d4</i>			98.9	70.0-130	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4026083-1 01/25/24 06:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
<i>(S) o-Terphenyl</i>	52.1			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4026083-2 01/25/24 07:13

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
C10-C28 Diesel Range	50.0	33.7	67.4	50.0-150	
<i>(S) o-Terphenyl</i>			58.0	18.0-148	

L1697827-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1697827-01 01/25/24 11:34 • (MS) R4026083-3 01/25/24 11:49 • (MSD) R4026083-4 01/25/24 12:03

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	%	%		%			%	%
C10-C28 Diesel Range	49.2	524	1220	892	1410	748	100	50.0-150	<u>V</u>	<u>J3 V</u>	31.1	20
<i>(S) o-Terphenyl</i>					26.6	57.5		18.0-148	<u>J7</u>	<u>J7</u>		

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4027701-2 01/25/24 10:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00209	0.00600
Anthracene	U		0.00230	0.00600
Benzo(a)anthracene	U		0.00173	0.00600
Benzo(b)fluoranthene	U		0.00153	0.00600
Benzo(k)fluoranthene	U		0.00215	0.00600
Benzo(a)pyrene	U		0.00179	0.00600
Chrysene	U		0.00232	0.00600
Dibenz(a,h)anthracene	U		0.00172	0.00600
Fluoranthene	U		0.00227	0.00600
Fluorene	U		0.00205	0.00600
Indeno(1,2,3-cd)pyrene	U		0.00181	0.00600
1-Methylnaphthalene	U		0.00449	0.0200
2-Methylnaphthalene	U		0.00427	0.0200
Naphthalene	U		0.00408	0.0200
Pyrene	U		0.00200	0.00600
(S) p-Terphenyl-d14	66.3			23.0-120
(S) Nitrobenzene-d5	34.7			14.0-149
(S) 2-Fluorobiphenyl	51.9			34.0-125

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS)

(LCS) R4027701-1 01/25/24 10:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acenaphthene	0.0800	0.0424	53.0	50.0-120	
Anthracene	0.0800	0.0425	53.1	50.0-126	
Benzo(a)anthracene	0.0800	0.0438	54.8	45.0-120	
Benzo(b)fluoranthene	0.0800	0.0427	53.4	42.0-121	
Benzo(k)fluoranthene	0.0800	0.0413	51.6	49.0-125	
Benzo(a)pyrene	0.0800	0.0413	51.6	42.0-120	
Chrysene	0.0800	0.0446	55.8	49.0-122	
Dibenz(a,h)anthracene	0.0800	0.0467	58.4	47.0-125	
Fluoranthene	0.0800	0.0473	59.1	49.0-129	
Fluorene	0.0800	0.0460	57.5	49.0-120	
Indeno(1,2,3-cd)pyrene	0.0800	0.0496	62.0	46.0-125	
1-Methylnaphthalene	0.0800	0.0451	56.4	51.0-121	
2-Methylnaphthalene	0.0800	0.0439	54.9	50.0-120	
Naphthalene	0.0800	0.0423	52.9	50.0-120	
Pyrene	0.0800	0.0419	52.4	43.0-123	

Laboratory Control Sample (LCS)

(LCS) R4027701-1 01/25/24 10:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
(S) p-Terphenyl-d14			65.9	23.0-120	
(S) Nitrobenzene-d5			39.1	14.0-149	
(S) 2-Fluorobiphenyl			49.3	34.0-125	

L1697837-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1697837-10 01/25/24 17:33 • (MS) R4027750-1 01/25/24 17:51 • (MSD) R4027750-2 01/25/24 18:09

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Acenaphthene	0.0776	ND	0.0443	0.0450	57.1	58.3	1	14.0-127			1.57	27
Anthracene	0.0776	ND	0.0501	0.0490	64.6	63.5	1	10.0-145			2.22	30
Benzo(a)anthracene	0.0776	ND	0.0501	0.0497	64.6	64.4	1	10.0-139			0.802	30
Benzo(b)fluoranthene	0.0776	ND	0.0440	0.0430	56.7	55.7	1	10.0-140			2.30	36
Benzo(k)fluoranthene	0.0776	ND	0.0411	0.0420	53.0	54.4	1	10.0-137			2.17	31
Benzo(a)pyrene	0.0776	ND	0.0457	0.0456	58.9	59.1	1	10.0-141			0.219	31
Chrysene	0.0776	ND	0.0464	0.0458	59.8	59.3	1	10.0-145			1.30	30
Dibenz(a,h)anthracene	0.0776	ND	0.0452	0.0451	58.2	58.4	1	10.0-132			0.221	31
Fluoranthene	0.0776	ND	0.0486	0.0481	62.6	62.3	1	10.0-153			1.03	33
Fluorene	0.0776	ND	0.0537	0.0519	69.2	67.2	1	11.0-130			3.41	29
Indeno(1,2,3-cd)pyrene	0.0776	ND	0.0470	0.0467	60.6	60.5	1	10.0-137			0.640	32
1-Methylnaphthalene	0.0776	ND	0.0464	0.0478	59.8	61.9	1	10.0-142			2.97	28
2-Methylnaphthalene	0.0776	ND	0.0465	0.0469	59.9	60.8	1	10.0-137			0.857	28
Naphthalene	0.0776	ND	0.0406	0.0415	52.3	53.8	1	10.0-135			2.19	27
Pyrene	0.0776	ND	0.0423	0.0421	54.5	54.5	1	10.0-148			0.474	35
(S) p-Terphenyl-d14					0.0561	56.6		23.0-120	J2			
(S) Nitrobenzene-d5					0.000	74.0		14.0-149	J2			
(S) 2-Fluorobiphenyl					0.158	48.3		34.0-125	J2			

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

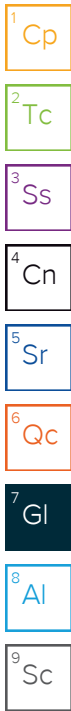
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

Abbreviations and Definitions

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

Qualifier	Description
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

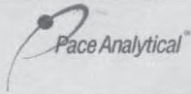
⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



CHAIN-OF-CUSTODY Analytical Request Document

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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

L1698093

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC	Billing Information: Info on file
Address: Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins	Email To: info on file
Copy To: Chris McKisson, remediation@confluence-cc.com	Site Collection Info/Address: NA
Customer Project Name/Number: D20 696 Dumpline Release	State: County/City: Time Zone Collected: CO / Garfield []PT [X]MT []CT []ET

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

Phone: 435-299-0643	Site/Facility ID #: D20 696	Compliance Monitoring? [] Yes [X] No
Email: andy.smith@confluence-cc.com	Purchase Order #: NA	DW PWS ID #: NA
Collected By (print): Andrew Smith	Quote #: NA	DW Location Code: NA
Collected By (signature): <i>Andrew Smith</i>	Turnaround Date Required: Standard Turnaround	Immediately Packed on Ice: [X] Yes [] No
Sample Disposal: [X] Dispose as appropriate [] Return [] Archive: _____ [] Hold: _____	Rush: (Expedite Charges Apply) [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day	Field Filtered (if applicable): [] Yes [] No Analysis: NA

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)	Table 915-1 VOCs	TPH (ORO, GRO, DRO)	Table 915-1 Metals	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	Cr6IC
			Date	Time	Date	Time										
20240118-D20 696-(POR)@5	SL	G			1/18/2024	1145			3	X	X	X	X	X	X	X

Analyses	Lab Profile/Line:
	Lab Sample Receipt Checklist:
	Custody Seals Present/Intact Y N NA
	Custody Signatures Present Y N NA
	Collector Signature Present Y N NA
	Bottles Intact Y N NA
	Correct Bottles Y N NA
	Sufficient Volume Y N NA
	Samples Received on Ice Y N NA
	VOA - Headspace Acceptable Y N NA
	USDA Regulated Soils Y N NA
	Samples in Holding Time Y N NA
	Residual Chlorine Present Y N NA
	Cl Strips: _____
	Sample pH Acceptable Y N NA
	pH Strips: _____
	Sulfide Present Y N NA
	Lead Acetate Strips: _____
	LAB USE ONLY:
	Lab Sample # / Comments:
	-01

Customer Remarks / Special Conditions / Possible Hazards:	Type of Ice Used: Wet Blue Dry None	SHORT HOLDS PRESENT (<72 hours): Y N NA	LAB Sample Temperature Info:
	Packing Material Used:	Lab Tracking #: 6825 5572 2523	Temp Blank Received: Y N NA
	Radchem sample(s) screened (<500 ppm): Y N NA	Samples received via:	Therm ID#: _____
		FEDEX UPS Client Courier Pace Courier	Cooler 1 Temp Upon Receipt: _____ °C
			Cooler 1 Therm Corr. Factor: _____ °C
			Cooler 1 Corrected Temp: _____ °C
			Comments: UPA8 0.8 to 0.8

Relinquished by/Company: (Signature) <i>Andrew Smith</i>	Date/Time: 1/22/24 1200	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: _____	A051	Acctnum: Template: Prelogin:	Trip Blank Received: Y N NA HCL MeOH TSP Other
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time: 1/27/24 1500	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: _____			
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time: _____	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: 1/23/24 930			

Caerus Oil and Gas

Sample Delivery Group: L1703160
Samples Received: 02/07/2024
Project Number:
Description: D20 696 Dumpline Release
Site: D20 696
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



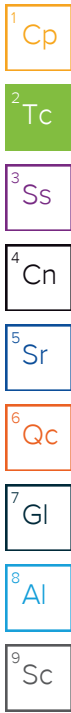
Chris Ward
Project Manager

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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

20240206-D20 696-(BASE)@7.5 L1703160-01 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 09:40
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2223881	200	02/08/24 18:22	02/11/24 14:45	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2224338	20	02/08/24 18:22	02/12/24 07:00	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2223108	1	02/09/24 08:05	02/09/24 20:29	JAS	Mt. Juliet, TN

20240206-D20 696-(WW)@4 L1703160-02 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 09:55
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2223052	1	02/08/24 18:22	02/09/24 02:23	WHS	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2224338	1	02/08/24 18:22	02/12/24 00:00	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2223108	1	02/09/24 08:05	02/10/24 09:43	JAS	Mt. Juliet, TN

20240206-D20 696-(SW)@5 L1703160-03 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 10:15
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2223052	1	02/08/24 18:22	02/09/24 02:47	WHS	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2224338	1	02/08/24 18:22	02/12/24 00:57	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2223114	1	02/10/24 07:42	02/11/24 10:06	KAP	Mt. Juliet, TN

20240206-D20 696-(NW)@4 L1703160-04 Solid

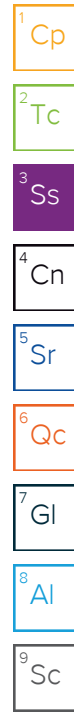
Collected by: Alex Slorby
 Collected date/time: 02/06/24 10:25
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2223881	100	02/08/24 18:22	02/11/24 15:11	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2226043	1	02/08/24 18:22	02/14/24 15:10	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2223114	1	02/10/24 07:42	02/11/24 10:19	KAP	Mt. Juliet, TN

20240206-D20 696-(EW)@4 L1703160-05 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 10:35
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2223052	1	02/08/24 18:22	02/09/24 03:12	WHS	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2224338	1	02/08/24 18:22	02/12/24 01:18	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2223114	1	02/10/24 07:42	02/11/24 09:02	KAP	Mt. Juliet, TN



CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	686		20.0	200	02/11/2024 14:45	WG2223881
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	92.4		77.0-120		02/11/2024 14:45	WG2223881

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		0.0200	20	02/12/2024 07:00	WG2224338
Toluene	0.114		0.100	20	02/12/2024 07:00	WG2224338
Ethylbenzene	1.39		0.0500	20	02/12/2024 07:00	WG2224338
Xylenes, Total	10.1		0.130	20	02/12/2024 07:00	WG2224338
1,2,4-Trimethylbenzene	7.52		0.100	20	02/12/2024 07:00	WG2224338
1,3,5-Trimethylbenzene	7.31		0.100	20	02/12/2024 07:00	WG2224338
(S) Toluene- <i>d8</i>	98.9		75.0-131		02/12/2024 07:00	WG2224338
(S) 4-Bromofluorobenzene	100		67.0-138		02/12/2024 07:00	WG2224338
(S) 1,2-Dichloroethane- <i>d4</i>	84.6		70.0-130		02/12/2024 07:00	WG2224338

Sample Narrative:

L1703160-01 WG2224338: Non-target compounds too high to run at a lower dilution.

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	124		4.00	1	02/09/2024 20:29	WG2223108
C28-C36 Motor Oil Range	22.7		4.00	1	02/09/2024 20:29	WG2223108
(S) <i>o</i> -Terphenyl	33.5		18.0-148		02/09/2024 20:29	WG2223108

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	1.57		0.100	1	02/09/2024 02:23	WG2223052
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	88.3		77.0-120		02/09/2024 02:23	WG2223052

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.00105		0.00100	1	02/12/2024 00:00	WG2224338
Toluene	0.0568	J5	0.00500	1	02/12/2024 00:00	WG2224338
Ethylbenzene	0.0239		0.00250	1	02/12/2024 00:00	WG2224338
Xylenes, Total	0.403	J5	0.00650	1	02/12/2024 00:00	WG2224338
1,2,4-Trimethylbenzene	0.0444		0.00500	1	02/12/2024 00:00	WG2224338
1,3,5-Trimethylbenzene	0.0477	J5	0.00500	1	02/12/2024 00:00	WG2224338
(S) Toluene-d8	102		75.0-131		02/12/2024 00:00	WG2224338
(S) 4-Bromofluorobenzene	91.1		67.0-138		02/12/2024 00:00	WG2224338
(S) 1,2-Dichloroethane-d4	76.1		70.0-130		02/12/2024 00:00	WG2224338

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	5.63		4.00	1	02/10/2024 09:43	WG2223108
C28-C36 Motor Oil Range	13.8		4.00	1	02/10/2024 09:43	WG2223108
(S) <i>o</i> -Terphenyl	28.2		18.0-148		02/10/2024 09:43	WG2223108

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.580		0.100	1	02/09/2024 02:47	WG2223052
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	89.4		77.0-120		02/09/2024 02:47	WG2223052

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.00170		0.00100	1	02/12/2024 00:57	WG2224338
Toluene	0.0607		0.00500	1	02/12/2024 00:57	WG2224338
Ethylbenzene	0.0183		0.00250	1	02/12/2024 00:57	WG2224338
Xylenes, Total	0.217		0.00650	1	02/12/2024 00:57	WG2224338
1,2,4-Trimethylbenzene	0.0230		0.00500	1	02/12/2024 00:57	WG2224338
1,3,5-Trimethylbenzene	0.0226		0.00500	1	02/12/2024 00:57	WG2224338
(S) <i>Toluene-d8</i>	102		75.0-131		02/12/2024 00:57	WG2224338
(S) <i>4-Bromofluorobenzene</i>	92.9		67.0-138		02/12/2024 00:57	WG2224338
(S) <i>1,2-Dichloroethane-d4</i>	79.5		70.0-130		02/12/2024 00:57	WG2224338

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	ND		4.00	1	02/11/2024 10:06	WG2223114
C28-C36 Motor Oil Range	11.7		4.00	1	02/11/2024 10:06	WG2223114
(S) <i>o</i> -Terphenyl	55.3		18.0-148		02/11/2024 10:06	WG2223114

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	186		10.0	100	02/11/2024 15:11	WG2223881
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	86.7		77.0-120		02/11/2024 15:11	WG2223881

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	0.0159		0.00100	1	02/14/2024 15:10	WG2226043
Toluene	0.784		0.00500	1	02/14/2024 15:10	WG2226043
Ethylbenzene	0.329		0.00250	1	02/14/2024 15:10	WG2226043
Xylenes, Total	5.18		0.00650	1	02/14/2024 15:10	WG2226043
1,2,4-Trimethylbenzene	1.10		0.00500	1	02/14/2024 15:10	WG2226043
1,3,5-Trimethylbenzene	1.18		0.00500	1	02/14/2024 15:10	WG2226043
(S) Toluene- <i>d</i> 8	100		75.0-131		02/14/2024 15:10	WG2226043
(S) 4-Bromofluorobenzene	109		67.0-138		02/14/2024 15:10	WG2226043
(S) 1,2-Dichloroethane- <i>d</i> 4	86.8		70.0-130		02/14/2024 15:10	WG2226043

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	ND		4.00	1	02/11/2024 10:19	WG2223114
C28-C36 Motor Oil Range	8.70		4.00	1	02/11/2024 10:19	WG2223114
(S) <i>o</i> -Terphenyl	42.1		18.0-148		02/11/2024 10:19	WG2223114

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.353		0.100	1	02/09/2024 03:12	WG2223052
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	89.1		77.0-120		02/09/2024 03:12	WG2223052

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Benzene	ND		0.00100	1	02/12/2024 01:18	WG2224338
Toluene	ND		0.00500	1	02/12/2024 01:18	WG2224338
Ethylbenzene	0.00314		0.00250	1	02/12/2024 01:18	WG2224338
Xylenes, Total	0.0669		0.00650	1	02/12/2024 01:18	WG2224338
1,2,4-Trimethylbenzene	0.00814		0.00500	1	02/12/2024 01:18	WG2224338
1,3,5-Trimethylbenzene	0.00963		0.00500	1	02/12/2024 01:18	WG2224338
(S) <i>Toluene-d8</i>	102		75.0-131		02/12/2024 01:18	WG2224338
(S) <i>4-Bromofluorobenzene</i>	94.4		67.0-138		02/12/2024 01:18	WG2224338
(S) <i>1,2-Dichloroethane-d4</i>	79.1		70.0-130		02/12/2024 01:18	WG2224338

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
C10-C28 Diesel Range	6.63		4.00	1	02/11/2024 09:02	WG2223114
C28-C36 Motor Oil Range	13.8		4.00	1	02/11/2024 09:02	WG2223114
(S) <i>o</i> -Terphenyl	53.0		18.0-148		02/11/2024 09:02	WG2223114

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4031831-2 02/08/24 23:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0246	↓	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	92.1			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4031831-1 02/08/24 23:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	6.40	116	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			103	77.0-120	

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

Method Blank (MB)

(MB) R4032653-2 02/10/24 23:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
TPH (GC/FID) Low Fraction	2.03	↓	0.543	2.50
(S) a,a,a-Trifluorotoluene(FID)	92.0			77.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS)

(LCS) R4032653-1 02/10/24 22:04

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.57	111	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			104	77.0-120	

5 Sr

6 Qc

7 Gl

L1702492-20 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1702492-20 02/11/24 00:16 • (MS) R4032653-3 02/11/24 15:34 • (MSD) R4032653-4 02/11/24 16:09

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
TPH (GC/FID) Low Fraction	145	ND	150	134	107	95.7	27.5	10.0-151			11.3	28
(S) a,a,a-Trifluorotoluene(FID)					103	103		77.0-120				

8 Al

9 Sc

Method Blank (MB)

(MB) R4033483-3 02/11/24 23:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	102			75.0-131
(S) 4-Bromofluorobenzene	94.4			67.0-138
(S) 1,2-Dichloroethane-d4	79.4			70.0-130

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

(LCS) R4033483-1 02/11/24 21:51 • (LCSD) R4033483-2 02/11/24 22:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.111	0.114	88.8	91.2	70.0-123			2.67	20
Toluene	0.125	0.113	0.117	90.4	93.6	75.0-121			3.48	20
Ethylbenzene	0.125	0.118	0.126	94.4	101	74.0-126			6.56	20
Xylenes, Total	0.375	0.353	0.372	94.1	99.2	72.0-127			5.24	20
1,2,4-Trimethylbenzene	0.125	0.122	0.126	97.6	101	70.0-126			3.23	20
1,3,5-Trimethylbenzene	0.125	0.121	0.125	96.8	100	73.0-127			3.25	20
(S) Toluene-d8				95.8	100	75.0-131				
(S) 4-Bromofluorobenzene				91.6	94.6	67.0-138				
(S) 1,2-Dichloroethane-d4				86.0	86.0	70.0-130				

L1703160-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1703160-02 02/12/24 00:00 • (MS) R4033483-4 02/12/24 07:43 • (MSD) R4033483-5 02/12/24 08:05

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.00105	0.120	0.113	95.2	89.6	1	10.0-149			6.01	37
Toluene	0.125	0.0568	0.325	0.319	215	210	1	10.0-156	J5	J5	1.86	38
Ethylbenzene	0.125	0.0239	0.192	0.191	134	134	1	10.0-160			0.522	38
Xylenes, Total	0.375	0.403	1.38	1.32	261	245	1	10.0-160	J5	J5	4.44	38
1,2,4-Trimethylbenzene	0.125	0.0444	0.244	0.233	160	151	1	10.0-160			4.61	36
1,3,5-Trimethylbenzene	0.125	0.0477	0.256	0.246	167	159	1	10.0-160	J5		3.98	38
(S) Toluene-d8					99.2	101		75.0-131				
(S) 4-Bromofluorobenzene					91.6	91.6		67.0-138				
(S) 1,2-Dichloroethane-d4					82.5	74.4		70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4033766-3 02/14/24 10:26

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	0.000900	↓	0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	97.6			75.0-131
(S) 4-Bromofluorobenzene	99.6			67.0-138
(S) 1,2-Dichloroethane-d4	89.8			70.0-130

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

(LCS) R4033766-1 02/14/24 08:50 • (LCSD) R4033766-2 02/14/24 09:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Benzene	0.125	0.108	0.110	86.4	88.0	70.0-123			1.83	20
Toluene	0.125	0.111	0.114	88.8	91.2	75.0-121			2.67	20
Ethylbenzene	0.125	0.109	0.115	87.2	92.0	74.0-126			5.36	20
Xylenes, Total	0.375	0.315	0.336	84.0	89.6	72.0-127			6.45	20
1,2,4-Trimethylbenzene	0.125	0.119	0.126	95.2	101	70.0-126			5.71	20
1,3,5-Trimethylbenzene	0.125	0.119	0.124	95.2	99.2	73.0-127			4.12	20
(S) Toluene-d8				98.1	98.3	75.0-131				
(S) 4-Bromofluorobenzene				99.4	99.4	67.0-138				
(S) 1,2-Dichloroethane-d4				93.1	89.0	70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4032186-1 02/09/24 15:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
<i>(S) o-Terphenyl</i>	55.9			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4032186-2 02/09/24 16:08

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/kg	mg/kg	%	%	
C10-C28 Diesel Range	50.0	29.7	59.4	50.0-150	
<i>(S) o-Terphenyl</i>			51.2	18.0-148	

L1703202-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1703202-01 02/09/24 18:45 • (MS) R4032186-3 02/09/24 18:58 • (MSD) R4032186-4 02/09/24 19:11

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	%	%		%			%	%
C10-C28 Diesel Range	49.8	ND	32.6	30.5	59.9	55.8	1	50.0-150			6.66	20
<i>(S) o-Terphenyl</i>					37.5	37.8		18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4032338-1 02/11/24 07:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
<i>(S) o-Terphenyl</i>	47.0			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4032338-2 02/11/24 08:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	28.0	56.0	50.0-150	
<i>(S) o-Terphenyl</i>			54.5	18.0-148	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

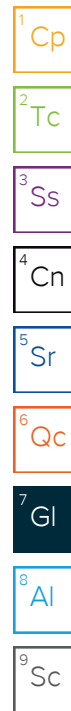
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

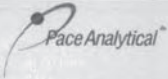
⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



CHAIN-OF-CUSTODY Analytical Request Document

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Company: Caerus Oil and Gas LLC
 Address: Info on file
 Report To: Jake Janicek, Brett Middleton, Blair Rollins, Andy Verbonitz
 Copy To: Chris McKisson, remediation@confluence-cc.com
 Customer Project Name/Number: D20 696 Dumpline Release
 State: County/City: Time Zone Collected:
 CO / Garfield [] PT [X] MT [] CT [] ET

Phone: (701) 721-5415
 Email: alex.slorby@confluence-cc.com
 Collected By (print): Alex Slorby
 Collected By (signature): *Alex Slorby*
 Sample Disposal:
 [X] Dispose as appropriate
 [] Return
 [] Archive:
 [] Hold:

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
20240206-D20 696-(BASE)@7.5	SL	G	2/6/2024	0940			3	G
20240206-D20 696-(WW)@4	SL	G	2/6/2024	0955			3	G
20240206-D20 696-(SW)@5	SL	G	2/6/2024	1015			3	G
20240206-D20 696-(NW)@4	SL	G	2/6/2024	1025			3	G
20240206-D20 696-(EW)@4	SL	G	2/6/2024	1035			3	G

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

Analyses	Lab Profile/Line:	
	TPH (ORO, GRO, DRO)	Lab Sample Receipt Checklist:
BTEX	Custody Seals Present/Intact Y N NA	
1,2,4-trimethylbenzene	Custody Signatures Present Y N NA	
1,3,5-trimethylbenzene	Collector Signatures Present Y N NA	
	Bottles Intact Y N NA	
	Correct Bottles Y N NA	
	Sufficient Volume Y N NA	
	Samples Received on Ice Y N NA	
	VOA - Headspace Acceptable Y N NA	
	USDA Regulated Soils Y N NA	
	Samples in Holding Time Y N NA	
	Residual Chlorine Present Y N NA	
	Cl Strips:	
	Sample pH Acceptable Y N NA	
	pH Strips:	
	Sulfide Present Y N NA	
	Lead Acetate Strips:	
	LAB USE ONLY:	
	Lab Sample # / Comments:	
	11703160	
	- 01	
	- 02	
	- 03	
	- 04	
	- 05	

Customer Remarks / Special Conditions / Possible Hazards:
 Type of Ice Used: Wet Blue Dry None
 Packing Material Used: 6426 8307 0298
 Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
 Lab Tracking #: H225
 Samples received via: FEDEX UPS Client Courier Pace Courier

Relinquished by/Company: (Signature) *Alex Slorby* Date/Time: 2/6/2024 1600 Received by/Company: (Signature) _____
 Relinquished by/Company: (Signature) _____ Date/Time: 2/6/24 1700 Received by/Company: (Signature) _____
 Relinquished by/Company: (Signature) _____ Date/Time: _____ Received by/Company: (Signature) _____

Temp Blank Received: Y N NA
 Therm ID#: _____
 Cooler 1 Temp Upon Receipt: _____ °C
 Cooler 1 Therm Corr. Factor: _____ °C
 Cooler 1 Corrected Temp: _____ °C
 Trip Blank Received: Y N NA
 HCL MeOH TSP Other
 Non Conformance(s): YES / NO Page: 1 of 1

Caerus Oil and Gas

Sample Delivery Group: L1703159
Samples Received: 02/07/2024
Project Number:
Description: D20 696 Dumpline Release
Site: D20 696
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:











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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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20240206-D20 696-(WW)@4 L1703159-02	6	
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SAMPLE SUMMARY

20240206-D20 696-(BASE)@7.5 L1703159-01 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 09:40
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2227064	1	02/16/24 09:26	02/16/24 09:26	JTM	Mt. Juliet, TN

20240206-D20 696-(WW)@4 L1703159-02 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 09:55
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2227064	1	02/16/24 09:29	02/16/24 09:29	JTM	Mt. Juliet, TN

20240206-D20 696-(SW)@5 L1703159-03 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 10:15
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2227064	1	02/16/24 09:38	02/16/24 09:38	JTM	Mt. Juliet, TN

20240206-D20 696-(NW)@4 L1703159-04 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 10:25
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2227064	1	02/16/24 09:40	02/16/24 09:40	JTM	Mt. Juliet, TN

20240206-D20 696-(EW)@4 L1703159-05 Solid

Collected by: Alex Slorby
 Collected date/time: 02/06/24 10:35
 Received date/time: 02/07/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2227064	1	02/16/24 09:43	02/16/24 09:43	JTM	Mt. Juliet, TN



CASE NARRATIVE

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



Chris Ward
Project Manager



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.73		1	02/16/2024 09:26	WG2227064

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Gl

⁷Al

⁸Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.95		1	02/16/2024 09:29	WG2227064

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Gl

⁷Al

⁸Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.52		1	02/16/2024 09:38	WG2227064

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Gl

⁷ Al

⁸ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.38		1	02/16/2024 09:40	WG2227064

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Gl

⁷Al

⁸Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	8.68		1	02/16/2024 09:43	WG2227064

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Gl

⁷Al

⁸Sc

GLOSSARY OF TERMS

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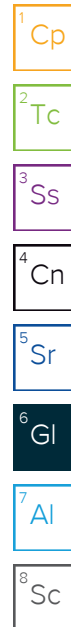
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

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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

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
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Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Gl

⁷ Al

⁸ Sc



CHAIN-OF-CUSTODY Analytical Request Document

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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

Company: Caerus Oil and Gas LLC		Billing Information: Info on file	
Address: Info on file		Info on file	
Report To: Jake Janicek, Brett Middleton, Blair Rollins, Andrew Verbonitz		Email To: info on file	
Copy To: Chris McKisson, remediation@confluence-cc.com		Site Collection Info/Address: NA	
Customer Project Name/Number: D20 696 Dumpline Release		State: County/City: Time Zone Collected: CO / Garfield [] PT [X] MT [] CT [] ET	
Phone: (701) 721-5415	Site/Facility ID #: D20 696	Compliance Monitoring? [] Yes [X] No	
Email: alex.slorby@confluence-cc.com	Purchase Order #: NA	DW PWS ID #:	
Collected By (print): Alex Slorby	Quote #: NA	DW Location Code:	
Collected By (signature): <i>Alex Slorby</i>	Turnaround Date Required: HOLD	Immediately Packed on Ice: [X] Yes [] No	
Sample Disposal: [X] Dispose as appropriate [] Return [] Archive: [] Hold:	Rush: (Expedite Charges Apply) [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day	Field Filtered (if applicable): [] Yes [] No	

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)
			Date	Time	Date	Time			
20240206-D20 696-(BASE)@7.5	SL	G	2/6/2024	0940				3	G
20240206-D20 696-(WW)@4	SL	G	2/6/2024	0955				3	G
20240206-D20 696-(SW)@5	SL	G	2/6/2024	1015				3	G
20240206-D20 696-(NW)@4	SL	G	2/6/2024	1025				3	G
20240206-D20 696-(EW)@4	SL	G	2/6/2024	1035				3	G

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

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

Analyses	Table 915-1 VOC's	TPH (ORO, GRO, DRO)	Table 915-1 Metal's	Table 915-1 PAHs	pH, EC, SAR	Boron (Hot Water Soluble Soil)	CR6IC
	X	X	X	X	X	X	X
	X	X	X	X	X	X	X
	X	X	X	X	X	X	X
	X	X	X	X	X	X	X
	X	X	X	X	X	X	X

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

LAB USE ONLY:
Lab Sample # / Comments: **2170 3159**

-01
-02
-03
-04
-05

Customer Remarks / Special Conditions / Possible Hazards: HOLD FOR ANALYSIS	Type of Ice Used: <input checked="" type="radio"/> Wet Blue Dry None	SHORT HOLDS PRESENT (<72 hours): Y <input checked="" type="radio"/> N/A	LAB Sample Temperature Info: Temp Blank Received: Y N NA Therm ID#: _____ Cooler 1 Temp Upon Receipt: _____ °C Cooler 1 Therm Corr. Factor: _____ °C Cooler 1 Corrected Temp: _____ °C Comments:
	Packing Material Used: 6426 8307 0208	Lab Tracking #:	
	Radchem sample(s) screened (<500 cpm): <input checked="" type="checkbox"/> N NA	Samples received via: <input checked="" type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> Client <input type="checkbox"/> Courier <input type="checkbox"/> Pace Courier	
Relinquished by/Company: (Signature) <i>Alex Slorby</i>	Date/Time: 2/6/2024 1600	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: H224
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time: 2/6/24 1700	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: _____
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time: _____	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: 2/7/24 900

Caerus Oil and Gas

Sample Delivery Group: L1706192
Samples Received: 02/15/2024
Project Number:
Description: D20 696 Dumpline Release
Site: D20 696
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



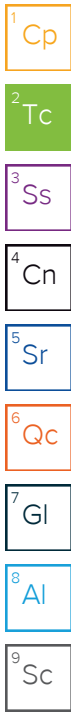
Jason Romer
Project Manager

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

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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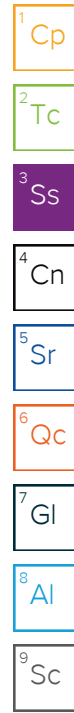


SAMPLE SUMMARY

20240213-D20 696-(NW)@10 L1706192-01 Solid

Collected by: Alex Slorby
 Collected date/time: 02/13/24 10:00
 Received date/time: 02/15/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2228747	1	02/20/24 11:26	02/20/24 11:26	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2228157	1	02/16/24 19:22	02/16/24 21:55	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2228205	1	02/16/24 19:22	02/16/24 22:09	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2227482	1	02/16/24 11:24	02/17/24 12:15	NH	Mt. Juliet, TN



20240213-D20 696-(EW)@10 L1706192-02 Solid

Collected by: Alex Slorby
 Collected date/time: 02/13/24 10:05
 Received date/time: 02/15/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2228747	1	02/20/24 11:28	02/20/24 11:28	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2228157	1	02/16/24 19:22	02/16/24 22:19	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2228205	1	02/16/24 19:22	02/16/24 22:28	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2227482	1	02/16/24 11:24	02/17/24 11:49	NH	Mt. Juliet, TN

20240213-D20 696-(SW)@10 L1706192-03 Solid

Collected by: Alex Slorby
 Collected date/time: 02/13/24 10:10
 Received date/time: 02/15/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2228747	1	02/20/24 11:29	02/20/24 11:29	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2228157	1	02/16/24 19:22	02/16/24 22:44	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2228205	1	02/16/24 19:22	02/16/24 22:47	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2227482	1	02/16/24 11:24	02/17/24 11:36	NH	Mt. Juliet, TN

20240213-D20 696-(BASE)@16 L1706192-04 Solid

Collected by: Alex Slorby
 Collected date/time: 02/13/24 11:35
 Received date/time: 02/15/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2228747	1	02/20/24 11:31	02/20/24 11:31	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2228157	1	02/16/24 19:22	02/16/24 23:09	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2228205	1	02/16/24 19:22	02/16/24 23:06	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2227482	1	02/16/24 11:24	02/17/24 12:02	NH	Mt. Juliet, TN

20240213-D20 696-(WW)@12 L1706192-05 Solid

Collected by: Alex Slorby
 Collected date/time: 02/13/24 12:00
 Received date/time: 02/15/24 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2228747	1	02/20/24 11:32	02/20/24 11:32	DJS	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG2228157	1	02/16/24 19:22	02/16/24 23:34	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2228205	1	02/16/24 19:22	02/16/24 23:25	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015M	WG2227482	1	02/16/24 11:24	02/17/24 12:28	NH	Mt. Juliet, TN

CASE NARRATIVE

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



Jason Romer
Project Manager

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

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	7.04		1	02/20/2024 11:26	WG2228747

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.394	B	0.100	1	02/16/2024 21:55	WG2228157
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	91.3		77.0-120		02/16/2024 21:55	WG2228157

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	02/16/2024 22:09	WG2228205
Toluene	ND		0.00500	1	02/16/2024 22:09	WG2228205
Ethylbenzene	ND		0.00250	1	02/16/2024 22:09	WG2228205
Xylenes, Total	ND		0.00650	1	02/16/2024 22:09	WG2228205
1,2,4-Trimethylbenzene	ND		0.00500	1	02/16/2024 22:09	WG2228205
1,3,5-Trimethylbenzene	ND		0.00500	1	02/16/2024 22:09	WG2228205
(S) <i>Toluene-d8</i>	99.7		75.0-131		02/16/2024 22:09	WG2228205
(S) <i>4-Bromofluorobenzene</i>	102		67.0-138		02/16/2024 22:09	WG2228205
(S) <i>1,2-Dichloroethane-d4</i>	88.6		70.0-130		02/16/2024 22:09	WG2228205

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	4.07		4.00	1	02/17/2024 12:15	WG2227482
C28-C36 Motor Oil Range	10.9		4.00	1	02/17/2024 12:15	WG2227482
(S) <i>o</i> -Terphenyl	35.9		18.0-148		02/17/2024 12:15	WG2227482

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.86		1	02/20/2024 11:28	WG2228747

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.344	B	0.100	1	02/16/2024 22:19	WG2228157
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	91.7		77.0-120		02/16/2024 22:19	WG2228157

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	02/16/2024 22:28	WG2228205
Toluene	ND		0.00500	1	02/16/2024 22:28	WG2228205
Ethylbenzene	ND		0.00250	1	02/16/2024 22:28	WG2228205
Xylenes, Total	0.0129		0.00650	1	02/16/2024 22:28	WG2228205
1,2,4-Trimethylbenzene	0.00518		0.00500	1	02/16/2024 22:28	WG2228205
1,3,5-Trimethylbenzene	0.0113		0.00500	1	02/16/2024 22:28	WG2228205
(S) <i>Toluene-d8</i>	98.1		75.0-131		02/16/2024 22:28	WG2228205
(S) <i>4-Bromofluorobenzene</i>	99.7		67.0-138		02/16/2024 22:28	WG2228205
(S) <i>1,2-Dichloroethane-d4</i>	88.3		70.0-130		02/16/2024 22:28	WG2228205

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	02/17/2024 11:49	WG2227482
C28-C36 Motor Oil Range	ND		4.00	1	02/17/2024 11:49	WG2227482
(S) <i>o</i> -Terphenyl	39.3		18.0-148		02/17/2024 11:49	WG2227482

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	2.64		1	02/20/2024 11:29	WG2228747

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.526	B	0.100	1	02/16/2024 22:44	WG2228157
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	92.0		77.0-120		02/16/2024 22:44	WG2228157

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	02/16/2024 22:47	WG2228205
Toluene	ND		0.00500	1	02/16/2024 22:47	WG2228205
Ethylbenzene	ND		0.00250	1	02/16/2024 22:47	WG2228205
Xylenes, Total	ND		0.00650	1	02/16/2024 22:47	WG2228205
1,2,4-Trimethylbenzene	ND		0.00500	1	02/16/2024 22:47	WG2228205
1,3,5-Trimethylbenzene	0.00928		0.00500	1	02/16/2024 22:47	WG2228205
(S) <i>Toluene-d8</i>	99.6		75.0-131		02/16/2024 22:47	WG2228205
(S) <i>4-Bromofluorobenzene</i>	103		67.0-138		02/16/2024 22:47	WG2228205
(S) <i>1,2-Dichloroethane-d4</i>	88.9		70.0-130		02/16/2024 22:47	WG2228205

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	02/17/2024 11:36	WG2227482
C28-C36 Motor Oil Range	ND		4.00	1	02/17/2024 11:36	WG2227482
(S) <i>o</i> -Terphenyl	48.8		18.0-148		02/17/2024 11:36	WG2227482

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	5.50		1	02/20/2024 11:31	WG2228747

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
TPH (GC/FID) Low Fraction	0.339	B	0.100	1	02/16/2024 23:09	WG2228157
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	92.2		77.0-120		02/16/2024 23:09	WG2228157

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Benzene	ND		0.00100	1	02/16/2024 23:06	WG2228205
Toluene	ND		0.00500	1	02/16/2024 23:06	WG2228205
Ethylbenzene	ND		0.00250	1	02/16/2024 23:06	WG2228205
Xylenes, Total	ND		0.00650	1	02/16/2024 23:06	WG2228205
1,2,4-Trimethylbenzene	ND		0.00500	1	02/16/2024 23:06	WG2228205
1,3,5-Trimethylbenzene	ND		0.00500	1	02/16/2024 23:06	WG2228205
(S) <i>Toluene-d8</i>	101		75.0-131		02/16/2024 23:06	WG2228205
(S) <i>4-Bromofluorobenzene</i>	101		67.0-138		02/16/2024 23:06	WG2228205
(S) <i>1,2-Dichloroethane-d4</i>	88.7		70.0-130		02/16/2024 23:06	WG2228205

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

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
C10-C28 Diesel Range	ND		4.00	1	02/17/2024 12:02	WG2227482
C28-C36 Motor Oil Range	5.41		4.00	1	02/17/2024 12:02	WG2227482
(S) <i>o</i> -Terphenyl	36.7		18.0-148		02/17/2024 12:02	WG2227482

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis	Batch
Sodium Adsorption Ratio	2.75		1	02/20/2024 11:32	WG2228747

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
TPH (GC/FID) Low Fraction	0.308		0.100	1	02/16/2024 23:34	WG2228157
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	91.7	B	77.0-120		02/16/2024 23:34	WG2228157

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
Benzene	ND		0.00100	1	02/16/2024 23:25	WG2228205
Toluene	ND		0.00500	1	02/16/2024 23:25	WG2228205
Ethylbenzene	ND		0.00250	1	02/16/2024 23:25	WG2228205
Xylenes, Total	ND		0.00650	1	02/16/2024 23:25	WG2228205
1,2,4-Trimethylbenzene	ND		0.00500	1	02/16/2024 23:25	WG2228205
1,3,5-Trimethylbenzene	ND		0.00500	1	02/16/2024 23:25	WG2228205
(S) <i>Toluene-d8</i>	99.6		75.0-131		02/16/2024 23:25	WG2228205
(S) <i>4-Bromofluorobenzene</i>	101		67.0-138		02/16/2024 23:25	WG2228205
(S) <i>1,2-Dichloroethane-d4</i>	88.4		70.0-130		02/16/2024 23:25	WG2228205

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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
C10-C28 Diesel Range	11.8		4.00	1	02/17/2024 12:28	WG2227482
C28-C36 Motor Oil Range	33.8		4.00	1	02/17/2024 12:28	WG2227482
(S) <i>o</i> -Terphenyl	44.9		18.0-148		02/17/2024 12:28	WG2227482

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4035206-2 02/16/24 19:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0684	↓	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	91.8			77.0-120

Laboratory Control Sample (LCS)

(LCS) R4035206-1 02/16/24 18:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.00	5.08	102	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			101	77.0-120	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4035175-2 02/16/24 20:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000467	0.00100
Toluene	U		0.00130	0.00500
Ethylbenzene	U		0.000737	0.00250
Xylenes, Total	U		0.000880	0.00650
1,2,4-Trimethylbenzene	U		0.00158	0.00500
1,3,5-Trimethylbenzene	U		0.00200	0.00500
(S) Toluene-d8	99.2			75.0-131
(S) 4-Bromofluorobenzene	99.6			67.0-138
(S) 1,2-Dichloroethane-d4	87.1			70.0-130

Laboratory Control Sample (LCS)

(LCS) R4035175-1 02/16/24 19:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.125	100	70.0-123	
Toluene	0.125	0.123	98.4	75.0-121	
Ethylbenzene	0.125	0.125	100	74.0-126	
Xylenes, Total	0.375	0.377	101	72.0-127	
1,2,4-Trimethylbenzene	0.125	0.130	104	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.127	102	73.0-127	
(S) Toluene-d8			96.6	75.0-131	
(S) 4-Bromofluorobenzene			99.8	67.0-138	
(S) 1,2-Dichloroethane-d4			93.4	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4035101-1 02/17/24 11:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C36 Motor Oil Range	U		0.274	4.00
(S) o-Terphenyl	50.3			18.0-148

Laboratory Control Sample (LCS)

(LCS) R4035101-2 02/17/24 11:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	31.7	63.4	50.0-150	
(S) o-Terphenyl			51.5	18.0-148	

L1705956-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1705956-02 02/17/24 13:20 • (MS) R4035101-3 02/17/24 13:33 • (MSD) R4035101-4 02/17/24 13:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	48.5	10.9	52.6	33.3	86.0	45.8	1	50.0-150		J3 J6	44.9	20
(S) o-Terphenyl					38.7	42.8		18.0-148				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

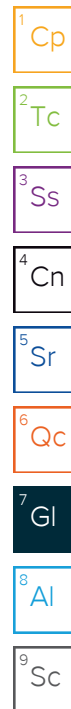
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

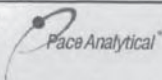
⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



CHAIN-OF-CUSTODY Analytical Request Document

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

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

Company: Caerus Oil and Gas LLC
 Address: Info on file
 Report To: Jake Janicek, Brett Middleton, Blair Rollins, Andy Verbonitz
 Copy To: Chris McKisson, remediation@confluence-cc.com
 Customer Project Name/Number: D20 696 Dumpline Release

ALL BOLD OUTLINED AREAS are for LAB USE ONLY

Container Preservative Type **
 Lab Project Manager:
A155

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

Billing Information: Info on file
 Email To: info on file
 State: County/City: Time Zone Collected:
 CO / Garfield [] PT [X] MT [] CT [] ET

Site/Facility ID #: D20 696
 Compliance Monitoring?
 [] Yes [X] No

Collected By (print): Alex Slorby
 Purchase Order #: NA
 Quote #: NA
 DW PWS ID #:
 DW Location Code:

Collected By (signature): *Alex Slorby*
 Turnaround Date Required: **Standard**
 Turnaround
 Immediately Packed on Ice:
 [X] Yes [] No

Sample Disposal:
 [X] Dispose as appropriate
 [] Return
 [] Archive:
 [] Hold:

Rush: (Expedite Charges Apply)
 [] Same Day [] Next Day
 [] 2 Day [] 3 Day
 [] 4 Day [] 5 Day

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

Analyses										Lab Profile/Line:		
Container Type: Plastic (P) or Glass (G)	TPH (ORO, GRO, DRO)	BTEX	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	SAR	Lab Sample Receipt Checklist	Y	N	NA	Lab USE ONLY: Lab Sample # / Comments: L1706192 - 01 - 02 - 03 - 04 - 05		
						Custody Seals Present/Intact	Y	N	NA			
						Custody Signatures Present	Y	N	NA			
						Collector Signatures Present	Y	N	NA			
						Bottles Intact	Y	N	NA			
Correct Bottles	Y	N	NA									
Sufficient Volume	Y	N	NA									
Samples Received on Ice	Y	N	NA									
VOA - Headspace Acceptable	Y	N	NA									
USDA Regulated Soils	Y	N	NA									
Samples in Holding Time	Y	N	NA									
Residual Chlorine Present	Y	N	NA									
Cl Strips:												
Sample pH Acceptable	Y	N	NA									
pH Strips:												
Sulfide Present	Y	N	NA									
Lead Acetate Strips:												

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

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns	Container Type: Plastic (P) or Glass (G)	TPH (ORO, GRO, DRO)	BTEX	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	SAR
			Date	Time	Date	Time								
20240213-D20 696-(NW)@10	SL	G	2/13/2023	1000				3	G	X	X	X	X	X
20240213-D20 696-(EW)@10	SL	G	2/13/2023	1005				3	G	X	X	X	X	X
20240213-D20 696-(SW)@10	SL	G	2/13/2023	1010				3	G	X	X	X	X	X
20240213-D20 696-(BASE)@16	SL	G	2/13/2023	1135				3	G	X	X	X	X	X
20240213-D20 696-(WW)@12	SL	G	2/13/2023	1200				3	G	X	X	X	X	X

Customer Remarks / Special Conditions / Possible Hazards: Analyze and report the organics ASAP within the 3-day TAT.

Type of Ice Used: Wet Blue Dry None
 Packing Material Used: *6426 8306 8230*
 Radchem sample(s) screened (<500 cm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A
 Lab Tracking #:
 Samples received via:
 FEDEX UPS Client Courier Pace Courier

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

Relinquished by/Company: (Signature) <i>Alex Slorby</i>	Date/Time: 2/14/2024 1130	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time:	MTJL LAB USE ONLY	Trip Blank Received: Y <input checked="" type="checkbox"/> N NA HCL MeOH TSP Other
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time: 2/14/24 1500	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time:	Table #:	
Relinquished by/Company: (Signature) <i>[Signature]</i>	Date/Time:	Received by/Company: (Signature) <i>[Signature]</i>	Date/Time: 2-K-24a:3	Acctnum: Template: Prelogin: PM: PB:	

Page: 1 of 1

Caerus Oil and Gas

Sample Delivery Group: L1590238
Samples Received: 03/01/2023
Project Number:
Description: D20 Background Samples
Site: D20 PAD
Report To: Blair R., Jake J., Brett M.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



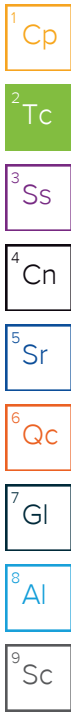
Chris Ward
Project Manager

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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

20230228_D20_BG01 @ 1FT L1590238-01 Solid

Collected by Tristan Schmalz Collected date/time 02/28/23 10:30 Received date/time 03/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2014955	1	03/02/23 14:13	03/02/23 14:13	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2015403	1	03/02/23 06:29	03/02/23 16:36	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2015296	1	03/01/23 19:00	03/01/23 21:24	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2014712	1	03/02/23 07:30	03/02/23 10:05	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2018611	1	03/08/23 09:55	03/08/23 16:01	ABL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2015893	5	03/02/23 13:44	03/02/23 23:45	LD	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

20230228_D20_BG02 @ 1FT L1590238-02 Solid

Collected by Tristan Schmalz Collected date/time 02/28/23 10:42 Received date/time 03/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2014955	1	03/02/23 14:16	03/02/23 14:16	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2015403	1	03/02/23 06:29	03/02/23 16:42	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2015296	1	03/01/23 19:00	03/01/23 21:24	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2014712	1	03/02/23 07:30	03/02/23 10:05	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2018611	1	03/08/23 09:55	03/08/23 16:04	ABL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2015893	5	03/02/23 13:44	03/02/23 22:30	LD	Mt. Juliet, TN

20230228_D20_BG03 @ 1FT L1590238-03 Solid

Collected by Tristan Schmalz Collected date/time 02/28/23 10:54 Received date/time 03/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2014955	1	03/02/23 14:19	03/02/23 14:19	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2015403	1	03/02/23 06:29	03/02/23 16:47	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2015296	1	03/01/23 19:00	03/01/23 21:24	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2014712	1	03/02/23 07:30	03/02/23 10:05	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2018611	1	03/08/23 09:55	03/08/23 16:07	ABL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2015893	5	03/02/23 13:44	03/02/23 23:48	LD	Mt. Juliet, TN

20230228_D20_BG04 @ 1FT L1590238-04 Solid

Collected by Tristan Schmalz Collected date/time 02/28/23 11:09 Received date/time 03/01/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2014955	1	03/02/23 14:21	03/02/23 14:21	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2015403	1	03/02/23 06:29	03/02/23 17:23	SET	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2015296	1	03/01/23 19:00	03/01/23 21:24	KAD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2014712	1	03/02/23 07:30	03/02/23 10:05	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2018611	1	03/08/23 09:55	03/08/23 16:10	ABL	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2015893	5	03/02/23 13:44	03/02/23 23:51	LD	Mt. Juliet, TN

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	1.83		1	03/02/2023 14:13	WG2014955

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	03/02/2023 16:36	WG2015403

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	9.02	<u>T8</u>	1	03/01/2023 21:24	WG2015296

Sample Narrative:

L1590238-01 WG2015296: 9.02 at 21.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	173		10.0	1	03/02/2023 10:05	WG2014712

Sample Narrative:

L1590238-01 WG2014712: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.809		0.0167	0.200	1	03/08/2023 16:01	WG2018611

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.70		0.100	1.00	5	03/02/2023 23:45	WG2015893
Barium	192		0.152	2.50	5	03/02/2023 23:45	WG2015893
Cadmium	0.470	<u>J</u>	0.0855	1.00	5	03/02/2023 23:45	WG2015893
Copper	13.3		0.132	5.00	5	03/02/2023 23:45	WG2015893
Lead	10.3		0.0990	2.00	5	03/02/2023 23:45	WG2015893
Nickel	14.0		0.197	2.50	5	03/02/2023 23:45	WG2015893
Selenium	0.639	<u>J</u>	0.180	2.50	5	03/02/2023 23:45	WG2015893
Silver	U		0.0865	0.500	5	03/02/2023 23:45	WG2015893
Zinc	54.7		0.740	25.0	5	03/02/2023 23:45	WG2015893



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.391		1	03/02/2023 14:16	WG2014955

1 Cp

2 Tc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	03/02/2023 16:42	WG2015403

3 Ss

4 Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.00	<u>T8</u>	1	03/01/2023 21:24	WG2015296

5 Sr

6 Qc

Sample Narrative:

L1590238-02 WG2015296: 8 at 21.4C

7 Gl

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	294		10.0	1	03/02/2023 10:05	WG2014712

8 Al

9 Sc

Sample Narrative:

L1590238-02 WG2014712: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.759		0.0167	0.200	1	03/08/2023 16:04	WG2018611

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	16.4		0.100	1.00	5	03/02/2023 22:30	WG2015893
Barium	269	<u>J6</u>	0.152	2.50	5	03/02/2023 22:30	WG2015893
Cadmium	0.537	<u>J</u>	0.0855	1.00	5	03/02/2023 22:30	WG2015893
Copper	11.2		0.132	5.00	5	03/02/2023 22:30	WG2015893
Lead	10.7		0.0990	2.00	5	03/02/2023 22:30	WG2015893
Nickel	8.68		0.197	2.50	5	03/02/2023 22:30	WG2015893
Selenium	0.957	<u>J</u>	0.180	2.50	5	03/02/2023 22:30	WG2015893
Silver	U		0.0865	0.500	5	03/02/2023 22:30	WG2015893
Zinc	28.7	<u>O1</u>	0.740	25.0	5	03/02/2023 22:30	WG2015893

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0814		1	03/02/2023 14:19	WG2014955

1 Cp

2 Tc

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U	J3 J6	0.255	1.00	1	03/02/2023 16:47	WG2015403

3 Ss

4 Cn

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.81	T8	1	03/01/2023 21:24	WG2015296

5 Sr

6 Qc

Sample Narrative:

L1590238-03 WG2015296: 7.81 at 21.9C

7 Gl

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	1210		10.0	1	03/02/2023 10:05	WG2014712

8 Al

9 Sc

Sample Narrative:

L1590238-03 WG2014712: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.670		0.0167	0.200	1	03/08/2023 16:07	WG2018611

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.30		0.100	1.00	5	03/02/2023 23:48	WG2015893
Barium	90.2		0.152	2.50	5	03/02/2023 23:48	WG2015893
Cadmium	0.763	J	0.0855	1.00	5	03/02/2023 23:48	WG2015893
Copper	15.4		0.132	5.00	5	03/02/2023 23:48	WG2015893
Lead	12.2		0.0990	2.00	5	03/02/2023 23:48	WG2015893
Nickel	20.1		0.197	2.50	5	03/02/2023 23:48	WG2015893
Selenium	1.10	J	0.180	2.50	5	03/02/2023 23:48	WG2015893
Silver	U		0.0865	0.500	5	03/02/2023 23:48	WG2015893
Zinc	68.5		0.740	25.0	5	03/02/2023 23:48	WG2015893

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	0.0447		1	03/02/2023 14:21	WG2014955

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	03/02/2023 17:23	WG2015403

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.57	<u>T8</u>	1	03/01/2023 21:24	WG2015296

Sample Narrative:

L1590238-04 WG2015296: 7.57 at 21.7C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	651		10.0	1	03/02/2023 10:05	WG2014712

Sample Narrative:

L1590238-04 WG2014712: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.759		0.0167	0.200	1	03/08/2023 16:10	WG2018611

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	1.79		0.100	1.00	5	03/02/2023 23:51	WG2015893
Barium	58.0		0.152	2.50	5	03/02/2023 23:51	WG2015893
Cadmium	0.706	<u>J</u>	0.0855	1.00	5	03/02/2023 23:51	WG2015893
Copper	29.2		0.132	5.00	5	03/02/2023 23:51	WG2015893
Lead	17.4		0.0990	2.00	5	03/02/2023 23:51	WG2015893
Nickel	19.2		0.197	2.50	5	03/02/2023 23:51	WG2015893
Selenium	0.563	<u>J</u>	0.180	2.50	5	03/02/2023 23:51	WG2015893
Silver	0.109	<u>J</u>	0.0865	0.500	5	03/02/2023 23:51	WG2015893
Zinc	90.6		0.740	25.0	5	03/02/2023 23:51	WG2015893



Method Blank (MB)

(MB) R3897065-1 03/02/23 15:11

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1590231-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1590231-01 03/02/23 15:24 • (DUP) R3897065-3 03/02/23 15:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	U	U	1	0.000		20

L1590235-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1590235-01 03/02/23 15:55 • (DUP) R3897065-4 03/02/23 16:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	U	U	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3897065-2 03/02/23 15:19

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Hexavalent Chromium	10.0	11.7	117	80.0-120	

L1590238-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1590238-03 03/02/23 16:47 • (MS) R3897065-7 03/02/23 16:52 • (MSD) R3897065-8 03/02/23 16:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	U	14.5	18.5	72.3	92.6	1	75.0-125	<u>J6</u>	<u>J3</u>	24.6	20

L1590238-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1590238-03 03/02/23 16:47 • (MS) R3897065-9 03/02/23 17:02

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Hexavalent Chromium	641	U	734	114	50	75.0-125	

L1590235-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1590235-03 03/01/23 21:24 • (DUP) R3896339-2 03/01/23 21:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	8.56	8.54	1	0.234		1

Sample Narrative:

OS: 8.56 at 22.1C
 DUP: 8.54 at 21.8C

L1590238-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1590238-04 03/01/23 21:24 • (DUP) R3896339-3 03/01/23 21:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	7.57	7.61	1	0.527		1

Sample Narrative:

OS: 7.57 at 21.7C
 DUP: 7.61 at 21.6C

Laboratory Control Sample (LCS)

(LCS) R3896339-1 03/01/23 21:24

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
pH	10.0	9.96	99.6	99.0-101	

Sample Narrative:

LCS: 9.96 at 21.7C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3896483-1 03/02/23 10:05

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1589348-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1589348-07 03/02/23 10:05 • (DUP) R3896483-3 03/02/23 10:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	535	531	1	0.750		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1589779-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1589779-01 03/02/23 10:05 • (DUP) R3896483-4 03/02/23 10:05

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	8540	8460	1	0.941		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3896483-2 03/02/23 10:05

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	1120	1150	103	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3898999-1 03/08/23 15:21

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

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

(LCS) R3898999-2 03/08/23 15:24 • (LCSD) R3898999-3 03/08/23 15:26

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.09	1.12	109	112	80.0-120			2.39	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3896797-1 03/02/23 22:24

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R3896797-2 03/02/23 22:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.9	97.9	80.0-120	
Barium	100	98.0	98.0	80.0-120	
Cadmium	100	104	104	80.0-120	
Copper	100	109	109	80.0-120	
Lead	100	102	102	80.0-120	
Nickel	100	101	101	80.0-120	
Selenium	100	107	107	80.0-120	
Silver	20.0	19.0	95.1	80.0-120	
Zinc	100	98.7	98.7	80.0-120	

⁷Gl

⁸Al

⁹Sc

L1590238-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1590238-02 03/02/23 22:30 • (MS) R3896797-5 03/02/23 22:40 • (MSD) R3896797-6 03/02/23 22:43

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	16.4	107	108	90.2	91.9	5	75.0-125			1.63	20
Barium	100	269	313	320	44.5	51.5	5	75.0-125	J6	J6	2.22	20
Cadmium	100	0.537	106	106	106	106	5	75.0-125			0.364	20
Copper	100	11.2	107	112	96.0	101	5	75.0-125			4.48	20
Lead	100	10.7	116	114	106	104	5	75.0-125			1.73	20
Nickel	100	8.68	108	108	98.8	99.3	5	75.0-125			0.382	20
Selenium	100	0.957	111	110	110	109	5	75.0-125			0.340	20
Silver	20.0	U	19.1	18.8	95.7	93.9	5	75.0-125			1.91	20
Zinc	100	28.7	123	123	94.0	94.5	5	75.0-125			0.433	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

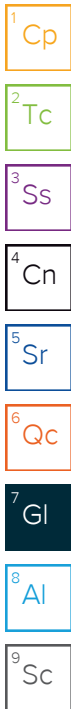
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

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

Abbreviations and Definitions

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

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:
SAME AS LEFT

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



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



Report to:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description:
D20 Background Samples

City/State Collected: Piceance Crk, CO
Please Circle: PT MT CT ET

Phone: (970) 640-6919

Client Project #

Lab Project #

Collected by (print):
Tristan Schmalz

Site/Facility ID #
D20 Pad

P.O. #

Collected by (signature):
Tristan Schmalz

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
Three Day

Date Results Needed

Standard TAT

No. of
Cnts

SDG # 4590238
A050

Acctnum:

Template:

Prelogin:

PM:

PB:

Shipped Via:

Remarks Sample # (lab only)

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cnts	COGCC Table 915-1	EC, pH, SAR	Arsenic, Boron	COGCC Table 910-1	COGCC Table 915-1 MINUS ORGANICS
20230228_D20_BG01@1ft	Grab	SS	1ft	2/28/23	10:30	2					X
20230228_D20_BG02@1ft	Grab	SS	1ft	2/28/23	10:42	2					X
20230228_D20_BG03@1ft	Grab	SS	1ft	2/28/23	10:54	2					X
20230228_D20_BG04@1ft	Grab	SS	1ft	2/28/23	11:09	2					X
<i>Tristan Schmalz</i>											

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

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
 UPS FedEx Courier

Tracking # 612665374633

Sample Receipt Checklist

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

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes No
HCL / MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temperature: 15.5 °C
Bottles Received: 8

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 3-01-23 Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition:
NCF / OK

Caerus Oil and Gas

Sample Delivery Group: L1679463

Samples Received: 11/17/2023

Project Number:

Description:

Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

CP-D20-1 L1679463-01 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 09:50	11/29/23 09:50	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174129	5	11/20/23 08:48	11/20/23 22:18	LD	Mt. Juliet, TN

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

CP-D20-2 L1679463-02 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 09:53	11/29/23 09:53	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:00	LD	Mt. Juliet, TN

CP-D20-3 L1679463-03 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 16:54	11/29/23 16:54	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:03	LD	Mt. Juliet, TN

CP-D20-4 L1679463-04 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 16:56	11/29/23 16:56	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:06	LD	Mt. Juliet, TN

CP-D20-5 L1679463-05 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 10:02	11/29/23 10:02	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:09	LD	Mt. Juliet, TN

CP-D20-6 L1679463-06 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 10:06	11/29/23 10:06	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175129	1	11/21/23 10:12	11/21/23 14:59	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:13	LD	Mt. Juliet, TN

SAMPLE SUMMARY

CP-D20-7 L1679463-07 Solid

Collected by: Blair K. Rollins
 Collected date/time: 11/15/23 00:00
 Received date/time: 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 10:09	11/29/23 10:09	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175129	1	11/21/23 10:12	11/21/23 14:59	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:16	LD	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	23.9		1	11/29/2023 09:50	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.09	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-01 WG2175128: 8.09 at 20.7C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	11900		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-01 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	10.9		1.00	5	11/20/2023 22:18	WG2174129

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	18.0		1	11/29/2023 09:53	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.01	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-02 WG2175128: 8.01 at 20.8C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	12600		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-02 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.36		1.00	5	11/22/2023 21:00	WG2174132

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	52.5		1	11/29/2023 16:54	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.17	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-03 WG2175128: 8.17 at 21C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	19300		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-03 WG2175536: at 25C

8 Al

9 Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	6.31		1.00	5	11/22/2023 21:03	WG2174132

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	62.5		1	11/29/2023 16:56	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.33	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-04 WG2175128: 8.33 at 20.9C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	17700		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-04 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.97		1.00	5	11/22/2023 21:06	WG2174132

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	38.7		1	11/29/2023 10:02	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.26	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-05 WG2175128: 8.26 at 20.7C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	18600		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-05 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.75		1.00	5	11/22/2023 21:09	WG2174132

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	44.0		1	11/29/2023 10:06	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.32	T8	1	11/21/2023 14:59	WG2175129

3 Ss

4 Cn

Sample Narrative:

L1679463-06 WG2175129: 8.32 at 21C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	15800		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-06 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.37		1.00	5	11/22/2023 21:13	WG2174132

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	38.7		1	11/29/2023 10:09	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.18	T8	1	11/21/2023 14:59	WG2175129

3 Ss

4 Cn

Sample Narrative:

L1679463-07 WG2175129: 8.18 at 21.1C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	16400		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-07 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.62		1.00	5	11/22/2023 21:16	WG2174132

9 Sc

L1679002-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1679002-01 11/21/23 13:27 • (DUP) R4002887-2 11/21/23 13:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	8.52	8.50	1	0.235		1

Sample Narrative:

OS: 8.52 at 20.7C

DUP: 8.5 at 20.7C

L1679427-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1679427-04 11/21/23 13:27 • (DUP) R4002887-3 11/21/23 13:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	8.09	8.08	1	0.124		1

Sample Narrative:

OS: 8.09 at 20.8C

DUP: 8.08 at 20.7C

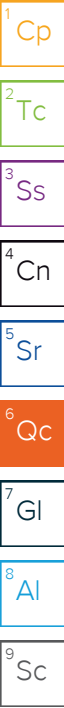
Laboratory Control Sample (LCS)

(LCS) R4002887-1 11/21/23 13:27

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

Sample Narrative:

LCS: 10.03 at 20.4C



L1679512-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1679512-02 11/21/23 14:59 • (DUP) R4002951-3 11/21/23 14:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
pH	8.55	8.58	1	0.350		1

Sample Narrative:

OS: 8.55 at 21.1C
 DUP: 8.58 at 20.8C

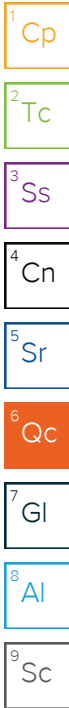
Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4002951-1 11/21/23 14:59 • (LCSD) R4002951-2 11/21/23 14:59

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
pH	10.0	10.0	10.0	100	100	99.0-101			0.200	1

Sample Narrative:

LCS: 10.01 at 20.4C
 LCSD: 10.03 at 20.3C



Method Blank (MB)

(MB) R4003733-1 11/23/23 09:47

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

Sample Narrative:

BLANK: at 25C

L1679427-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1679427-04 11/23/23 09:47 • (DUP) R4003733-3 11/23/23 09:47

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	1320	1320	1	0.0757		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1679463-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1679463-06 11/23/23 09:47 • (DUP) R4003733-4 11/23/23 09:47

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	15800	15000	1	5.65		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4003733-2 11/23/23 09:47

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	327	348	106	85.0-115	

Sample Narrative:

LCS: at 25C

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4002498-1 11/20/23 20:31

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R4002498-2 11/20/23 20:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	106	106	80.0-120	

4 Cn

5 Sr

L1678873-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1678873-04 11/20/23 20:38 • (MS) R4002498-5 11/20/23 20:47 • (MSD) R4002498-6 11/20/23 20:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	7.18	107	113	100	106	5	75.0-125			5.25	20

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4003685-1 11/22/23 20:09

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

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R4003685-2 11/22/23 20:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.0	97.0	80.0-120	

⁴Cn

⁵Sr

L1678503-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1678503-02 11/22/23 20:16 • (MS) R4003685-5 11/22/23 20:26 • (MSD) R4003685-6 11/22/23 20:29

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 %
Arsenic	100	5.83	99.5	96.3	93.7	90.4	5	75.0-125			3.34	20

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

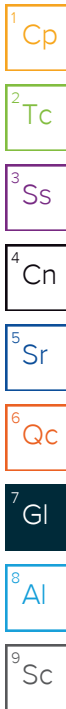
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

Qualifier Description

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



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:

Same as left

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



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



Report to:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description:

City/State Collected: **CO**

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

Client Project #

Lab Project #

Collected by (print):
Blair K. Rollins

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Date Results Needed

Immediately Packed on Ice N ___ Y X

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH (DRO and GRO)	BTEX	Table 910-1 metals in soil	Table 910-1 PAHs	EC	SAR	pH	Arsenic (As)	Remarks	Sample # (lab only)
CP-D20-1		SS	18	15 Nov 23		1					Y	Y	X	X		-01
CP-D20-2		SS	18	15 Nov 23		1					Y	Y	Y	X		-02
CP-D20-3		SS	11-12	15 Nov 23		1					Y	Y	Y	X		-03
CP-D20-4		SS	17-18	15 Nov 23		1					Y	Y	Y	X		-04
CP-D20-5		SS	18-19	15 Nov 23		1					Y	Y	Y	X		-05
CP-D20-6		SS	19-20	15 Nov 23		1					Y	Y	Y	X		-06
CP-D20-7		SS	17-20	15 Nov 23		1					Y	Y	Y	X		-07

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

Remarks:

Samples returned via:
 ___ UPS ___ FedEx ___ Courier

pH _____ Temp _____

Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact: 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:

Blair Rollins

16 Nov 2023

1505

Received by: (Signature)

Trip Blank Received: Yes No

HCL / MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: *DPRC* Bottles Received:

4.6 to = 4.6 7

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: Time:

Caleb Tapp 11/17/23 09:00

Hold:

Condition:

NCF 1 (OK)



ANALYTICAL REPORT

April 26, 2023

Revised Report

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

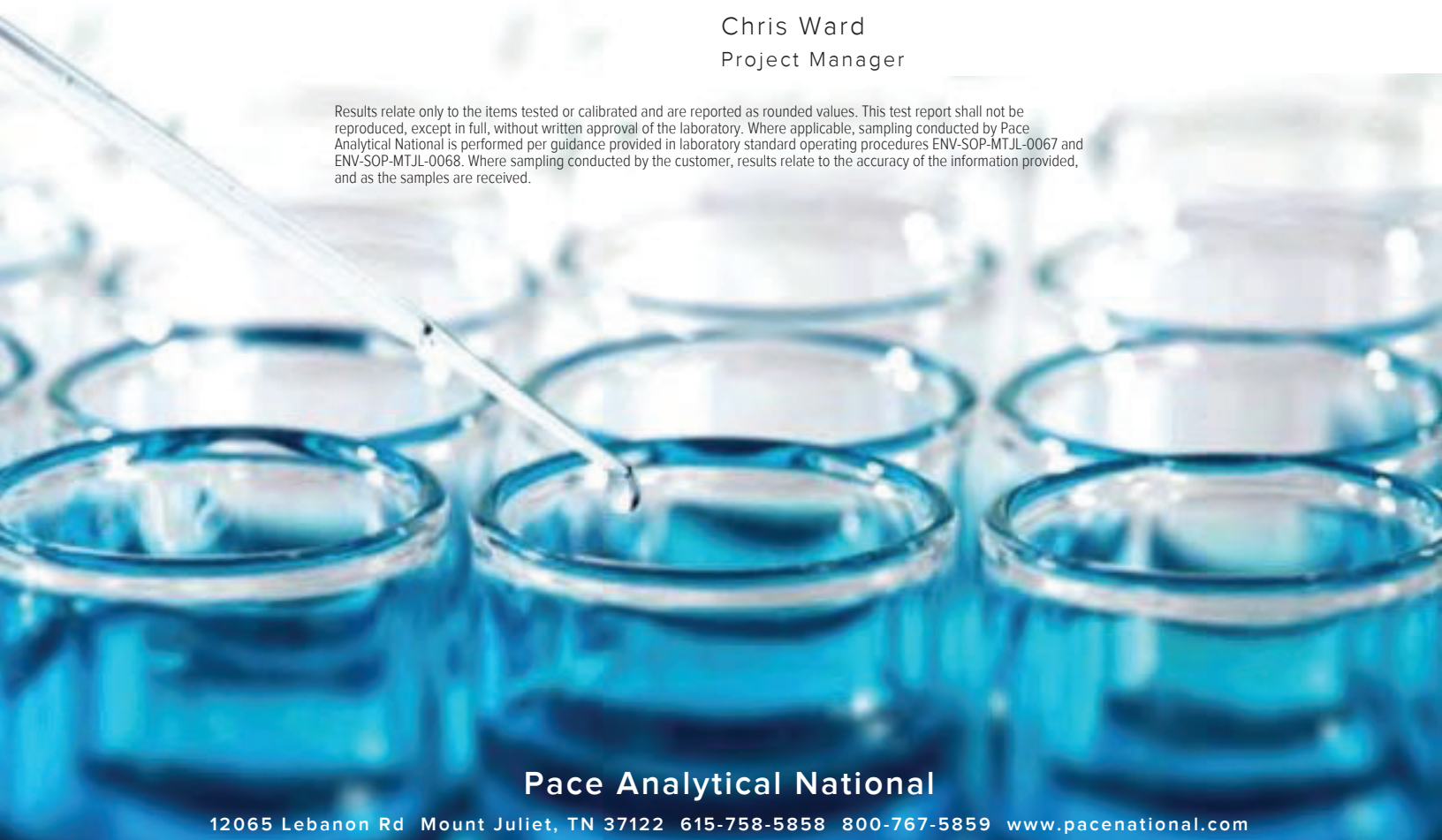
Caerus Oil and Gas

Sample Delivery Group: L1606586
 Samples Received: 04/18/2023
 Project Number:
 Description: D20 696 Flowline Investigation
 Site: D20 696
 Report To: Brett M. , Jake J. , Blair R.
 143 Diamond Avenue
 Parachute, CO 81635

Entire Report Reviewed By:

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.

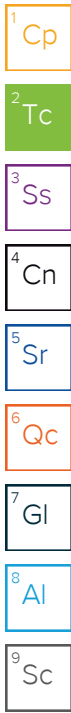


Pace Analytical National

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

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SAMPLE SUMMARY

20230417-NPRBG-(D20 696-N01)@0.25 L1606586-01 Solid

Collected by Tristan Schmalz
 Collected date/time 04/17/23 11:25
 Received date/time 04/18/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2045647	1	04/25/23 12:45	04/25/23 12:45	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2045352	1	04/21/23 11:53	04/24/23 01:43	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2045165	1	04/20/23 07:02	04/20/23 13:52	DB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2045122	1	04/21/23 08:08	04/21/23 10:17	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2045650	1	04/24/23 11:40	04/25/23 09:33	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2044991	5	04/20/23 00:21	04/20/23 11:58	JPD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

20230417-NPRBG-(D20 696-W01)@0.25 L1606586-02 Solid

Collected by Tristan Schmalz
 Collected date/time 04/17/23 11:40
 Received date/time 04/18/23 09:30

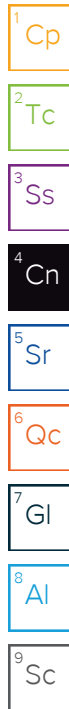
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2045647	1	04/25/23 12:47	04/25/23 12:47	SPL	Mt. Juliet, TN
Wet Chemistry by Method 7199	WG2045352	1	04/21/23 11:53	04/24/23 01:48	VSS	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2045165	1	04/20/23 07:02	04/20/23 13:52	DB	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2045122	1	04/21/23 08:08	04/21/23 10:17	NTG	Mt. Juliet, TN
Metals (ICP) by Method 6010B-NE493 Ch 2	WG2045650	1	04/24/23 11:40	04/25/23 09:36	CCE	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2044991	5	04/20/23 00:21	04/20/23 12:02	JPD	Mt. Juliet, TN

CASE NARRATIVE

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



Chris Ward
Project Manager



Report Revision History

Level II Report - Version 1: 04/25/23 17:27

Project Narrative

Report reissued 4/26 to update sample IDs

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	33.7		1	04/25/2023 12:45	WG2045647

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	04/24/2023 01:43	WG2045352

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.95	<u>T8</u>	1	04/20/2023 13:52	WG2045165

Sample Narrative:

L1606586-01 WG2045165: 7.95 at 19.6C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	6350		10.0	1	04/21/2023 10:17	WG2045122

Sample Narrative:

L1606586-01 WG2045122: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	1.56		0.0167	0.200	1	04/25/2023 09:33	WG2045650

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.09		0.100	1.00	5	04/20/2023 11:58	WG2044991
Barium	155		0.152	2.50	5	04/20/2023 11:58	WG2044991
Cadmium	0.613	<u>J</u>	0.0855	1.00	5	04/20/2023 11:58	WG2044991
Copper	15.5		0.132	5.00	5	04/20/2023 11:58	WG2044991
Lead	12.4		0.0990	2.00	5	04/20/2023 11:58	WG2044991
Nickel	14.7		0.197	2.50	5	04/20/2023 11:58	WG2044991
Selenium	0.851	<u>J</u>	0.180	2.50	5	04/20/2023 11:58	WG2044991
Silver	0.0907	<u>J</u>	0.0865	0.500	5	04/20/2023 11:58	WG2044991
Zinc	59.5		0.740	25.0	5	04/20/2023 11:58	WG2044991



Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	30.7		1	04/25/2023 12:47	WG2045647

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	04/24/2023 01:48	WG2045352

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.22	<u>T8</u>	1	04/20/2023 13:52	WG2045165

Sample Narrative:

L1606586-02 WG2045165: 8.22 at 19.5C

Wet Chemistry by Method 9050AMod

Analyte	Result umhos/cm	Qualifier	RDL umhos/cm	Dilution	Analysis date / time	Batch
Specific Conductance	12400		10.0	1	04/21/2023 10:17	WG2045122

Sample Narrative:

L1606586-02 WG2045122: at 25C

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

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hot Water Sol. Boron	0.394		0.0167	0.200	1	04/25/2023 09:36	WG2045650

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	2.18		0.100	1.00	5	04/20/2023 12:02	WG2044991
Barium	31.7		0.152	2.50	5	04/20/2023 12:02	WG2044991
Cadmium	0.376	<u>J</u>	0.0855	1.00	5	04/20/2023 12:02	WG2044991
Copper	11.5		0.132	5.00	5	04/20/2023 12:02	WG2044991
Lead	8.58		0.0990	2.00	5	04/20/2023 12:02	WG2044991
Nickel	9.86		0.197	2.50	5	04/20/2023 12:02	WG2044991
Selenium	0.440	<u>J</u>	0.180	2.50	5	04/20/2023 12:02	WG2044991
Silver	U		0.0865	0.500	5	04/20/2023 12:02	WG2044991
Zinc	42.4		0.740	25.0	5	04/20/2023 12:02	WG2044991



Method Blank (MB)

(MB) R3916419-1 04/24/23 01:20

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Hexavalent Chromium	U		0.255	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1606425-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1606425-09 04/24/23 01:33 • (DUP) R3916419-3 04/24/23 01:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	U	U	1	0.000		20

L1606853-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1606853-05 04/24/23 03:12 • (DUP) R3916419-8 04/24/23 03:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Hexavalent Chromium	U	U	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3916419-2 04/24/23 01:28

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

L1606850-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1606850-05 04/24/23 02:25 • (MS) R3916419-5 04/24/23 02:35 • (MSD) R3916419-6 04/24/23 02:40

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Hexavalent Chromium	20.0	U	15.2	15.7	75.8	78.3	1	75.0-125			3.23	20

L1606850-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1606850-05 04/24/23 02:25 • (MS) R3916419-7 04/24/23 02:46

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Hexavalent Chromium	643	U	586	91.1	50	75.0-125	

L1606586-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1606586-02 04/20/23 13:52 • (DUP) R3915440-2 04/20/23 13:52

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	8.22	8.25	1	0.364		1

Sample Narrative:

OS: 8.22 at 19.5C
DUP: 8.25 at 19.4C

Laboratory Control Sample (LCS)

(LCS) R3915440-1 04/20/23 13:52

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

Sample Narrative:

LCS: 10.01 at 18.7C

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

Method Blank (MB)

(MB) R3915755-1 04/21/23 10:17

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Specific Conductance	U		10.0	10.0

Sample Narrative:

BLANK: at 25C

L1606143-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1606143-02 04/21/23 10:17 • (DUP) R3915755-3 04/21/23 10:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	2620	2610	1	0.0765		20

Sample Narrative:

OS: at 25C
DUP: at 25C

L1606591-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1606591-01 04/21/23 10:17 • (DUP) R3915755-4 04/21/23 10:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Specific Conductance	5630	5660	1	0.531		20

Sample Narrative:

OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3915755-2 04/21/23 10:17

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Specific Conductance	1120	1070	95.3	85.0-115	

Sample Narrative:

LCS: at 25C



Method Blank (MB)

(MB) R3917057-1 04/25/23 09:25

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

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

(LCS) R3917057-2 04/25/23 09:27 • (LCSD) R3917057-3 04/25/23 09:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hot Water Sol. Boron	1.00	1.05	1.04	105	104	80.0-120			0.515	20

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

Method Blank (MB)

(MB) R3915359-1 04/20/23 10:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.100	1.00
Barium	U		0.152	2.50
Cadmium	U		0.0855	1.00
Copper	U		0.133	5.00
Lead	U		0.0990	2.00
Nickel	U		0.197	2.50
Selenium	U		0.180	2.50
Silver	U		0.0865	0.500
Zinc	U		0.740	25.0

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS)

(LCS) R3915359-2 04/20/23 10:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.1	92.1	80.0-120	
Barium	100	93.4	93.4	80.0-120	
Cadmium	100	97.4	97.4	80.0-120	
Copper	100	89.5	89.5	80.0-120	
Lead	100	94.9	94.9	80.0-120	
Nickel	100	94.7	94.7	80.0-120	
Selenium	100	100	100	80.0-120	
Silver	20.0	19.6	98.1	80.0-120	
Zinc	100	93.3	93.3	80.0-120	

⁷Gl

⁸Al

⁹Sc

L1606530-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1606530-01 04/20/23 10:35 • (MS) R3915359-5 04/20/23 10:45 • (MSD) R3915359-6 04/20/23 10:48

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	99.7	3.32	94.2	90.0	90.9	86.7	5	75.0-125			4.54	20
Barium	99.7	86.0	178	156	92.3	69.6	5	75.0-125		J6	13.6	20
Cadmium	99.7	0.211	97.3	92.1	97.1	91.9	5	75.0-125			5.43	20
Copper	99.7	7.01	93.4	88.2	86.4	81.2	5	75.0-125			5.74	20
Lead	99.7	9.23	102	99.9	92.6	90.7	5	75.0-125			1.97	20
Nickel	99.7	11.0	104	98.4	93.5	87.4	5	75.0-125			6.04	20
Selenium	99.7	0.473	98.9	94.6	98.4	94.1	5	75.0-125			4.49	20
Silver	20.0	U	19.1	18.4	95.3	91.8	5	75.0-125			3.72	20
Zinc	99.7	32.7	127	114	93.8	81.3	5	75.0-125			10.4	20

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

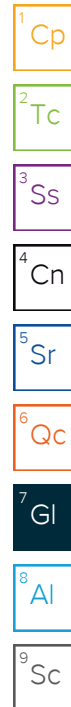
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:
SAME AS LEFT

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



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



Report to:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description:
D20 696 Flowline Investigation

City/State
Collected: Piceance Crk, CO

Please Circle:
PT ML CT ET

Phone: (970) 640-6919

Client Project #

Lab Project #

Collected by (print):
Tristan Schmalz

Site/Facility ID #
D20 696

P.O. #

Collected by (signature):
Tristan Schmalz

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Date Results Needed

Standard TAT

Immediately
Packed on Ice N ___ Y

No.
of
Cntrs

SDG # *U606586*
Table # *B149*
Acctn #
Template:
Pregoin:
PM:
PB:
Shipped Via:
Remarks Sample # (lab only)

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	COGCC Table 915-1	EC, pH, SAR	Arsenic, Boron	COGCC Table 910-1	COGCC Table 915-MINUS ORGANICS
20230417-NPR15G-(D20 696-W02)0.25	Grav	SS	0.25A	4/17/23	11:26	2					X
20230417-NPR15G-(D20 696-W03)0.25	Grav	SS	0.25A	4/17/23	11:40	2					X
<i>Tristan Schmalz</i>											

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

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking # *6170 6537 6018*

pH ___ Temp ___

Flow ___ Other ___

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

Relinquished by: (Signature)
Tristan Schmalz

Date: *4/17/23* Time: *13:30*

Received by: (Signature)
[Signature]

Trip Blank Received: Yes No
HCL/MeoH
TBR

Relinquished by: (Signature)
[Signature]

Date: *4/17/23* Time: *1600*

Received by: (Signature)
[Signature]

Temp (vshu) °C
3.90 = 3.9 Bottles Received: *4*

Relinquished by: (Signature)
[Signature]

Date: ___ Time: ___

Received for lab by: (Signature)
[Signature]

Date: *4-18-23* Time: *9:30*

If preservation required by Login: Date/Time

Hold: Condition: NCF / OK

Caerus Oil and Gas

Sample Delivery Group: L1679463

Samples Received: 11/17/2023

Project Number:

Description:

Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

CP-D20-1 L1679463-01 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 09:50	11/29/23 09:50	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174129	5	11/20/23 08:48	11/20/23 22:18	LD	Mt. Juliet, TN

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

CP-D20-2 L1679463-02 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 09:53	11/29/23 09:53	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:00	LD	Mt. Juliet, TN

CP-D20-3 L1679463-03 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 16:54	11/29/23 16:54	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:03	LD	Mt. Juliet, TN

CP-D20-4 L1679463-04 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 16:56	11/29/23 16:56	ZSA	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:06	LD	Mt. Juliet, TN

CP-D20-5 L1679463-05 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 10:02	11/29/23 10:02	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175128	1	11/21/23 10:24	11/21/23 13:27	JGM	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:09	LD	Mt. Juliet, TN

CP-D20-6 L1679463-06 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 10:06	11/29/23 10:06	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175129	1	11/21/23 10:12	11/21/23 14:59	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:13	LD	Mt. Juliet, TN

SAMPLE SUMMARY

CP-D20-7 L1679463-07 Solid

Collected by: Blair K. Rollins
 Collected date/time: 11/15/23 00:00
 Received date/time: 11/17/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG2178041	1	11/29/23 10:09	11/29/23 10:09	JTM	Mt. Juliet, TN
Wet Chemistry by Method 9045D	WG2175129	1	11/21/23 10:12	11/21/23 14:59	ARD	Mt. Juliet, TN
Wet Chemistry by Method 9050AMod	WG2175536	1	11/21/23 15:18	11/23/23 09:47	NTG	Mt. Juliet, TN
Metals (ICPMS) by Method 6020	WG2174132	5	11/22/23 06:59	11/22/23 21:16	LD	Mt. Juliet, TN

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

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	23.9		1	11/29/2023 09:50	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.09	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-01 WG2175128: 8.09 at 20.7C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	11900		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-01 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	10.9		1.00	5	11/20/2023 22:18	WG2174129

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	18.0		1	11/29/2023 09:53	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.01	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-02 WG2175128: 8.01 at 20.8C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	12600		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-02 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.36		1.00	5	11/22/2023 21:00	WG2174132

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	52.5		1	11/29/2023 16:54	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.17	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-03 WG2175128: 8.17 at 21C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	19300		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-03 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	6.31		1.00	5	11/22/2023 21:03	WG2174132

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	62.5		1	11/29/2023 16:56	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.33	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-04 WG2175128: 8.33 at 20.9C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	17700		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-04 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.97		1.00	5	11/22/2023 21:06	WG2174132

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	38.7		1	11/29/2023 10:02	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.26	T8	1	11/21/2023 13:27	WG2175128

3 Ss

4 Cn

Sample Narrative:

L1679463-05 WG2175128: 8.26 at 20.7C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	18600		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-05 WG2175536: at 25C

8 Al

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.75		1.00	5	11/22/2023 21:09	WG2174132

9 Sc

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	44.0		1	11/29/2023 10:06	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.32	T8	1	11/21/2023 14:59	WG2175129

3 Ss

4 Cn

Sample Narrative:

L1679463-06 WG2175129: 8.32 at 21C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	15800		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-06 WG2175536: at 25C

8 Al

9 Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.37		1.00	5	11/22/2023 21:13	WG2174132

Calculated Results

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Sodium Adsorption Ratio	38.7		1	11/29/2023 10:09	WG2178041

1 Cp

2 Tc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.18	T8	1	11/21/2023 14:59	WG2175129

3 Ss

4 Cn

Sample Narrative:

L1679463-07 WG2175129: 8.18 at 21.1C

5 Sr

Wet Chemistry by Method 9050AMod

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	16400		10.0	1	11/23/2023 09:47	WG2175536

6 Qc

7 Gl

Sample Narrative:

L1679463-07 WG2175536: at 25C

8 Al

9 Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.62		1.00	5	11/22/2023 21:16	WG2174132

L1679002-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1679002-01 11/21/23 13:27 • (DUP) R4002887-2 11/21/23 13:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.52	8.50	1	0.235		1

Sample Narrative:

OS: 8.52 at 20.7C

DUP: 8.5 at 20.7C

L1679427-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1679427-04 11/21/23 13:27 • (DUP) R4002887-3 11/21/23 13:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	8.09	8.08	1	0.124		1

Sample Narrative:

OS: 8.09 at 20.8C

DUP: 8.08 at 20.7C

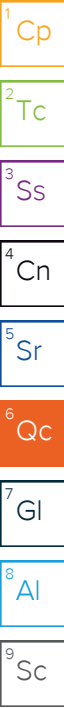
Laboratory Control Sample (LCS)

(LCS) R4002887-1 11/21/23 13:27

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

Sample Narrative:

LCS: 10.03 at 20.4C



L1679512-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1679512-02 11/21/23 14:59 • (DUP) R4002951-3 11/21/23 14:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	8.55	8.58	1	0.350		1

Sample Narrative:

OS: 8.55 at 21.1C
DUP: 8.58 at 20.8C

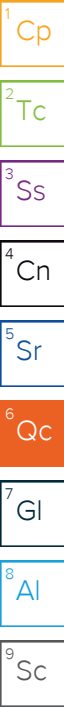
Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4002951-1 11/21/23 14:59 • (LCSD) R4002951-2 11/21/23 14:59

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
pH	10.0	10.0	10.0	100	100	99.0-101			0.200	1

Sample Narrative:

LCS: 10.01 at 20.4C
LCSD: 10.03 at 20.3C



Method Blank (MB)

(MB) R4003733-1 11/23/23 09:47

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

Sample Narrative:

BLANK: at 25C

L1679427-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1679427-04 11/23/23 09:47 • (DUP) R4003733-3 11/23/23 09:47

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	1320	1320	1	0.0757		20

Sample Narrative:

OS: at 25C

DUP: at 25C

L1679463-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1679463-06 11/23/23 09:47 • (DUP) R4003733-4 11/23/23 09:47

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
Specific Conductance	15800	15000	1	5.65		20

Sample Narrative:

OS: at 25C

DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4003733-2 11/23/23 09:47

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	327	348	106	85.0-115	

Sample Narrative:

LCS: at 25C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R4002498-1 11/20/23 20:31

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R4002498-2 11/20/23 20:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	106	106	80.0-120	

4 Cn

5 Sr

L1678873-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1678873-04 11/20/23 20:38 • (MS) R4002498-5 11/20/23 20:47 • (MSD) R4002498-6 11/20/23 20:51

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	7.18	107	113	100	106	5	75.0-125			5.25	20

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4003685-1 11/22/23 20:09

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R4003685-2 11/22/23 20:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	97.0	97.0	80.0-120	

4 Cn

5 Sr

L1678503-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1678503-02 11/22/23 20:16 • (MS) R4003685-5 11/22/23 20:26 • (MSD) R4003685-6 11/22/23 20:29

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 %
Arsenic	100	5.83	99.5	96.3	93.7	90.4	5	75.0-125			3.34	20

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier Description

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

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:

Same as left

Analysis / Container / Preservative

Chain of Custody Page 1 of 1



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



Report to:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description:

City/State Collected: **CO**

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

Client Project #

Lab Project #

Collected by (print):
Blair K. Rollins

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Date Results Needed

Immediately Packed on Ice N Y

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	TPH (DRO and GRO)	BTEX	Table 910-1 metals in soil	Table 910-1 PAHs	EC	SAR	pH	Arsenic (As)	Remarks	Sample # (lab only)
CP-D20-1		SS	18	15 Nov 23		1					Y	Y	X	X		-01
CP-D20-2		SS	18	15 Nov 23		1					Y	Y	Y	X		-02
CP-D20-3		SS	11-12	15 Nov 23		1					Y	Y	Y	X		-03
CP-D20-4		SS	17-18	15 Nov 23		1					Y	Y	Y	X		-04
CP-D20-5		SS	18-19	15 Nov 23		1					Y	Y	Y	X		-05
CP-D20-6		SS	19-20	15 Nov 23		1					Y	Y	Y	X		-06
CP-D20-7		SS	17-20	15 Nov 23		1					Y	Y	Y	X		-07

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

Remarks:

Samples returned via:
 UPS FedEx Courier

pH _____ Temp _____

Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact: 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:

Blair Rollins

16 Nov 2023

1505

Received by: (Signature)

Trip Blank Received: Yes No

HCL / MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: **DPRC** Bottles Received:

4.6 to = 4.6 7

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: Time:

11/17/23 09:00

Hold:

Condition:

NCF 1 (OK)

Caleb Tapp

Caerus Oil and Gas

Sample Delivery Group: L1685445

Samples Received: 12/07/2023

Project Number:

Description: D20

Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:

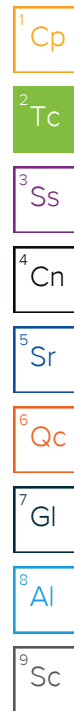
Shane Gambill
Project Manager

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

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

CP-D20-REF 1 L1685445-01 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

1 Cp

2 Tc

CP-D20-REF 1 L1685445-02 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

3 Ss

4 Cn

5 Sr

CP-D20-REF 1 L1685445-03 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

6 Qc

7 Gl

8 Al

CP-D20-REF 2 L1685445-04 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

9 Sc

CP-D20-REF 2 L1685445-05 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

CP-D20-REF 2 L1685445-06 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

CP-D20-REF 3 L1685445-07 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

CP-D20-REF 3 L1685445-08 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

SAMPLE SUMMARY

CP-D20-REF 3 L1685445-09 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9045D	WG2185807	1	12/08/23 14:00	12/08/23 14:25	EPW	Mt. Juliet, TN

¹Cp

²Tc

³Ss

CP-D20-1R L1685445-10 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG2187112	1	12/11/23 15:36	12/12/23 08:52	DJS	Mt. Juliet, TN

⁴Cn

⁵Sr

CP-D20-1R L1685445-11 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG2187112	1	12/11/23 15:36	12/12/23 08:54	DJS	Mt. Juliet, TN

⁶Qc

⁷Gl

CP-D20-1R L1685445-12 Solid

Collected by Blair K. Rollins
 Collected date/time 11/15/23 00:00
 Received date/time 12/07/23 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG2187112	1	12/11/23 15:36	12/12/23 08:57	DJS	Mt. Juliet, TN

⁸Al

⁹Sc

CASE NARRATIVE

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



Shane Gambill
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.45	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-01 WG2185807: 8.45 at 19.9C

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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.45	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-02 WG2185807: 8.45 at 19.8C

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.46	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-03 WG2185807: 8.46 at 19.9C

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.51	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-04 WG2185807: 8.51 at 19.8C

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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.44	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-05 WG2185807: 8.44 at 19.3C

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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.45	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-06 WG2185807: 8.45 at 19.4C

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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.61	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-07 WG2185807: 8.61 at 19.4C

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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.59	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-08 WG2185807: 8.59 at 19.4C

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

Wet Chemistry by Method 9045D

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	8.57	<u>T8</u>	1	12/08/2023 14:25	<u>WG2185807</u>

Sample Narrative:

L1685445-09 WG2185807: 8.57 at 19.4C

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	7.95		2.00	1	12/12/2023 08:52	WG2187112

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	7.26		2.00	1	12/12/2023 08:54	WG2187112

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

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	8.56		2.00	1	12/12/2023 08:57	WG2187112

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

L1685445-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1685445-02 12/08/23 14:25 • (DUP) R4010021-2 12/08/23 14:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
pH	8.45	8.49	1	0.472		1

Sample Narrative:

OS: 8.45 at 19.8C
DUP: 8.49 at 19.9C

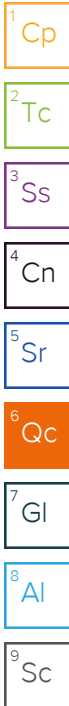
Laboratory Control Sample (LCS)

(LCS) R4010021-1 12/08/23 14:25

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

Sample Narrative:

LCS: 10.02 at 19.3C



Method Blank (MB)

(MB) R4011283-1 12/12/23 08:16

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R4011283-2 12/12/23 08:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	95.1	95.1	80.0-120	

4 Cn

5 Sr

L1683741-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1683741-01 12/12/23 08:21 • (MS) R4011283-5 12/12/23 08:29 • (MSD) R4011283-6 12/12/23 08:31

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	ND	106	89.7	106	89.7	1	75.0-125			16.5	20

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

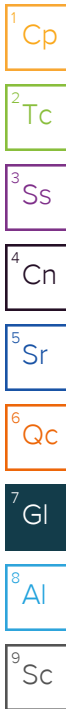
Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

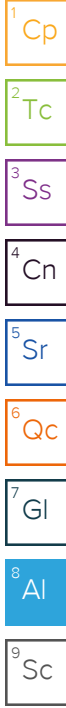
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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



Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:
 Same as left

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



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



Report to:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description: City/State Collected: **CO**

Phone: **(970) 640-6919** Client Project # Lab Project #

Collected by (print): **Blair K. Rollins** Site/Facility ID # P.O. #

Collected by (signature): **Rush?** (Lab MUST Be Notified)
 ___ Same Day ___ Five Day
 ___ Next Day ___ 5 Day (Rad Only)
 ___ Two Day ___ 10 Day (Rad Only)
 ___ Three Day

Immediately Packed on Ice N ___ Y **X**

Quote # Date Results Needed No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time
CP- D20-REF1		SS	15-16	15 Nov 23	
CP- D20-REF2		SS	14-17	15 Nov 23	
CP- D20-REF3		SS	15-17	15 Nov 23	
CP- D20-1R		SS	18	15 Nov 23	

TPH (DRO and GRO)
 BTEX
 Table 910-1 metals in soil
 Table 910-1 PAHs
 EC
 SAR
 PH
 Arsenic (AS)

L# **1685445**

K049

Acctnum:
 Template:
 Prelogin:
 TSR:
 PB:

Shipped Via:
 Remarks Sample # (lab only)

Run in triplicate 3x	-01/02/03
3x	-04/05/06
3x	-07/08/09
3x	-10/11/12

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

Remarks: **Run each Sample 3x for the indicated Analysis** pH ___ Temp ___
 Flow ___ Other ___

Samples returned via:
 ___ UPS ___ FedEx ___ Courier

Tracking #

Sample Receipt Checklist
 COC Seal Present/Intact: 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): *[Signature]* Date: **6 Dec 2023** Time: **11:11** Received by: (Signature) Trip Blank Received: Yes (No) HCL/MeOH TBR

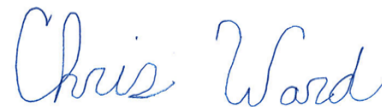
Relinquished by (Signature) Date: Time: Received by: (Signature) Temp: **DRG 68** Bottles Received: **4** If preservation required by Login: Date/Time

Relinquished by (Signature) Date: Time: Received for lab by: (Signature) **Callie Tapp** Date: **12/12/23** Time: **08:00** Hold: Condition: **NCF / OK**

Caerus Oil and Gas

Sample Delivery Group: L1665079
Samples Received: 10/11/2023
Project Number:
Description: D20 696 Pit Remediation
Site: D20 696 PAD
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



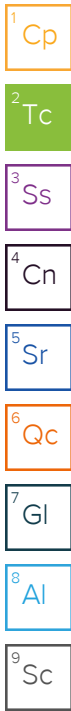
Chris Ward
Project Manager

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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

20231010-NPRBG-(D20 696-N-11:17)@1.75 L1665079-01 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 11:17	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:39	JPD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

20231010-NPRBG-(D20 696-N-11:17)@1.75 L1665079-02 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 11:17	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:42	JPD	Mt. Juliet, TN

⁴Cn

⁵Sr

20231010-NPRBG-(D20 696-N-11:17)@1.75 L1665079-03 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 11:17	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:46	JPD	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.53		0.100	1.00	5	10/12/2023 14:39	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.44		0.100	1.00	5	10/12/2023 14:42	WG2149660

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	6.61		0.100	1.00	5	10/12/2023 14:46	WG2149660

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3985448-1 10/12/23 13:02

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3985448-2 10/12/23 13:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.7	92.7	80.0-120	

4 Cn

5 Sr

L1665072-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1665072-01 10/12/23 13:08 • (MS) R3985448-5 10/12/23 13:18 • (MSD) R3985448-6 10/12/23 13:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.93	90.7	85.5	87.7	82.5	5	75.0-125			5.91	20

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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Abbreviations and Definitions

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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.
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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

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:
SAME AS LEFT

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Report to:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description:
D20 696 Pit Remediation

City/State Collected: Piceance Crk, CO
Please Circle: PT MT CT ET

Phone: (970) 640-6919

Client Project #

Lab Project #

Collected by (print):
Tristan Schmalz

Site/Facility ID #
D20 696 Pad

P.O. #

Collected by (signature):
Tristan Schmalz

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

Quote #
Standard AT

No. of Cntrs

Sample ID

Comp/Grab

Matrix*

Depth

Date

Time

No. of Cntrs

COGCC Table 915-1
EC, pH, SAR
Arsenic, Boron
COGCC Table 910-1
Arsenic

Remarks Sample # (lab only)

20231010-NPRBG-(D20 696-N-11:17)P1.75
20231010-NPRBG-(D20 696-N-11:17)P1.75
20231010-NPRBG-(D20 696-N-11:17)P1.75

Grab
↓
↓

SS
↓
↓

1.75 ft
↓
↓

10/10/23
↓
↓

11:17
↓
↓

1
↓
↓

X
X
X

01
1

Tristan Schmalz 10/10/2023

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

Remarks:
Samples returned via:
 UPS FedEx Courier

Tracking # 652555121479

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)
Tristan Schmalz

Date: 10/10/2023

Time: 13:30

Received by: (Signature)
[Signature]

Trip Blank Received: Yes No
HCL/MeOH
TBR

Relinquished by: (Signature)
[Signature]

Date: 10/10/23

Time: 1500

Received by: (Signature)
[Signature]

Temp: 6.48 °C
-6.40
Bottles Received: 1

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: 10/10/23

Time: 0845

Received for lab by: (Signature)
Christopher J. Gallen

Date: 10/10/23

Hold:

Condition:
NCF OK

Caerus Oil and Gas

Sample Delivery Group: L1665072
Samples Received: 10/11/2023
Project Number:
Description:
Site: D20 696 PAD
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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20231010-NPRBG-(D20 696-N-11:37)@3 L1665072-02	6	⁴ Cn
20231010-NPRBG-(D20 696-N-11:37)@3 L1665072-03	7	⁵ Sr
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Gl: Glossary of Terms	9	⁷ Gl
Al: Accreditations & Locations	10	⁸ Al
Sc: Sample Chain of Custody	11	⁹ Sc

SAMPLE SUMMARY

20231010-NPRBG-(D20 696-N-11:37)@3 L1665072-01 Solid

Collected by Tristan Schmalz
 Collected date/time 10/10/23 11:37
 Received date/time 10/11/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 13:08	JPD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

20231010-NPRBG-(D20 696-N-11:37)@3 L1665072-02 Solid

Collected by Tristan Schmalz
 Collected date/time 10/10/23 11:37
 Received date/time 10/11/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:33	JPD	Mt. Juliet, TN

⁴Cn

⁵Sr

20231010-NPRBG-(D20 696-N-11:37)@3 L1665072-03 Solid

Collected by Tristan Schmalz
 Collected date/time 10/10/23 11:37
 Received date/time 10/11/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:36	JPD	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.93		0.100	1.00	5	10/12/2023 13:08	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.27		0.100	1.00	5	10/12/2023 14:33	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	2.42		0.100	1.00	5	10/12/2023 14:36	WG2149660

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

Method Blank (MB)

(MB) R3985448-1 10/12/23 13:02

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3985448-2 10/12/23 13:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.7	92.7	80.0-120	

4 Cn

5 Sr

L1665072-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1665072-01 10/12/23 13:08 • (MS) R3985448-5 10/12/23 13:18 • (MSD) R3985448-6 10/12/23 13:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.93	90.7	85.5	87.7	82.5	5	75.0-125			5.91	20

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCREDITATIONS & LOCATIONS

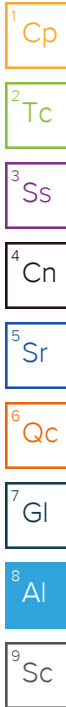
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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



Caerus Oil and Gas
 143 Diamond Avenue
 Parachute, CO 81635

Billing Information:
SAME AS LEFT

Pres
 Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



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



Report to:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description:
D20 6916 Pit Remediation

City/State Collected: **Piceance Crk, CO**
 Please Circle: PT MT CT ET

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

Client Project #

Lab Project #

Collected by (print):
Tristan Schmalz

Site/Facility ID #
D20 6916 RAD

P.O. #

Collected by (signature):
Tristan Schmalz

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

Quote #
 Date Results Needed
Standard TAT

No. of Cntrs

Sample ID

Comp/Grab

Matrix*

Depth

Date

Time

No. of Cntrs

COGCC Table 915-1

EC, pH, SAR

Arsenic, Boron

COGCC Table 910-1

Arsenic

~~20231010-NPREG-(D20 6916-N-11:37)E3~~

~~Grab~~

~~SS~~

~~3ft~~

~~10/10/2023~~

~~11:37~~

~~1~~

~~X~~

~~X~~

~~X~~

~~X~~

~~X~~

~~20231010-NPREG-(D20 6916-N-11:37)E3~~

~~↓~~

~~↓~~

~~↓~~

~~↓~~

~~↓~~

~~1~~

~~X~~

~~X~~

~~X~~

~~X~~

~~X~~

~~20231010-NPREG-(D20 6916-N-11:37)E3~~

~~↓~~

~~↓~~

~~↓~~

~~↓~~

~~↓~~

~~1~~

~~X~~

~~X~~

~~X~~

~~X~~

~~X~~

Tristan Schmalz
 10/10/2023

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

Remarks:
 Samples returned via:
 UPS ___ FedEx ___ Courier ___

Tracking # **652555721429**

Sample Receipt Checklist
 COC Seal Present/Intact: 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)
Tristan Schmalz

Date: **10/10/2023**

Time: **13:30**

Received by: (Signature)
[Signature]

Trip Blank Received: Yes No
 HCL/MeOH
 TBR

Relinquished by: (Signature)
[Signature]

Date: **10/10/23**

Time: **1500**

Received by: (Signature)
[Signature]

Temp: **CCAS** °C
610
 Bottles Received: **1**

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)
Christophe J. Salinas (19)

Date: **10/11/23**
 Time: **0845**

Hold: Condition: NCF OK

Caerus Oil and Gas

Sample Delivery Group: L1665070
Samples Received: 10/11/2023
Project Number:
Description: D20 696 Pit Remediation
Site: D20 696 PAD
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



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.

Pace Analytical National

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

TABLE OF CONTENTS

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Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
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20231010-NPRBG-(D20 696-N-11:52)@1.5 L1665070-02	6	⁴ Cn
20231010-NPRBG-(D20 696-N-11:52)@1.5 L1665070-03	7	⁵ Sr
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SAMPLE SUMMARY

20231010-NPRBG-(D20 696-N-11:52)@1.5 L1665070-01 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 11:52	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:23	JPD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

20231010-NPRBG-(D20 696-N-11:52)@1.5 L1665070-02 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 11:52	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:26	JPD	Mt. Juliet, TN

⁴Cn

⁵Sr

20231010-NPRBG-(D20 696-N-11:52)@1.5 L1665070-03 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 11:52	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:29	JPD	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	4.70		0.100	1.00	5	10/12/2023 14:23	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	4.17		0.100	1.00	5	10/12/2023 14:26	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	5.30		0.100	1.00	5	10/12/2023 14:29	WG2149660

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

Method Blank (MB)

(MB) R3985448-1 10/12/23 13:02

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3985448-2 10/12/23 13:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.7	92.7	80.0-120	

4 Cn

5 Sr

L1665072-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1665072-01 10/12/23 13:08 • (MS) R3985448-5 10/12/23 13:18 • (MSD) R3985448-6 10/12/23 13:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.93	90.7	85.5	87.7	82.5	5	75.0-125			5.91	20

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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Abbreviations and Definitions

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

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:
SAME AS LEFT

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Tasting & Innovation

Report to:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description:
D20 696 Pit Remediation

City/State Collected:
Piceance Crk, CO

Please Circle:
PT MT CT ET

Phone: (970) 640-6919

Client Project #

Lab Project #

Collected by (print):
Tristan Schmalz

Site/Facility ID #
D20 696 Pad

P.O. #

Collected by (signature):
Tristan Schmalz

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

Quote #
Standard TAT

Date Results Needed

No. of Cntrs

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	COGCC Table 915-1	EC, pH, SAR	Arsenic, Boron	COGCC Table 910-1	Arsenic
20231010-NPREG-(D20696-N-11:52)E1.5	Grab	SS	1.5ft	10/10/2023	11:52	1					X
20231010-NPREG-(D20696-N-11:52)E1.5	↓	↓	↓	↓	↓	1					X
20231010-NPREG-(D20696-N-11:52)E1.5	↓	↓	↓	↓	↓	1					X
<i>Tristan Schmalz</i> 10/10/2023											

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

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking # **65255522 1479**

pH _____ Temp _____

Flow _____ Other _____

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) <i>Tristan Schmalz</i>	Date: 10/10/2023	Time: 13:30	Received by: (Signature) <i>[Signature]</i>	Trip Blank Received: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	HCL / MeOH TBR
Relinquished by: (Signature) <i>[Signature]</i>	Date: 10/10/23	Time: 1:59	Received by: (Signature) <i>[Signature]</i>	Temp: 048 °C	Bottles Received: 1
Relinquished by: (Signature) <i>[Signature]</i>	Date: 10/11/23	Time: 0845	Received for lab by: (Signature) <i>Christopher Salin</i>	Date: 10/11/23	Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition:
NCF OK



SDG # **6166500**

F100

Acctnum:

Template:

Prelogin:

PM:

PB:

Shipped Via:

Remarks	Sample # (lab only)
	101
	1

Caerus Oil and Gas

Sample Delivery Group: L1665068
Samples Received: 10/11/2023
Project Number:
Description: D20 696 Pit Remediation
Site: D20 696 PAD
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:












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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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20231010-NPRBG-(D20 696-W-10:26)@1.5 L1665068-02	6	
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SAMPLE SUMMARY

20231010-NPRBG-(D20 696-W-10:26)@1.5 L1665068-01 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 10:26	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	4.46	10/12/23 00:26	10/12/23 14:06	JPD	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

20231010-NPRBG-(D20 696-W-10:26)@1.5 L1665068-02 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 10:26	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:09	JPD	Mt. Juliet, TN

⁴ Cn

⁵ Sr

20231010-NPRBG-(D20 696-W-10:26)@1.5 L1665068-03 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 10:26	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:12	JPD	Mt. Juliet, TN

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	9.05		0.0892	0.892	4.46	10/12/2023 14:06	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	14.0		0.100	1.00	5	10/12/2023 14:09	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	14.8		0.100	1.00	5	10/12/2023 14:12	WG2149660

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

Method Blank (MB)

(MB) R3985448-1 10/12/23 13:02

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3985448-2 10/12/23 13:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.7	92.7	80.0-120	

4 Cn

5 Sr

L1665072-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1665072-01 10/12/23 13:08 • (MS) R3985448-5 10/12/23 13:18 • (MSD) R3985448-6 10/12/23 13:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.93	90.7	85.5	87.7	82.5	5	75.0-125			5.91	20

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

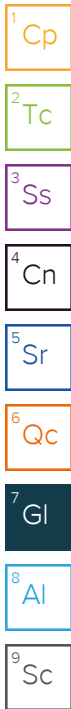
Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

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



Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:
SAME AS LEFT

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

Report to: **Blair Rollins** Email To: **brollins@caerusoilandgas.com**

Project Description: **D20 696 Pit Remediation** City/State Collected: **Piceance Crk, CO** Please Circle: PT MT CT ET

Phone: (970) 640-6919 Client Project # Lab Project #

Collected by (print): **Tristan Schmalz** Site/Facility ID # **D20 696 Pit** P.O. #

Collected by (signature): *Tristan Schmalz* Rush? (Lab MUST Be Notified) Same Day Five Day Next Day 5 Day (Rad Only) Two Day 10 Day (Rad Only) Three Day Date Results Needed **Standard TAT** No. of Cntrs

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	COGCC Table 915-1	EC, pH, SAR	Arsenic, Boron	COGCC Table 910-1	Arsenic
20231010-NPRBG-(D20 696-W-10:26)@1.5	Grid	SS	1.5ft	10/10/23	10:26	1					X
20231010-NPRBG-(D20 696-W-10:26)@1.5	↓	↓	↓	↓	↓	↓					X
20231010-NPRBG-(D20 696-W-10:26)@1.5	↓	↓	↓	↓	↓	↓					X

Tristan Schmalz
10/10/2023

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

Remarks: pH _____ Temp _____ Flow _____ Other _____

Samples returned via: UPS FedEx Courier Tracking # **6525 55721479**

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

Relinquished by: (Signature) *Tristan Schmalz* Date: 10/10/2023 Time: 13:30

Received by: (Signature) *AT* Trip Blank Received: Yes/No HCL/MeOH TBR

Relinquished by: (Signature) *AS* Date: 10/10/23 Time: 1500

Received by: (Signature) Temp: 64.8°C Bottles Received: 1

Relinquished by: (Signature) Date: 10/11/23 Time: 0845

Received for lab by: (Signature) *Christopher J. Jelline* Date: 10/11/23 Time: 0845

If preservation required by Login: Date/Time

Hold: Condition: NCF OK

Caerus Oil and Gas

Sample Delivery Group: L1665065
Samples Received: 10/11/2023
Project Number:
Description: D20 696 Pit Remediation
Site: D20 696 PAD
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:








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.

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20231010-NPRBG-(D20 696-W-10:43)@2 L1665065-02	6	
20231010-NPRBG-(D20 696-W-10:43)@2 L1665065-03	7	
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Gl: Glossary of Terms	9	
Al: Accreditations & Locations	10	
Sc: Sample Chain of Custody	11	
		

SAMPLE SUMMARY

20231010-NPRBG-(D20 696-W-10:43)@2 L1665065-01 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 10:43	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 13:56	JPD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

20231010-NPRBG-(D20 696-W-10:43)@2 L1665065-02 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 10:43	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 13:59	JPD	Mt. Juliet, TN

⁴Cn

⁵Sr

20231010-NPRBG-(D20 696-W-10:43)@2 L1665065-03 Solid				Collected by	Collected date/time	Received date/time
				Tristan Schmalz	10/10/23 10:43	10/11/23 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 14:02	JPD	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	13.4		0.100	1.00	5	10/12/2023 13:56	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	14.3		0.100	1.00	5	10/12/2023 13:59	WG2149660

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

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Arsenic	12.4		0.100	1.00	5	10/12/2023 14:02	WG2149660

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

Method Blank (MB)

(MB) R3985448-1 10/12/23 13:02

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

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS)

(LCS) R3985448-2 10/12/23 13:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.7	92.7	80.0-120	

⁴Cn

⁵Sr

L1665072-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1665072-01 10/12/23 13:08 • (MS) R3985448-5 10/12/23 13:18 • (MSD) R3985448-6 10/12/23 13:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.93	90.7	85.5	87.7	82.5	5	75.0-125			5.91	20

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

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

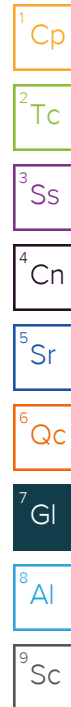
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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

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

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Caerus Oil and Gas
143 Diamond Avenue
Parachute, CO 81635

Billing Information:
SAME AS LEFT

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:
Blair Rollins

Email To:
brollins@caerusoilandgas.com

Project Description:
D20 6916 Pit Remediation

City/State Collected:
Piceance Crk, CO

Please Circle:
PT MT CT ET

Phone: (970) 640-6919

Client Project #

Lab Project #

Collected by (print):
Tristan Schmalz

Site/Facility ID #
D20 6916 Pit

P.O. #

Collected by (signature):
Tristan Schmalz

Rush? (Lab MUST Be Notified)

Same Day Five Day
Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
Three Day

Quote #
Standard TAT

Date Results Needed

No. of Cntrs

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs
20231010-NPREG-D20 6916-W-10:43)P2	Grnd	SS	2ft	10/10/2023	10:43	1
20231010-NPREG-D20 6916-W-10:43)P2	↓	↓	↓	↓	↓	↓
20231010-NPREG-D20 6916-W-10:43)P2	↓	↓	↓	↓	↓	↓

Analysis / Container / Preservative	Pres	Chk
COGCC Table 915-1		
EC, pH, SAR		
Arsenic, Boron		
COGCC Table 910-1		
Arsenic		

SDG # *L. Helesoules*
F098

Actnum:

Template:

Prelogin:

PM:

PB:

Shipped Via:

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

Remarks:

Samples returned via:
UPS FedEx Courier

Tracking # *652555721479*

pH _____ Temp _____
Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact: NP XY N

COC Signed/Accurate: N

Bottles arrive intact: N

Correct bottles used: N

Sufficient volume sent: N

If Applicable

VOA Zero Headspace: N

Preservation Correct/Checked: N

RAD Screen <0.5 mR/hr: XY N

Relinquished by: (Signature) *Tristan Schmalz* Date: 10/10/2023 Time: 13:30

Received by: (Signature) *AS* Trip Blank Received: Yes No
HCL / MeOH TBR

Relinquished by: (Signature) *AS* Date: 10/10/23 Time: 1520

Received by: (Signature) Temp: *6.60* °C Bottles Received: *1*

Relinquished by: (Signature) Date: 10/10/23 Time: 0845

Received for lab by: (Signature) *Christopher J. Gallin* Date: 10/10/23 Time: 0845

Hold:

Condition: NCF OK

Caerus Oil and Gas

Sample Delivery Group: L1665062
Samples Received: 10/11/2023
Project Number:
Description: D20 696 Pit Remediation
Site: D20 696 PAD
Report To: Jake J. / Brett M. / Blair R. / Andy V.
143 Diamond Avenue
Parachute, CO 81635

Entire Report Reviewed By:



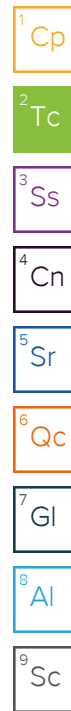
Chris Ward
Project Manager

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.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

20231010-NPRBG-(020696-W-10:57)@2 L1665062-01 Solid

Collected by Tristan Schmalz
 Collected date/time 10/10/23 10:57
 Received date/time 10/11/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 13:31	JPD	Mt. Juliet, TN

¹Cp

²Tc

³Ss

20231010-NPRBG-(020696-W-10:57)@2 L1665062-02 Solid

Collected by Tristan Schmalz
 Collected date/time 10/10/23 10:57
 Received date/time 10/11/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 13:49	JPD	Mt. Juliet, TN

⁴Cn

⁵Sr

20231010-NPRBG-(020696-W-10:57)@2 L1665062-03 Solid

Collected by Tristan Schmalz
 Collected date/time 10/10/23 10:57
 Received date/time 10/11/23 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020	WG2149660	5	10/12/23 00:26	10/12/23 13:52	JPD	Mt. Juliet, TN

⁶Qc

⁷Gl

⁸Al

⁹Sc

CASE NARRATIVE

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



Chris Ward
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.48		0.100	1.00	5	10/12/2023 13:31	WG2149660

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	7.81		0.100	1.00	5	10/12/2023 13:49	WG2149660

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Metals (ICPMS) by Method 6020

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Arsenic	9.27		0.100	1.00	5	10/12/2023 13:52	WG2149660

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3985448-1 10/12/23 13:02

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

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3985448-2 10/12/23 13:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	100	92.7	92.7	80.0-120	

4 Cn

5 Sr

L1665072-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1665072-01 10/12/23 13:08 • (MS) R3985448-5 10/12/23 13:18 • (MSD) R3985448-6 10/12/23 13:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	100	2.93	90.7	85.5	87.7	82.5	5	75.0-125			5.91	20

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

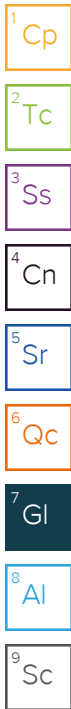
Guide to Reading and Understanding Your Laboratory Report

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

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

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
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Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
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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

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

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

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

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¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

